

# ArcGIS® 9

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**Using ArcGIS Business Analyst**



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### **CONTRIBUTING WRITERS**

Kyle Watson, April Anders, Mark Berry, Paul Tsushima, and Dennis Kaplan

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# About ArcGIS Business Analyst

# 1

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Welcome to ESRI® ArcGIS® Business Analyst. By linking information, such as demographics and sales, with specific locations, such as ZIP Codes and store locations, Business Analyst will enable you to make business decisions based on trends and patterns you've never been able to see before. Built around the set of tasks that are essential to most businesses, Business Analyst will change the way you do business by providing both the tools and data you need to perform analysis. Business Analyst works with ArcGIS Desktop to create powerful yet easy-to-use software.

This newest release of ArcGIS Business Analyst represents a major product upgrade from earlier versions. In addition to the familiar wizards for analyzing data for stores, customers, and trade areas, ArcGIS Business Analyst now integrates with ModelBuilder™, providing templates and tools to automate the market analysis process. Among the tools and features are new techniques for trade area creation, management, and comparison; new Huff sales forecasting models; and an optional segmentation module with block group-level Tapestry™ lifestyle data, Mediamark Research Inc. (MRI) consumer survey data, and the advanced Community™ Coder. The segmentation module also includes an automated report booklet creation wizard to produce presentation-quality segmentation studies.

# Introduction to ArcGIS Business Analyst features

With ArcGIS Business Analyst, you can take advantage of the following features:

- All data is available on your map at startup. It is not necessary to extract geography and other data from CD before beginning your analysis.
- Analysis accuracy has been improved using a method of block point data retrieval. When an analysis cuts across a block group, Business Analyst considers the locations of the block points inside that block group and allocates accordingly.
- A map document is provided on program startup. It can be used to immediately begin your analysis.
- You can begin work on an area of the map with your customers, stores, and various types of analysis, then create a study area if it is needed. With or without a study area, you will be able to save your work in an ArcGIS map document (.mxd file).
- Map documents are organized and selectable using the ArcCatalog™ toolbar icon. ArcCatalog presents a list of all map documents created with thumbnail views of each, if desired.
- Business Analyst supports input from all ArcGIS data sources, such as shapefiles and geodatabases.
- You can create your own datasets or customize the Business Analyst dataset to use your own data rather than using the provided standard demographic data. This could be used, for example, to add your local school district boundaries or voting districts with data you have collected that is associated with those geographies.

New ArcGIS Business Analyst features:

- ArcGIS Business Analyst includes an extensive data update. Base data includes updated demographic and consumer expenditures data from ESRI, updated streets from Tele Atlas North America (formerly GDT), updated business locations from *infoUSA*, updated major shopping centers from the Directory of Major Malls (DMM), and an updated Centrus™ street address geocoder from Group 1 Software.
- Business Analyst is completely integrated into the ArcGIS 9 Desktop framework. This integration provides a new environment for geoprocessing, modeling, and scripting including a new dockable ArcToolbox™ window with a comprehensive set of tools for all Business Analyst capabilities. The integrated ModelBuilder geoprocessing tool allows you to link geoprocessing operations together and build models interactively.
- ArcCatalog is now used extensively to organize Business Analyst data. Stores, customers, trade areas, and other Business Analyst data elements are now organized in the ArcCatalog tree.
- Business Analyst still includes the familiar ArcMap™ wizards that lead you through step-by-step procedures for creating and managing stores, customers, trade areas, and analysis. Quality and performance have been improved in a number of key areas.
- Reporting and report speed in Business Analyst have been vastly improved, and a number of new reports have been included. A custom report wizard is also included that will allow you to build and share custom reports.



- A batch framework has been added, making it easier to work with multiple sites, trade areas, and customer files. This flexible batching capability will allow you to create trade areas, reports, and analysis one at a time or batched together as a group of work.
- An optional neighborhood segmentation engine can now be added to Business Analyst. You can use this segmentation module to target customers, examine the merchandizing mix, and find optimal locations for new store sites using the Community Tapestry neighborhood segmentation system.
- A number of new trade area techniques have been added to Business Analyst. These new trade area tools will allow you to create, manage, and compare trade areas. A new sales forecasting model based on the Huff model has also been included that will allow you to evaluate new site locations.
- Routing and drive-time trade areas have been improved and are based on the new routing and service area tools from the ArcGIS Network Analyst extension. A license to the full Network Analyst extension is now included with Business Analyst.
- Additional data has been added to Business Analyst. The extension now includes Core Based Statistical Area (CBSA) and Designated Market Area (DMA) boundaries with a full complement of demographic data for each.
- The Business Analyst dataset includes a new toolbar that allows you to download satellite images and aerial photographs. The new toolbar, based on GlobeXplorer's standard imagery service, provides a collection of high-quality aerial and satellite imagery that is regularly updated and expanded. These images can be used in reports and projects that require visual details of properties, neighborhoods, and towns.

- A number of other tools and features have been added for performing site location research, customer targeting, and marketing analysis.

ArcGIS Business Analyst is an extension built for use with ArcGIS Desktop. This means it can be used with ArcView®, ArcEditor™, or ArcInfo®. The components included in the Business Analyst package are:

- ArcGIS Business Analyst extension software—Provides tools for mapping, analysis, and managing work.
- Data from industry-leading vendors—Provides nationwide demographic, business listing, and shopping center data.
- Tele Atlas Dynamap®/Transportation map data—Provides basemaps and U.S. national street network.
- Centrus geocoding technology from Group 1 Software, Inc.—Takes your customer or store addresses and locates them on a map.
- ArcGIS Network Analyst extension—Provides drive-time/drive-distance analysis and routing capability. The full license to this extension is included with Business Analyst.

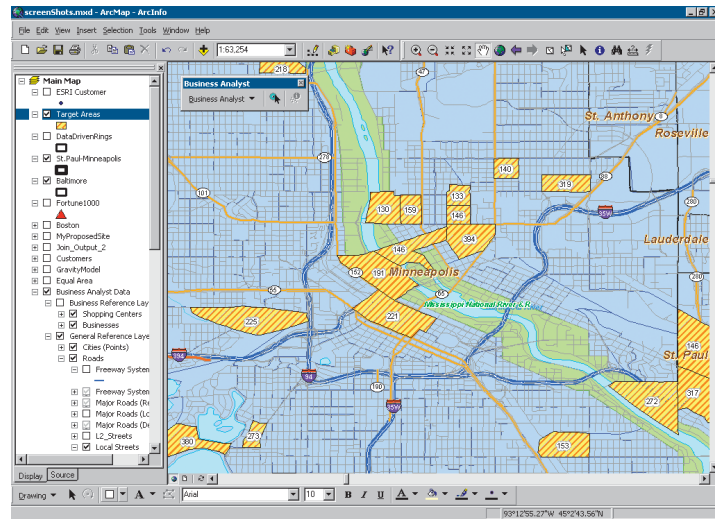
ArcView, or either of the other alternatives of ArcGIS Desktop you choose to use with Business Analyst, contains Crystal Reports™ from Business Objects. This is the industry-leading tool to present your analysis results in quality reports. Business Analyst makes using Crystal Reports easier through a series of integrated wizards.

# How Business Analyst helps you make better business decisions

Geographic analysis links locations with the information associated with them and presents the results in the form of a map. Often, this provides such a new perspective that trends and patterns, previously unseen, become apparent.

Suppose you want to open a women's clothing store and are looking at real estate options. There are several properties available—which is the best location for your business?

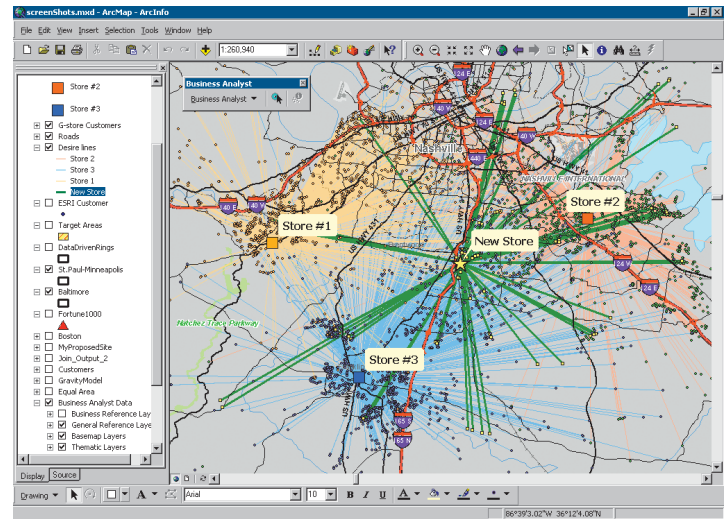
Using Business Analyst, you can look for block groups with a high percentage of women who live in households with an average income greater than \$25,000 and are credit card users. You decide to focus your real estate search on properties near the east end of town because it has more block groups that contain the type of customer for which you're looking.



*Block groups with high potential for a women's clothing store*

Or suppose you own a chain of four grocery stores, three located in small towns and a new location near a busy highway. The sales from your new location are not as high as you expected, and you want to investigate why.

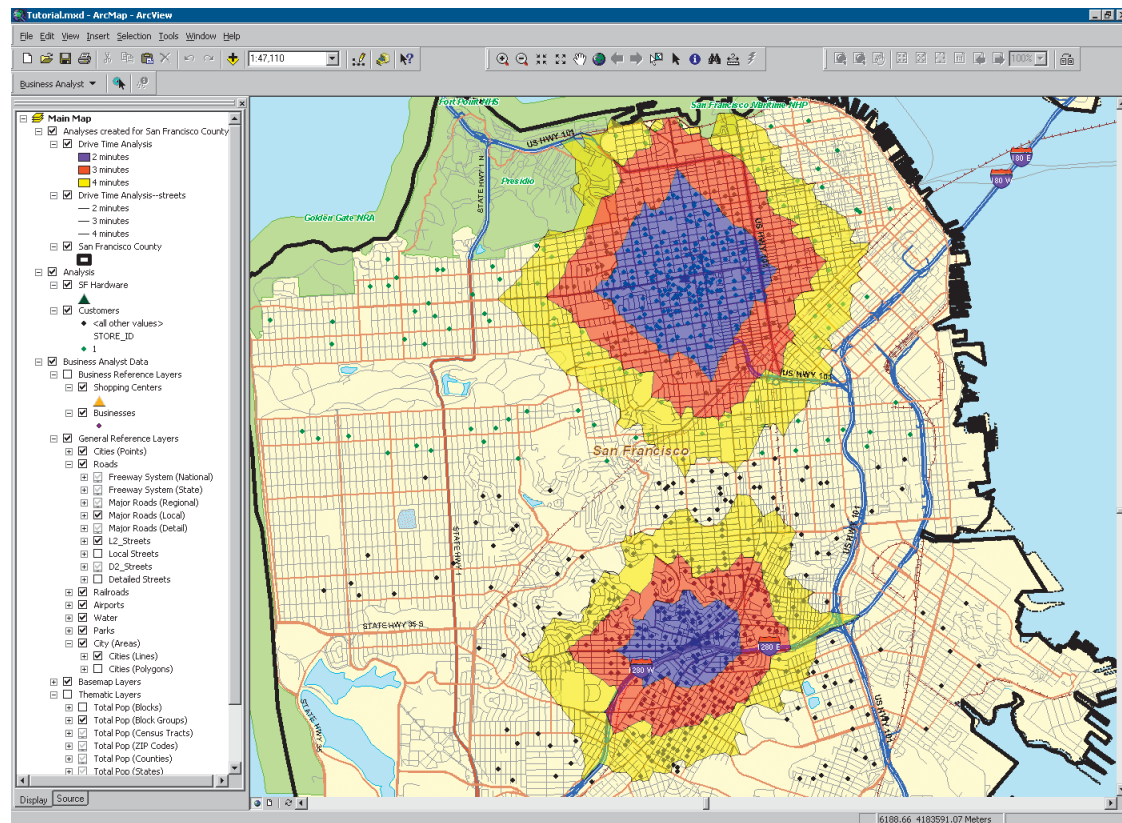
After using Business Analyst to show each store's area of influence, you are surprised to see that the customers of your new store live nowhere near the store—many even live near your other stores. You conclude that many customers of the new store are commuters who shop there because it's located conveniently close to the highway. By advertising on billboards along the highway, you see a significant improvement in sales at your new store.



*Desire lines showing each grocery store's area of influence*

Or suppose your chain of pizza stores is considering offering a money-back guarantee that deliveries will arrive in 30 minutes or less. It takes 20 minutes to prepare a pizza and between two and six minutes to get the delivery vehicle under way, so the customer must live within four minutes of one of your stores.

Using Business Analyst, you create two-, three-, and four-minute drive-time rings around each of your stores. By looking at which ZIP Codes fall inside the drive-time rings, you can determine the delivery service area.

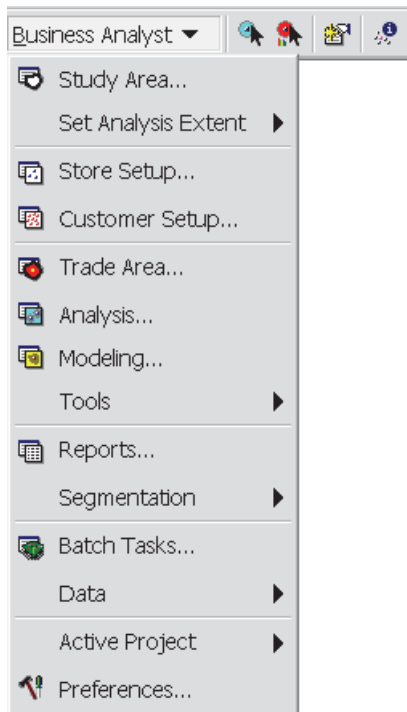


*Drive-time rings showing two-, three-, and four-minute rings around each pizza restaurant*

# Overview of the Business Analyst menu

Business Analyst takes the power of one of the most popular desktop geographic information system (GIS) software products, ArcGIS, and makes it even easier to use. The way to accomplish every task can be found in one place—the Business Analyst menu.

Each task is performed with the help of a wizard. The layout of the Business Analyst Main menu is shown below.



Previous Business Analyst users will see that there is a consolidation of groupings in the menu. This was done because the functionality in the product has greatly increased and it was necessary to better organize the menu to make the functions easy to find. A cross-reference is included in this section to help previous Business Analyst users locate commands on the new menu that are not immediately visible.

Some wizards assist you with basic tasks, such as creating a study area or adding your customers and stores. Other wizards guide you through related tasks, such as creating a trade area, performing analysis, creating a report, or changing the way your map looks. You can also adjust various preferences by clicking Preferences.

Each Business Analyst wizard consists of a series of panels that guide you through the task you want to complete. Instead of learning how to ask the software to do the things you want, you can step through a wizard for the task you want to accomplish.

The next chapter will walk you through some of the functions you can perform from the Business Analyst menu and will also show you how to use the Site Prospecting tool, located to the right of the Business Analyst toolbar. The following chapters cover how to perform other tasks in Business Analyst, such as creating study areas, performing analysis, and setting up stores and customers.




## Business Analyst Menu Crosswalk—from previous ArcGIS versions to this version

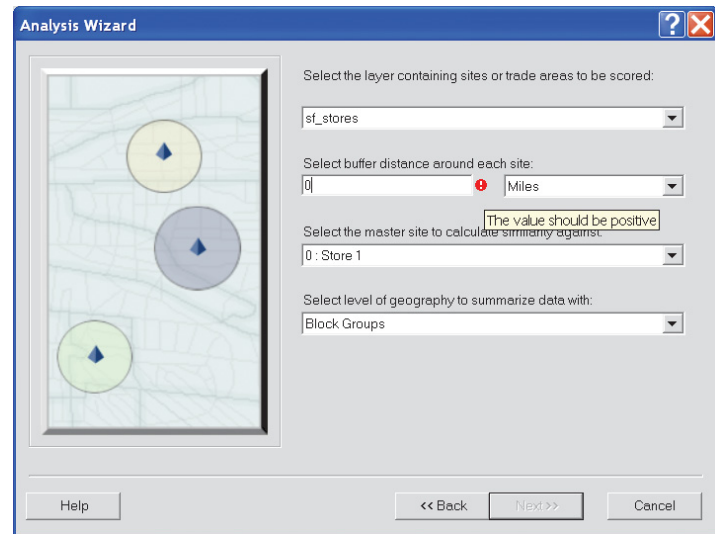
Some items previously shown on the Business Analyst main drop-down menu have been grouped with new functionality to simplify organization of the menu. To assist you in locating these items, the list below includes each of the items on the previous Business Analyst drop-down menu and where they appear on the new menu.

- Add Business Listings: appears under Data.
- Add Business Data From Internet: Click the ArcMap Add Data button and choose GIS Servers to access the server where your data is located.
- Create Study Area: appears on the Business Analyst main menu.
- Set Analysis Extent: appears on the Business Analyst main menu.
- Customer Setup: appears on the Business Analyst main menu.
- Store Setup: appears on the Business Analyst main menu.
- Assign Customers to Stores:
  - If you have a store assignment in your customer database, you make this selection during customer setup.
  - If a store is not assigned in your customer database, this function appears during creation of a trade area—customer data required—customer derived areas.
- Analysis Layer Setup: appears under Data.
- Analysis—Customer Market Analysis:
  - Simple or Complex: appears under Trade Area—Customer Data Required—Customer Derived Areas. Choose Simple, Amoeba, Detailed (previously Complex), or Detailed With Smoothing.
  - Desire Lines: appears under Analysis.
  - Market Penetration: appears under Trade Area—Customer Data Required.
  - New Store: appears under Analysis as Mean Store Center.
- Analysis—Store Market Analysis: all functions under this section now appear under Trade Area—No Customer Data Required.
- Analysis—Store Prospecting: appears under Trade Area.
- Spatial Overlay, Find Similar, Site Prospecting, Find Route, Thematic Mapping: appear under Tools.
- Reports: appears on the Business Analyst main menu.
- Preferences: appears on the Business Analyst main menu.

Here are a couple of general tips that are important to your stress-free use of Business Analyst.

**Tip 1:** ArcGIS occasionally will display a red warning symbol  on the Business Analyst dialog box. This indicates that a change in your dialog box selections must be made to continue. If you place your mouse pointer over the red symbol, a message will appear instructing you on what should be changed.

**Tip 2:** Many Business Analyst dialog boxes have drop-down arrow menus that give you access to long lists of the field variables contained in a selected layer. To simplify your navigating these long lists, Business Analyst presents the variables grouped into categories in an expandable tree structure. You can expand or contract any tree of variables by holding the <Ctrl> key and clicking any of the '+' or '-' symbols in the tree. Doing this will expand or compress all branches of the tree.



*Tip 1: Example of warning message*

# A short introduction to ArcGIS

If you've never used ArcGIS before, there are a few basic terms that will help orient you to working with a GIS application.

ArcGIS has two primary components, ArcMap and ArcCatalog. During installation, the ArcGIS Business Analyst extension is added to ArcMap. To do your Business Analyst work, you launch ArcMap, choose a map, and use the Business Analyst drop-down list of wizards to guide you through your work. ArcCatalog will show up as an icon on the ArcMap toolbar.

It can be selected at any time to locate map lists with thumbnail maps for each of the saved map documents and map templates (.mxt) on your computer.

## Features

In a GIS, every element in a map except text is represented as a geographic object—a point, line, or area (polygon). These geographic objects are called *features*. Area features are used to represent entities such as countries, states, counties, and so on. Line features represent the things normally drawn as lines on a map, mainly roads and rivers. Point features represent specific locations. These may be cities, houses, business locations, customers and stores, or other locations. Normally, a set of features of the same type is stored together in a single file.

For instance, world cities are stored together in a single layer, and U.S. lakes are stored together in another file.

When such a file is brought into ArcGIS, it's called a *layer*. A layer was known as a *theme* in ArcView GIS 3.x.

## Layers and maps

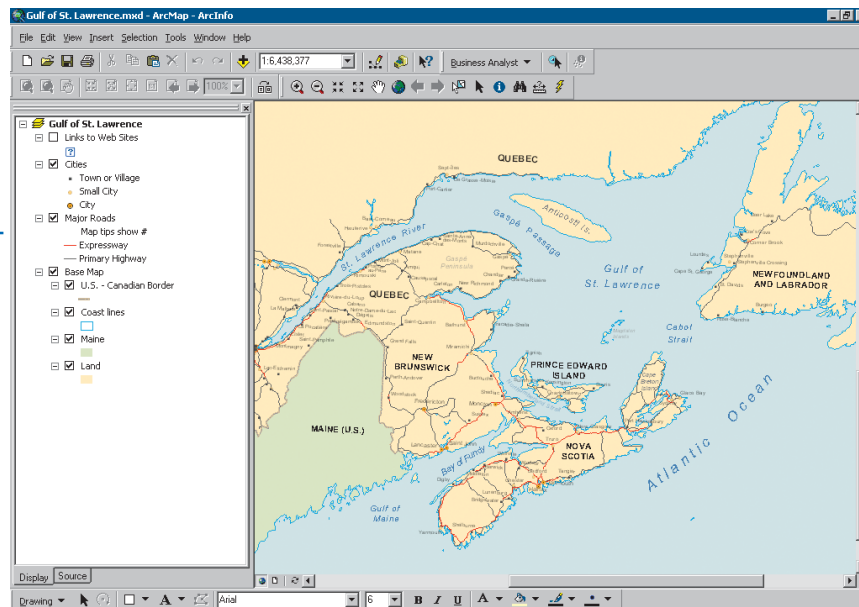
A *map* is an interactive area that allows you to display, explore, query, and analyze geographic data in ArcGIS. A map is made of layers of geographic information for a particular area or place.

All layers in a map are listed in the map's table of contents. The table of contents lists all the data frames and layers on the map and shows what features the symbols in each layer represent.

Each layer in a map is drawn independently. Layers draw on top of one another according to their order in the map's table of contents. For example, if a layer of cities is above a layer of

counties in the table of contents, the cities will appear on the map with the counties as a background (as you would want). If the Counties layer were above the Cities layer in the table of contents, the counties would draw on top of the cities in the map and obscure them. Another option available to prevent this obscuring of cities is to make the Counties layer transparent. You can do this by editing the layer properties to make it 50 percent transparent. This would allow you to see through the Counties layer to view the City points. Related layers can be grouped under a group layer.

Layers in a map's  
table of contents





A *group layer* is made up of several layers that appear and act like a single layer in the table of contents in ArcMap.

## Changing the map appearance with the table of contents

When designing the appearance of the Business Analyst map data, every effort was made to have the viewable map layers meet the needs of the vast majority of users. Business Analyst has the flexibility to allow you to turn on and turn off layers by checking or unchecking them in the table of contents. To maintain the flexibility in Business Analyst use, there are always two or more geographic layers turned on at any zoom level. The layer that appears above another layer in the table of contents will be the layer you see on the map. If you want to see the layer that appears lower in the table of contents, simply uncheck the geography layers on top of it. The table of contents depicts drawing order on the map from bottom to top. Unchecking visible geography layers that you don't need can improve the map's drawing performance.

The names of some geography layers may be unavailable in the table of contents. Even if the layer is checked on, it may appear unavailable, meaning that you will have to zoom in to make it visible. It is possible to control the zoom level at which every layer becomes visible and invisible; however, this should only be done if you are an advanced user. To do this, double-click the layer to show the Layer Properties dialog box. Click the General tab, and in the area titled Scale Range, you can choose to Show the layer at all scales or to define the zoom range scale when the layer is visible. The higher number value is zoomed farther out. A layer is visible at the continental U.S. level at a value of 25,000,000 (1:25,000,000 scale). A layer is visible at full zoom in when the value is set to 0. In the two text boxes, you will enter a numeric value to not show the layer when zoomed out beyond some value or when zoomed in beyond some smaller value. This will create a

viewing range for the layer. In most cases, though, it's best to control what layer is visible by checking or unchecking it in the table of contents.

## Attributes and the power of a GIS

The information that ArcGIS stores about features is referred to as *attribute* information, or *attributes*. The attributes of a feature that represent a customer, for example, might include a name, an address, the number of visits per month, and the amount of sales per month. The attributes of a feature that represent a shopping mall, for example, might include the name of the mall, its type, size, and the number of stores.

ArcGIS formats attributes in rows and columns and stores them as tables. Each column stores a different attribute, and each row relates to a single feature. These attributes are linked to the features on the map. This means you can access all the information about a feature by simply clicking it using the Identify tool on the Tools toolbar.

The link between features and their attributes is the basic principle behind how a GIS, such as ArcGIS, works and is the source of its power. Once the map features and attributes are linked, you can access the attributes for any feature on the map or locate any feature from its attributes in a table.

Layers in the table of contents can be organized into *data frames*. A data frame groups the layers that you want to display together in a separate frame. Normally, you will do your work within a single data frame and save the results of your work as a map document (.mxd file). You can then manage your work using your collection of saved .mxd files.

When a map has more than one data frame, one of them is the active data frame. The *active data frame* is the one with which you're currently working. For example, when you add a new layer

to a map, it is added to the active data frame. You can always tell which data frame is active because it is highlighted on the map and its name is shown in bold text in the table of contents.

For more information about ArcGIS, see *Using ArcMap* and *Using ArcCatalog*.

## ArcGIS versus ArcView GIS 3.x terminology

The terminology presented for ArcGIS Business Analyst serves a similar purpose to that used in ArcView GIS 3.x. In ArcView GIS 3.x Business Analyst, you opened or created a view containing themes for each of your layers of geography, businesses, customers, stores, and so on. A project was then used to store the view, themes, and layouts that were used for a particular application. What was a view is now a map. What was a theme is now simply a layer. What was a project continues to be a project. If you prefer, you can save each of your projects as a new map document (.mxd). Alternatively, you can create new projects within the same map document. This is provided so you have a choice in how you organize your work. More information about using projects can be found in the appendix to this user guide.

In ArcGIS Business Analyst, you will work with a map document that will already contain the map data that ships with the product (geography, demographics, businesses, shopping centers, and so on). Layers are organized in a table of contents on the left side of your screen and show up graphically on the map.

Study areas were previously required to define an area for data extraction in Business Analyst. Now you have the option of simply zooming to your area of interest and beginning work or defining a study area boundary for your analysis. If you define one or more study areas on your map document, there is a control in Business Analyst to move and zoom between them by activating the study area of choice using Set Analysis Extent on the main menu. Most users will prefer to save each of their study areas as a separate map document. Map documents are organized and selectable using the toolbar icon for the ArcCatalog tool. As mentioned above, ArcCatalog presents a list of all map documents created with thumbnail views of each, if desired. Double-clicking the Map Document thumbnail or name will launch it in a new session of ArcMap. This overview will help you to understand the basic layout and organization of work as you begin the exercises in the quick-start tutorial.

### Terminology changes

<b>ArcView GIS 3.x</b>	<b>ArcGIS</b>
Theme	Layer
View	Map
Project	Project
.apr extension	.mxd extension

# Simple versus detailed map documents

Business Analyst users have a variety of uses for the Business Analyst product, some requiring simple background maps and others requiring more map detail. Two different Business Analyst map documents can be used to provide a starting point for your work. Briefly, here are the differences in the two.

## **Business Analyst.mxd**

- The simpler of the two; a basic MXD for analysis with simpler cartography.
- State layer with demographic is turned on by default; any other geography that is needed can be checked on.
- Interstates/Major roads are visible, detailed streets are turned off.
- Business reference layers—shopping centers and businesses—are available but are unchecked by default.
- Canadian cartography is turned off.

## **BA\_detailed.mxd**

- A more detailed MXD for the user interested in more detailed cartographic map presentation.
- Detailed street network is turned on.
- Modeled on the detailed MXD found in Business Analyst 8.3c and 9.
- Many more basemap layers have been added and turned on.
- Canadian cartography is turned on.

# Getting additional help for Business Analyst

## What to read next

A good place to begin learning about Business Analyst is Chapter 2, ‘Tutorial’. This allows you to jump right in and start using the software. You’ll see how Business Analyst solves a real-life business problem. The tutorial is complete with sample data, so you can follow along step-by-step using your computer.

## Getting help using Business Analyst

### ArcGIS Desktop Help

ArcGIS Desktop Help is available for Business Analyst by pressing F1 or click the Help menu, then click Extensions, then click Business Analyst.

### Context Sensitive Help

Context sensitive help shows additional information for buttons, tools, and menu choices. This can be accessed in Business Analyst by clicking the question mark at the top of any wizard then pointing to the area you are looking for more info. A help dialog box will appear.

In ArcGIS you can also get help about a button, tool, or menu choice by clicking the What’s This? Button, then click the button, tool, or menu choice you want to get help about.

### Geoprocessing Tools Help

Detailed help for Business Analyst including diagrams, programming syntaxes, and usage tips is found in the geoprocessing tools environment. To access this press F1 or click the Help menu, then click Geoprocessing tool reference, then click the Business Analyst toolbox.

## Getting help online

To browse the contents of ArcGIS Help Online, click the Help menu, click ArcGIS Desktop Help Online. On this page you can access the help by clicking the Extensions dropdown, then click Business Analyst, or you can click the Business Analyst link under ArcGIS Extensions.

Visit the online ESRI Knowledge Base for access to Business Analyst related product documentation, white papers, and system requirements at <http://support.esri.com/knowledgebase>.

Visit the online ESRI User Forums to share ideas and findings with other users at <http://support.esri.com/forums>.

## Contacting ESRI

If you need to contact ESRI for technical support, refer to ‘Contacting Technical Support’ in the ‘Getting more help’ section of the ArcGIS Desktop Help system or go to <http://support.esri.com>.

In the United States, you can contact ESRI Technical Support from 6:00 a.m. to 5:00 p.m. (Pacific time), Monday through Friday by dialing 888-377-4757. Please have your customer number ready.

You can also visit ESRI on the Web at [www.esri.com/arcgis](http://www.esri.com/arcgis) for more information on Business Analyst and ArcGIS Desktop.

## ESRI education solutions

ESRI provides educational opportunities related to geographic information science, GIS applications, and technology. You can choose among instructor-led courses, Web-based courses, and self-study workbooks to find education solutions that fit your learning style. For more information, go to [www.esri.com/education](http://www.esri.com/education).



# Tutorial

# 2

## IN THIS CHAPTER

- **Exercise 1: Selecting a geographic area and performing site prospecting**
- **Exercise 2: Locating your stores**
- **Exercise 3: Locating your customers**
- **Exercise 4: Determining trade areas around your stores**
- **Exercise 5: Removing trade area overlap**
- **Exercise 6: Determining market penetration**
- **Exercise 7: Identifying your competitors**

Welcome to the ArcGIS Business Analyst tutorial. This chapter takes you through the process of analyzing your data—from creating a study area and adding your customers and stores to actually performing analysis. Once you install ArcGIS Business Analyst, you will find sample data for this tutorial at `\arcgis\Business Analyst\Datasets\Tutorial\*.dbf`. Depending on the data option you've purchased, the data characteristics and results shown in the exercises will vary.

In this tutorial, you're the owner of S & F Hardware, a business with two locations in the San Francisco area. Business has been good lately, and you're thinking about opening one more store. ArcGIS Business Analyst can help you:

- Locate your customers.
- Locate your stores.
- Determine the trade areas around your stores.
- Locate your best customers.
- Identify your competitors.

You've scheduled a meeting with your investors to talk about your ideas for expansion. Here's a chance to use ArcGIS Business Analyst as part of your business solution.



## Exercise 1: Selecting a geographic area and performing site prospecting

The first task in any analysis is to select your geographic area of interest. Previous versions of Business Analyst required creation of a study area and extraction of data for that area to begin work. This is no longer a requirement in ArcGIS Business Analyst. All data provided with the product is already added to your map document and is ready for use when you launch the program.

You have the option of simply zooming to your area of interest and beginning work or creating a study area boundary. One advantage to the study area approach is that it will show a visible boundary on the map for the extent of your analysis and allow you to restrict analysis to data found in that boundary. If a study area boundary is not present, your analysis boundary is limited to the extent of the current map view.

Because your stores are in the general San Francisco area, you will create a study area for the entire county of San Francisco in this exercise. After creating the study area, you will perform a quick, simple, three-ring site prospecting analysis.

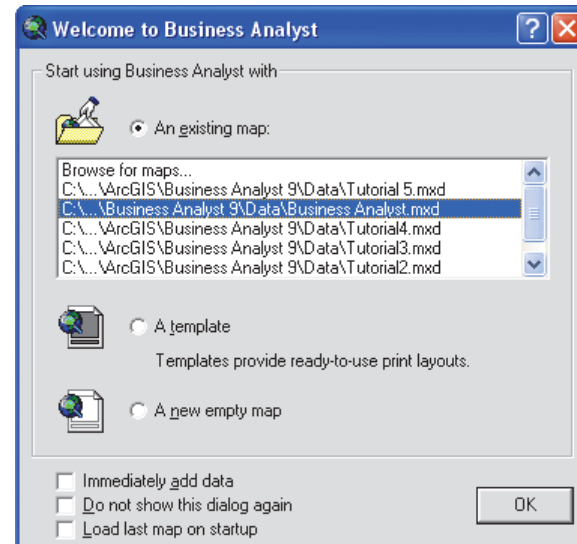
### Getting started

1. Open ArcMap, click Start, point to Programs, point to ArcGIS, then click ArcMap.
2. ArcMap launches and the Business Analyst dialog box appears. This dialog box gives you the option to turn off the Update Spatial Reference option. To do this, check the Turn off the Business Analyst Extension box and click OK.

To leave the extension turned on, click OK.

When turned on, this option automatically adjusts the coordinate system of the data frame to a custom Business Analyst projection whenever the map extent changes. If you want to set and maintain a fixed coordinate system, turn off the Business Analyst extension.

3. The Welcome to Business Analyst dialog box appears. Select which map format you want to start using Business Analyst with: An existing map, a template, or a new empty map.

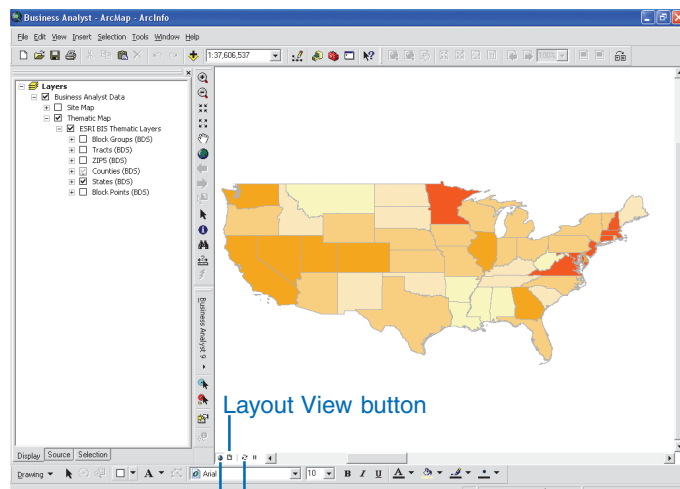




4. The Business Analyst Quick Start Tutorial launches. Review this tutorial to become familiar with the different functions of Business Analyst. When you are finished, click Close.

The Business Analyst dialog box mentioned in step 2 appears again. Click OK to close it.

Now, you are ready to begin working with the map. You can work in either data or layout view and toggle between them using the Data View and Layout View buttons located at the lower left of your map. Data view enlarges your available map views.

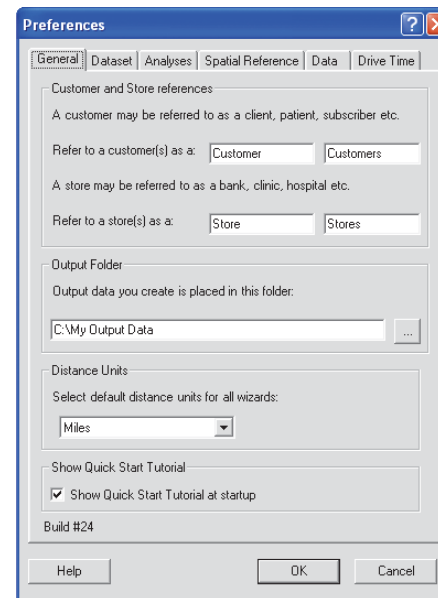


Data View  
button

The Refresh button can be used any time you want to refresh the drawing of your map. If you click the map while it is drawing, it will stop the draw process.

5. Click the File menu and click Save As to save your map document under a new name. Navigate to the Data folder and save the map document as Tutorial.mxd.

The default location is C:\My Output Data, but you can change the location by clicking the Business Analyst toolbar and selecting Preferences. The Preferences dialog box opens. Click the General tab and change the location under the Output Folder section.



## The Business Analyst toolbar

The Business Analyst toolbar is open by default. You can turn it on or off at any time by clicking the View menu, pointing to Toolbars, and clicking Business Analyst. To customize the toolbar, click its left edge and drag it into the map area. Then, click the Tools menu, click Customize, and

click the Commands tab. Click the category and command you want to add and drag the command onto the Business Analyst toolbar.

Repeat these steps until you have all the commands you want, then close the Customize dialog box and dock the Business Analyst toolbar.

## Creating a study area

Business Analyst helps you create new study areas and view and manage existing study areas with an easy-to-follow wizard. The wizard also provides online Help for you to reference when you have questions or need more information. To open the online Help, click the Help button located on the bottom left of the wizard.

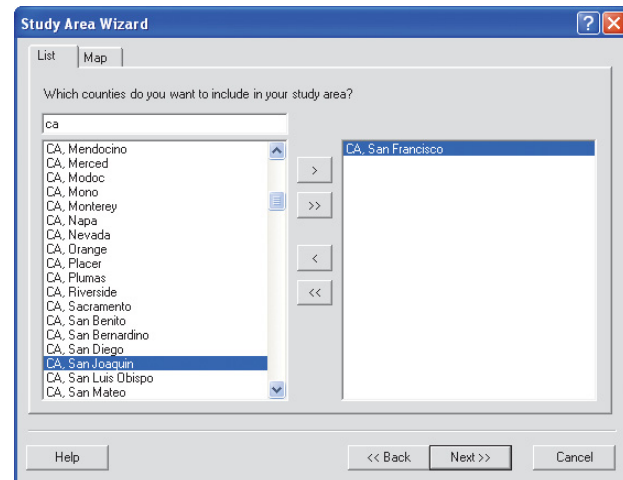
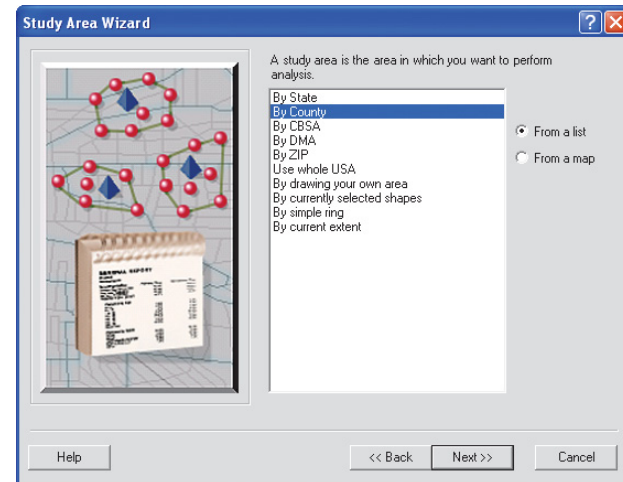
In this exercise, you will create a new study area.

To create a new study area:

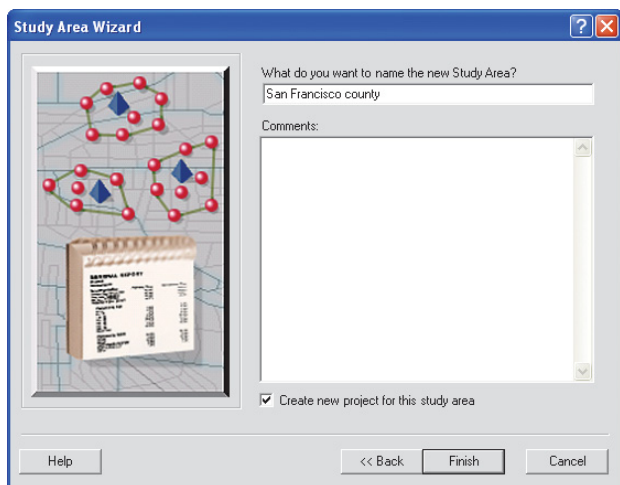
1. Click the Business Analyst drop-down menu and click Study Area. The Study Area wizard appears. Click Create a New Study Area, then click Next.
2. Select the area you want to perform the analysis. Click By County from the list provided and click From a list, then click Next.

Note: Click From a map to select an area by clicking on a map instead of selecting from a list.

3. Select which counties you want to include in your study area. In the box on the left, scroll down the list and select CA, San Francisco (or type the name in the text box provided). Click the single right arrow to move it to the right column and click Next.



4. Name your study area. Type “San Francisco county” in the text box and ensure that the Create new project for this study area check box is checked. Click Finish.



Your study area layer is created, added to the table of contents, and shown on the map. Your study area is outlined on the map with a thick, black line.


Note: An Analysis group layer is created, which will contain any customer or store layer created or any analysis performed while the study area is the active analysis extent.

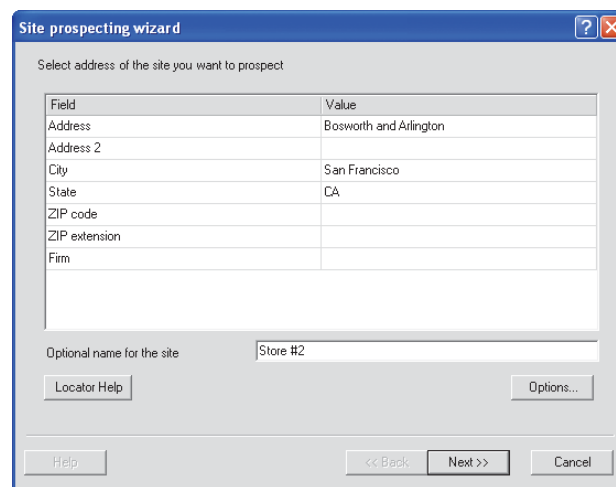
Consider the following scenario:

Before you begin analysis of your customers and stores, you want to create a simple three-ring report of the area around your best store location. Your best store is located at the street intersection of Bosworth and Arlington in San Francisco, California. You also want to see a demographic report of the area 0.5, 1.0, and 1.5 miles from that location.

Business Analyst has a Site Prospecting tool to do simple ring studies and drive-time analyses around a single location.

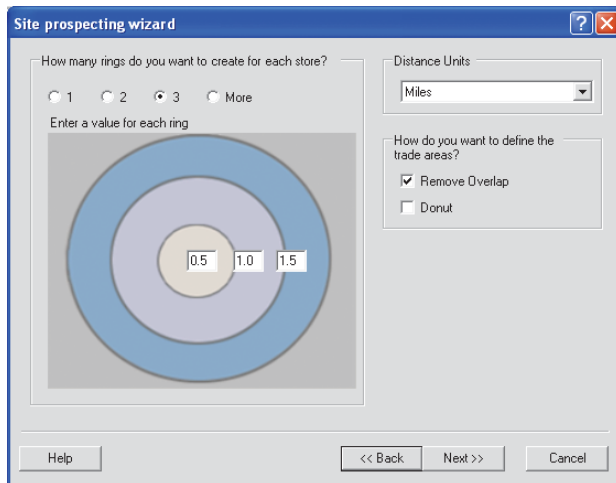
### Using the Site Prospecting tool

1. Click the Site Prospecting tool  on the Business Analyst toolbar, move the mouse pointer over your map, and right-click. Click Find point by address from the menu, and the Site prospecting wizard appears.
2. Type the address as shown below and type “Store #2” in the Optional name for the site text box. Click Next to continue.

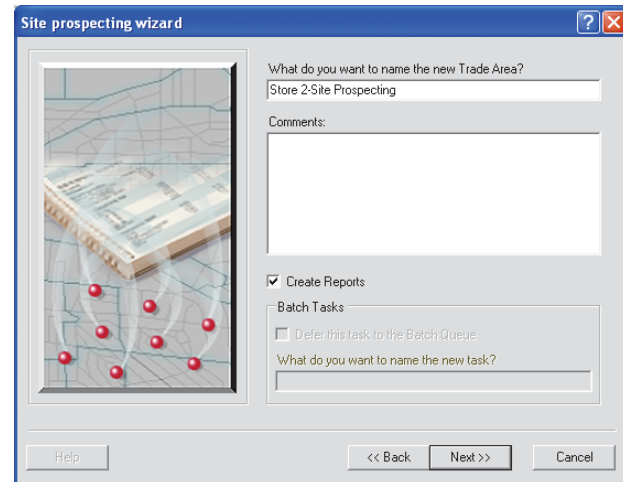


If you’re using the Centrus geocoder that comes with Business Analyst, you can type a street intersection on the first Address line in the format “Bosworth and Arlington”, “Bosworth & Arlington”, or “Bosworth + Arlington”. The Options button allows you to change geocoding preferences.

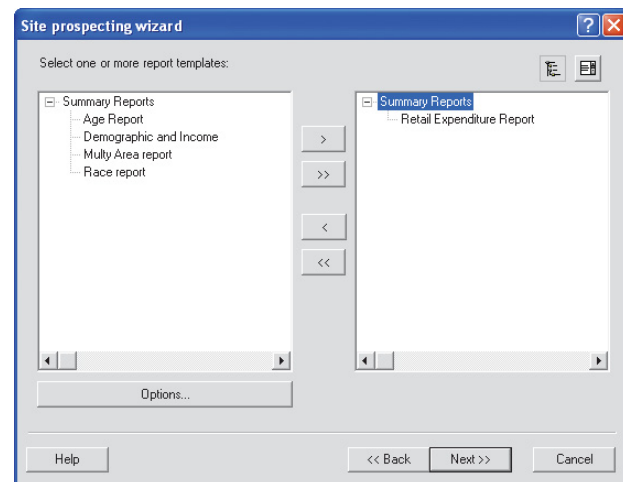
- Choose how you want to define the prospecting area around your site. You have the option to select Simple Ring, Drive Time, or Threshold Ring to define your prospecting area. Click Simple Ring and click Next.
- Click 3 for the number of rings you want to create for each store, and three text boxes appear. Type “0.5”, “1.0”, and “1.5” in the text boxes. For the Distance Units, select Miles from the pull-down menu, and to define the trade areas, check Remove Overlap and click Next.



- Type “Store 2-Site Prospecting” in the text box, check Create Reports, then click Next.

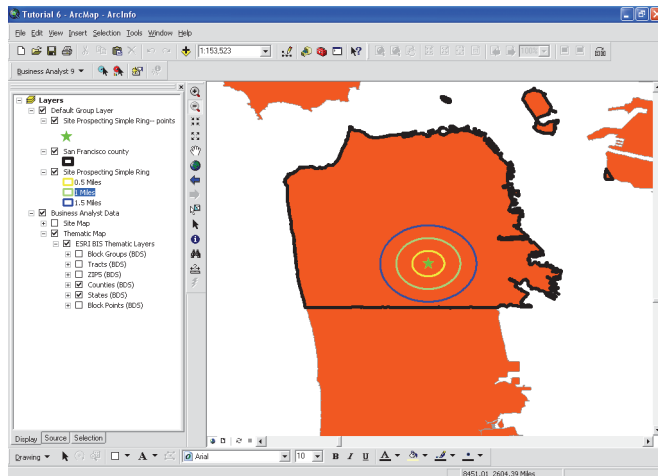


- Select one or more report templates. In the box on the left, click the report template you want to use, then click the single right arrow to move it to the right column. When you are finished adding report templates, click Next.



7. Select the output options for your reports. For this exercise, check the View reports on screen check box and click Finish. Type “Store 2-Site Prospecting” as the report name, then click Finish.

Three radius rings will appear on your map around the Store #2 location, and a report will appear ready for printing.



Before you continue to Exercise 2, resave your work to the Tutorial.mxd file. Close the report, click File, and click Save in ArcMap. Continue to Exercise 2 to locate your stores.

## Exercise 2: Locating your stores

In this exercise, you'll add your stores to the study area. The information you provide on this wizard is used to geocode your stores. ArcGIS Business Analyst takes the address and ZIP Code of each of your stores and matches them with the proper location on the map, then places them as points on your study area.

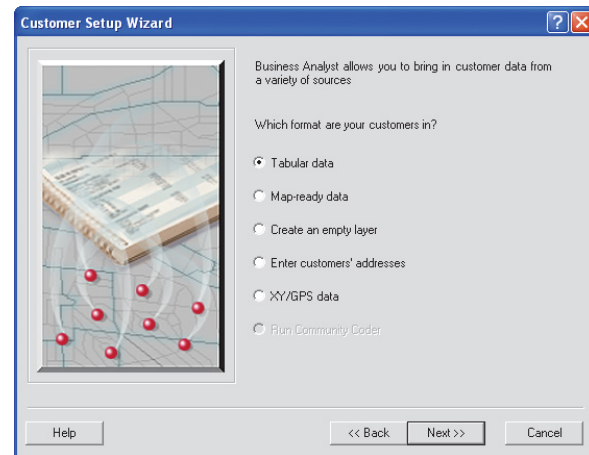
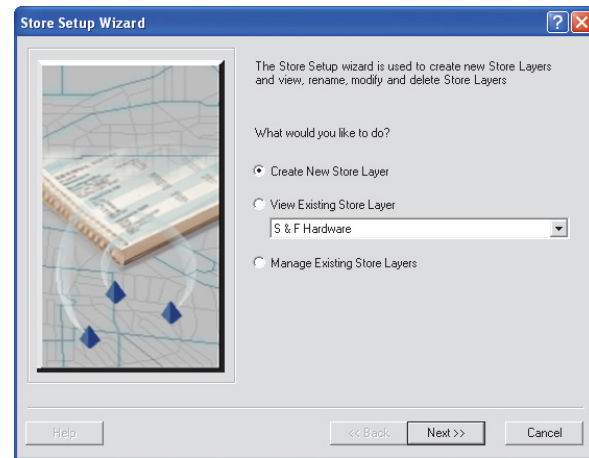
Note: The tabular data file of your stores has been placed in the Business Analyst Tutorial folder with the rest of the tutorial data.

### Adding stores to your study area

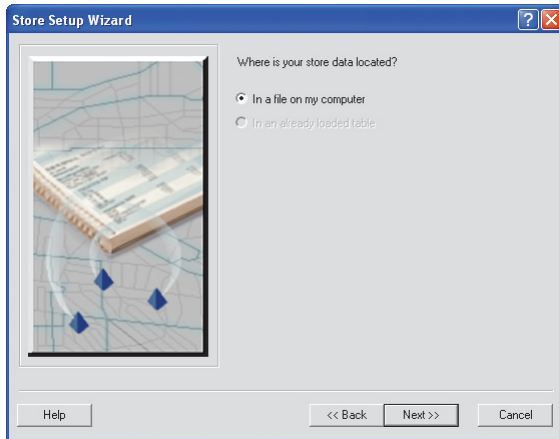
1. If you've exited ArcMap, click Start, point to Programs, point to ArcGIS, then click ArcMap. The Business Analyst extension dialog box opens. Click OK to close it, and the Welcome to Business Analyst dialog box opens. Click An existing map, click the Tutorial.mxd file, and click OK.

The Business Analyst Quick Start Tutorial opens; click the Close button if you've already reviewed the tutorial. The Business Analyst extension dialog box opens again; click OK to close it.

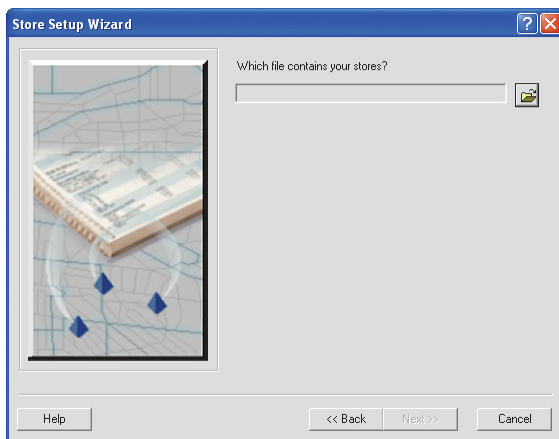
2. Click the Business Analyst drop-down menu and click Store Setup to launch the Store Setup Wizard.
3. Click Create New Store Layer on the Store Setup Wizard, then click Next.



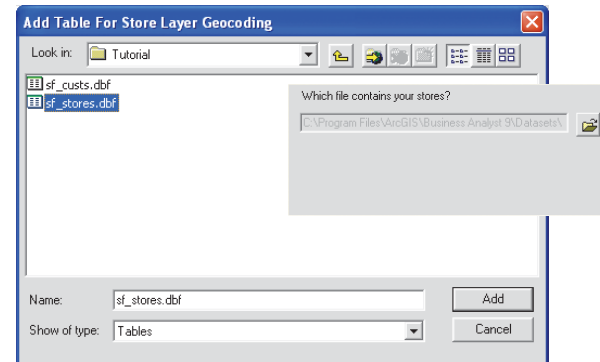
- Click Tabular data, then click Next.



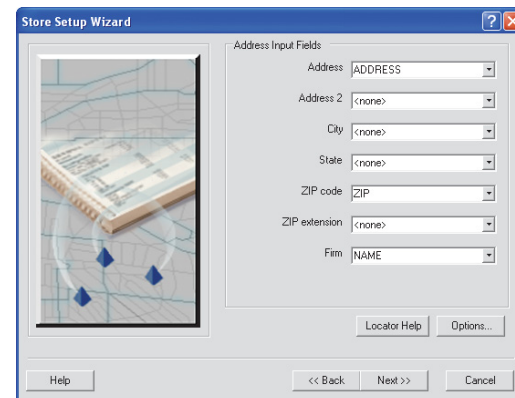
- Click In a file on my computer and click Next.
- Click the folder icon to navigate to the drive where ArcGIS was installed, then navigate to the Business Analyst folder at arcgis\Business Analyst\Datasets\Tutorial.



- Click sf\_stores.dbf and click Add. The file appears in the text box in the wizard. Click Next to continue.



- Complete the Address Input Fields. In the Address field, click the pull-down menu and click ADDRESS. In the ZIP code field, click the pull-down menu and select ZIP. Click Next to continue.

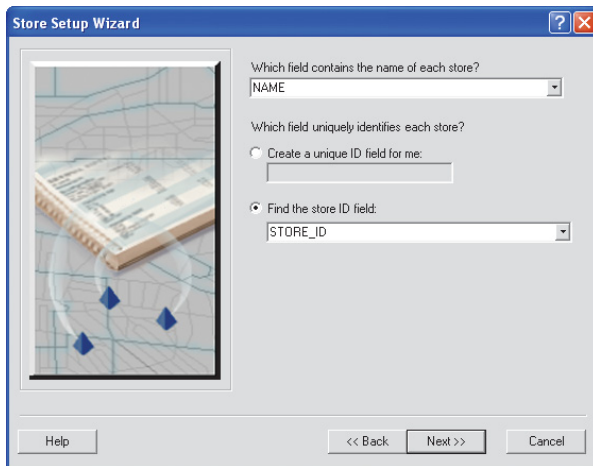


If you're using the Centrus geocoder that comes with Business Analyst, you can change your geocoding



preferences, including what fields from the geocoder you want joined to your database, by clicking the Options button and making your selections.

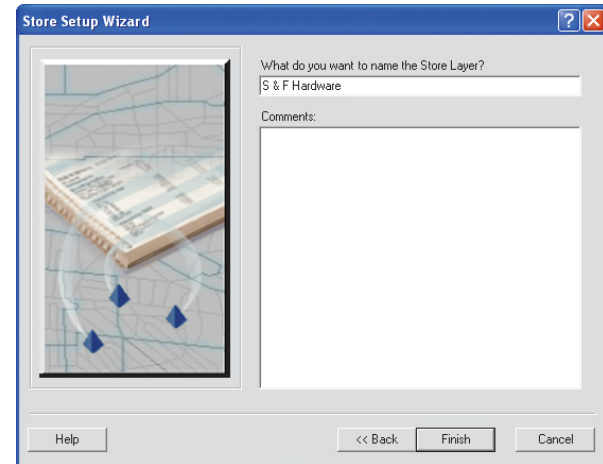
9. Select the field that contains the name of each of your stores. Click the drop-down menu and click NAME. Select the field in the store data that uniquely identifies each of your stores. To do this, click Find the store ID field, click the drop-down menu, and click STORE\_ID. Click Next to continue.



If you do not have a unique ID for each record in your database, click Create a unique ID field for me and type a name in the text box to create it. You won't use this option for this exercise because you have unique store IDs in the store database.

10. Type "S & F Hardware" in the text box.
11. Type any comments in the area provided.
12. Click Finish to begin geocoding the store addresses.

13. The Centrus Geocoding Process dialog box appears. Click Batch to complete the geocoding and Finish to exit the dialog box. Batching allows you to locate all records at once. A text report will automatically appear showing statistics and results of the geocoding process. Close the dialog box.



Your two stores are now visible in your study area. You will add customers to your study area in Exercise 3.

You can change the shape, size, or color at any time. Click the store symbol in the table of contents, and the Symbol Selector dialog box opens. Select the symbol, color, and size you want, then click OK.

You can remove store layers from the map. To remove a store layer, right-click the store layer and click Remove. Alternatively, you can use the Store Setup Wizard to delete them. If you only remove a store layer from the table of contents, it will no longer appear on the map, but it can be reopened or used in another map document at any time.

However, if you delete it through the Store Setup Wizard, you cannot reuse it; the layer must be set up again. Deleting the layer in Business Analyst won't remove your original file from your computer.

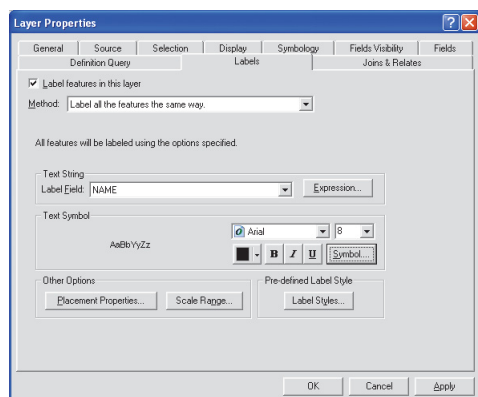
## Labeling your stores

Next, you'll label your stores for easy reference.

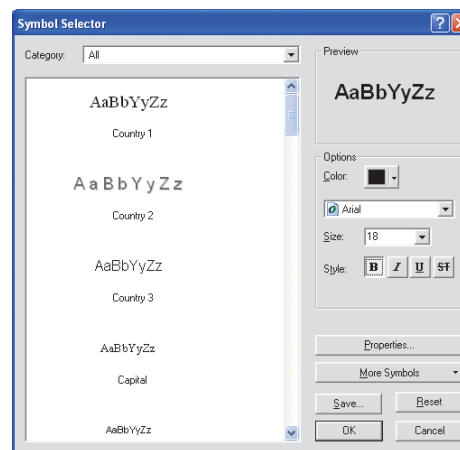
1. Right-click the S & F Hardware layer name in the map's table of contents to show the context menu, then click Properties.

The Layer Properties dialog box opens.

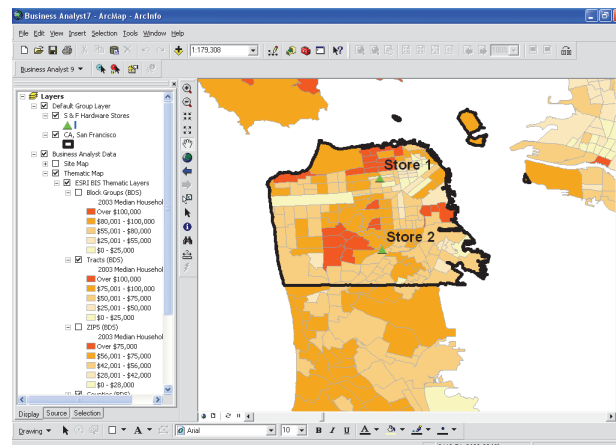
2. Click the Labels tab.
3. Check the box to Label features in this layer. Verify that the Label Field (under Text String) is set to NAME.
4. Click the Symbol button.



5. On the Symbol Selector dialog box, click the Size pull-down arrow and click 18. For Style, click B to bold the font, then click OK.



6. Click OK on the Layer Properties dialog box.  
The names of the stores are added to your map.



7. Click File and click Save to save your work.  
Continue to Exercise 3 to add your customers to your study area.

## Exercise 3: Locating your customers

By holding weekly drawings for \$100 worth of merchandise, you've collected several hundred customers' addresses for each store. In this exercise, you'll add your customers to the San Francisco county study area you created in exercise 1.

Your customer data has been organized in a table and saved as a dBASE® file. You'll use this file of tabular data to set up your customer locations. The Customer Setup Wizard will place this data as points on a map.

### Adding customers to your study area

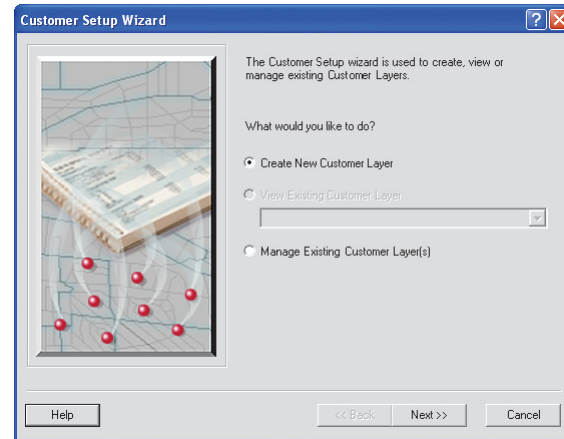
1. If you've exited ArcMap, click Start, point to Programs, point to ArcGIS, then click ArcMap. The Business Analyst extension dialog box opens. Click OK to close it, and the Welcome to Business Analyst dialog box opens. Click An existing map, then click the Tutorial.mxd file and click OK.

The Business Analyst Tutorial opens; click Close if you've already reviewed the tutorial. The Business Analyst extension dialog box opens again; click OK to close it.

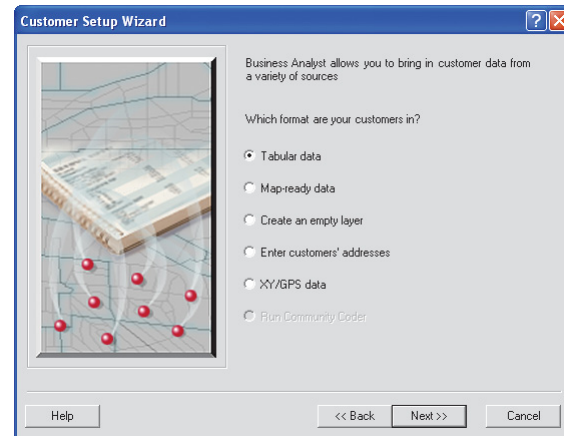
2. Uncheck the Site Prospecting Simple Ring - points layer to turn it off.
3. Click the Business Analyst toolbar and click Customer Setup.

The Customer Setup Wizard opens.

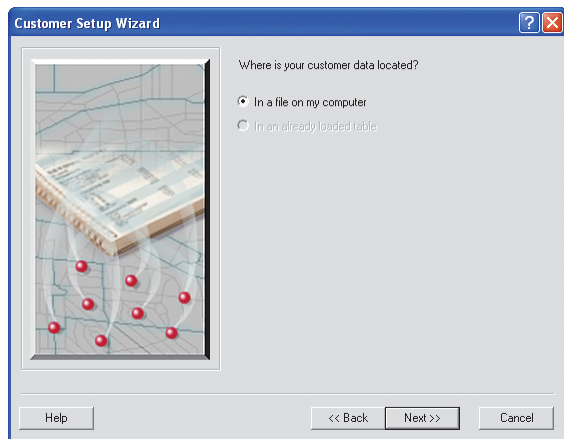
4. Click Create New Customer Layer on the Customer Setup Wizard and click Next.



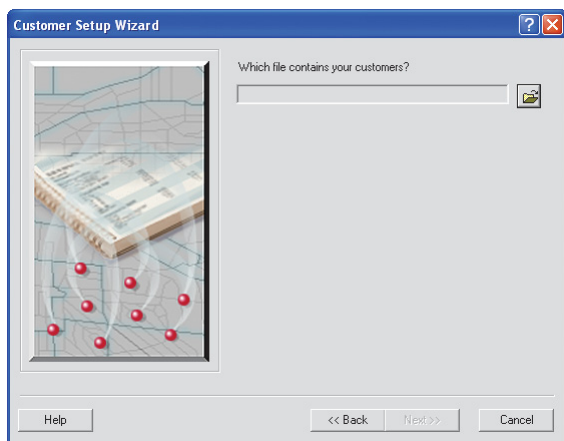
5. Click Tabular data and click Next.



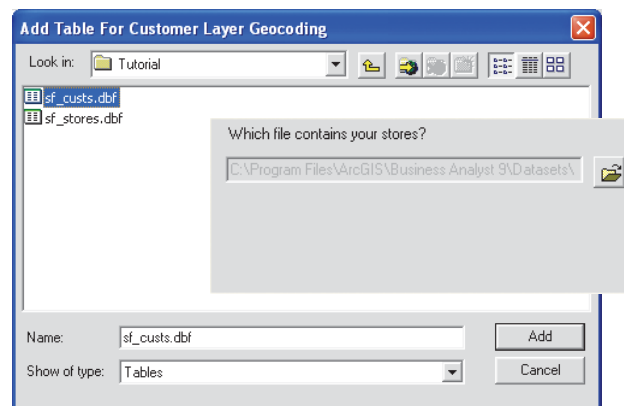
6. Click In a file on my computer, then click Next.



7. Click the folder icon and Navigate to the drive where ArcGIS was installed, then to the Business Analyst folder at arcgis\Business Analyst\Datasets\Tutorial. This folder contains the Business Analyst tutorial data.



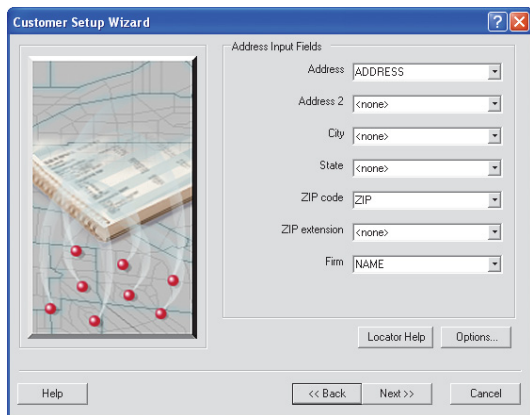
8. Click sf\_custs.dbf and click Add. The file appears in the text box in the wizard. Click Next to continue.



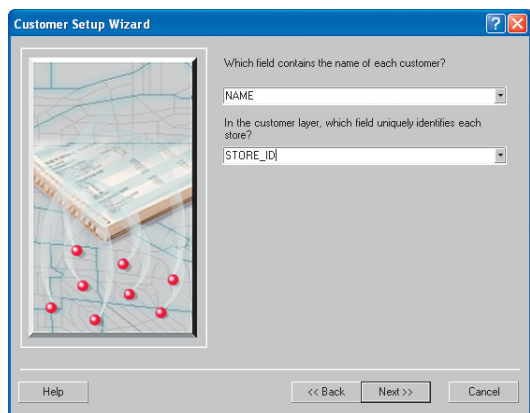
The information you provide on this wizard panel is used to geocode your stores. Business Analyst takes the address and ZIP Code of each of your customers and matches them with the proper location on the map.

9. Complete the Address Input Fields. In the Address field, click the drop-down menu and click ADDRESS. In the ZIP Code field, click the drop-down menu and select ZIP. Click Next to continue.

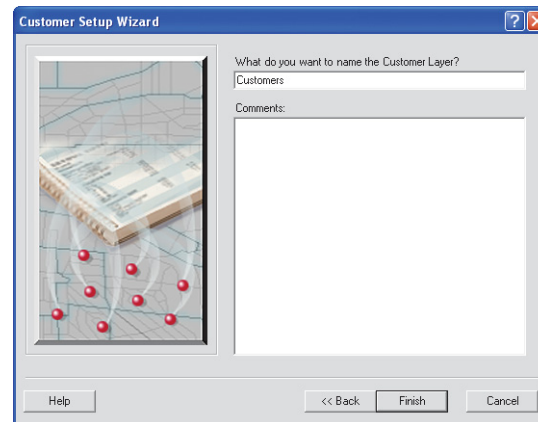
If you're using the Centrus geocoder that comes with Business Analyst, you can also type a street intersection on the first address line in the correct format—that is, "Bosworth + Arlington", "Bosworth & Arlington", or "Bosworth and Arlington". The Options button allows you to change your geocoding preferences, including what fields from the geocoder you want joined to your database.



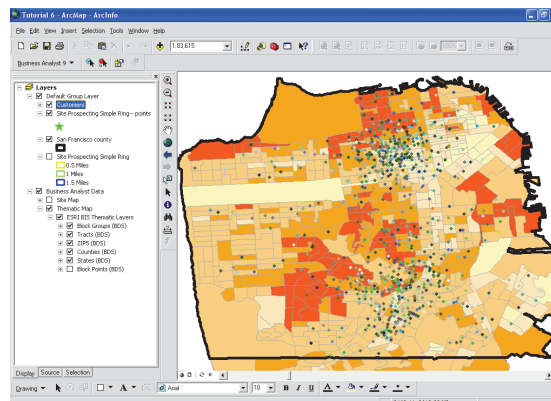
10. Select the field that contains the name of each of your customers. Click the pull-down menu on the Customer Setup Wizard and click NAME.
11. Select the field in the customer layer that uniquely identifies each of your stores. To do this, click the pull-down menu and click STORE\_ID. Click Next to continue.



12. Name your new Customer Layer. Type "Customers" in the text box, type any comments into the comment area provided, and click Finish to begin geocoding the customer addresses. The Centrus Geocoding Process dialog box appears. Click Batch to complete the geocoding and Finish to exit the dialog box. Close the text report.



Your customers are visible in the San Francisco county study area.



You can click the customer symbol in the table of contents at any time to change the shape, size, or color.

13. If you want to delete a customer layer, you have two options:

- You can remove the layer from the map by right-clicking the layer in the table of contents and clicking Remove. This removes it from the map, but Business Analyst remembers it as a customer layer that can be opened at a later time or in another map document.
- You can also delete the layer by clicking the Business Analyst menu, clicking Customer Setup, Manage Existing Customer Layer(s), then clicking the option to delete a customer layer. This method deletes the layer so it isn't available for future analysis until it's set up again. However, it doesn't remove your original file from your computer.

14. Save your work. Click the File menu, then click Save.

Continue to Exercise 4: Determining trade areas around your stores.

## Exercise 4: Determining trade areas around your stores

In the previous exercises, you created a study area, added your customers and stores to the map, and completed all the setup tasks required. Now, you are ready to create a new trade area.

You'll create customer market areas around your stores that show where 50, 75, and 90 percent of your customers are located. Customer market areas are based on the actual locations of your customers, so they're a more precise definition of your stores' trade areas than a simple ring. You will compare the simple ring from exercise 1 and two-, three-, and four-minute drive times in the customer market areas. You'll also create a demographic report for the trade area of each store. You know that Store 2 is doing better, so you'll compare the reports to see if you can determine why.

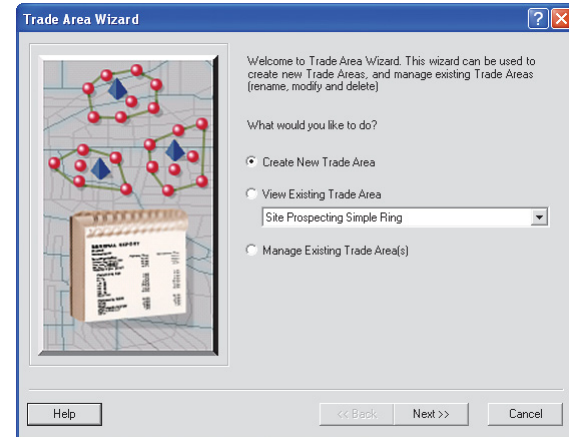
If you're continuing directly from Exercise 3, go to step 2.

1. If you've exited ArcMap, click Start, point to Programs, point to ArcGIS, then click ArcMap. The Business Analyst extension dialog box opens; click OK to close it, and the Welcome to Business Analyst dialog box opens. Click An existing map, click the Tutorial.mxd file, and click OK.

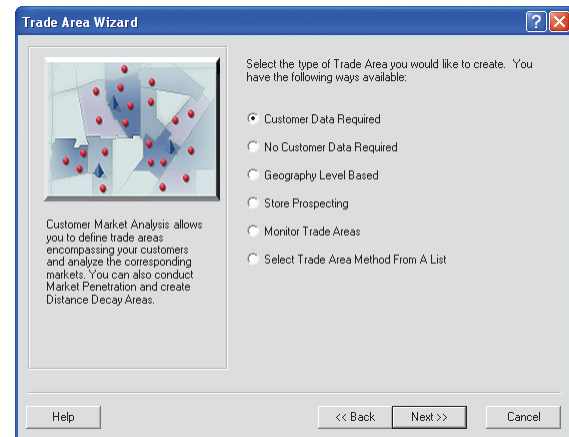
The Business Analyst Quick Start Tutorial opens; click the Close button if you've already reviewed the tutorial. The Business Analyst extension dialog box opens again; click OK to close it.

2. Click the Business Analyst toolbar and click Trade Area. The Trade Area Wizard opens.

3. Click Create New Trade Area, then click Next.

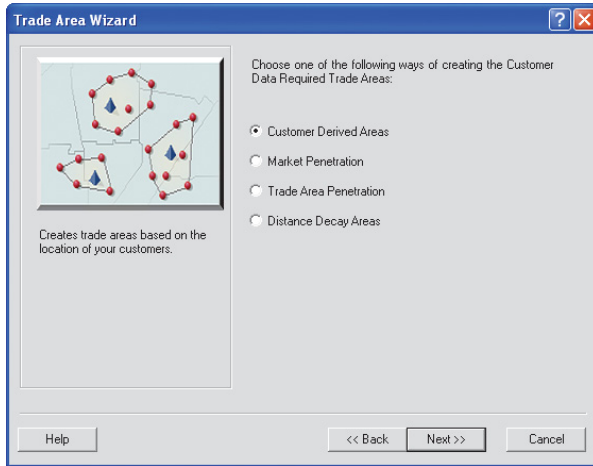


4. Select the type of trade area you want to create. Click Customer Data Required, then click Next.

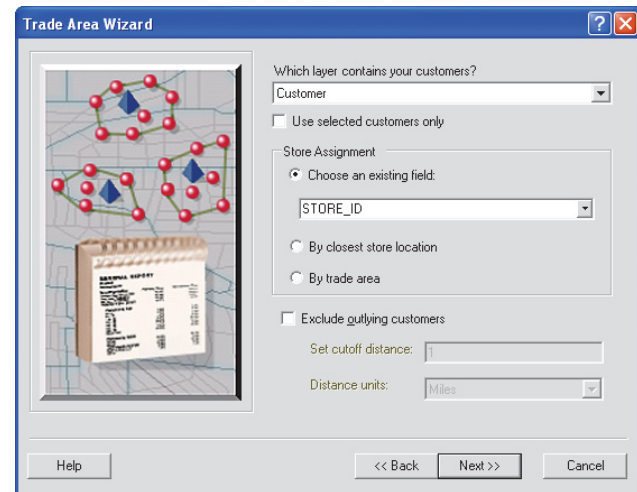
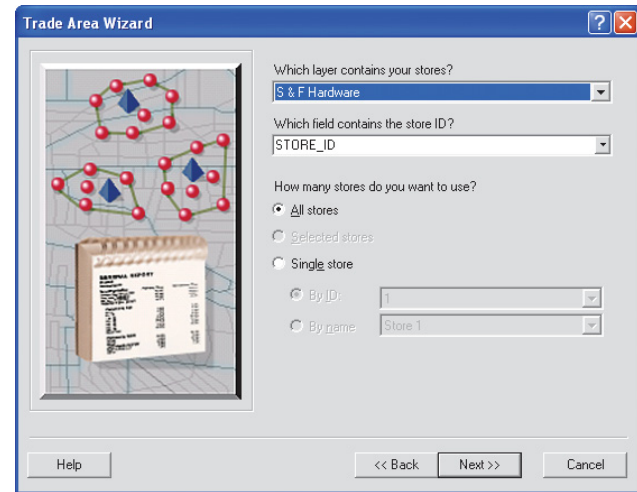




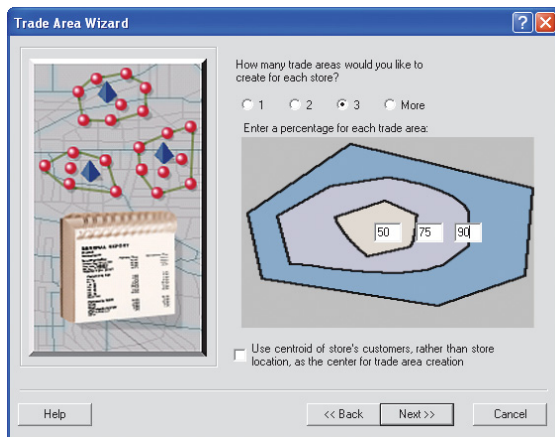
5. Determine how to create the Customer Data Required trade areas. Click Customer Derived Areas, then click Next.



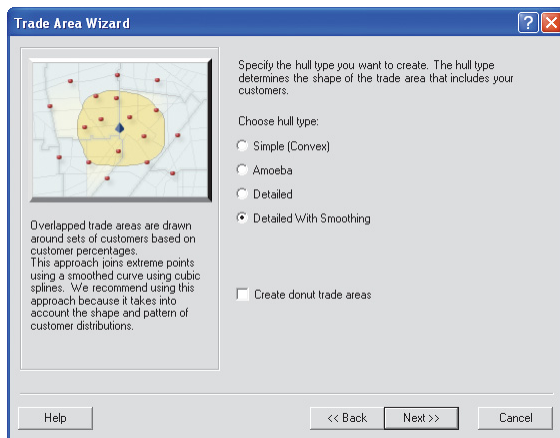
6. Click the pull-down menu and choose the layer that contains your stores. Select S & F Hardware and click Next.
7. Choose the field that contains the store ID. Click the second pull-down menu and select STORE\_ID.
8. Click All stores and click Next.
9. Choose which layer contains your customers. Click the pull-down menu and select Customer. For Store Assignment, click the pull-down menu, select STORE\_ID, then click Next.
10. Trade areas are created using percentages you enter. Click By the number of customers and click Next.



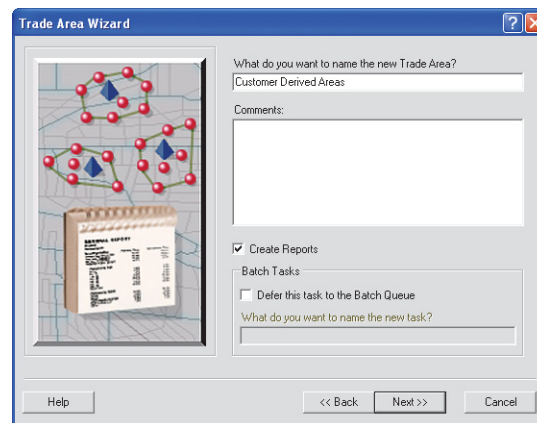
11. Choose how many trade areas you want to create for each store. Click “3”, type “50”, “75”, and “90” in the text boxes as the percentages for each trade area, then click Next.



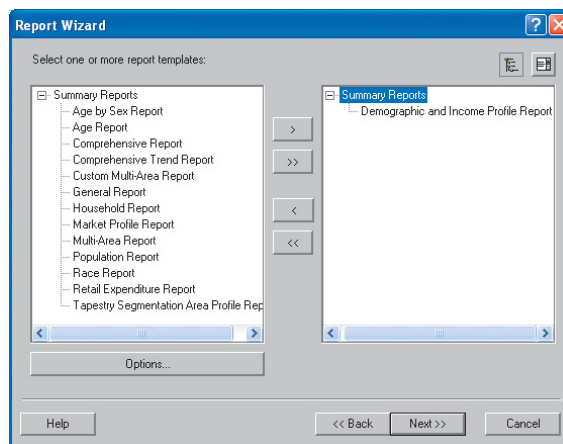
12. Specify the hull type you want to create. Click Detailed With Smoothing, then click Next.



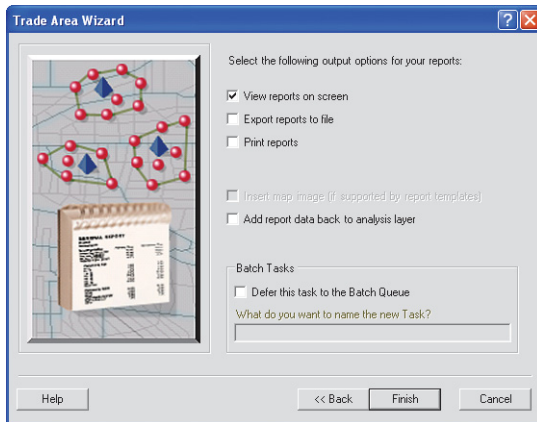
13. Name the new trade area. Customer Derived Areas will be the default name given. This name should not be changed. Check Create Reports, then click Next.



14. Click the plus sign next to Summary Reports to expand the list of templates; click Demographic and Income Profile Report. Click the single right arrow to move the template to the box on the right, then click Next.



15. Select an output option for your reports. Click View reports on screen, then click Finish.



A report displays showing the demographics for each of your stores' trade areas. You must have a printer installed for the Crystal Reports report writer to display your report.

16. Under the Preview tab compare the demographics of each store's trade area. Each ring shows a data view and a graph view. Take note of the 90 percent trade areas for both stores, with these values in particular:

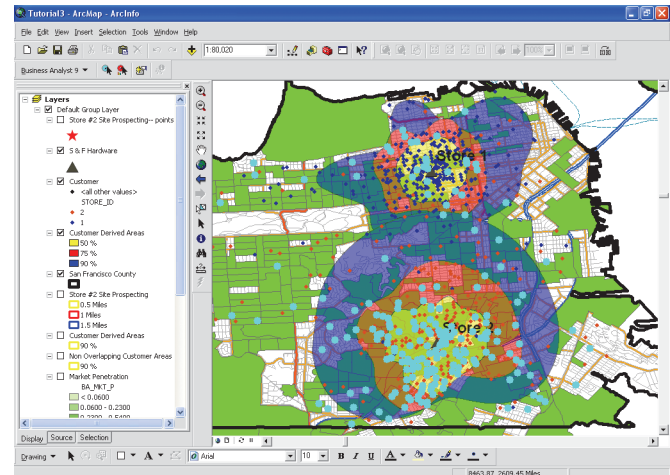
	2000	2006	2011
<b>Households</b>			
Store 1 =	_____	_____	_____
Store 2 =	_____	_____	_____
<b>Owner-occupied HUs</b>			
Store 1 =	_____	_____	_____
Store 2 =	_____	_____	_____
<b>Average Household Income</b>			
Store 1 =	_____	_____	_____
Store 2 =	_____	_____	_____

It could be that Store 2 is doing better not because the average income of its customers is higher but because people who own their homes are more likely to make larger purchases at a hardware store than people who rent.

17. If you want to print the report, click the Print button. If you don't want to print the report, close the report to return to ArcMap.

The map of your study area with the Customer Derived Areas layer becomes visible.

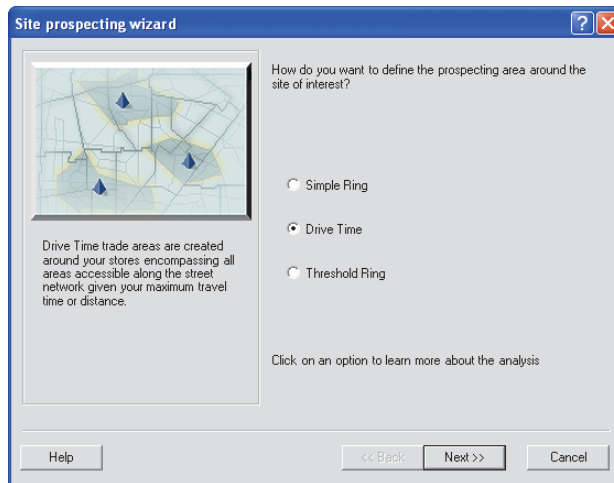
18. Save your work by clicking the File menu and clicking Save.



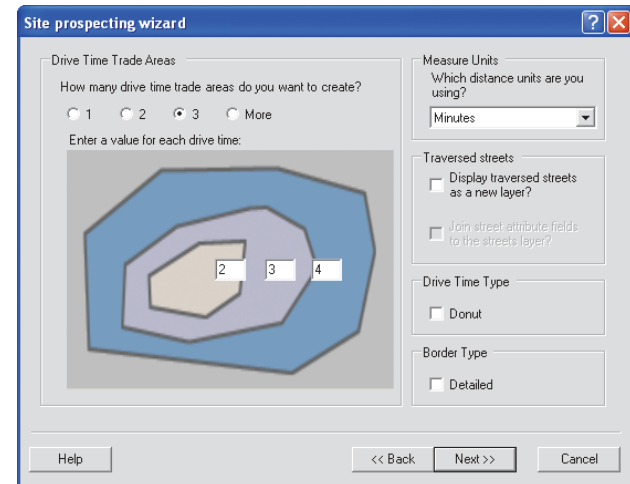
You now have Customer Derived Areas and simple ring analyses on your map for Store 2.

Turn both layers on to see how they visibly compare around the Store 2 location; then, turn both layers off by unchecking them in the table of contents.

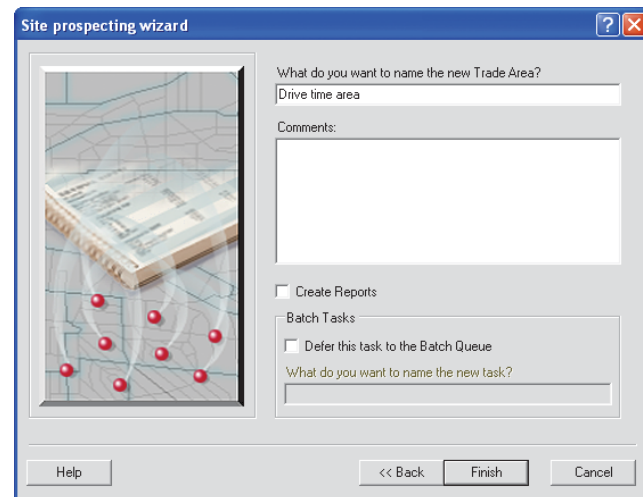
19. Add a third analysis based on drive times of two, three, and four minutes from Store 2. You will use an alternative method of clicking the location to start the analysis. First, zoom to the Store 2 location using the Zoom In tool on the ArcMap toolbar.
20. Click the Site Prospecting tool on the Business Analyst toolbar, then click the symbol marking the Store 2 location on the map. Click Next to continue.
21. Click Drive Time on the Site prospecting wizard to define the prospecting area, then click Next.



22. Click 3 for the number of Drive Time Trade Areas and type “2”, “3”, and “4” in the text boxes.



23. Select Minutes for Measure Units, then click Next. You have the option to show the streets traversed in the drive-time rings as a new layer. For this example, this box will remain unchecked.



24. Type “Drive time area” in the text box, enter any comments, then click Finish. Ensure the Create Reports check box is unchecked before clicking Finish.

Drive times of two, three, and four minutes are displayed on the map.

25. Visually compare the three analyses around the Store 2 location by checking them simultaneously. When finished, turn them off by unchecking them.

26. Save your work by clicking File and clicking Save.

Continue to Exercise 5 to remove trade area overlap.

## Exercise 5: Removing trade area overlap

In this exercise, you will remove overlap between two trade areas.

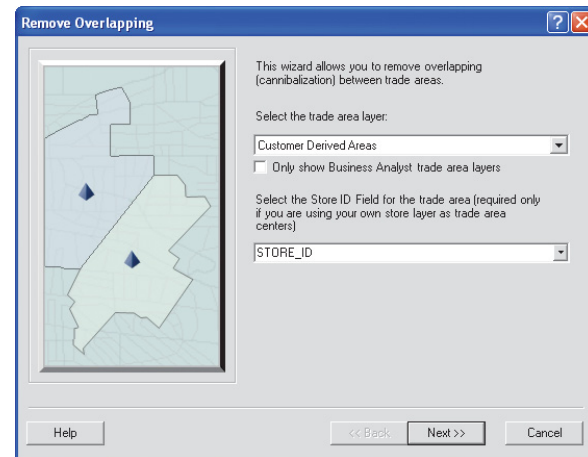
1. If you've exited ArcMap, click Start, point to Programs, point to ArcGIS, then click ArcMap. The Business Analyst extension dialog box opens. Click OK to close it, and the Welcome to Business Analyst dialog box opens. Click An existing map, then click the Tutorial.mxd file and click OK.

The Business Analyst Tutorial opens; click Close if you've already reviewed the tutorial. The Business Analyst extension dialog box opens again; click OK to close it.

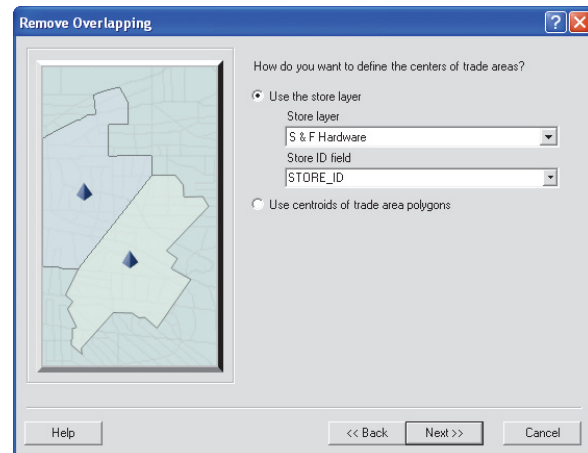
2. Click the Business Analyst toolbar and click Tools, then click Remove Overlapping.

The Remove Overlapping Wizard opens.

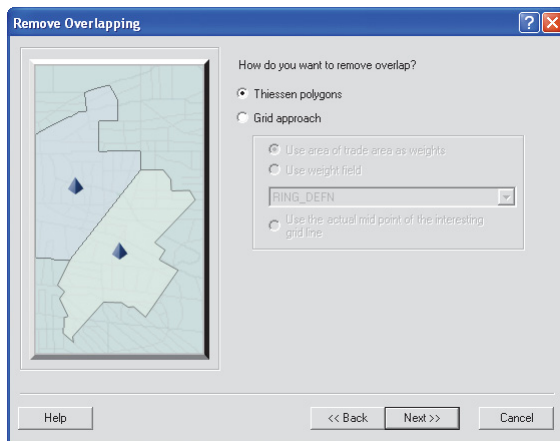
3. Click the first pull-down menu and select the Customer Derived Areas layer. Click the second pull-down menu and select STORE\_ID, then click Next.



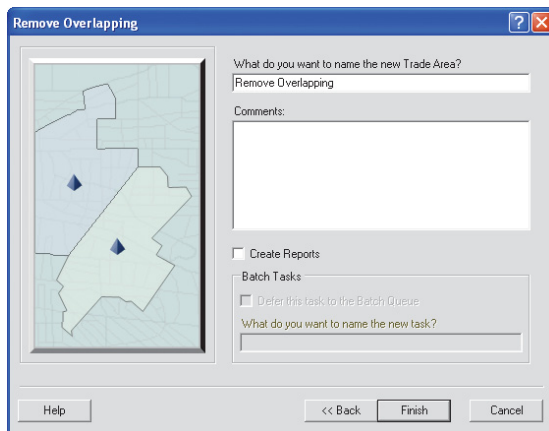
4. To define the centers of the trade areas, click Use the store layer. Click the first pull-down menu and select S & F Hardware, then click the second pull-down menu and select STORE\_ID. Click Next to continue.



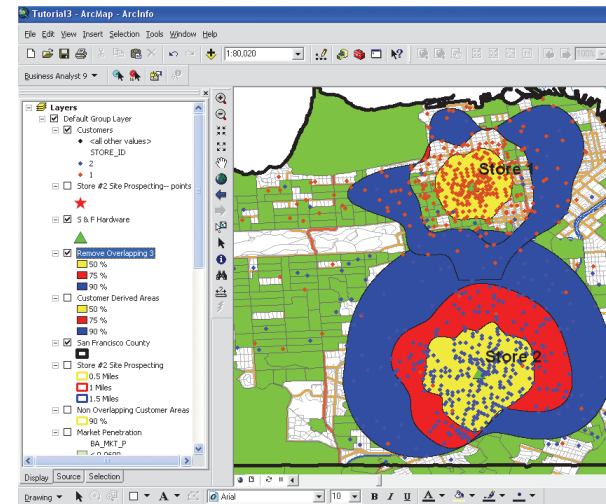
5. Click Thiessen polygons, then click Next.



6. To name your new trade area, type “Remove Overlapping” in the text box, enter any comments, then click Finish.



The results are shown on the map.



Continue to Exercise 6: Determining market penetration.



## Exercise 6: Determining market penetration

In this exercise, you will calculate market penetration by comparing the number of customers in each of the rings you created in exercise 4 with the total population in each ring.

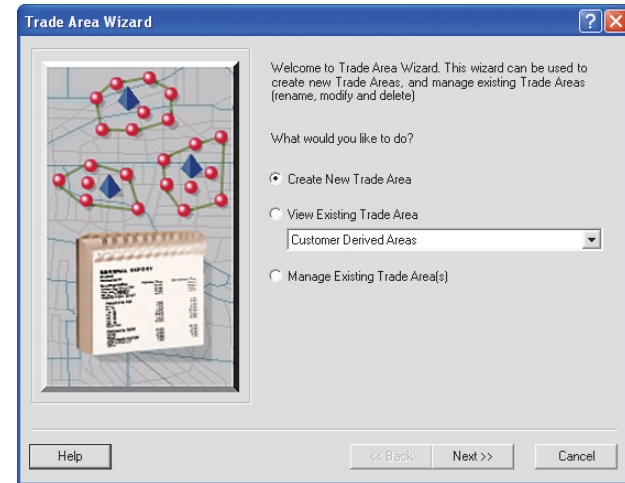
If you're continuing directly from exercise 5, go to step 2.

1. If you've exited ArcMap, click Start, point to Programs, point to ArcGIS, then click ArcMap. The Business Analyst extension dialog box opens. Click OK to close it, and the Welcome to Business Analyst dialog box opens. Click An existing map, then click the Tutorial.mxd file and click OK.

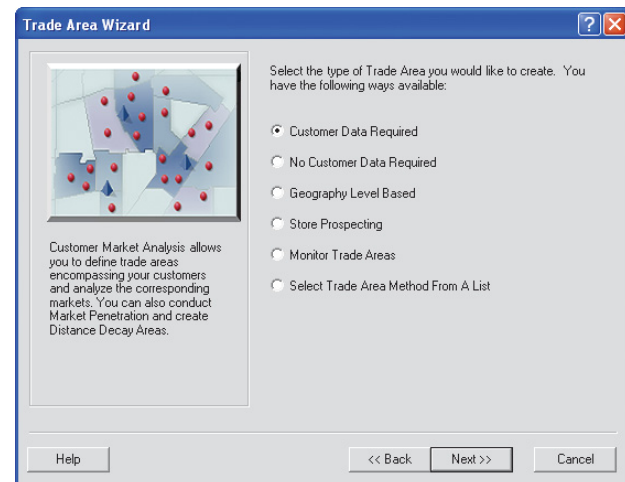
The Business Analyst Tutorial opens; click Close if you've already reviewed the tutorial. The Business Analyst extension dialog box opens again; click OK to close it.

2. In the table of contents, click the layer for Customer Derived Areas to make it visible. Verify that the layers for Drive time area and Store #2 Site Prospecting are turned off by unchecking them.
3. Click the Business Analyst menu and click Trade Area.

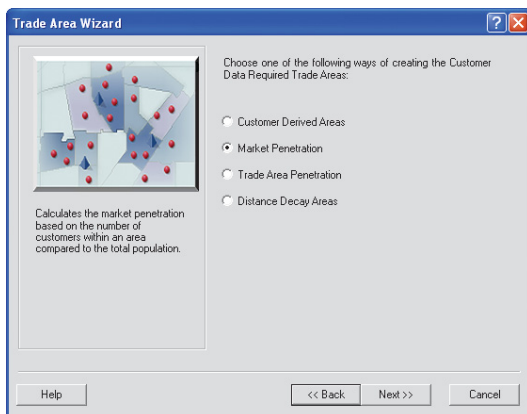
4. Click Create New Trade Area, then click Next.



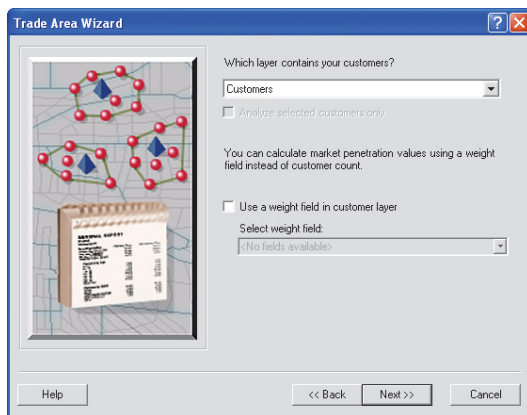
5. Click Customer Data Required, then click Next.



6. Click Market Penetration, then click Next.

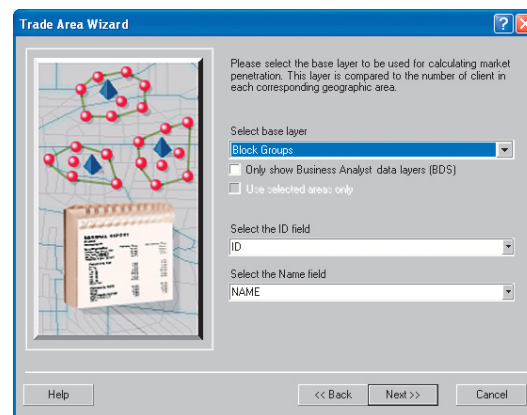


7. Select the layers that contain your customers. Click the pull-down menu and select Customers, then click Next.

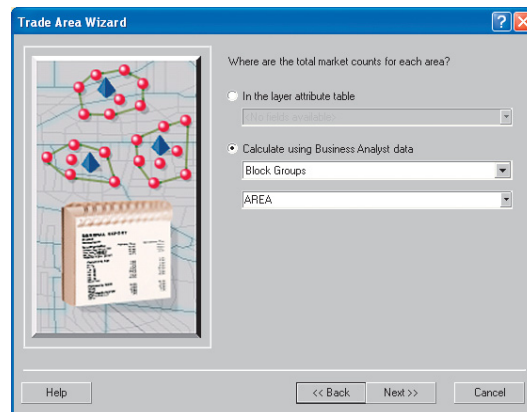


8. Select the base layer to use for calculating market penetration. Click the first pull-down menu and select Block Groups. Then, click the second pull-down menu

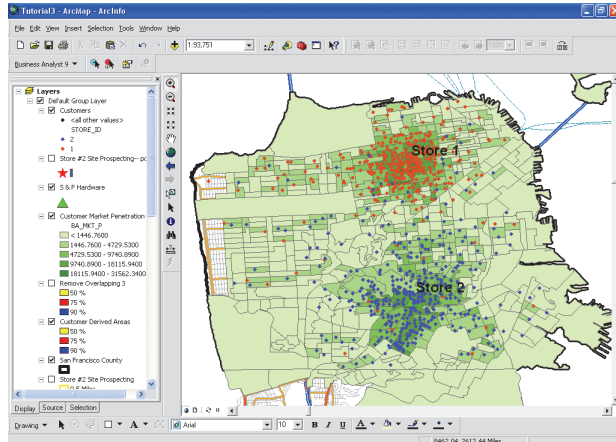
and click ID, and click the third pull-down menu and click NAME.



9. On the next screen, you are asked to identify where to locate the total market counts for each area. In this example, you will use the second option. Click Calculate using Business Analyst data, choose Block Groups and Area using the pull-down menus, then click Next.



10. The next screen is divided into two sections: Report Options and Analysis Options. Under Report Options, ensure that the Generate Report check box is unchecked. Under Analysis Options, type “Customer Market Penetration” for the name of the new trade area, then click Finish.
11. You will see the same shape in your Customer Market Penetration layer colored to reflect customer market penetration. The layer legend displays the market penetration percentage. You can click and drag this layer to move it above or below any other layer for different display effects. You can also use the Transparency tool to make this layer transparent, then graphically overlay it with another layer.
12. Save your work by clicking File and clicking Save.



Continue to Exercise 7 to identify your competitors.

## Exercise 7: Identifying your competitors

In this last exercise, you will identify the locations of your competitors.

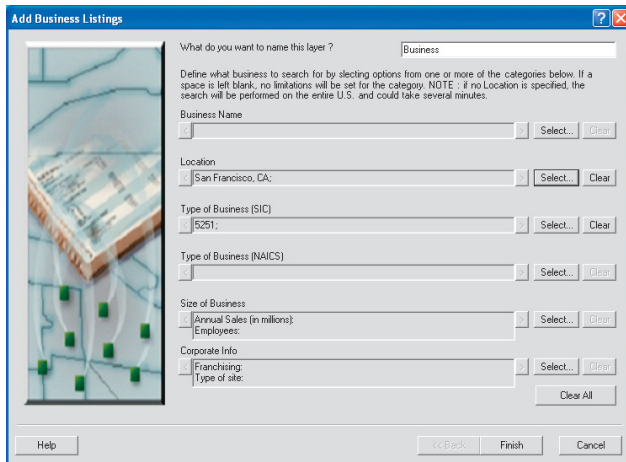
If you're continuing directly from exercise 6, go to step 2.

1. If you've exited ArcMap, click Start, point to Programs, point to ArcGIS, then click ArcMap. The Business Analyst extension dialog box opens. Click OK to close it, and the Welcome to Business Analyst dialog box opens. Click An existing map, then click the Tutorial.mxd file and click OK.

The Business Analyst Tutorial opens; click Close if you've already reviewed the tutorial. The Business Analyst extension dialog box opens again; click OK to close it.

2. Click the Business Analyst toolbar, click Data, then click Add Business Listings.

The Add Business Listings dialog box opens.



The Add Business Listings dialog box is shown. It has a title bar with a question mark and a close button. The main area is divided into two panes. The left pane shows a map of San Francisco with green markers. The right pane contains the following fields:

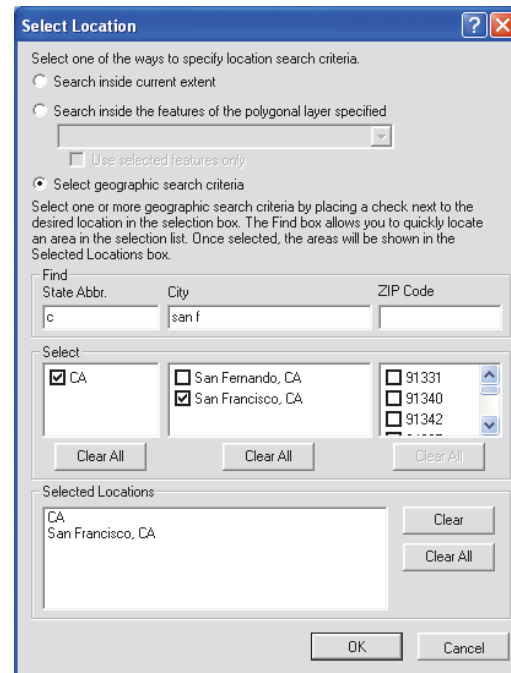
- What do you want to name this layer?: Business
- Define what business to search for by selecting options from one or more of the categories below. If a space is left blank, no limitations will be set for the category. NOTE: If no Location is specified, the search will be performed on the entire U.S. and could take several minutes.
- Business Name: [Select... Clear]
- Location: San Francisco, CA; [Select... Clear]
- Type of Business (SIC): 5251; [Select... Clear]
- Type of Business (NAICS): [Select... Clear]
- Size of Business: Annual Sales (in millions): [Select... Clear]; Employees: [Select... Clear]
- Corporate Info: Franchising: [Select... Clear]; Type of site: [Select... Clear]
- Clear All
- Help, Back, Finish, Cancel

3. To set the Location, click the Select button.

The Select Location dialog box opens.

4. Click the Select geographic search criteria button, then type the state abbreviation and city in the State Abbr and City text fields. If you know the ZIP Code, you can enter it in the ZIP Code text box.

When you type the first letters of the state abbreviation and city in the text boxes, the state and city lists jump to the letters you entered.



The Select Location dialog box is shown. It has a title bar with a question mark and a close button. The main area is divided into two panes. The left pane contains the following options:

- Select one of the ways to specify location search criteria.
- ☐ Search inside current extent
- ☐ Search inside the features of the polygonal layer specified
- ☐ Use selected features only
- ☒ Select geographic search criteria

The right pane contains the following fields:

- Select one or more geographic search criteria by placing a check next to the desired location in the selection box. The Find box allows you to quickly locate an area in the selection list. Once selected, the areas will be shown in the Selected Locations box.
- Find: State Abbr. City ZIP Code
- c san f
- Select: ☒ CA ☐ San Fernando, CA ☒ San Francisco, CA ☐ 91331 ☐ 91340 ☐ 91342
- Clear All Clear All Clear All
- Selected Locations: CA San Francisco, CA
- Clear Clear All
- OK Cancel

5. Click OK and you are returned to the main Add Business Listings dialog box.
6. To select the Type of Business (SIC), click Select and the Business Type Dialog box opens.
7. In the Key Words text box, type “hardware”. The Code and Description lists jump to the code and descriptions that match what you entered. Click 5251 HARDWARE STORES and click OK.

You can also enter the SIC Code in the SIC Codes text box.

8. Click Finish and your selections are displayed on the map and added to your TOC as the Business layer.

Now that you’ve completed all the tasks in the tutorial, you have a good idea of what’s involved with using Business Analyst from creating a study area to performing analyses. If you want, you can enter the addresses of possible new store locations. Use the steps in exercise 1 to analyze them and compare with the Store 2 report to find the best site for your new store. You can also use the Add Business Listings wizard to add all retail hardware stores in San Francisco to the map. You’ll be able to see your competitors and assess their proximity to your proposed store locations. Continue reading through the book to learn about other things you can do with Business Analyst or, if you prefer, use this book as a reference, reading the specific sections you need to complete your tasks.



# Business Analyst toolbar

# 3

## IN THIS CHAPTER

- **Using the Business Analyst toolbar**
- **Site prospecting on the map using the Site Prospecting tool**
- **Site prospecting using the Site Prospecting tool context menu**
- **Site prospecting using the ArcMap Find tool**
- **Dynamic Ring Analysis tool**
- **Using the Business Analyst quick-start tutorial**
- **Identify Business tool**

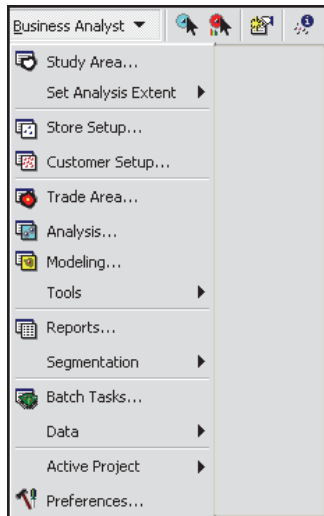
In this chapter, you will learn about the Business Analyst menu commands and toolbars and how to perform site prospecting on the map or by using the context menu.

You can perform site prospecting using either the Site Prospecting tool or the ArcMap Find tool. When you click the Site Prospecting tool from the Business Analyst toolbar, you have the option of clicking directly on the map to launch the Site Prospecting Wizard or right-clicking anywhere on the map to open the context menu and find a point by address, selected point, or by defining coordinates.

# Using the Business Analyst toolbar

## Business Analyst toolbar drop-down menu

If the Business analyst toolbar is not visible, click the View menu, click Toolbars, then click Business analyst. The dockable toolbar opens.



**Study Area**—Launches the Study Area Wizard to create new study areas or view and manage existing study areas

**Set Analysis Extent**—Allows you to set the analysis extent to the current map view or to jump to a different location

**Store Setup**—Launches the Store Setup Wizard to create new store layers or view and manage existing store layers

**Customer Setup**—Launches the Customer Setup Wizard to create new customer layers or view and manage existing customer layers

**Trade Area**—Launches the Trade Area Wizard to create new trade areas or view and manage existing trade areas

**Analysis**—Launches the Analysis Wizard to create new analysis or view and manage existing analyses

**Modeling**—Launches the Modeling Wizard to create modeling analysis, view and manage existing modeling analyses, or manage model calibration parameters **Tools**—Provides tools that allow you to:

- Perform thematic mapping.
- Remove overlapping.
- Create grids.
- Find routes.
- Dissolve by attribute.
- Perform spatial overlay.
- Find similar.
- View and produce market ranking reports.
- Perform site prospecting.

**Reports**—Launches the Report Wizard to run, open, and manage existing reports or create and manage custom report templates

**Segmentation**—Allows you to create profiles, target groups, segmentation charts, maps, and reports and manage existing analysis and segmentation studies

**Batch Tasks**—Allows you to create batch tasks

**Data**—Allows you to add a business listing, Excel table, and analysis layer and import an add-on data pack

**Active Project**—Allows you to make a different project the active project, and to create and manage projects

**Preferences**—Launches the Preferences dialog box to view or make changes to a variety of settings



# Site prospecting on the map using the Site Prospecting tool

ArcGIS Business Analyst provides a quick tool on the Business Analyst toolbar to perform site prospecting by simple ring, drive time, or threshold ring analysis.

## Tip

*If you have not already created a study area, see Chapter 2, 'Tutorial', for help.*

## Getting started

1. Open the study area in which you want to perform site prospecting.
2. Click the Site Prospecting tool on the Business Analyst toolbar.
3. Click an area on the map where you want to perform site prospecting.

The Site Prospecting Wizard opens.

4. Click Simple Ring, Drive Time, or Threshold Ring, then click Next.

Each of these analyses is described in detail in Chapter 7.

The next steps depend on which Site Prospecting option you selected in step 4 above. The following sections provide instructions for each option.

## Simple Ring

- a. If you selected Simple Ring, choose the number of rings you want to create for each store, then type a value for each ring in the text boxes. Click the distance units from the drop-down menu, click Remove Overlap or Donut to define the trade areas, then click Next.




- b. Type a name for the new trade area, type any comments, then click Finish. The results are displayed on the map.

### **Drive Time**

- a. If you selected Drive Time, choose how many drive-time trade areas you want to create, then type a value for each drive time in the text boxes. Click the Measure Units drop-down menu and click the distance units you want to use. Optionally, complete the Traversed streets and Drive Time Type sections, then click Next.
- b. Type a name for the new trade area, type any comments, then click Finish. The results are displayed on the map.

### **Threshold Ring**

If you selected Threshold Ring, click the threshold layer from the drop-down menu, click the field to aggregate from the second drop-down menu, then click Next. Choose how many rings you want to create, then type a value for each ring. Click Donut to define the trade areas, then click Next. ►



Type a name for the new trade area, type any comments, then click Finish. The results are displayed on the map.

## Site prospecting using the Site Prospecting tool context menu

The Business Analyst Site Prospecting tool has a context menu to provide alternatives for setting the center point of the analysis. This context menu allows you to choose the center point by entering an address or geographic coordinate or by using a selected point on the map.

1. Open the study area in which you want to perform site prospecting.
2. Click the Site Prospecting tool on the Business Analyst toolbar.
3. Right-click anywhere on the map, and the Site Prospecting tool context menu appears.
4. To perform site prospecting using an address, click Find point by address.

Type the address in the text boxes, then click Next to continue through the wizard.

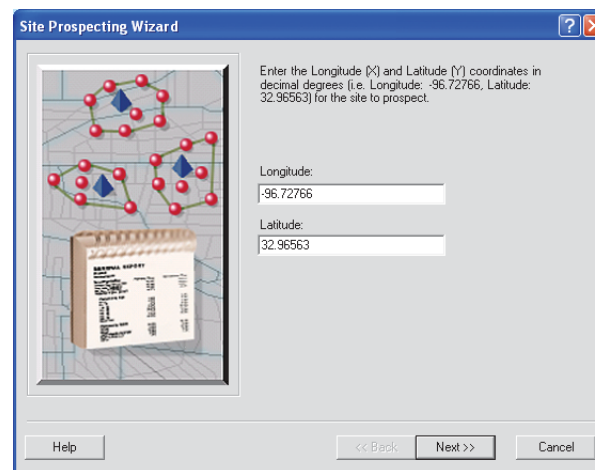
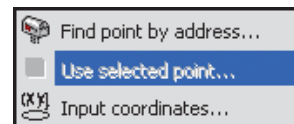
5. To perform site prospecting using the point feature that is currently selected, click Use selected point. This option is only active if a point is selected on the map.

The Analysis Wizard opens.

6. To perform site prospecting using coordinates, click Input coordinates and the Site Prospecting Wizard opens.
7. Type the longitude and latitude coordinates in the text fields in decimal degrees, then click Next to continue through the wizard.




Site Prospecting tool

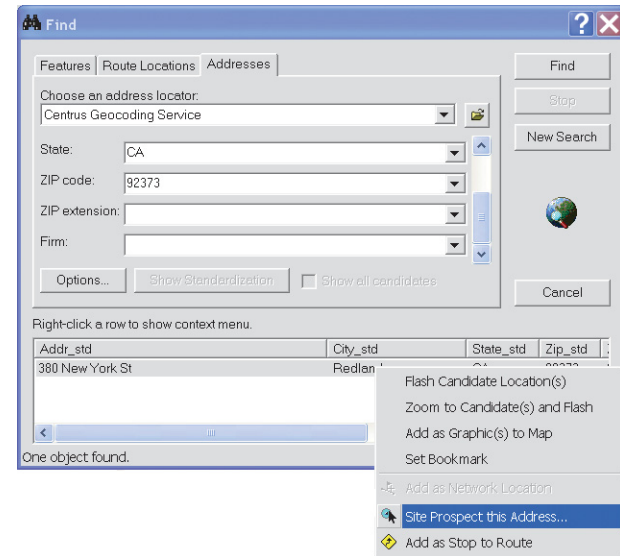


## Site prospecting using the ArcMap Find tool

The ArcMap Find tool can be used to perform site prospecting. The found site context menu offers this additional capability.

1. Open the study area in which you want to perform site prospecting.
2. Click the Find tool  on the ArcMap Tools toolbar.
3. Type an address, ZIP Code, or ZIP+4 to use as the center point for site prospecting, then click Find.
4. Right-click the found location to show the Find context menu. Click Site Prospect this Address.

The Site Prospecting Wizard opens with the option to choose simple rings, drive time, or threshold rings. Each of these analyses is described in detail in Chapter 7.

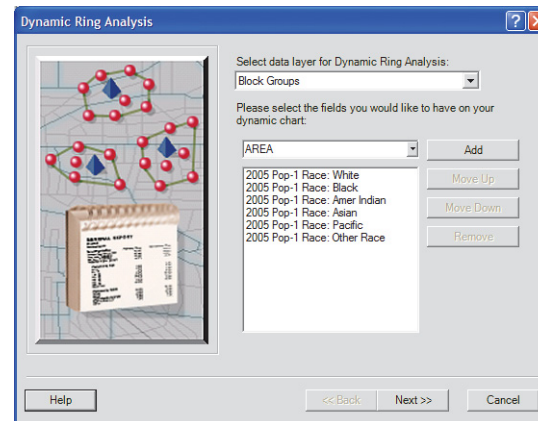
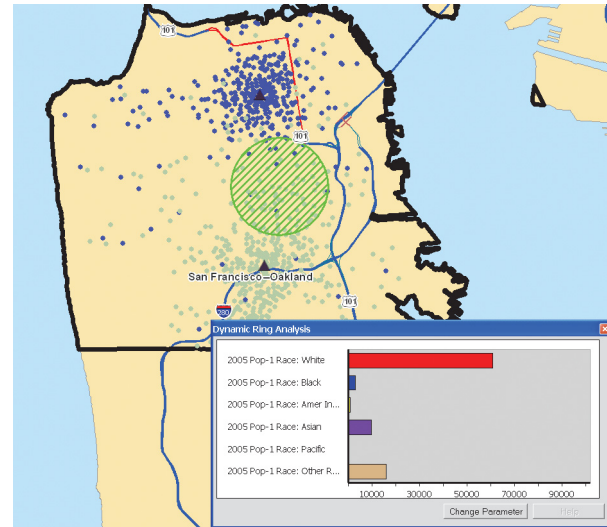


## Dynamic Ring Analysis tool

The Dynamic Ring Analysis tool allows you to pan over the map and evaluate site locations using a value you set as a threshold. You can also choose to view a chart with a number of variables that are summarized within the area of the dynamic ring. The chart is dynamically updated as you move the mouse pointer around the map.

You have the option of defining a Threshold field and Threshold value. If you do, the dynamic ring will be red in the areas where the threshold value is not exceeded and will be green when you find an area where the threshold value is met. This feature will allow quick and obvious screening of possible site locations that meet your target criteria.

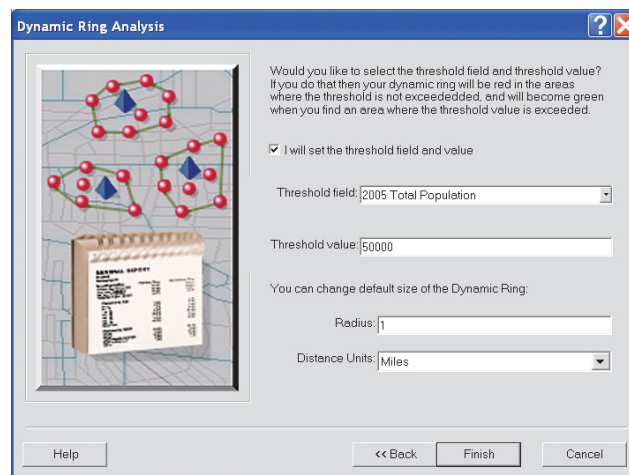
1. Open the study area in which you want to use the Dynamic Ring Analysis tool.
2. Click the Dynamic Ring Analysis tool and the Dynamic Ring Analysis bar chart will appear. It shows whatever variables were selected during its previous use.
3. Click an area on the map and the Dynamic Ring Analysis bar chart will update for the new ring area shown on the map. If you click and hold as you move the mouse pointer around the map, the Dynamic Ring Analysis bar chart will dynamically update.
4. You can change the selected variables by clicking the Change Parameter button at the bottom of the Dynamic Ring Analysis window.
5. Add, remove, or reorder variables to reflect those you want displayed. ►



## Tip

*You can change the threshold without going through the wizard again. If you want to change the variables, it is necessary to click the Change Parameters button again. If you find a desirable site, you can use the right-click context menu to activate the Business Analyst Site Prospecting Wizard on the site.*

- Click the field to be used for a quick threshold analysis, and type the threshold value. This parameter is optional. If used, it will color your ring green or red to reflect whether or not the threshold value was met.
  - Type a radius for the dynamic ring analysis and choose the distance units. Click Finish.
- The dockable window will appear containing the Dynamic Ring Analysis bar chart and threshold field values, if any, that you have selected.
- When you move the mouse pointer over the map, the ring moves with it, and the values in the Dynamic Ring Analysis bar chart are updated in real time.



Dynamic Ring Analysis

Would you like to select the threshold field and threshold value?  
If you do that then your dynamic ring will be red in the areas where the threshold is not exceeded, and will become green when you find an area where the threshold value is exceeded.

☒ I will set the threshold field and value

Threshold field: 2005 Total Population

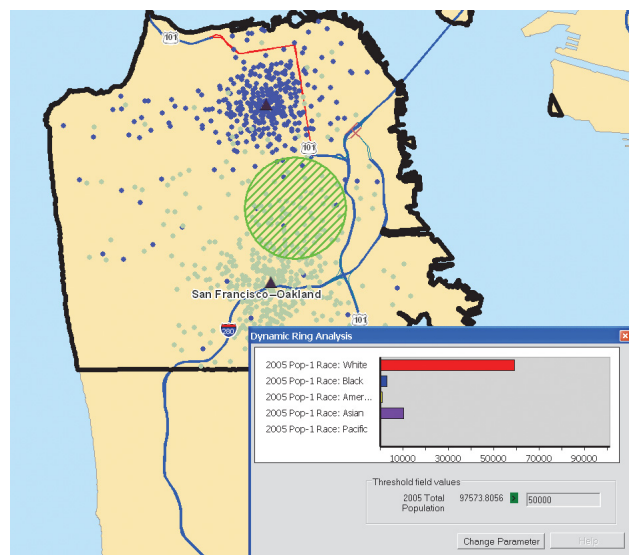
Threshold value: 50000

You can change default size of the Dynamic Ring:

Radius: 1

Distance Units: Miles

Help << Back Finish Cancel





# Using the Business Analyst quick-start tutorial

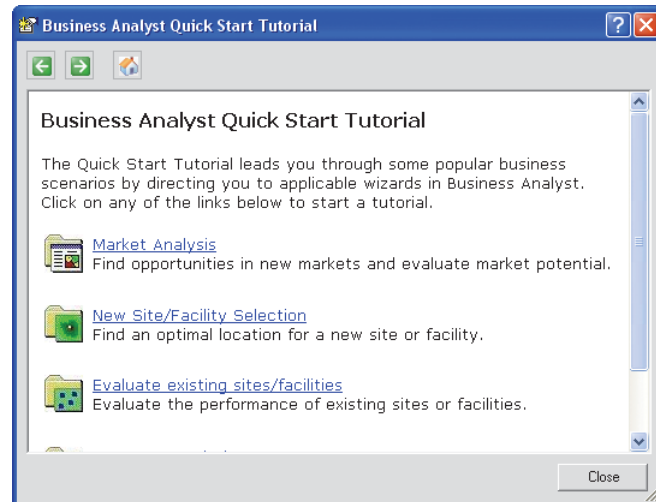
1. To launch the Business Analyst quick-start tutorial, click the Quick Start tool.

The Business Analyst Quick Start Tutorial dialog box opens.

2. Click the hyperlinks to learn more about a popular business scenario, such as Market Analysis or Customer Analytics.



Quick Start tool



## Identify Business tool

The Identify Business tool allows you to click on the map to view information, such as the address, telephone number, sales volume, and employee range for an individual business. The Identify Business tool is inactive until you add a business layer to your map. See Chapter 5 to learn more about adding business listing layers.

### Tip

*Once your business layer is added to the map, the Identify Business tool becomes active.*

## Using the Identify Business tool

1. Click the Identify Business tool on the Business Analyst toolbar.
2. Move your mouse pointer over the map and double-click in the area the business is located.

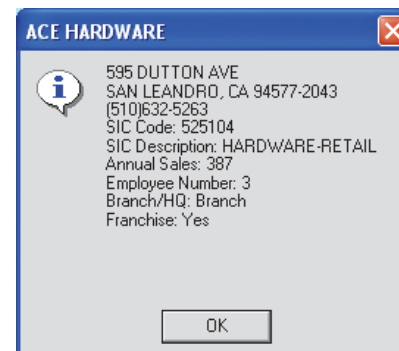
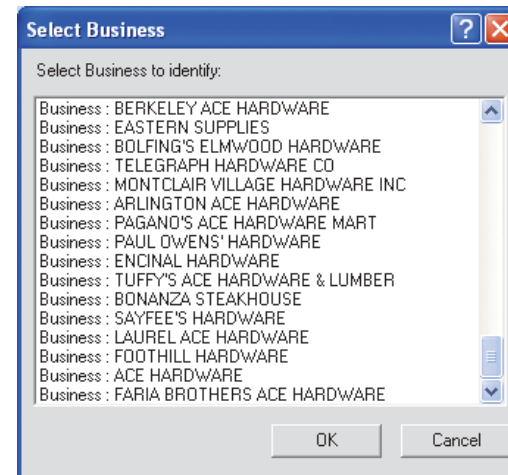
The Select Business dialog box opens.

3. Select a business from the list and click OK.

A new dialog box opens to display the business information.



Identify Business tool





# Organizing your work and creating a study area

# 4

## IN THIS CHAPTER

- **Creating a My Output Data folder on a different drive**
- **Virtual versus defined study areas**
- **Using ZIP Codes**
- **Creating a study area from a map**
- **Choosing a study area from a list**
- **Using the entire United States**
- **Clipping all your data so it only includes the study area**
- **Using a currently selected shape on the map**
- **Selecting subgeographies inside an existing study area**
- **Using a simple ring**
- **Using the current map extent**
- **Managing existing study areas**

In Chapter 2, ‘Tutorial’, you learned that performing geographic analysis can begin with creating a study area, which you did by choosing a study area from a list. This chapter shows you other ways to create a study area as well as other tasks you can complete using the Study Area Wizard.

A *study area* is defined as the geographic area in which you perform analysis. Customer points, store points, and analysis results that are added to the map while a study area is the active extent will be added to both the map and the table of contents as layers in the Study Area group layer.

You can choose from a map or a list to select the geographic area and level of geography, or you can make your own shape if the study area you want isn’t available. For instance, you might want the lower right corner of Dallas County or perhaps an area that includes sections of two states. You can also choose ZIP Codes, counties, Core-Based Statistical Areas (CBAs), Designated Market Areas (DMAs), states, or the entire United States.

When you create a study area, it is automatically saved to your hard drive in the My Output Data folder. This folder was placed on the c: drive of your computer the first time ArcGIS Business Analyst was installed. You can create another My Output Data folder on another drive using the Business Analyst Preferences dialog box.

The My Output Data folder contains:

- Study areas created using the Study Area Wizard
- Customer data setup using the Customer Setup wizard
- Store data setup using the Store Setup wizard
- Analyses created using the Analysis wizard

For more detailed information about the My Output Data folder structure, see the Appendix.

## Using map documents to manage your work

Even though Business Analyst automatically saves all your work to the My Output Data folder, you must still save your work as a *map document*. A map document is an ArcGIS file that contains all the maps, tables, charts, layouts, and reports that you use for a particular application or set of related applications. In this way, all your work is stored in one convenient map document that is defined with a .mxd extension.

There is a default Business Analyst map document prepared for your use called Business Analyst.mxd. You should use this .mxd file as a master document to save as your own .mxd file with which you'll do your work. The master document, Business Analyst.mxd, is a read-only file. This ensures that it is preserved for you to have available as a master for future use. If you have a small number of study areas, you can save them all in one map document. However, if you have many study areas, it might be easier to save separate .mxd files for your study areas. You can save your study areas to one .mxd file or several, depending on what is easiest for you.

## Saving your work as a map document

1. Double-click the ArcMap icon on your desktop, or click Start, point to Programs, point to ArcGIS, click Business Analyst, and click Business Analyst.mxd. If you're using the ArcMap icon, click the option for an existing map, select the path for Business Analyst.mxd, then click OK. Business Analyst.mxd is opened automatically, and the first panel of the Create Study Area wizard appears.
2. The Business Analyst.mxd map will appear. Before beginning your work, save the map under your own map document name by clicking the File menu, clicking Save As, and entering a name for your map document.
3. Your work will be saved to your map document. The next time you start Business Analyst, it will appear as one of the existing map documents available on the Welcome screen.

## Using projects to separate work within map documents

Use the Active Projects tool on the Business Analyst drop-down menu to change which project is active, create new projects, and manage projects.

### Make a project active

To make a project active, click the Business Analyst drop-down menu, click Active Project, and click a project name from the list.

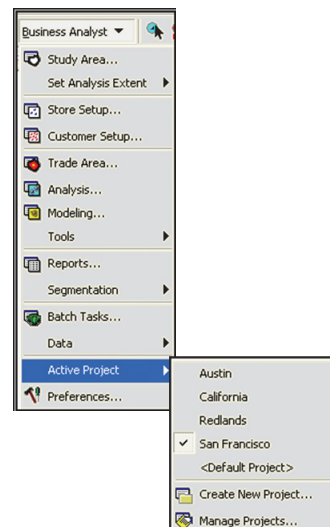
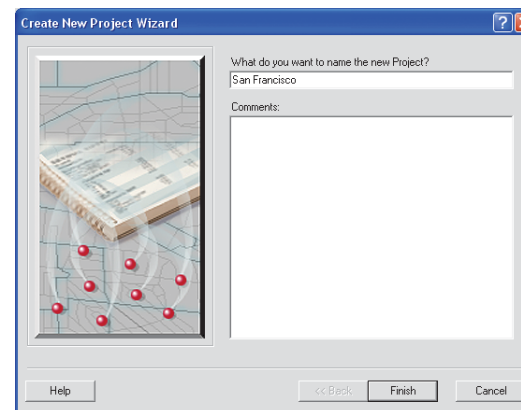
### Creating a new project

1. Click the Business Analyst drop-down menu, click Active Project, and click Create New Project.

The Create New Project Wizard opens.

2. Type a name for your new project in the text box and add any comments, then click Finish.

Your new project is now the active project. To see this, click the Business Analyst drop-down menu, click Active Project, and your new project name appears in the list with a check mark next to it indicating that it is the active project.

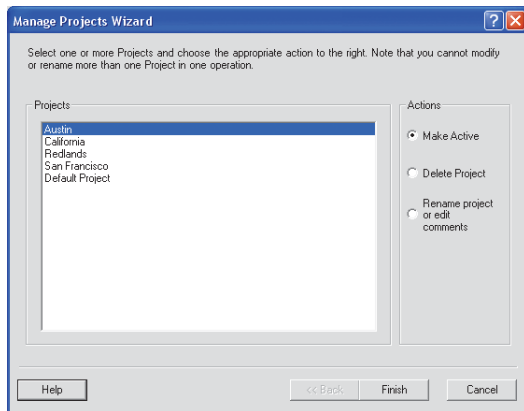


## Managing projects

1. Click the Business Analyst drop-down menu, click Active Project, and click Manage Projects.

The Manage Projects Wizard opens.

2. From the Projects list, click the project you want to manage.
3. From the Actions section, click one of the following:
  - Make Active
  - Delete Project
  - Rename project or edit comments
4. Click Finish.





## Creating a My Output Data folder on a different drive

All Business Analyst information—for example, study areas you create and analysis results—is stored in the My Output Data folder.

By default, the My Output Data folder is placed on the same drive where you installed ArcGIS. You can create another My Output Data folder on a different drive using the Preferences wizard.

Determine where you want your My Output Data folder to be located before you begin creating study areas. If you change the location of your My Output Data folder after creating a study area, any new layers added or analysis results will be stored in that location. All existing study areas will remain in the My Output Data folder on the drive where they were created.

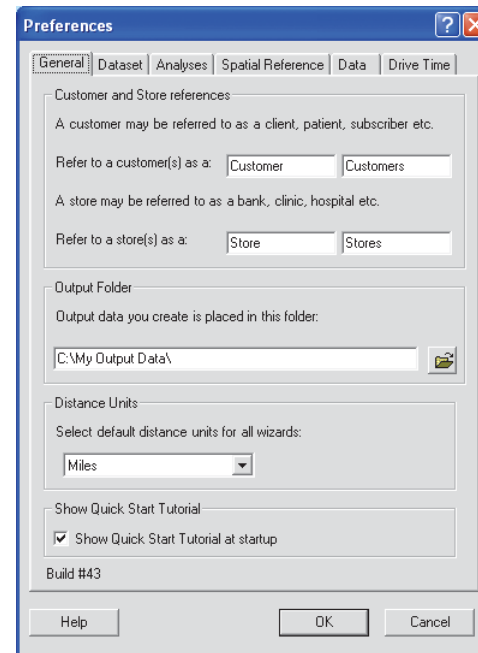
### Tip

#### Changing the My Output folder name

*You can change the folder name from My Output Data to any name you choose.*

1. Click the Business Analyst drop-down menu and click Preferences.
2. Under the Output Folder section, click the folder icon to browse to the location where you want the My Output Data folder stored, or type the path name in the text box.
3. Click OK.

Your new My Output Data folder is created in the location you selected.



# Virtual versus defined study areas

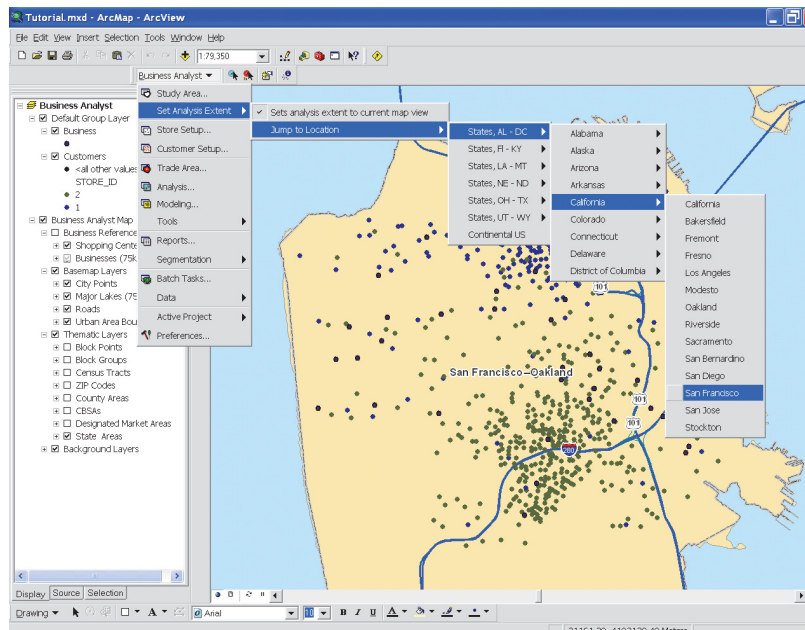
ArcGIS Business Analyst contains two different kinds of study areas: virtual study areas and defined study areas. A virtual study area is simply the current extent of your map document; it never has a defined boundary. A defined study area has a boundary.

You can use Set Analysis Extent as an alternative to bookmarks. Any preset choices in the Bookmark menu would leave the current map view of the map checked, and all analyses would only work on the visible extent. For example, if you were working on a defined study area in the Atlanta, Georgia, area and used an ArcMap bookmark you had created to move your map view to Detroit, Michigan, the analysis extent would still be set for Atlanta. The disadvantage of using bookmarks to navigate the map is that they don't change the active extent for analysis purposes.

The benefit to the virtual study area is that it allows you to set the current extent efficiently rather than scrolling through a long list of bookmarks while also updating your analysis extent.

The virtual study area is created using Set Analysis Extent in the Business Analyst menu. Use the Jump to Location option, which can be used to quickly navigate the map to a particular state or major MSA location and, at the same time, change the analysis extent to the area to which you are jumping.

Before creating a customer derived trade area, use the Study Area Wizard to create a study area that encompasses all of your customers. This defined extent will ensure your entire customer base is used in the analysis for best results.



# Using ZIP Codes

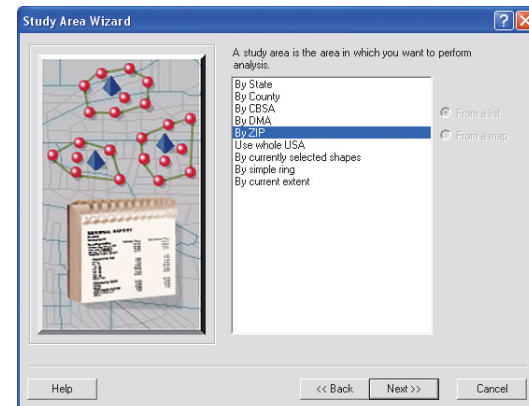
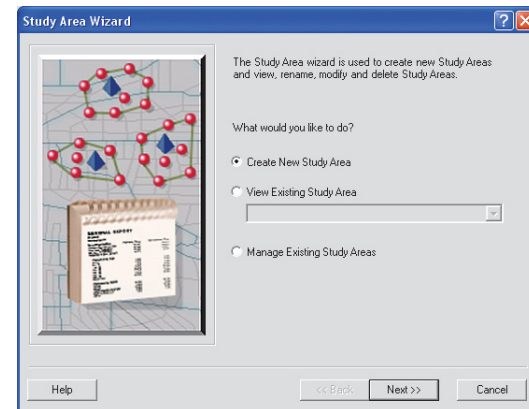
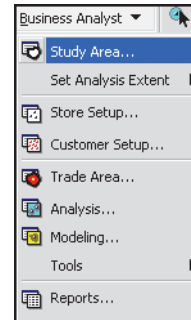
If you know the ZIP Codes where most of your customers and stores are located, this is an easy, accurate way to create a study area. For instance, if you send bulk mailings of advertising to a group of ZIP Codes, you might want to create a study area of those ZIP Codes.

Using the Study Area Wizard, define the ZIP Codes you want to include in your study area or use a wildcard (\*) after two, three, or four numbers to include all ZIP Codes with a certain number sequence.

1. Click the Business Analyst drop-down menu and click Study Area.

The Study Area Wizard opens.

2. Click Create New Study Area, then click Next.
3. From the list of study area options, click By ZIP, then click Next. ▶

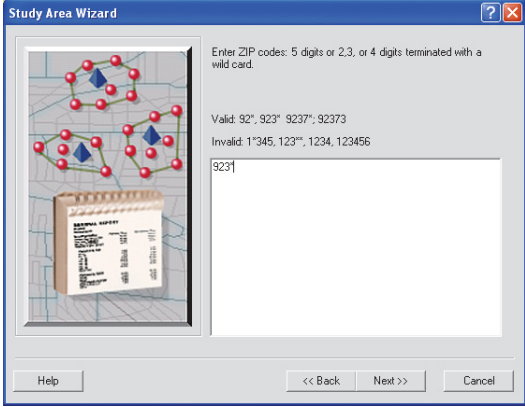


## Tip

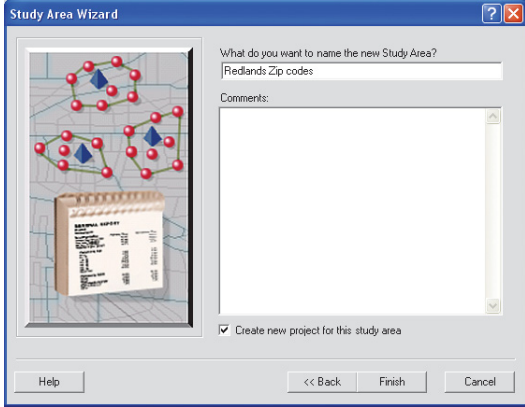
### Using wildcards

*To include all ZIP Codes with a certain number sequence, use a wildcard (\*) after two, three, or four numbers.*

4. Enter the ZIP Codes you want to include in your study area in the text field, then click Next.
5. Type a unique name for the study area. Note that you can use spaces or special characters. ►



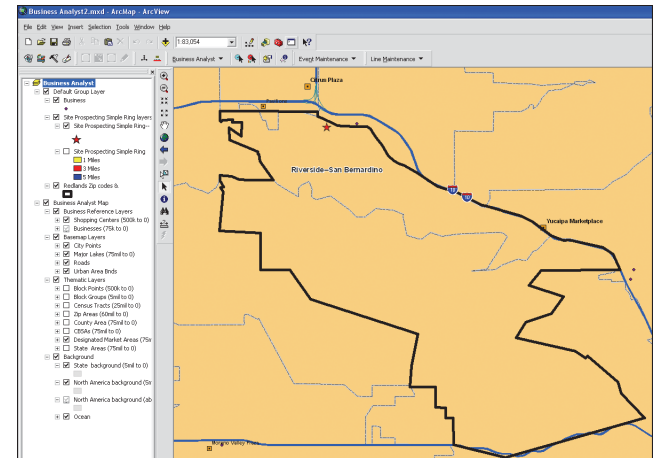
The 'Study Area Wizard' dialog box is shown at Step 4. On the left is a map with red dots and blue diamonds. The main text area says 'Enter ZIP codes: 5 digits or 2,3, or 4 digits terminated with a wild card.' Below this, it lists 'Valid: 92\*, 923\*, 9237\*, 92373' and 'Invalid: 1\*345, 123\*\*, 1234, 123456'. A text input field contains '923\*'. At the bottom are buttons for 'Help', '<< Back', 'Next >>', and 'Cancel'.



The 'Study Area Wizard' dialog box is shown at Step 5. On the left is the same map. The main text area asks 'What do you want to name the new Study Area?' with a text input field containing 'Redlands Zip codes'. Below this is a 'Comments:' section with a large text area. At the bottom, there is a checked checkbox labeled 'Create new project for this study area' and buttons for 'Help', '<< Back', 'Finish', and 'Cancel'.

6. Click Finish.

The study area you defined by the ZIP Codes you entered displays on the map in black.

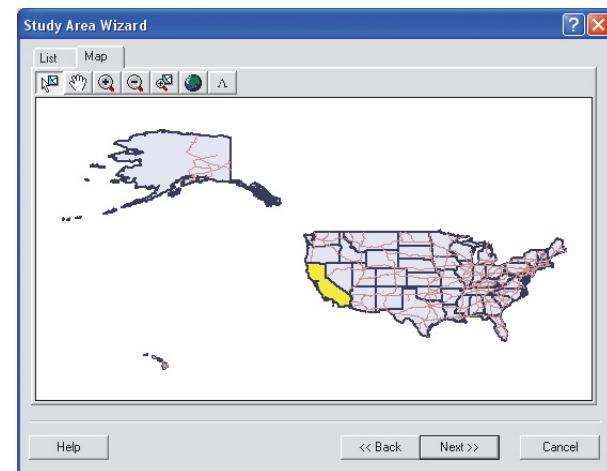
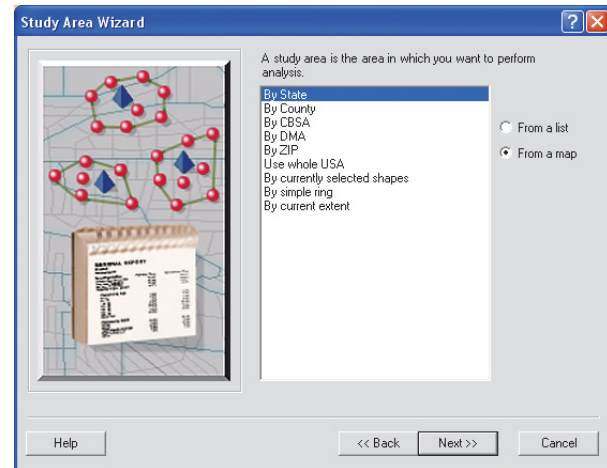









## Creating a study area from a map

To create a study area from a map, define what you want the map to show, then point and click or drag a box to select the study area.

1. Click the Business Analyst drop-down menu and click Study Area.
2. From the list of options, click one of the following:
  - By State
  - By County
  - By CBSA
  - By DMA
  - By ZIP
  - Use whole USA
  - By currently selected shapes
  - By simple ring
  - By current extent
3. Click From a map, then click Next.
4. Click the Select Features tool, then click an area on the map.

The selected features are highlighted in yellow. ►



-  Select Features
-  Pan
-  Zoom In
-  Zoom Out
-  Zoom to Selected Features
-  Full Extent
-  Annotation

## Tips

*To select more than one option, click and drag a box around the areas on the map or hold the Shift key down and click each area to select it.*

*Features remain highlighted until you make a different selection or deselect them.*

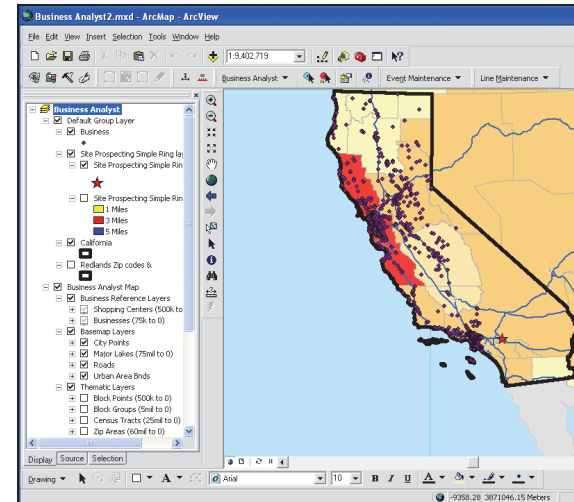
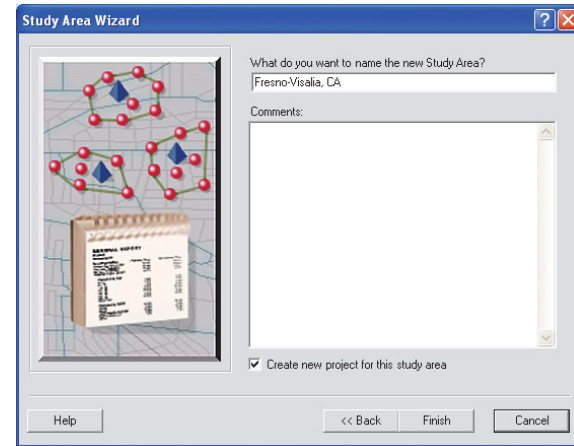
*To deselect a feature, click the Select Features tool, then hold the Shift key down and click the areas on the map you want to deselect.*

*Use the Zoom In tool to see the area you want more clearly.*

*Click the Annotation tool to display names on the map.*

5. Click Next.
6. Type a unique name for your study area. You can use spaces and special characters. Enter any comments in the Comments text box, then click Finish.

The study area you defined displays on the map.

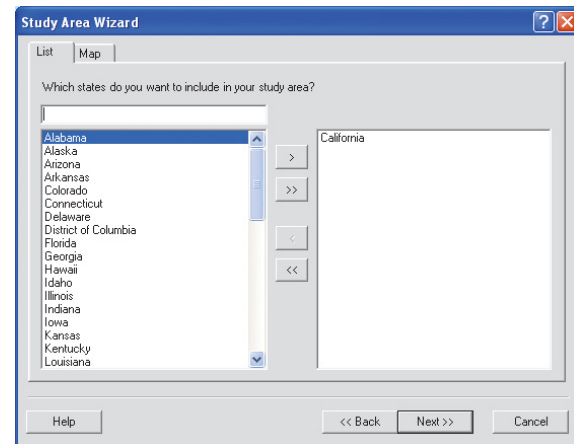
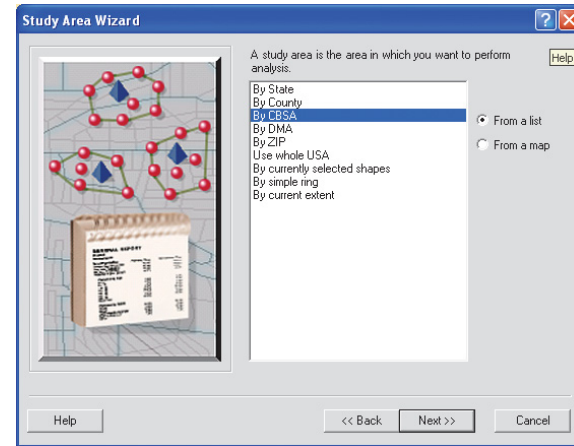




## Choosing a study area from a list

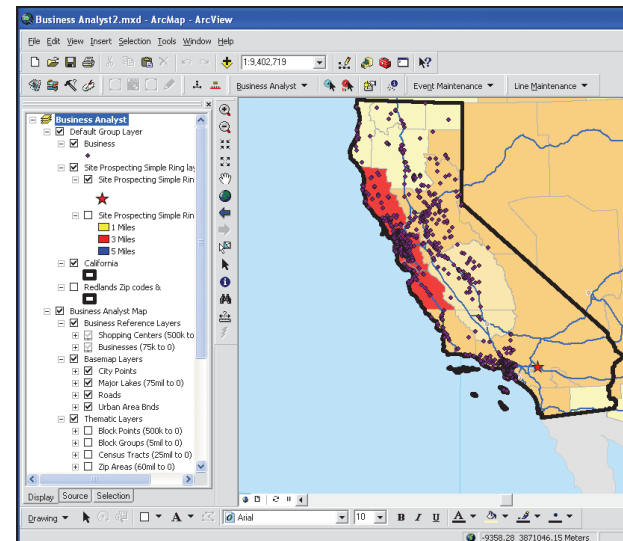
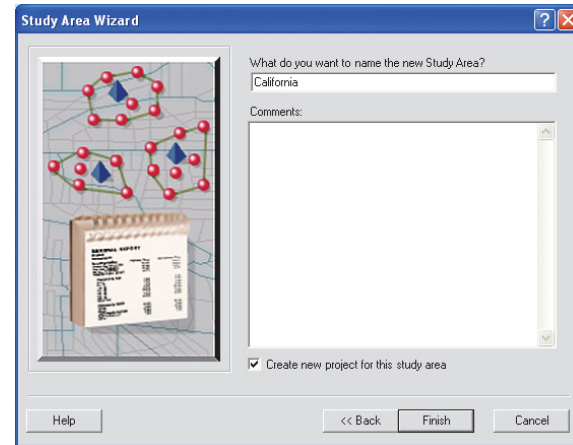
To create a study area from a list, define what you want the list to show, then select what you want to include in your study area.

1. Click the Business Analyst drop-down menu and click Study Area.
2. From the list of options, click one of the following:
  - By State
  - By County
  - By CBSA
  - By DMA
  - By ZIP
  - Use whole USA
  - By currently selected shapes
  - By simple ring
  - By current extent
3. Click From a list, then click Next.
4. Scroll to or type the name of the state you want to define in the text box, then click the Right arrow button to move it to the far right column. ►



5. Click Next.
6. Type a unique name for your study area. You can use spaces and special characters. Enter any comments in the Comments text box, then click Finish.

The study area you defined displays on the map.



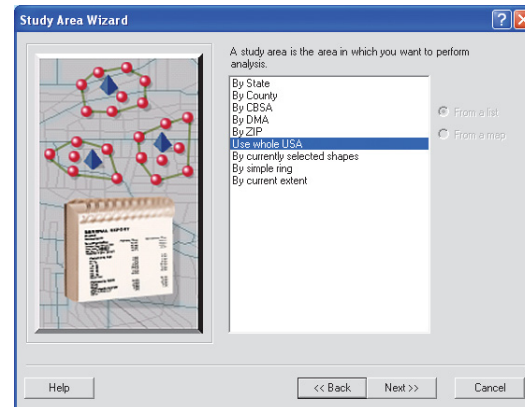
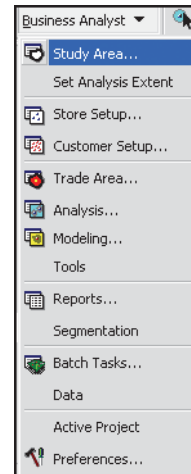
## Using the entire United States

Creating a study area of the United States allows you to look at the overall distribution of your data before deciding on which areas to focus.

If you know that your customer base is nationwide, using the entire United States is a good way to create a study area. You can also use this option if you don't know exactly where your customers are located. After you geocode them and can see their location, you can create a more specific study area by drawing a shape or selecting a trade area you've created.

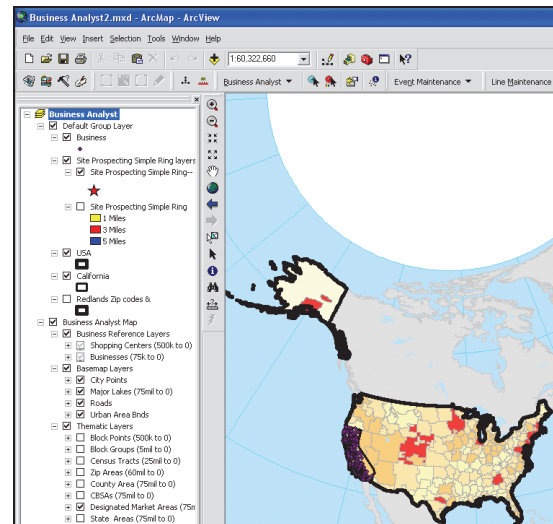
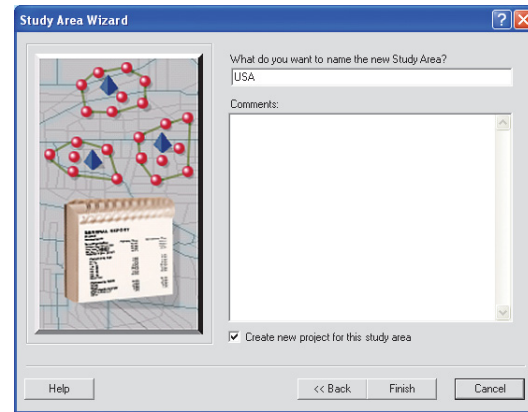
When you create a study area using the entire United States, drive time will be calculated from the compressed data, even for multiple store locations across the United States. However, it is recommended that you use no more than 10 store locations at a time to perform drive-time analysis.

1. Click the Business Analyst drop-down menu and click Study Area.
2. From the list of options, click Use whole USA, then click Next. ►



3. Type a unique name for your study area. You can use spaces and special characters. Enter any comments in the Comments text box, then click Finish.

The study area of the United States opens on the map. You can use the Zoom In tool to draw a box around the continental United States, if that's your area of interest, to zoom to it.



## Clipping all your data so it only includes the study area

When you create a study area, you can set the properties in the layer's data frame to clip all data to only include the study area shape.

1. Right-click the map area and click Properties.

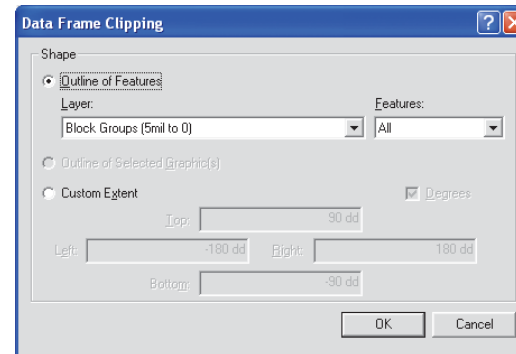
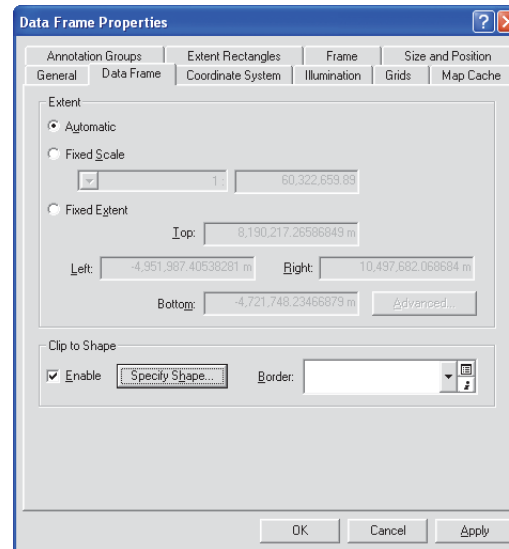
The Data Frame Properties dialog box opens.

2. Click the Data Frame tab.
3. Check the Enable check box.
4. Optionally, click the Specify Shape button to specify the shape you want.

The Data Frame Clipping dialog box opens.

- a. To outline the features, click Outline of Features, click the Layer drop-down arrow and specify the layer you want to use, then click the Features drop-down arrow and specify the features you want to use.
  - b. To set a custom extent, click Custom Extent and type the information in the text boxes.
  - c. Click OK.
5. Optionally, you can change the background color by clicking the Frame tab, then clicking the Background drop-down arrow and selecting a color.
  6. Click Apply in the Data Frame Properties dialog box.
  7. Click OK.

The data clipping process may take several minutes.



## Using a currently selected shape on the map

You can create a study area by drawing a shape on an existing study area. For instance, as in the example shown here, you may find that the study area you first created is larger than the actual area of your customers and stores. Use the drawing tools to draw a shape around the area you want your new study area to include.

You can also use this option to expand your study area if your customer set extends beyond the outline of your study area.

1. In ArcMap, open the study area you want to use to create a new study area.
2. On the Drawing toolbar, click the Shape drop-down arrow and click the shape you want to draw.

To draw a rectangle, click and drag a box over the area that you want to include in your study area.

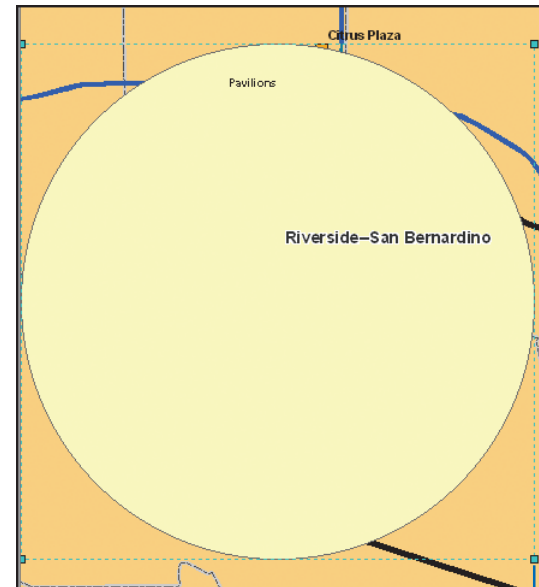
To draw a circle, click and drag a circle over the desired area. The crosshairs indicate the center of the circle.

To draw a polygon, click once on each vertex of the shape you want to draw and double-click to finish.

3. If you need to adjust the size of your shape, click the Select Elements tool, then click any of the graphic handles and drag.  
Make sure that the graphic remains selected (the graphic handles should be visible).
4. Click the Business Analyst drop-down menu and click Study Area. ►



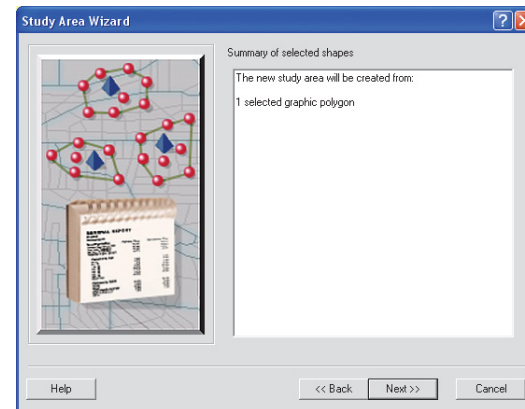
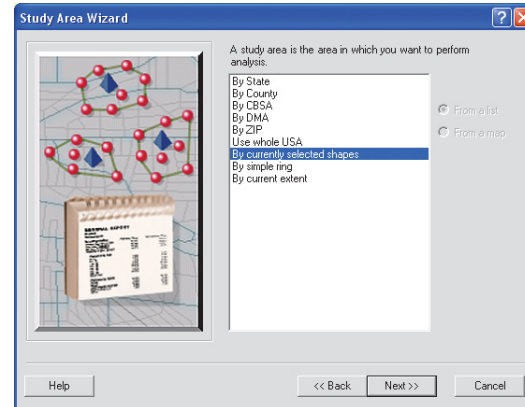
Select Elements tool



Handles for resizing

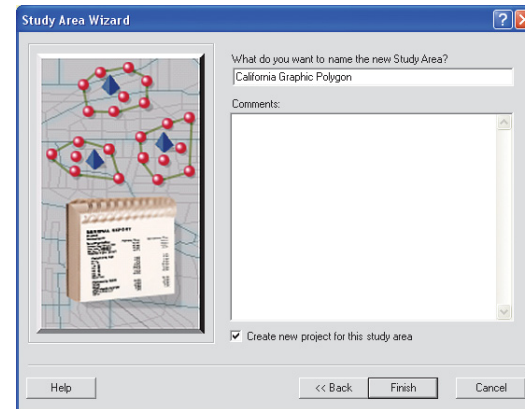
5. Click Create New Study Area, then click Next.
6. Click By currently selected shapes, then click Next.

The wizard displays a summary of the selected shapes. ►





7. Type a unique name for your study area. Note that you can use spaces or special characters. ►

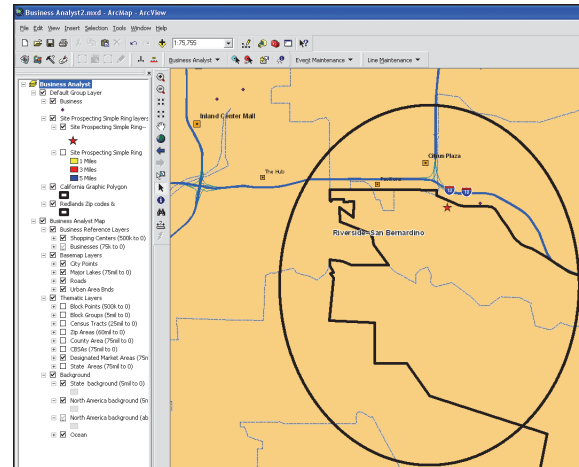
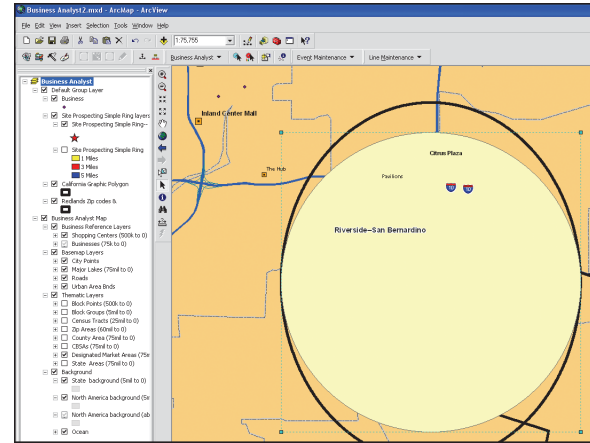


8. Click Finish.

The study area you defined opens.

You can now remove the shape by clicking its center to select it (the graphic handles should be visible) and pressing Delete.

The new study area is visible on the map.

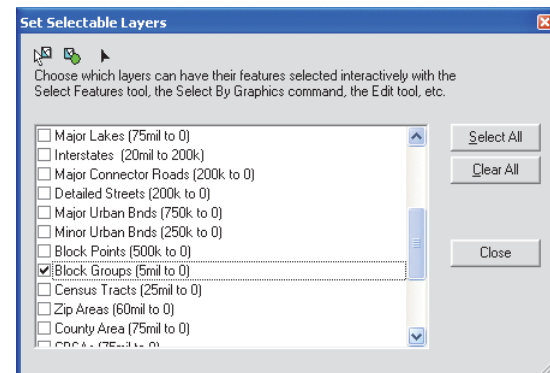
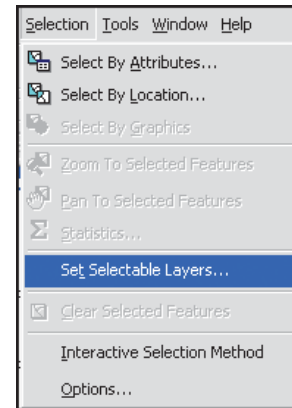


## Selecting subgeographies inside an existing study area

You can create a study area by selecting shapes from an existing study area. For example, suppose you've created a study area of 100 block groups where you send bulk mailings. After adding customers to your study area and performing analysis, you find that the majority of your sales come from 16 of those block groups. You can select those shapes on your study area and create a new one from those 16 block groups.

You can also use a trade area or any other shape in a layer to create a study area.

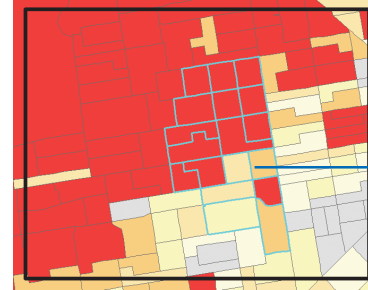
1. Open the study area you want to use to create a new study area.
2. From the ArcMap toolbar, click Selection and click Set Selectable Layers.
3. Click the Clear All button, then scroll down to Block Groups and check the check box.
4. Click Close.
5. In the table of contents, check the Thematic Layers on and check the Site Map layer off as well as any other layers that may obscure your selection of block group shapes. ►



6. Click the Select Features tool on the Tools toolbar and click the block groups you want.

To select more than one shape, hold down the Shift key as you click.

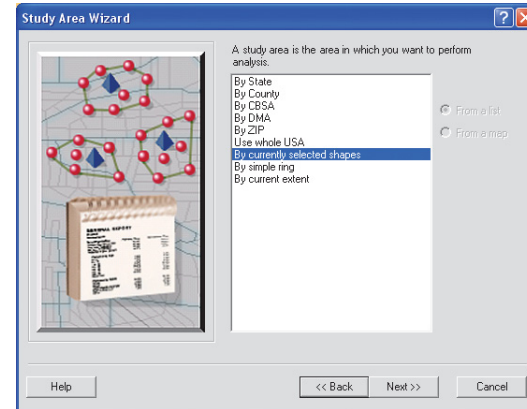
To deselect a shape, hold down the Shift key and click the selected feature with the Select Feature tool. ►



Selected block groups are outlined in blue.

7. Leaving the features selected, click the Business Analyst drop-down menu and click Study Area.
8. Click Create New Study Area, then click Next.
9. Click By currently selected shapes. The wizard panel displays a summary of the shapes that you've selected to define your study area.
10. Click Next.
11. Type a name for your study area.

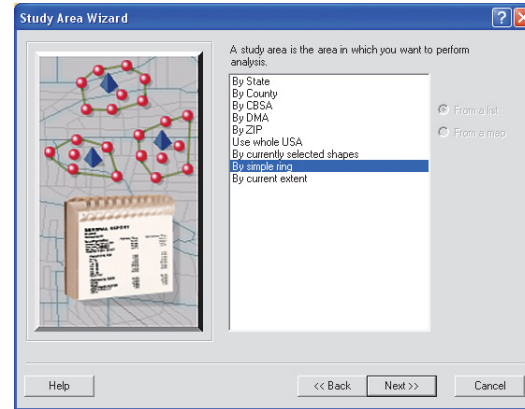
You must provide a unique name; you can use spaces or special characters.
12. Click Finish.
13. Deselect the block group shapes by going to the Selection menu and clicking Clear Selected Features. The new study area will then be visible.



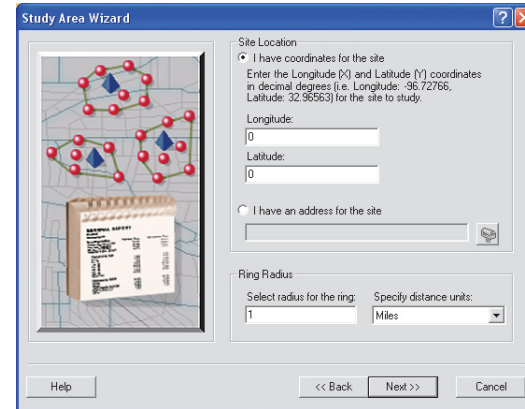
## Using a simple ring

You can create a study area around a point by specifying the location and entering the radius of the desired ring. The location can be entered using latitude/longitude coordinates or by entering an address.

1. Click the Business Analyst drop-down menu, click Study Area, then click Create New Study Area.
2. From the list of options, click By simple ring.
3. Click Next. ►



4. Enter the longitude and latitude of the site location or click I have an address for the site. The Geocode one address dialog box opens. Enter the address and click OK. Enter the radius of the ring in the Ring Radius text box, click the drop-down menu and select a distance unit from the list, then click Next. ►



The 'Study Area Wizard' dialog box is shown. It has a title bar with a question mark and a close button. On the left is a preview window showing a map with red dots and a small map of California. The main area is divided into two sections. The first section, 'Site Location', has a radio button selected for 'I have coordinates for the site'. Below this, it says 'Enter the Longitude (X) and Latitude (Y) coordinates in decimal degrees (i.e. Longitude: -96.72766, Latitude: 32.95563) for the site to study.' There are input fields for 'Longitude:' and 'Latitude:', both containing '0'. A second radio button, 'I have an address for the site', is unselected. The second section, 'Ring Radius', has a 'Select radius for the ring:' input field with the value '1' and a 'Specify distance units:' dropdown menu set to 'Miles'. At the bottom are buttons for 'Help', '<< Back', 'Next >>', and 'Cancel'.

Study Area Wizard

Site Location

☒ I have coordinates for the site

Enter the Longitude (X) and Latitude (Y) coordinates in decimal degrees (i.e. Longitude: -96.72766, Latitude: 32.95563) for the site to study.

Longitude: 0

Latitude: 0

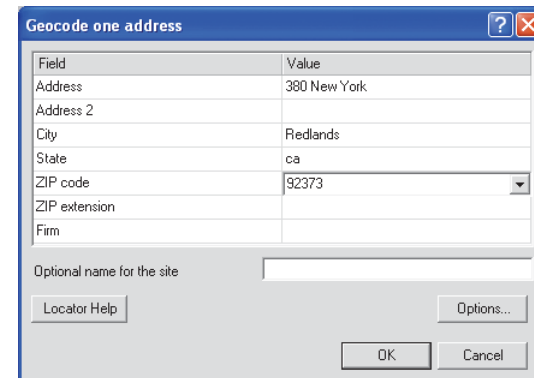
☐ I have an address for the site

Ring Radius

Select radius for the ring: 1

Specify distance units: Miles

Help << Back Next >> Cancel



The 'Geocode one address' dialog box is shown. It has a title bar with a question mark and a close button. It contains a table with two columns: 'Field' and 'Value'. The rows are: 'Address' with '380 New York', 'Address 2' with an empty field, 'City' with 'Redlands', 'State' with 'ca', 'ZIP code' with '92373' (which has a dropdown arrow), 'ZIP extension' with an empty field, and 'Firm' with an empty field. Below the table is an 'Optional name for the site' text box. At the bottom are buttons for 'Locator Help', 'Options...', 'OK', and 'Cancel'.

Geocode one address

Field	Value
Address	380 New York
Address 2	
City	Redlands
State	ca
ZIP code	92373
ZIP extension	
Firm	

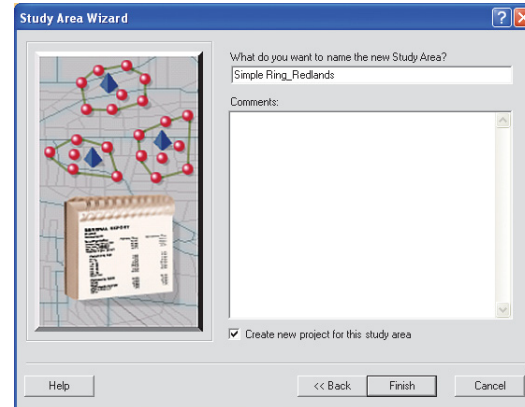
Optional name for the site

Locator Help Options... OK Cancel



5. Type a unique name for your study area; you can use spaces and special characters. Enter any comments in the Comments text box, then click Finish.

The study area you defined is displayed on the map.

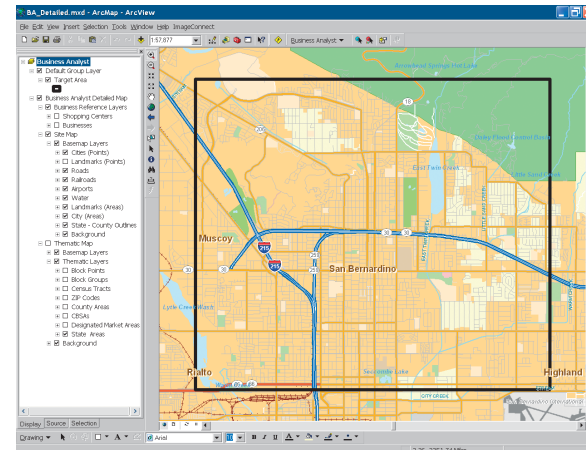
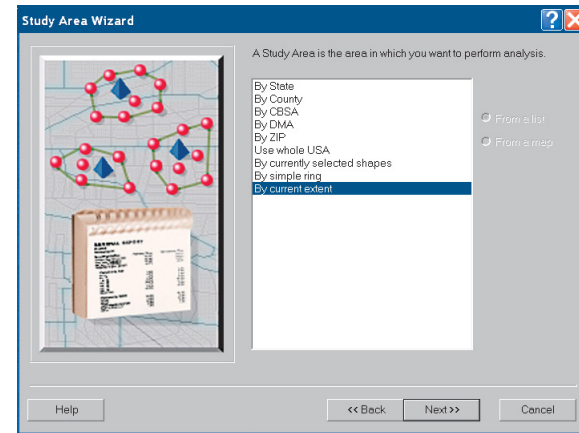


## Using the current map extent

You can create a study area using the current map view area (current map extent) by selecting the Study Area Wizard and choosing By current extent. A study area boundary will be created around the current map view area.

1. Click the Business Analyst drop-down menu, click Study Area, and click Create New Study Area.
2. From the list of options, click By current extent.
3. Click Next.
4. Type a unique name for your study area; you can use spaces and special characters. Enter any comments in the Comments text box, then click Finish.

The study area you defined displays on the map.

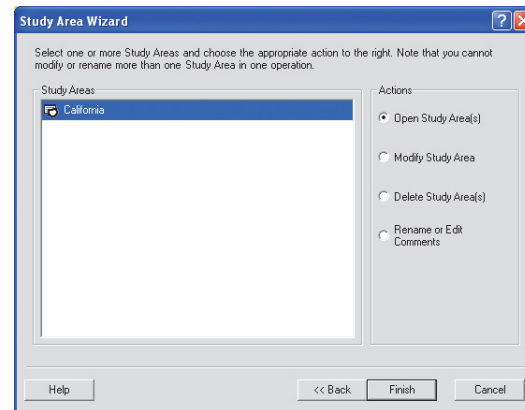
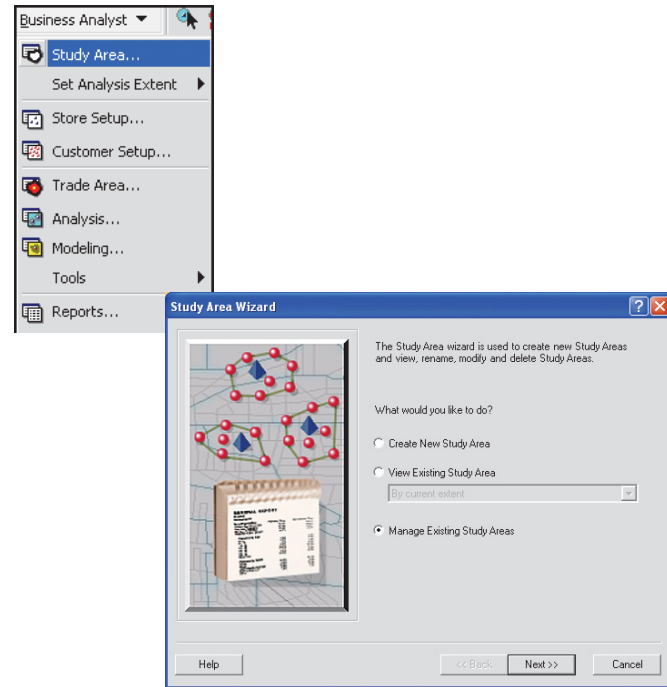


## Managing existing study areas

You can use the Study Area Wizard to open a study area you've already created. If you saved the map document that the study area is in before exiting ArcGIS, the study area map will be exactly as you left it.

If you didn't, any customer, store, or analysis layers in your study area won't be visible. You can add them to the map by opening them from their respective wizards. If you made any changes using the Preferences or Thematic Mapping wizards, you'll also need to reset those if you didn't save the map document.

1. Click the Business Analyst drop-down menu and click Study Area.
2. Click Manage Existing Study Areas and click Next.
3. Select one or more study areas from the Study Areas section, then select one of the following actions: Open Study Area(s), Modify Study Area, Delete Study Area(s), or Rename or Edit Comments.
4. Click Finish.



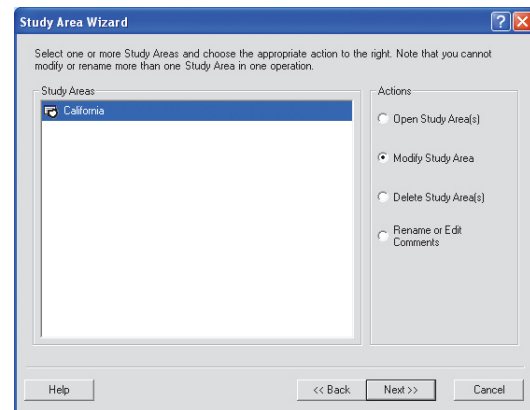
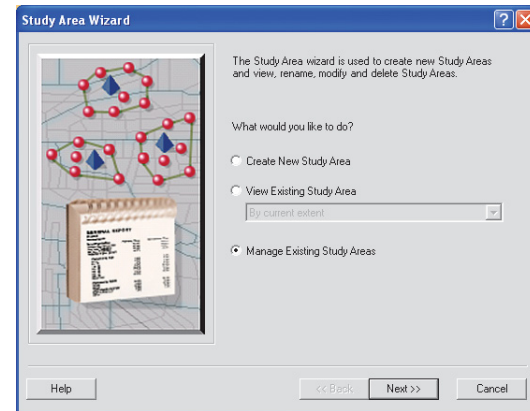
## Renaming or modifying a study area

To change the name of or modify an existing study area, use the Manage Existing Study Areas option on the Study Area Wizard. When you're finished with your changes, you can open the study area or cancel the wizard.

1. Click the Business Analyst drop-down menu and click Study Area.
2. Click Manage Existing Study Areas and click Next.
3. Click the study area you want to edit, then click Rename or Edit Comments or Modify Study Area, then click Next.
4. If you selected to Rename or Edit Comments, enter the new name in the text field, enter any comments, and click Finish.

If you selected to modify the study area, follow the Study Area Wizard to make your changes to the study area.

Click Finish when you're finished modifying the study area.



## Deleting a study area

You can delete a study area by using the Study Area Wizard. Deleting a study area removes it permanently from the My Output Data folder. If you've saved the study area to a map document and that map document is open when you delete the study area, it will also be removed from the map document. Deleting a study area permanently removes any layers or analysis results associated with the study area from Business Analyst. The original files you used aren't removed from your hard drive.

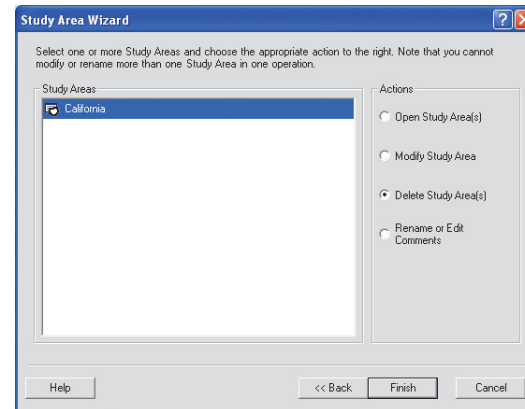
### Tip

#### Removing a study area from the visible legend

*To remove a study area from the visible legend, right-click the layer and click Remove. Your study area remains in your .mxd file for future use but is no longer in your table of contents or visible on your map. If you go to the Study Area Wizard dialog box and choose Manage Existing Study Areas, the study area will be available to reopen.*

1. Click the Business Analyst drop-down menu and click Study Area.
2. Click Manage Existing Study Areas and click Next.
3. Click the study area you want to delete, then click Delete Study Area(s).
4. Click Finish. A dialog box opens asking if you want to proceed. Click Yes to delete the study area.

The selected study areas are permanently deleted from Business Analyst.



# Adding data to Business Analyst

# 5

## IN THIS CHAPTER

- Adding data to your map
- Add customers/stores—tabular data
- Add customers/stores—map ready
- Create empty customer/store layer
- Enter addresses manually
- Add customers/stores—x,y data
- Analysis layer setup
- Adding business listings
- Adding an Excel table
- Import Business Analyst datapack
- Setting field visibility
- Manage existing customers/stores
- Substitute your own terms for customers and stores

In the previous chapters, you learned how to create a study area. This chapter shows you how to add your own data, such as customers, stores, other points, image files, and street files, to your study area using the Customer Setup and Store Setup wizards.

The Customer Setup and Store Setup wizards have two purposes—the first is to allow you to convert *tabular data* (.dbf, .txt, or relational database management system [RDBMS] format) to points on a map or geocode them using a geocoding engine by Group 1 Software. If you've already been working in ArcGIS and have a shapefile of your points, you can use the wizard to add the shapefile to the map. The second purpose is to identify the layer as a customer or store layer. Any wizards that need customer or store information for analysis will look first at the layers you've identified as your customer or store layers.


You don't have to use the words customers and stores to describe your data. You can set Business Analyst to use the terms that best fit your business on all the wizards—for example, representatives and contacts, clubs and members, agents and prospects, or doctors and patients.



## Adding data to your map

You can add tabular data of your customers and stores to your map. The Customer Setup and Store Setup wizards geocode your data and place it as points on your map. Whenever data is added to your map, it will be associated with the analysis extent that's active at the time. If the active analysis extent is a study area, the layer will be added to the group layer of that study area. You can change the analysis extent at any time using Set Analysis Extent on the Business Analyst menu.

Your tabular data can be in the form of a .dbf file, a comma- or tab-delimited .txt file, or an RDBMS. If it's an RDBMS, you must first bring the data into ArcGIS before you can set it up with a wizard.

To do this, click the Add Data button , click the Look in drop-down arrow, then click Database Connections. You can then choose the database connection you want and proceed with the wizard to finish adding the database to ArcMap. Only stores that fall in your study area will be analyzed if you have set up a study area using the Create Study Area Wizard and that study area is set as the analysis extent.

The Customer Setup and Store Setup wizards are identical for this task. The Customer Setup Wizard will be used here to illustrate the steps.

Both the Customer Setup and Store Setup wizards contain the same geocoding dialog box that will geocode points on the map by Address/City/State/ZIP Code (optional), Address/ZIP, ZIP, or ZIP+4. The more information you can provide, the better your geocoding results will be. If you don't have addresses in your database and will be geocoding by ZIP or ZIP+4, click ZIP or some other database field in the Address drop-down menu and the ZIP drop-down menu on the geocoding dialog box. If your database contains latitude-longitude coordinates—this means the data has already been geocoded or the coordinates have been obtained using a global positioning system (GPS)—click the Tools menu on the ArcMap menu and click Add XY data to add

the database to the map by latitude-longitude. You can then step through either the Customer Setup or Store Setup wizard using the Map-ready data option.

Geocoding by ZIP Code places the customer or store point at the center point (centroid) of the ZIP Code. Because of this, the point locations are less accurate than geocoding by address, city, and state, which give an address range. However, using address, city, and state can still result in multiple points getting geocoded at one location because the customer file might contain names of all the people in a household.

### Adding data using the Add Data button on the ArcMap toolbar

You can use the Add Data button on the ArcMap toolbar to add data to your map. Click the Add Data button, browse to the data you want to add, then click Add. This will add the data to the map on the Source tab of the table of contents, but you'll still have to geocode the data's attribute table on the map to make it available for customer or store setup. This is done using the ArcMap menu by clicking Tools, pointing to Geocoding, then clicking Geocode Addresses. After geocoding the database, you'll be able to use it in either the Customer Setup or Store Setup wizard.



## Adding customers from tabular data to your study area

The following task shows you how to add customers or stores to your study areas using the Customer Setup Wizard. In this task, you'll add the customers to your study area as tabular data.

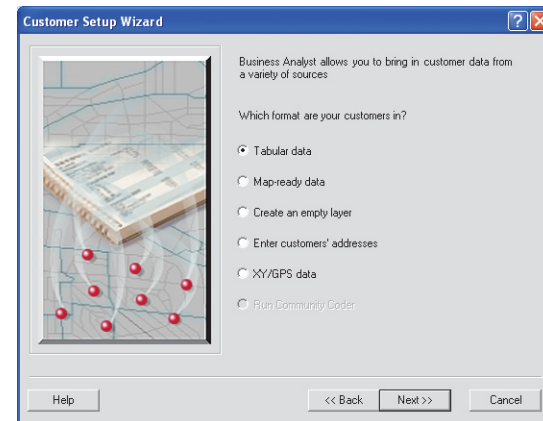
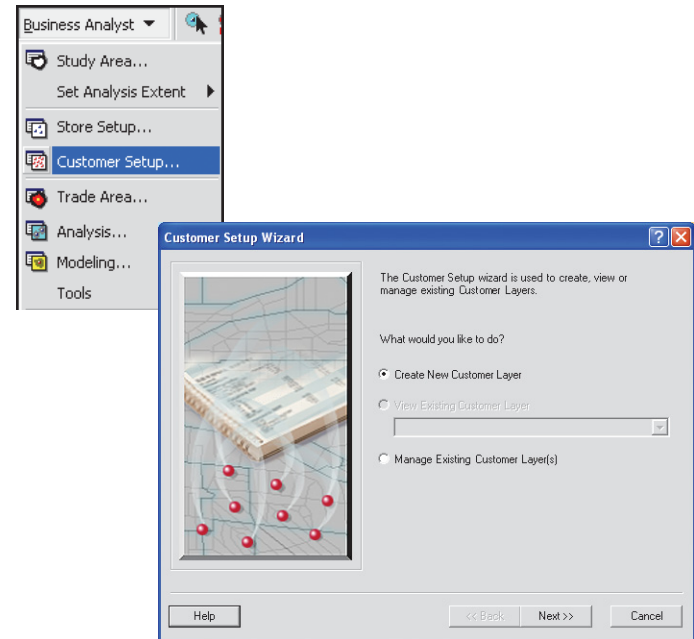
### Tip

#### Analysis extent

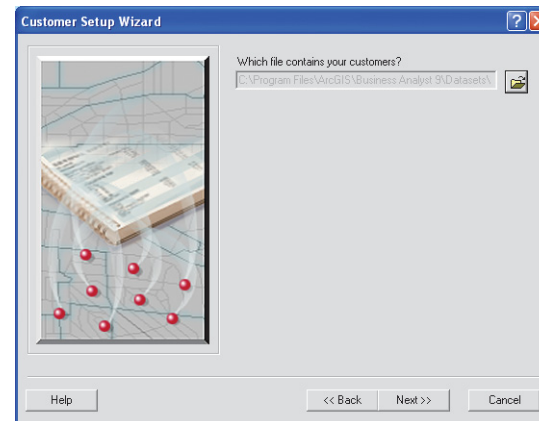
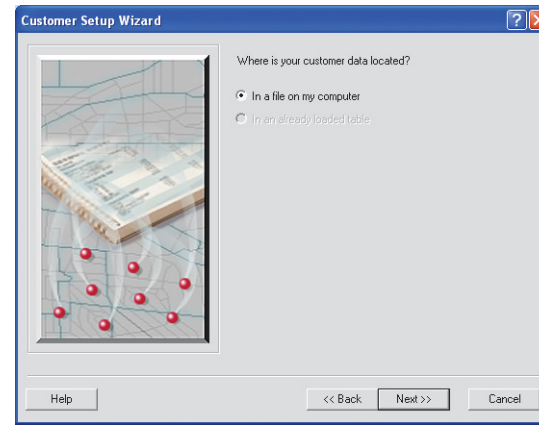
*Confirm that the analysis extent is set as you want. Any layer added to the map while an extent is active will be associated with that analysis extent.*

## Adding customers to your study area using tabular data

1. In ArcMap, open the map to which you want to add a customer layer; for example, start with Business Analyst.mxd and save it to a new map document with a name of your choice.
2. Click the Business Analyst drop-down menu and click Customer Setup. The Customer Setup Wizard opens. Click Create New Customer Layer, then click Next.
3. Click Tabular data, then click Next. ►

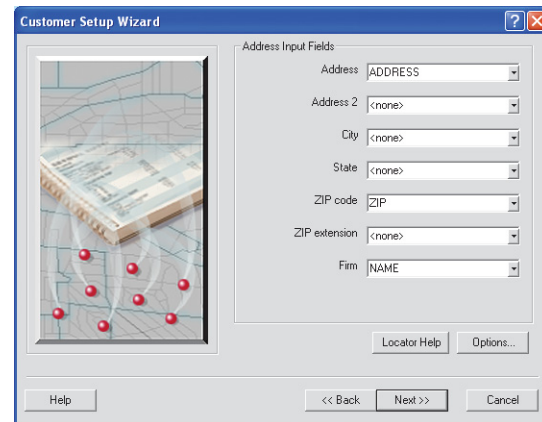
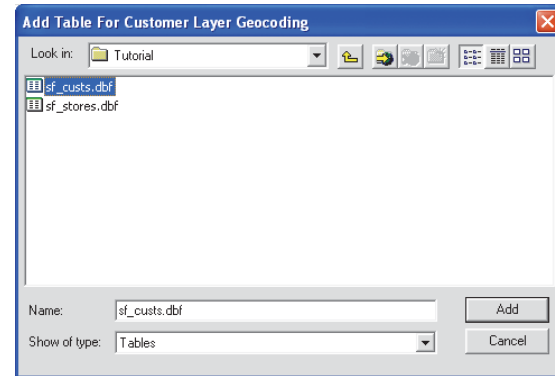


4. Click In a file on my computer, then click Next.
5. Click the browse button and navigate to the file on your computer that contains your customer data. ►



6. Click the file that contains the customer data you want to use and click Add, then click Next.
7. In the Address Input Fields area, click the drop-down arrows to define your customers' locations, then click Next.

If you don't have the information for a specific field, click the drop-down arrow for that field and click <none>. ►

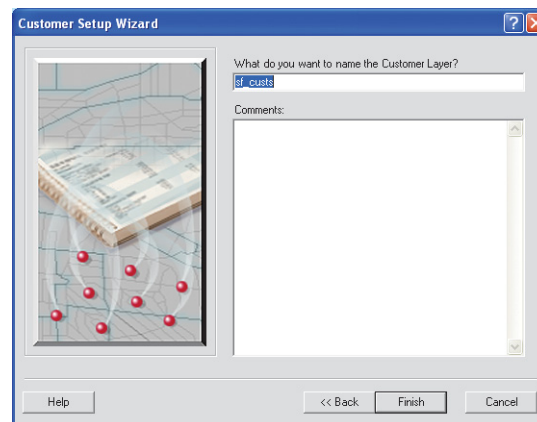
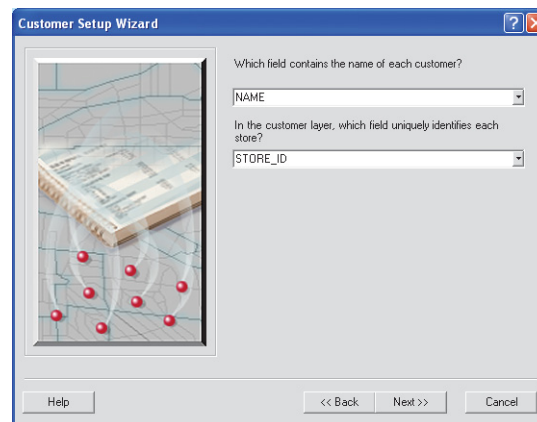


## Tip

### Analyzing customers

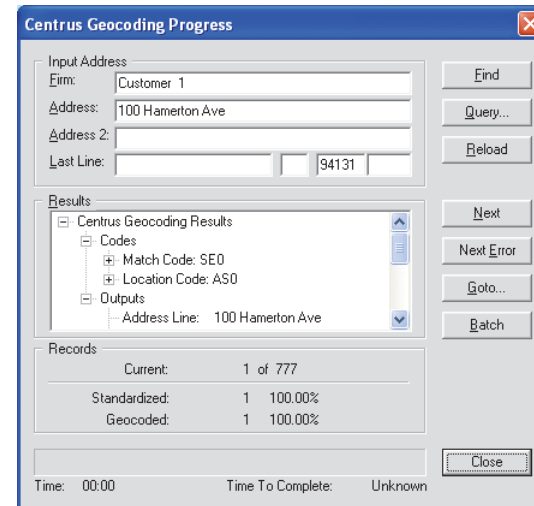
*It is important to note that for Business Analyst to analyze your customers, each one must be uniquely identified. You need to have a field in your customer database that has a unique name or number for each customer.*

8. Click the first drop-down menu and click the field that contains the name of each customer. Click the second drop-down menu to choose the field that uniquely identifies each store, then click Next.
9. Type the name of the customer layer in the text box, type any comments, then click Finish. ►



10. If you're using Business Analyst Centrus Geocoding, you can geocode one record at a time, or you can click Batch to geocode all records in the database.
11. Click Finish, and a Centrus Geocoding log file will appear providing results of your geocoding.

Your customer points appear as a layer in your map. A shapefile (map-ready) version of your data is created and stored in the My Output Data\Projects\Your Project\CustLayers folder.



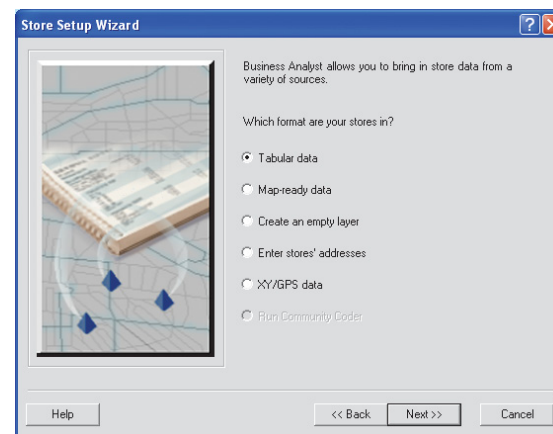
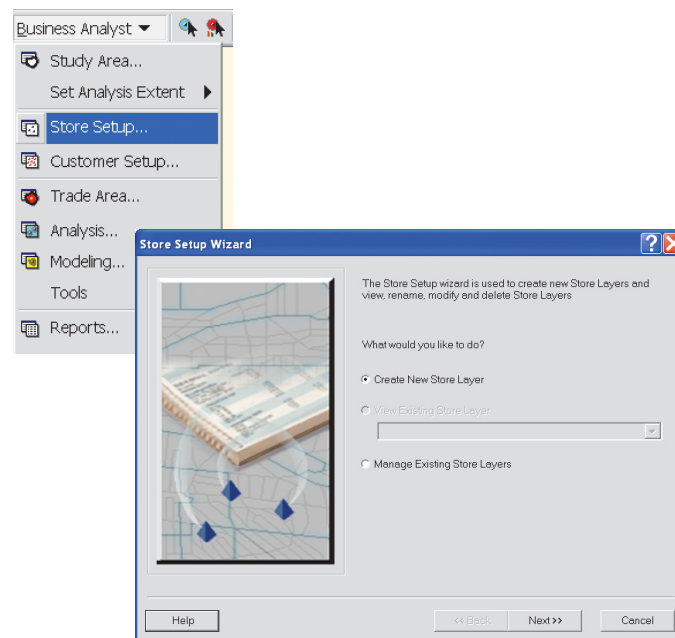
The image shows a screenshot of the 'Centrus Geocoding Progress' dialog box. It has a blue title bar with the text 'Centrus Geocoding Progress' and a close button. The dialog is divided into several sections. The 'Input Address' section at the top contains four text boxes: 'Firm:' with 'Customer 1', 'Address:' with '100 Hamerton Ave', 'Address 2:', and 'Last Line:' with '94131'. To the right of these boxes are buttons for 'Find', 'Query...', 'Reload', 'Next', 'Next Error', 'Goto...', and 'Batch'. Below the input section is a 'Results' section with a tree view showing 'Centrus Geocoding Results' expanded, containing 'Codes' (with 'Match Code: SE0' and 'Location Code: AS0') and 'Outputs' (with 'Address Line: 100 Hamerton Ave'). Below the results is a 'Records' section with a table showing progress: 'Current: 1 of 777', 'Standardized: 1 100.00%', and 'Geocoded: 1 100.00%'. At the bottom, there are fields for 'Time: 00:00' and 'Time To Complete: Unknown', along with a 'Close' button.

Records	
Current:	1 of 777
Standardized:	1 100.00%
Geocoded:	1 100.00%

## Adding stores from tabular data to your study area

The following task shows you how to add stores to your study area using the Store Setup Wizard. In this task, you'll add the stores to your study area as tabular data.

1. In ArcMap, open the map to which you want to add a store layer (for example, Business Analyst.mxd).
2. Click the Business Analyst drop-down menu and click Store Setup.
3. Click Create New Store Layer, then click Next.
4. Click Tabular data, then click Next.

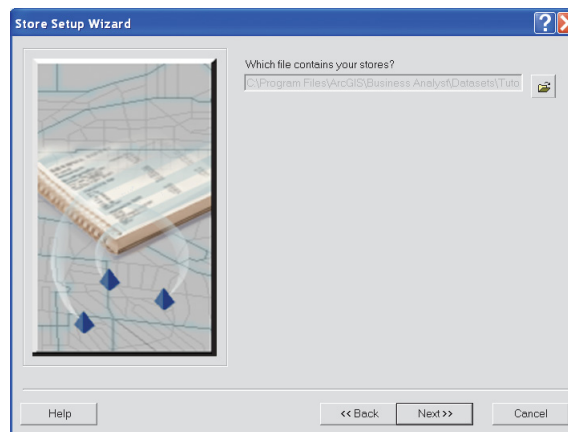
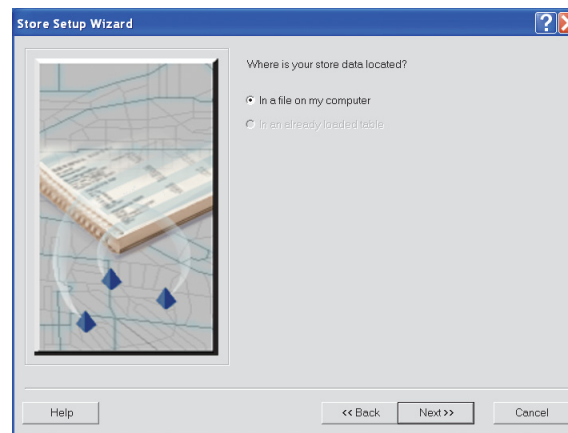


## Tip

### Analyzing stores

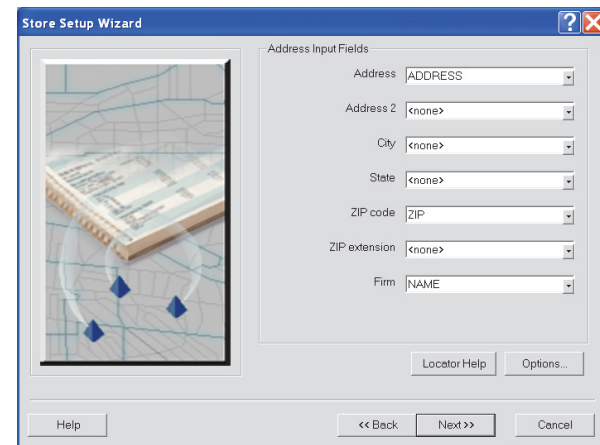
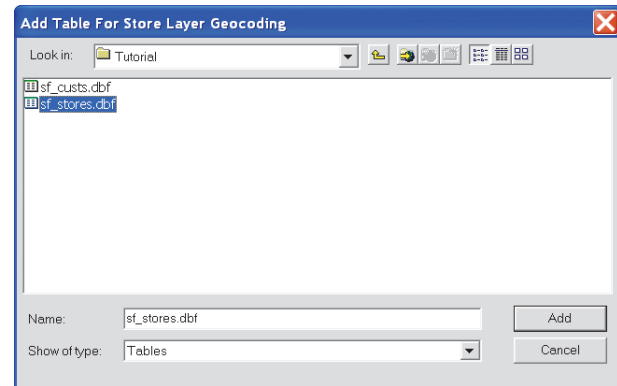
*It is important to note that for Business Analyst to analyze your stores, each one must be uniquely identified. If you don't have a field in your database that has a unique name or number for each store, Business Analyst can create it for you.*

5. Click In a file on my computer, then click Next.
6. Click the browse button to navigate to the file that contains your store data. ►

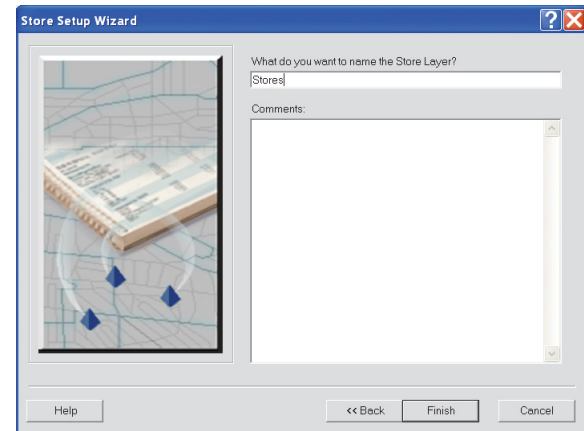
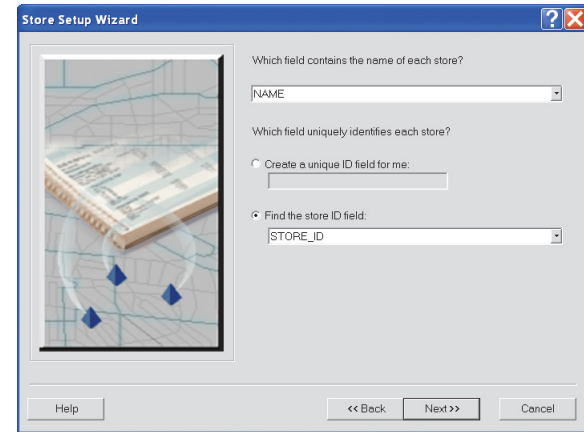




7. In the Add Table For Store Layer Geocoding dialog box, click the file that contains your store data, then click Add. The file path is entered in the text box. Click Next to continue.
8. In the Address Input Fields dialog box, click the drop-down arrows to define your store location, then click Next. If you don't have the information for a specific field, click the drop-down arrow for that field and click <none>. ►



9. Click the first drop-down arrow and click the field that contains the name of each store. If you don't have one, click <none>.
10. If you don't have a store ID field, click Create a unique ID field for me. Business Analyst automatically names the field BA\_New\_ID, but you can specify another name. For Business Analyst to analyze each of your stores, each one must be uniquely identified.
11. If you have a store ID field, click Find the store ID field, then click the drop-down arrow to choose it.
12. Type the name of the store layer in the text box, type any comments, then click Finish. Your store points appear as a layer in your map. A shapefile (map-ready) version of your data is created and stored in the My OutputData\Projects\Your Project\StoreLayers folder.



## Adding customers or stores from map-ready data

A *shapefile* is a type of file created in ArcGIS that contains the geographic location of your customers or stores and the attributes behind them. In other words, a shapefile contains the information needed to place your points on the map as well as the data associated with each point.

If your customers or stores are in a shapefile, this means they've already been geocoded—the shapefile just needs to be added to the study area and identified as a customer or store layer. Shapefiles have a .shp extension.

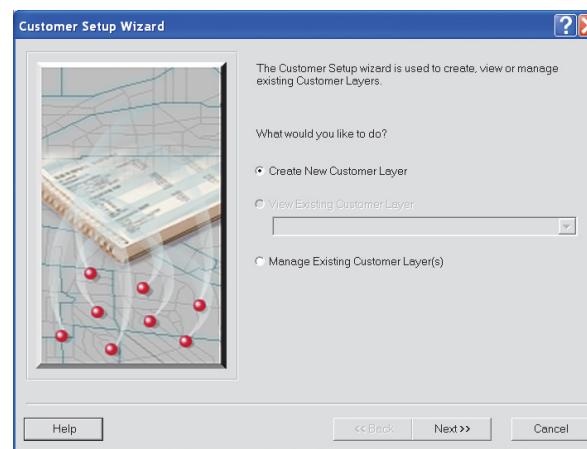
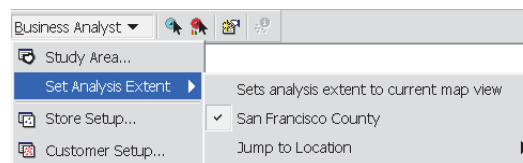
### Tip

#### Using the Store and Customer Setup wizards for this task

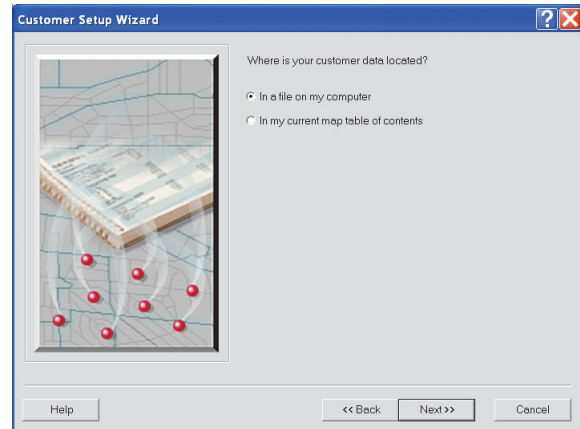
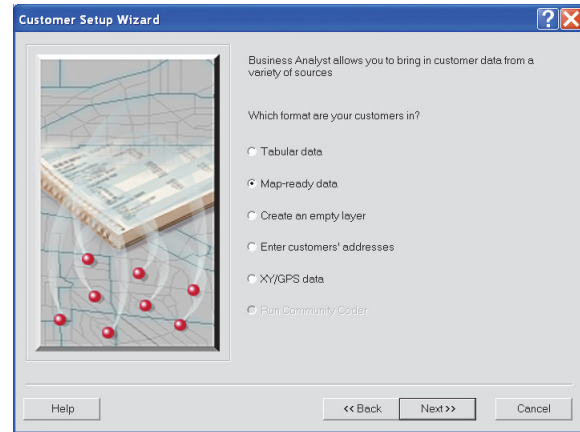
*The Customer Setup and Store Setup wizards are identical for this task. You can follow the same steps using the Store Setup Wizard to accomplish this with a store layer. This example uses the Customer Setup Wizard for a customer layer.*

## Adding customers from map ready data

1. In ArcMap, open the map document to which you want to add customers.
2. Click the Business Analyst drop-down menu and point to Set Analysis Extent to verify your active analysis extent. Any layers added to the map will be put in the group layer associated with this analysis extent.
3. Click the Business Analyst drop-down menu and click Customer Setup.
4. Click Create New Customer Layer, then click Next. ►

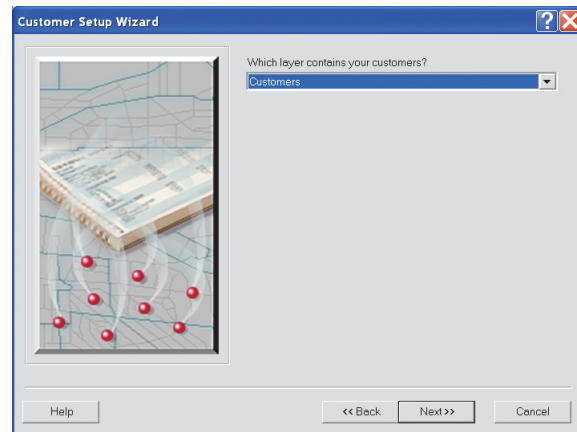
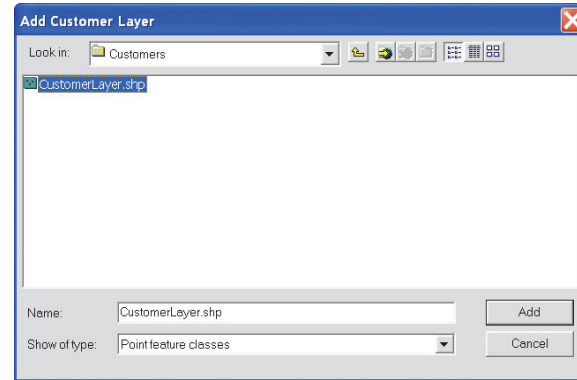


5. Click Map-ready data, then click Next.
6. Click In a file on my computer, or In my current map table of contents, then click Next. ►





7. If you selected In a file on my computer, click the browse button to navigate to the file that contains your customer data, click the file name and click Add. Click Next to continue.
8. If you selected In my current map table of contents, click the Which layer contains your customers drop-down menu to choose a layer, then click Next.

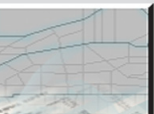
If the file isn't in the list, click Back and click In a file on my computer. ►



10. Type a name and comments for your customer layer, then click Finish.

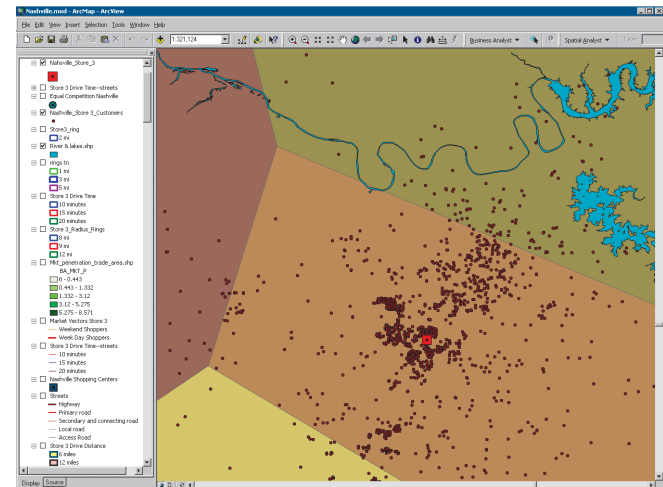
Your customer points appear as a layer in your map.

**Customer Setup Wizard**  



Which field contains the name of each customer?

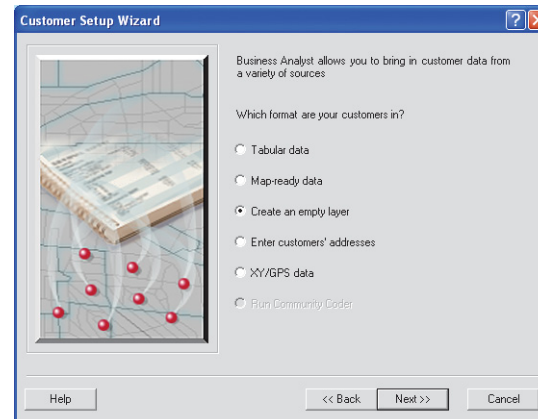
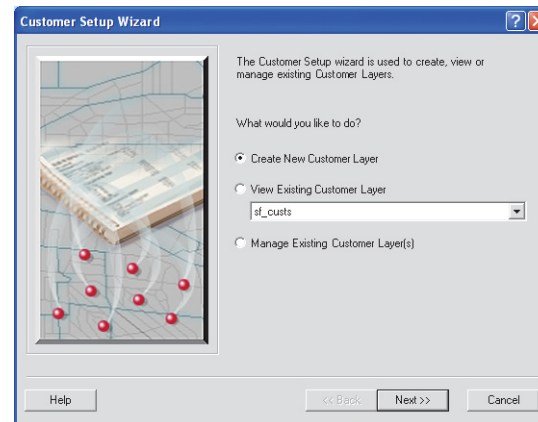
In the customer layer, which field uniquely identifies each store?



## Creating an empty customer or store layer

You can use the Customer Setup Wizard to build an empty customer or store layer. Business Analyst allows you to set up a layer and define the field name, field alias, field type, and precision/scale of the field if appropriate. You can go back later and populate the layer with field values.

1. Click the Business Analyst drop-down menu and click Customer Setup.
2. Click Create New Customer Layer, then click Next.
3. Click Create an empty layer, then click Next. ►





4. Click the Add button.

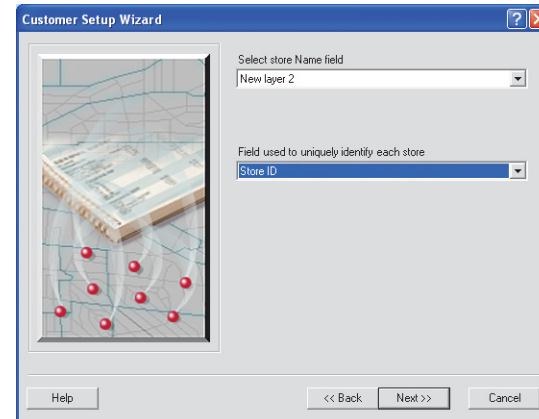
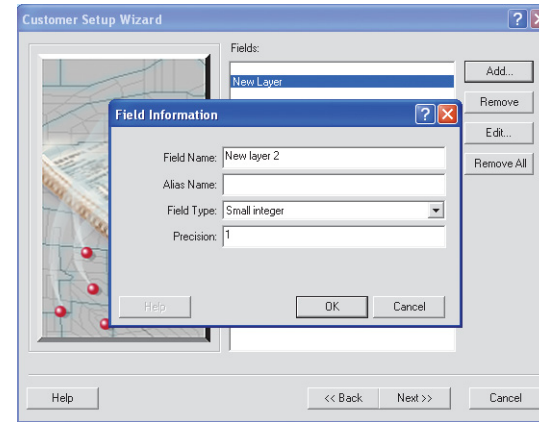
The Field Information dialog box opens. Complete the following information:

- a. Type a name in the Field Name text box.
- b. Type an alias name in the Alias Name text box (optional).
- c. Click the drop-down menu and click a Field Type.
- d. Type a number in the Precision text box.
- e. Click OK.

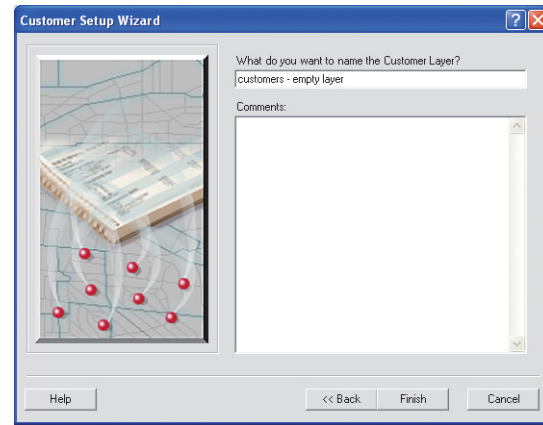
If you want to remove a field, click the field and click Remove. To make changes to a field, click the field and click Edit, make any necessary edits, then click OK. To remove all the fields in the list, click Remove All.

When you're finished adding fields, click Next.

5. Click the drop-down menu and click a store name field from the list.
6. Click the second drop-down menu and click the field used to uniquely identify each store, then click Next. ►



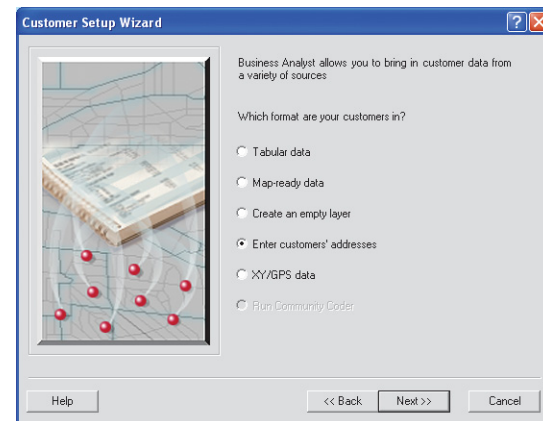
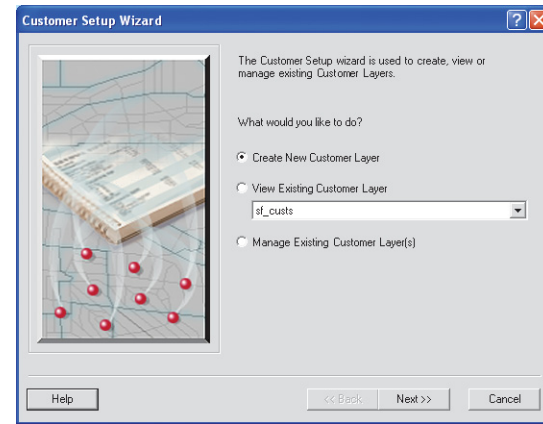
7. Type a customer layer name in the text box, type any comments, then click Finish.  
Your new customer layer is added to the table of contents.



## Entering customer or store addresses manually

If you don't have a customer or store database, you can use the Business Analyst Customer Setup Wizard to enter customer or store addresses manually and build your own address table. The table of addresses will be set up for use in Business Analyst and will be added as a layer to the map.

1. Click the Business Analyst drop-down menu and click Customer Setup.
2. Click Create New Customer Layer, then click Next.
3. Click Enter customers' addresses, then click Next. ►



4. Click the Add button.

The Geocode one address dialog box opens.

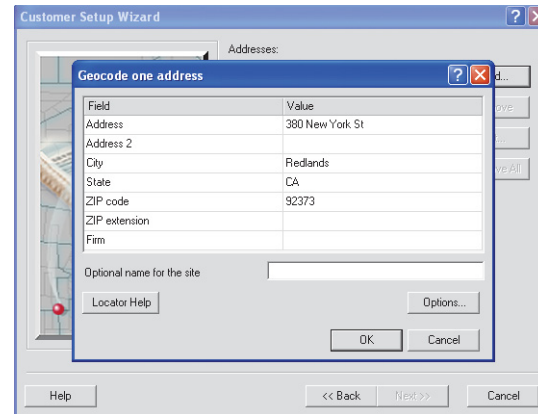
Complete the following information:

- a. Type an address in the Address text box.
- b. Type a city in the City text box.
- c. Type a state in the State text box.
- d. Type a Zip Code in the Zip code text box.
- e. Optionally, type a name in the Optional name for the site text box and click OK.

If you want to remove an address, click the address and click Remove. To make changes to an address, click the address and click Edit, make any necessary edits, then click OK. To remove all addresses, click Remove All.

When you're finished adding addresses, click Next.

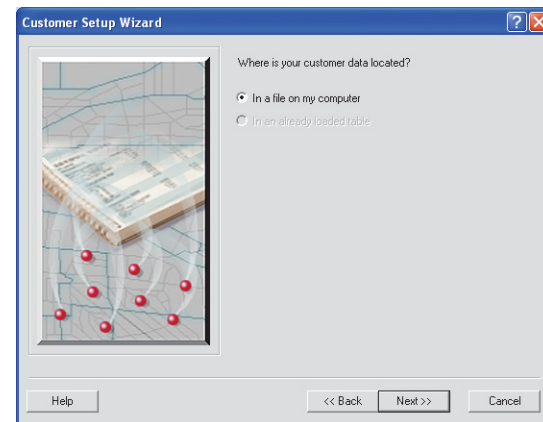
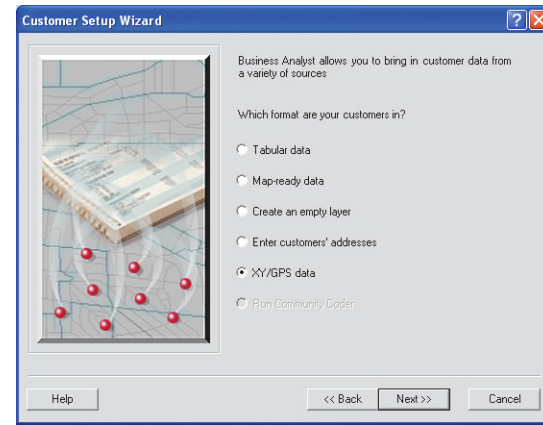
5. Type a customer layer name in the text box, type any comments, then click Finish.



## Adding customer or store data containing x,y coordinates

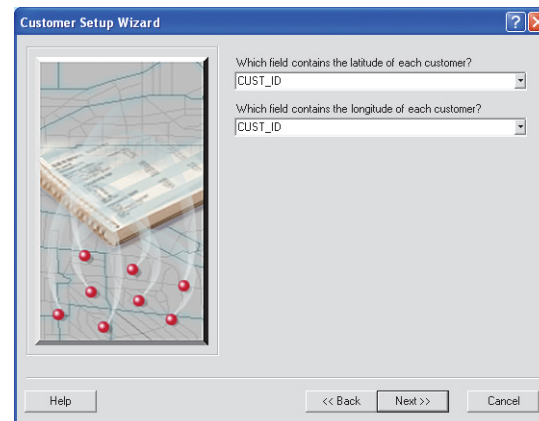
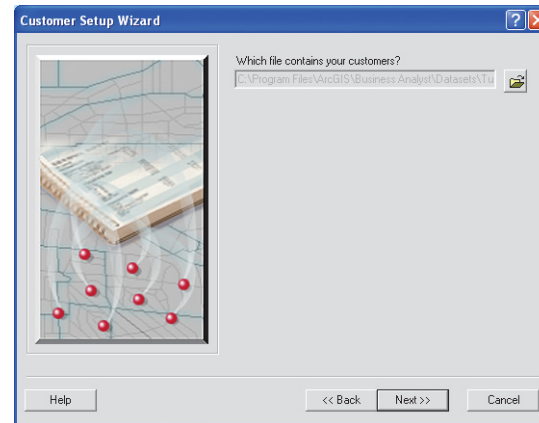
Business Analyst provides the ability to add stores or customers to the map when you have a table of x,y coordinates (latitude–longitude). This enables you to use a table created with output from a GPS device or from sources providing location information in x,y format. Your x,y coordinates must appear in decimal degrees.

1. Click the Business Analyst drop-down menu and click Customer Setup.
2. Click Create New Customer Layer, then click Next.
3. Click XY/GPS data, then click Next.
4. Click In a file on my computer, then click Next. ►

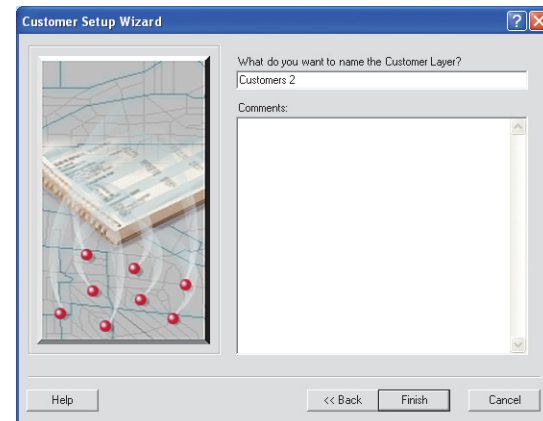
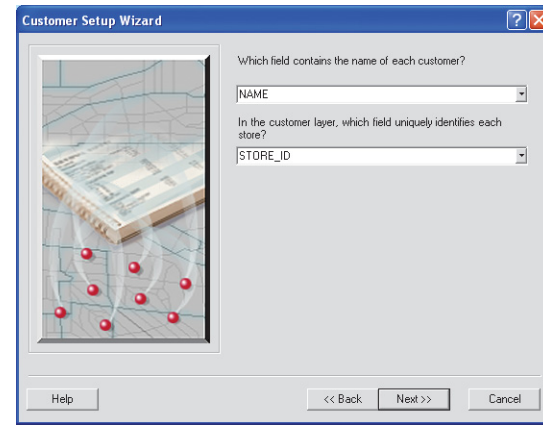


5. Click the browse button and navigate to the file that contains your customers.
6. Click the drop-down menu and click the field that contains the latitude of each customer.

Click the second drop-down menu and click the field that contains the longitude of each customer, then click Next. ►



7. Click the drop-down menu and click the field that contains the name of each customer.  
Click the second drop-down menu and click the field that uniquely identifies each store in the customer layer, then click Next.
8. Type a name for the customer layer in the text box, type any comments, then click Finish.





## Analysis layer setup

Business Analyst provides a powerful tool for you to set up a layer you've added to your table of contents so it can be used in analysis. All layers that come with Business Analyst are already set up for you. However, you can revise setup on these or any other layer on your map by using the Analysis Layer Setup Wizard.

Analysis layer setup is often used for customer or store layers but can be used for any layer, including point and polygon layers. An example of use is setting up your sales data for analysis after joining it to a geography polygon using spatial overlay. You can also use your own demographic data, estimates, projections, business statistics, or consumer expenditure information.

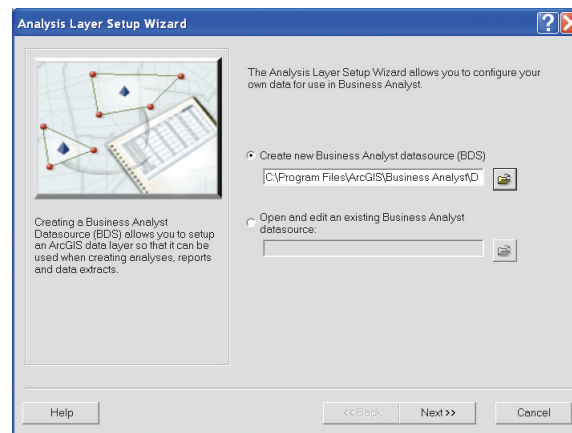
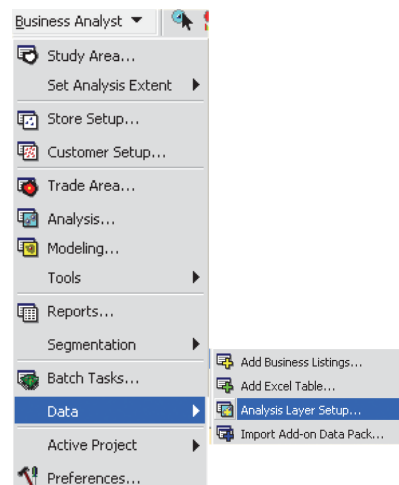
If you are setting up a point layer, you can choose the variable aggregation method and whether to weight the variable during analysis. Setting up a geographic layer (polygon) also offers a choice of apportionment method.

1. Click the Business Analyst drop-down menu and click Data > Analysis Layer Setup.

The Analysis Layer Setup Wizard opens.

2. Click Create new Business Analyst datasource (BDS) and click the browse button, then navigate to the folder where you want to save the new BDS file. Type a name for the file and click Save.

Or click Open and edit an existing Business Analyst datasource and click the browse button to navigate to the file. ►



## Field descriptions

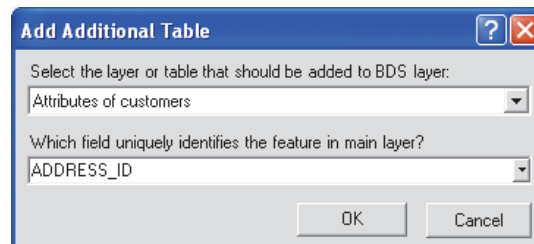
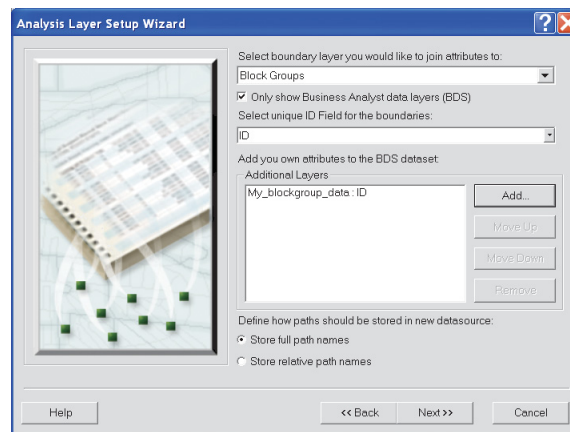
**Variable:** Shows all variables you have selected for setup.

**Aggregation method:** Combines variable values. The options are to sum the value; average the values; use the min value; use the max value; or calculate the median, standard deviation, or variance.

**Weight:** Weight the variable based on another variable; that is, in the Block Group layer, you could choose to weight consumer expenditures on furniture by 2003 Total Households. This would provide you with the amount spent per household on furniture in a trade area.

**Apportionment method:** Use in apportioning a variable to a portion of geography; when an analysis cuts across a geography, the analysis includes only the value of the variable that falls inside the analysis area. Depending on the variable, you have the choice of apportioning by AREA or one of the three primary demographics at the block point level (Population, Households, or Housing units).

3. Click the drop-down menu and click the boundary layer to which you want to join attributes.
4. Click the second drop-down menu and click the unique ID field for the boundaries.
5. Add your own attributes to the BDS dataset. Click the Add button and the Add Additional Table dialog box opens. Click the first drop-down menu and click the layer or table that you want to add to the BDS layer. Click the second drop-down menu and click the field that uniquely identifies the feature in the main layer, then click OK.
6. Click Store full path names or Store relative path names to define how the paths should be stored in the new database, then click Next. ►

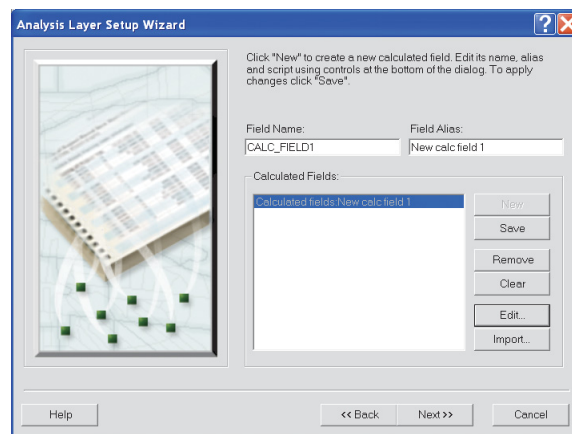
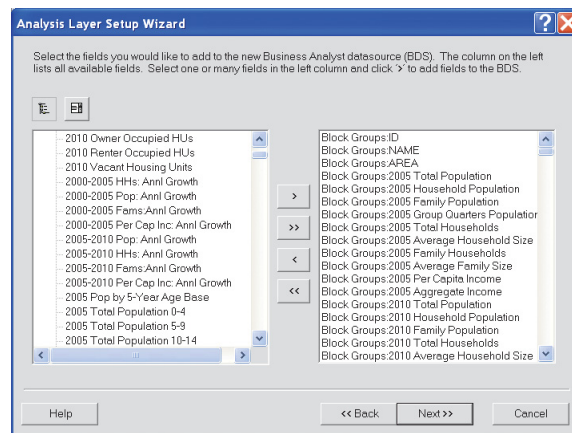


## Tip

### Layer variables

*The Analysis Layer Setup dialog box defines how layer variables will be treated during an analysis. You can easily resize the box by clicking and dragging its corners.*

- Click the fields you want to add to the new BDS layer from the column on the left. This column lists all available fields. Click the Right arrow button to move a field over to the right column. Click the double Right arrow button to move all the fields to the right column. When you're finished adding fields, click Next.
- Click New to create a new calculated field. Type the field name and field alias in the text boxes, then click Save. Once you save a newly created field, you can add more new fields if you choose. When you're finished, click Next. ►



9. A table displays, which defines the aggregation method for each of the variables in the layer. Click the field in the Weight column and click the drop-down arrow to choose the weight you want to use (optional), then click Finish.

Your analysis layer is set up.

You should always weight data on individuals (per capita income, median age, and so on) by population and weight data on households (average household size, median household income, and so on) by households.

**Analysis Layer Setup Wizard**

The table below defines the Aggregation method for each of the selected variables in this layer. You may also choose to Weight a variable or change the Apportionment method. Use the Help button below for further explanation and tips.

Variable	Aggregation Method	Weight	Apportionment Method	Category
ID	Sum	<none>	Population	Other
NAME	Sum	<none>	Population	Other
AREA	Sum	<none>	Population	Other
2005 Total Population	Sum	<none>	Population	Other
2005 Household Population	Sum	<none>	Population	Other
2005 Family Population	Sum	<none>	Population	Other
2005 Group Quarters Populati	Sum	<none>	Population	Other
2005 Total Households	Sum	<none>	Population	Other
2005 Average Household Size	Sum	<none>	Population	Other
2005 Family Households	Sum	<none>	Population	Other
2005 Average Family Size	Sum	<none>	Population	Other
2005 Per Capita Income	Sum	<none>	Population	Other
2005 Aggregate Income	Sum	<none>	Population	Other
2010 Total Population	Sum	<none>	Population	Other

Help << Back Finish Cancel

## Adding business listings

Business Analyst provides access to the *infoUSA* database of 12,000 U.S. businesses. It can be used to identify customers or competitors and includes data by industry, company name, location, sales volume, and number of employees.

### Tip

#### Restricting the Business Analyst search

*You can further limit the search by using the Business Name, Size of Business (Sales/Employee), or Corporate Information (Type of Site/Franchise) options. The more categories you use, the narrower your search will be.*

### Tip

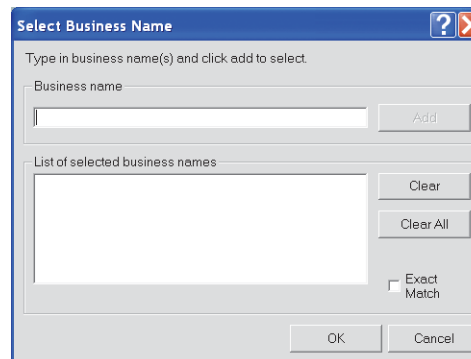
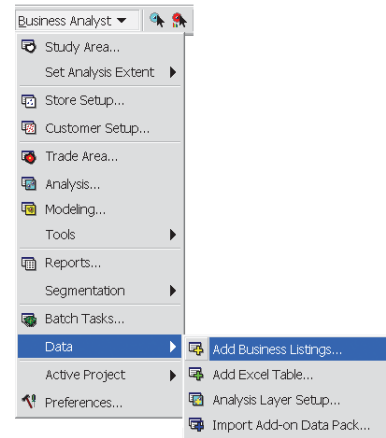
#### The Identify Business tool

*Once your business layer is added to the map, you can use the Identify Business tool on the Business Analyst toolbar. Simply click the tool and click the business point on the map to show address, telephone number, sales volume, and employee range for that individual business.*

1. Click the Business Analyst toolbar, click Data, then click Add Business Listings.

The Add Business Listings dialog box opens.

2. Define the business for which you want to search.
3. Type a name in the text box in the far right corner.
4. For the Type of Business (SIC) field, click Select and the Select Business Name dialog box opens. Type the business name and click Add. When you're finished adding business names, click OK. ►



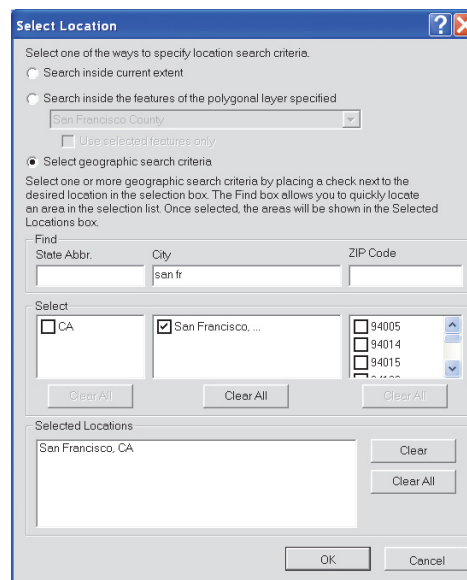
## Tip

### Selecting Location

*When you type the first letters of the state abbreviation and city in the text boxes, the state and city lists jump to the letters you entered.*

5. For the Location field, click Select. The Select Location dialog box opens. Click Select geographic search criteria, then type the state abbreviation and city in the State Abbr and City text fields. If you know the ZIP Code, you can type it in the ZIP Code text box.
6. Click OK and you are returned to the main Add Business Listings dialog box.
7. To select the Type of Business (SIC), click Select and the Business Type Dialog box opens.  
  
In the Key Words text box, type "hardware". The Code and Description lists jump to the code and descriptions that match what you entered. Click 5251 HARDWARE STORES. You can also type the SIC code in the SIC Codes text box. Click OK.
8. Click Finish.

Your selections are displayed on the map and added to the TOC as the Business layer.



**Select Location**

Select one of the ways to specify location search criteria.

☐ Search inside current extent

☐ Search inside the features of the polygonal layer specified  
 San Francisco County

☐ Use selected features only

☒ Select geographic search criteria

Select one or more geographic search criteria by placing a check next to the desired location in the selection box. The Find box allows you to quickly locate an area in the selection list. Once selected, the areas will be shown in the Selected Locations box.

Find  
 State Abbr. City ZIP Code

Select

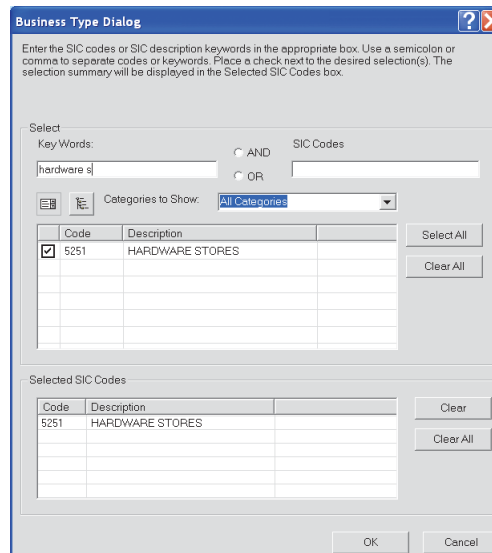
<input type="checkbox"/> CA	<input checked="" type="checkbox"/> San Francisco, ...	<input type="checkbox"/> 94005
		<input type="checkbox"/> 94014
		<input type="checkbox"/> 94015
		<input type="checkbox"/> 94023

Clear All Clear All Clear All

Selected Locations

San Francisco, CA	Clear
	Clear All

OK Cancel



**Business Type Dialog**

Enter the SIC codes or SIC description keywords in the appropriate box. Use a semicolon or comma to separate codes or keywords. Place a check next to the desired selection(s). The selection summary will be displayed in the Selected SIC Codes box.

Select

Key Words:  SIC Codes

☐ AND ☐ OR

Categories to Show: All Categories

Code	Description
<input checked="" type="checkbox"/> 5251	HARDWARE STORES

Select All Clear All

Selected SIC Codes

Code	Description
5251	HARDWARE STORES

Clear Clear All

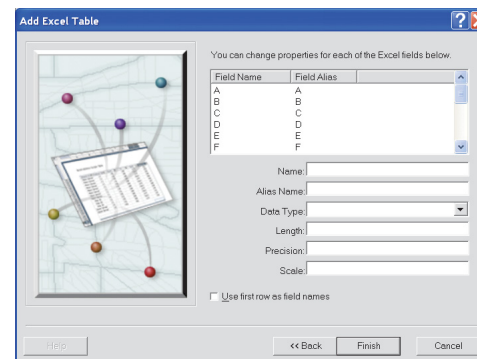
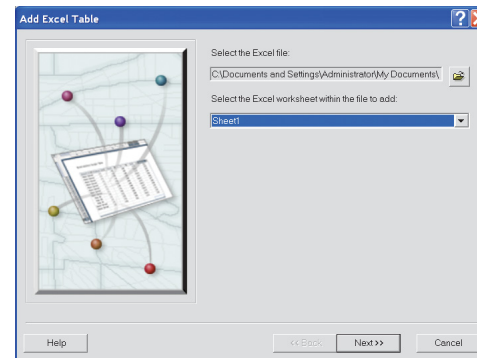
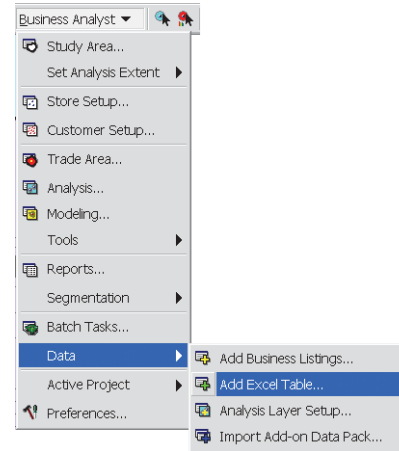
OK Cancel

## Adding an Excel table

Business Analyst provides The Add Excel Table Wizard for adding information in Microsoft Excel format to your map. You have the option of changing field names and properties, if you choose, in this wizard.

1. Click the Business Analyst drop-down menu and click Data, then click Add Excel Table.
2. Click the browse button to navigate to the Excel file you want to add.
3. Click the drop-down menu to choose the Excel worksheet in the file to add.
4. You can change the properties for each Excel field. When you're done editing the properties, click Finish.

The Excel spreadsheet will be added as a table to your map and will appear on the Source tab of the table of contents.



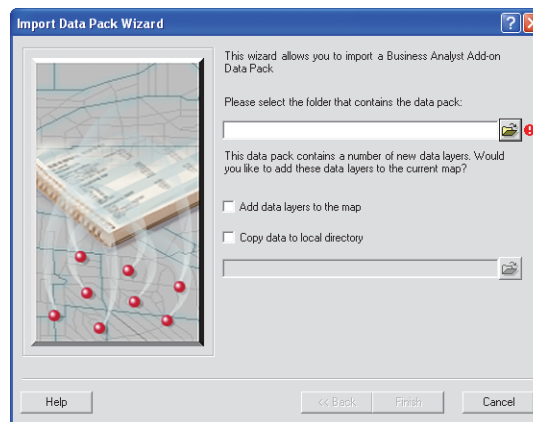
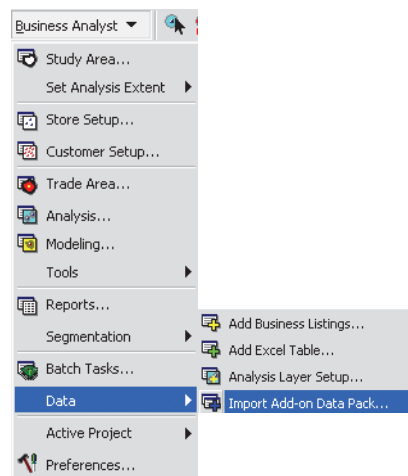
## Importing a Business Analyst add-on datapack

ESRI offers additional data packs for Business Analyst that meet the needs of specific industries. The Import Data Pack Wizard will import and set up those datasets for use in Business Analyst.

1. Click the Business Analyst drop-down menu and click Data, then click Import Add-on Data Pack.
- The Import Data Pack Wizard opens.

2. Click the browse button to navigate to the data pack folder.
3. To Add data layers to your map, check the Add data layers to the map check box. To copy to your local directory, check the Copy data to local directory check box, then click the browse button to navigate to the location you want to copy the data to.
4. Click Finish.

The data will now be available for use in Business Analyst.

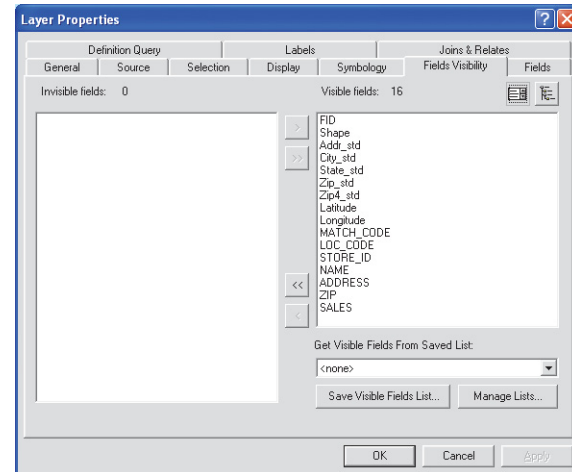




## Setting field visibility

You can control which fields are visible in each layer using the Fields Visibility tab on the Layer Properties dialog box. The field settings you choose will be used in any analysis performed on the layer.

1. In the table of contents, right-click the layer for which you want to change the visible fields and click Properties.
2. Click the Fields Visibility tab and use the arrow keys to move fields to the Visible fields or Invisible fields column.
3. You have the option of saving the Visible fields list. This is used when you have several analyses to perform that may use different field listings. You can easily switch between the visible fields by clicking one from the Get Visible Fields From Saved List dropdown menu.
4. If you prefer to make your field selection from a tree structure of available field categories rather than from a list, click the Tree Structure button. You can then browse the categories to find your desired fields.
5. Click Apply, then click OK to activate your selection.



## Managing existing customer or store layers

Business Analyst allows you to manage the customer and store layers you have created. This allows you to perform the following operations on any of your previously created customer or store layers:

- Opening a layer that is not present in the current map document
- Modifying a layer by stepping through the Customer Setup and Store Setup Wizard choices made when the layer was created
- Deleting one or more layers
- Renaming a layer or editing comments
- Reviewing geocoding of the layer points on the map

### Tip

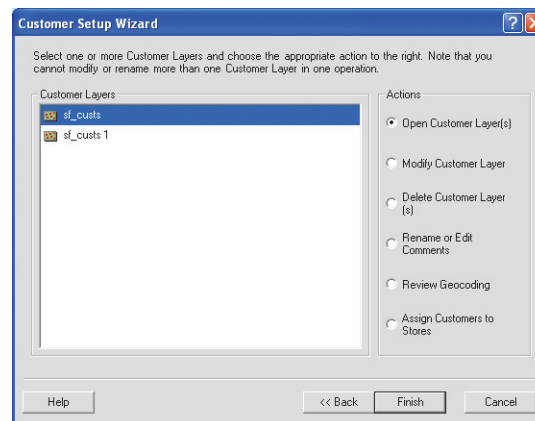
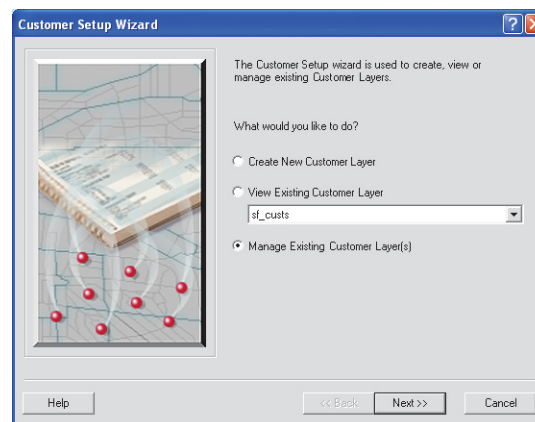
#### Using the Store Setup or Customer Setup wizards for this task

*The Customer Setup and Store Setup wizards are identical for this task. This example uses the Customer Setup Wizard. You can follow the same steps using the Store Setup Wizard to accomplish this with a store layer.*

1. Click the Business Analyst drop-down menu and click Customer Setup.
2. The Customer Setup Wizard opens.
3. Click Manage Existing Customer Layer(s).
4. This step depends on which option you chose in step 3.

If you chose Open Customer Layer(s), click the layer you want to open, then click Finish and the layer opens.

For all the other options, make your selections and continue through the Customer Setup Wizard as you have in the previous chapters.



## Substituting your own terms for customers and stores

You can substitute other terms for customers and stores using the Preferences wizard, for example, banks and clients, hospitals and patients, or preschools and children—whatever fits your line of work. The Preferences wizard customizes Business Analyst for you, using the terms you choose on all the wizard panels.

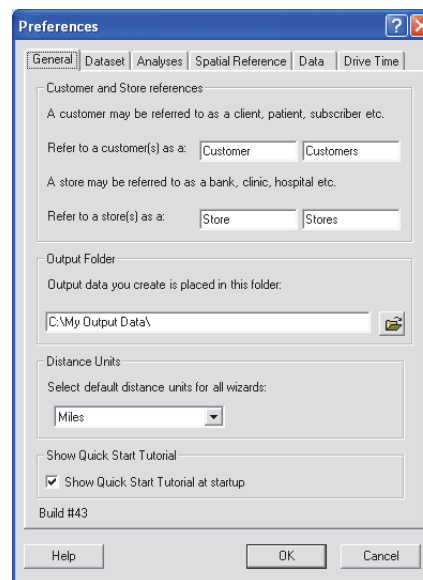
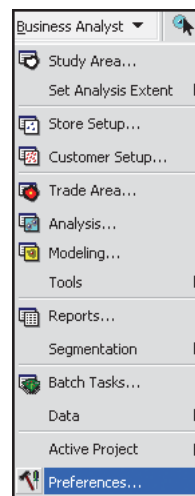
### Tip

#### Using the Preferences dialog box

*The Preferences dialog box allows you to change more than how you refer to customers and stores. You can also adjust data formats, geocoding services, and dataset locations (using the Data tab) and specify how rings and group layers are displayed and named (using the Analysis tab). The General tab allows you to specify the location of the output folder to store data, analyses, and study areas for your maps as well as turn on the automatic spatial reference adjustment. This feature changes the projection as you zoom in to keep the northerly direction oriented toward the top of your map.*

1. Click the Business Analyst drop-down menu and click Preferences.
2. Click the General tab, then type the term you want to use to refer to customers in the text box.
3. Type the term you want to use to refer to stores in the text box.
4. Click OK.

Your preferences will be used throughout the Business Analyst wizards.



# Trade areas—customer data required 6

## IN THIS CHAPTER

- **Customer-derived areas**
- **Market penetration**
- **Trade area penetration**
- **Distance decay areas**

This chapter describes creation of trade areas when you have customer data available. Use of customer data in creation of your trade areas is preferable in most cases.

ArcGIS Business Analyst has four methods of trade area creation using customer data.

- Customer-derived areas will create trade areas based on location of your customers.
- Market penetration compares the number of customers you have within a geographic area with the total population in that area.
- A Trade Area Penetration report compares the number of customers within a trade area to a base value, such as total households.
- Distance decay areas calculate the market penetration values for a number of ring or drive time areas around your stores. The Distance Decay report illustrates how far your customers are traveling to a store compared with a base value, such as population or households.

## Customer-derived areas

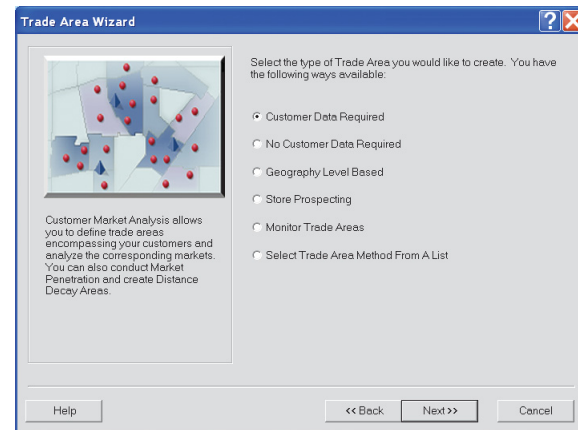
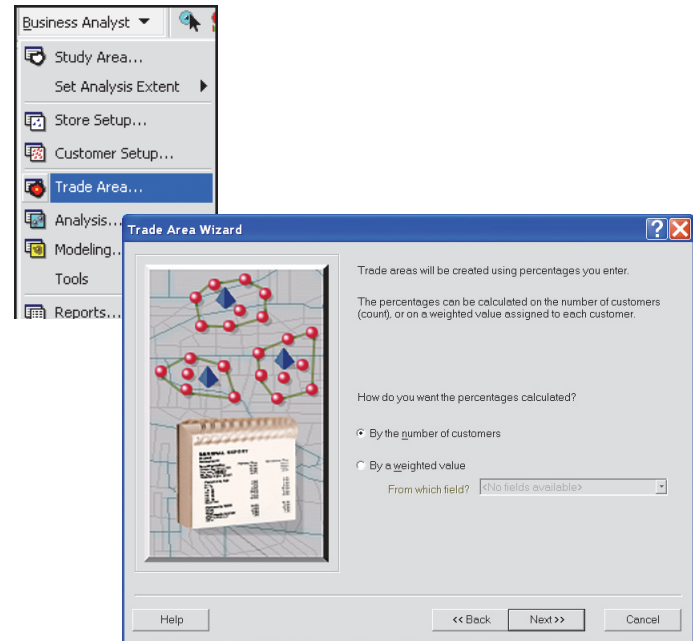
A customer-derived area is a method to create customer data required trade areas. From the Trade Area Wizard, choose Customer Derived Areas to create a trade area based on the location of your customers.

Creating a trade area using customer data allows you to encompass your customers and analyze the corresponding markets.

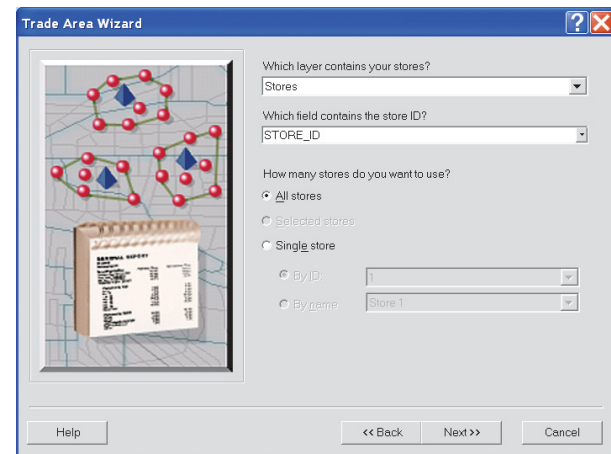
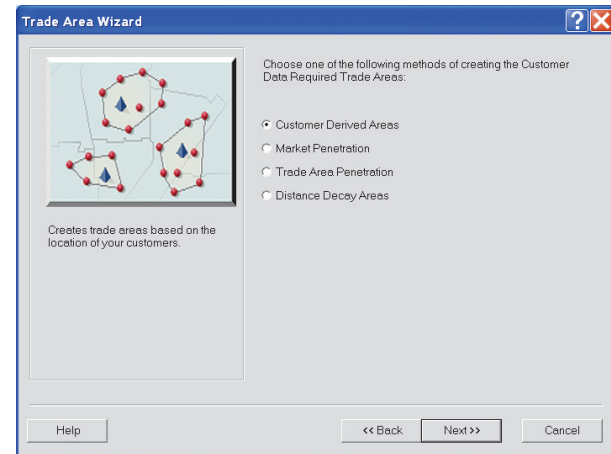
Note: Before creating a customer derived trade area, use the Study Area Wizard to create a study area that encompasses all of your customers. This defined extent will ensure your entire customer base is used in the analysis for best results.

## Creating a trade area using customer-derived areas

1. Click the Business Analyst drop-down menu and click Trade Area.
2. Click Create New Trade Area, then click Next.
3. Click Customer Data Required, then click Next. ►

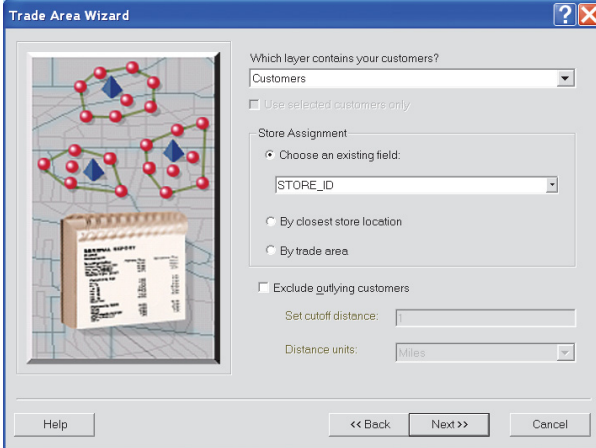


4. Determine how to create the trade area, click Customer Derived Areas, then click Next.
5. Click the drop-down menu and click the layer that contains your stores.
6. Click the second drop-down menu and click the field that contains the store ID.
7. Determine how many stores you want to use: All stores, Selected stores, or Single store. If you choose Single store, click By ID or By name and choose an option from the respective drop-down menu. Click Next to continue. ►





8. Click the drop-down menu and click the layer that contains your customers.
9. For Store Assignment, click Choose an existing field, By closest store location, or By trade area, then click Next.
10. To exclude customers outside a certain distance, click Exclude outlying customers and set the cutoff distance in units, then click Next.
11. Determine how to calculate the percentages: By the number of customers or By a weighted value. If you choose By a weighted value, click the drop-down menu and choose a field. This weighted field could be customer sales figures in your customer database. ►



Trade Area Wizard

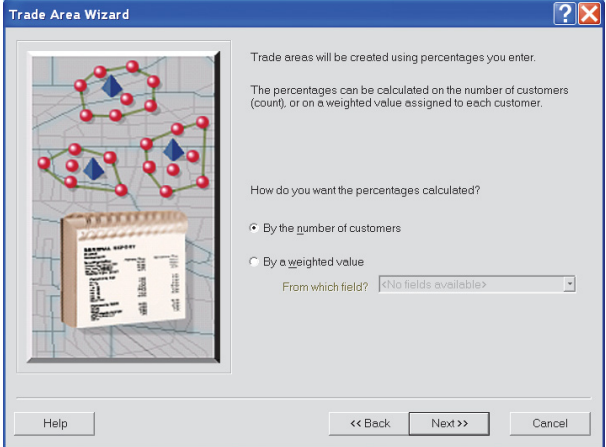
Which layer contains your customers?  
Customers

☐ Use selected customers only

Store Assignment:  
☒ Choose an existing field:  
STORE\_ID  
☐ By closest store location  
☐ By trade area

☐ Exclude outlying customers  
Set cutoff distance: 1  
Distance units: Miles

Help << Back Next >> Cancel



Trade Area Wizard

Trade areas will be created using percentages you enter.  
The percentages can be calculated on the number of customers (count), or on a weighted value assigned to each customer.

How do you want the percentages calculated?  
☒ By the number of customers  
☐ By a weighted value  
From which field? <No fields available>

Help << Back Next >> Cancel

## Tip

### Hull type

*The hull type determines the shape of the trade area that includes your customers.*

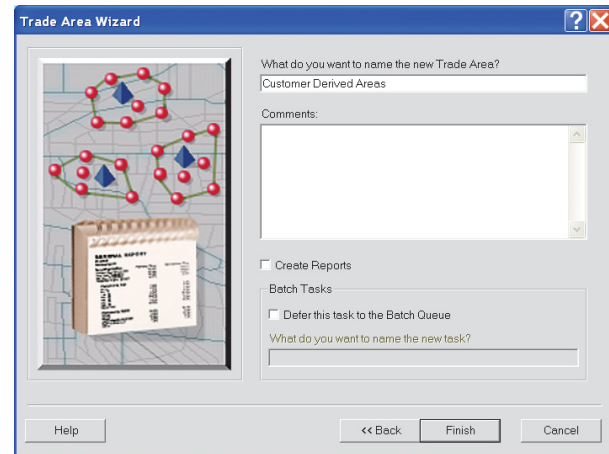
12. Choose how many trade areas you want to create for each of your stores: 1, 2, 3, or More.
13. Enter a percentage for each trade area in the text fields. You have the option to use the centroid of the store's customers, rather than the physical store location. This option is rarely used but is available. Click Next.
14. Choose the hull type you want to create: Simple (Convex), Amoeba, Detailed, or Detailed With Smoothing.
15. If you want to create donut trade areas, check the Create donut trade areas check box, then click Next.

The Trade Area Wizard dialog box is shown. The title bar says "Trade Area Wizard". The main area has a question: "How many trade areas would you like to create for each store?". Below this are radio buttons for 1, 2, 3, and More. The "3" radio button is selected. Below the radio buttons is a text field: "Enter a percentage for each trade area:". To the right of this text field is a diagram showing three concentric, irregular polygons representing trade areas. The innermost polygon is yellow and labeled "40", the middle one is light blue and labeled "60", and the outermost one is dark blue and labeled "80". Below the diagram is a checkbox: "Use centroid of store's customers, rather than store location, as the center for trade area creation". At the bottom are buttons for "Help", "<< Back", "Next >>", and "Cancel".

The Trade Area Wizard dialog box is shown. The title bar says "Trade Area Wizard". The main area has a question: "Specify the hull type you want to create. The hull type determines the shape of the trade area that includes your customers." Below this is a section titled "Choose hull type:" with four radio buttons: Simple (Convex), Amoeba, Detailed, and Detailed With Smoothing. The "Detailed With Smoothing" radio button is selected. Below this is a checkbox: "Create donut trade areas". To the left of the radio buttons is a diagram showing a yellow polygon with several red dots (customers) inside it. Below the diagram is a text box: "Overlapped trade areas are drawn around sets of customers based on customer percentages. This approach joins extreme points using a smoothed curve using cubic splines. We recommend using this approach because it takes into account the shape and pattern of customer distributions." At the bottom are buttons for "Help", "<< Back", "Next >>", and "Cancel".



16. Type a name for the new trade area in the text box and enter any comments.
17. You have the option of creating a variety of reports on the trade areas. Check Create Reports if you want to run reports on the data. You also have the option of deferring the reports to the Batch Queue to run later.
18. Click Finish.

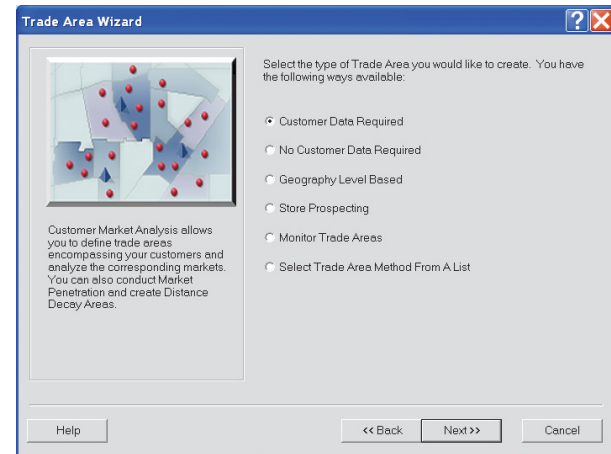
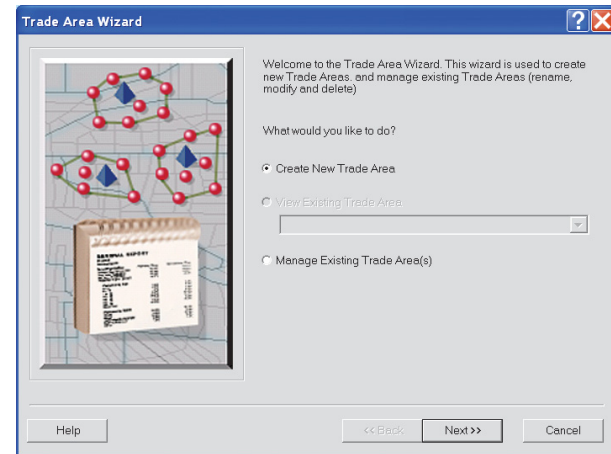


# Market penetration

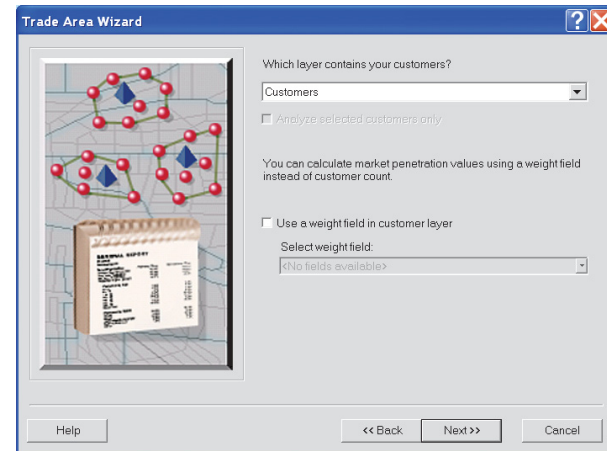
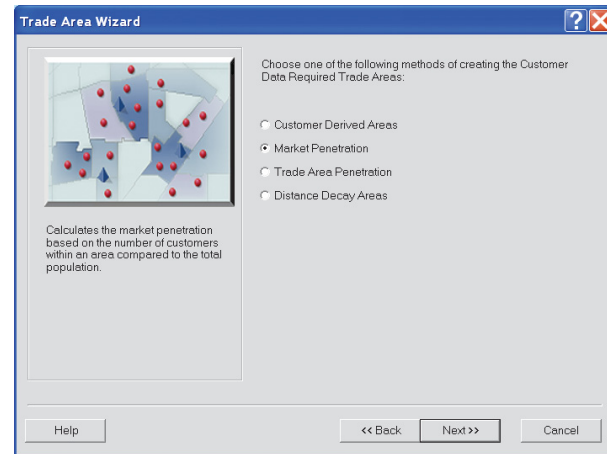
Calculates the market penetration based on the number of customers within an area compared to the total population.

## Creating a trade area using market penetration

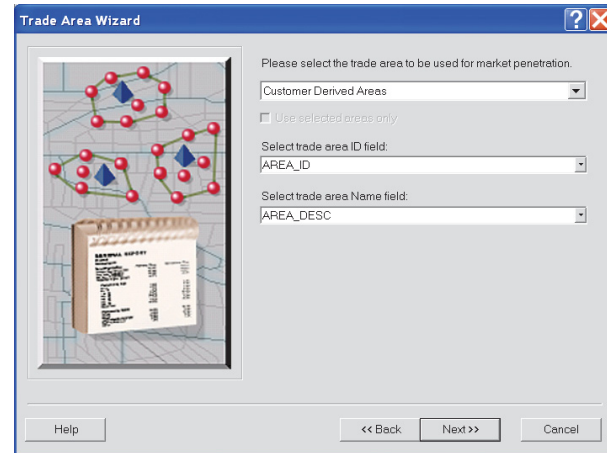
1. Click the Business Analyst drop-down menu and click Trade Area.  
The Trade Area Wizard opens.
2. Click Create New Trade Area, then click Next.
3. Click Customer Data Required, then click Next. ►



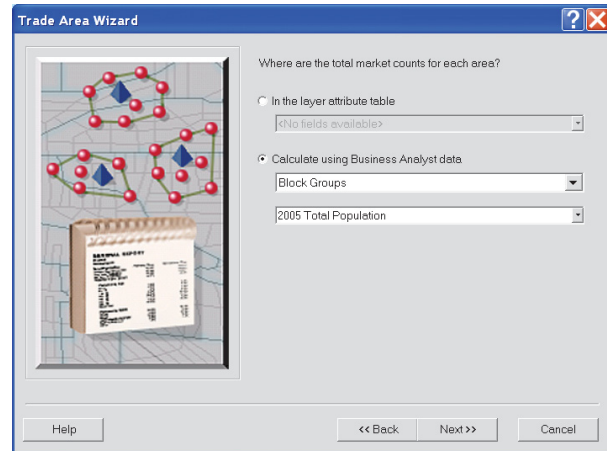
4. Determine how to create the trade area, click Market Penetration, then click Next.
5. Click the drop-down menu and click the layer that contains your customers. If you have selected certain customers on the map or in the customer layer attribute table, you will have an option to analyze selected customers only.
6. If you want to calculate market penetration values using a weight field instead of customer count, click Use a weight field in customer layer, click the drop-down menu and choose a weight field, then click Next.
7. Click the drop-down menu to choose the base layer to use for calculating market penetration. In most cases you will use one of the Business Analyst data layers (BDS) that contains demographic information. To ease selection of one of the BDS layers from all layers on the map, you can check Only show Business Analyst data layers (BDS).
8. If you selected certain geographic areas on the map, an option will be available to use selected areas only. ►



9. Click the second drop-down menu to choose the ID field, then click the third drop-down menu to choose the Name field. Click Next to continue.
10. Choose the source of total market counts by selecting one of the following:
  - In the layer attribute table—If you choose this option, click the drop-down menu and make a selection.
  - Calculate using Business Analyst data—If you choose this option, click the drop-down menus to make your selections.
11. Click Next. ►

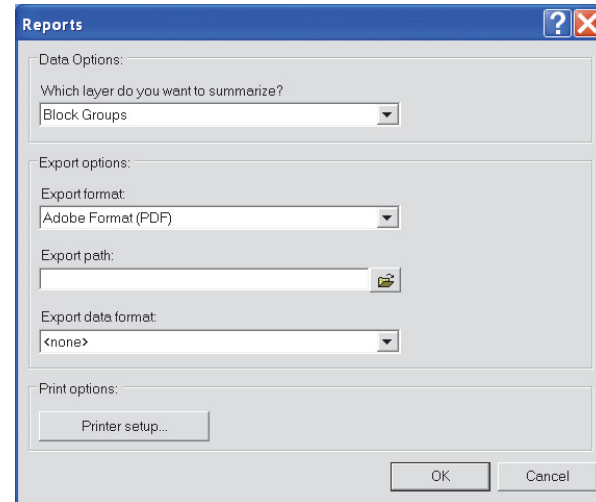


The Trade Area Wizard dialog box is shown. On the left is a map with red dots and blue diamonds connected by lines, and a small inset image of a spiral-bound notebook. The main text area says "Please select the trade area to be used for market penetration." Below this is a dropdown menu set to "Customer Derived Areas". There is an unchecked checkbox labeled "Use selected areas only". Below that are two more dropdown menus: "Select trade area ID field:" set to "AREA\_ID" and "Select trade area Name field:" set to "AREA\_DESC". At the bottom are buttons for "Help", "<< Back", "Next >>", and "Cancel".



The Trade Area Wizard dialog box is shown in its second step. The main text area asks "Where are the total market counts for each area?". There are two radio button options. The first is "In the layer attribute table" with a dropdown menu below it showing "<No fields available>". The second radio button, "Calculate using Business Analyst data", is selected. Below it are two dropdown menus: "Block Groups" and "2005 Total Population". At the bottom are buttons for "Help", "<< Back", "Next >>", and "Cancel".

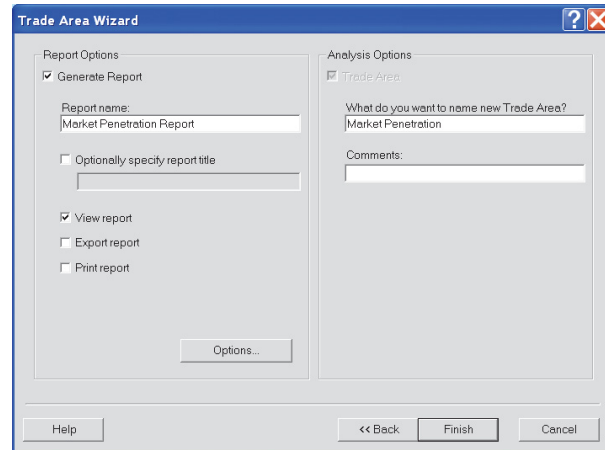
12. The various option buttons allow you to choose a demographic layer to summarize, the report export format, the export path, and a format for exporting the raw data to a table for further analysis. When you're finished making your selections, click OK.
13. Click Generate Report, enter the report name and, optionally, the report title, and check to View report, Export report, or Print report. Type a name for the trade area and any comments, then click Finish.



The **Reports** dialog box is shown with the following settings:

- Data Options:**
  - Which layer do you want to summarize?: Block Groups
- Export options:**
  - Export format: Adobe Format (PDF)
  - Export path: (empty text field)
  - Export data format: <none>
- Print options:**
  - Printer setup... (button)

Buttons at the bottom: OK, Cancel.



The **Trade Area Wizard** dialog box is shown with the following settings:

- Report Options:**
  - ☒ Generate Report
    - Report name: Market Penetration Report
    - ☐ Optionally specify report title (empty text field)
  - ☒ View report
  - ☐ Export report
  - ☐ Print report
- Analysis Options:**
  - ☒ Trade Area
    - What do you want to name new Trade Area?: Market Penetration
    - Comments: (empty text field)

Buttons at the bottom: Help, << Back, Finish, Cancel.

## Trade area penetration

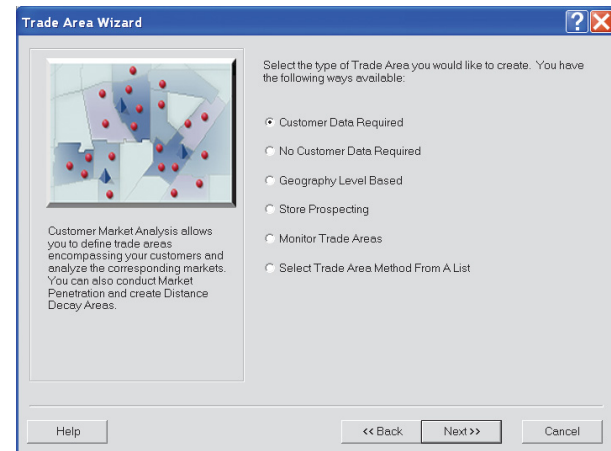
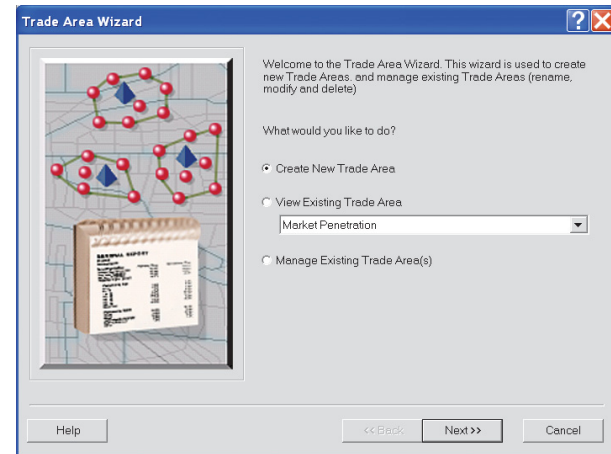
Trade area penetration calculates the penetration for each trade area. A Trade Area Penetration Report is based on the number of customers within a trade area compared to a base value, such as total households.

### Creating a trade area using trade area penetration

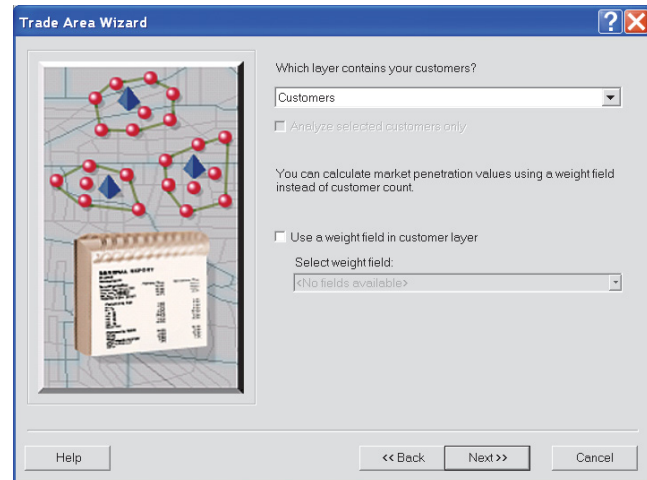
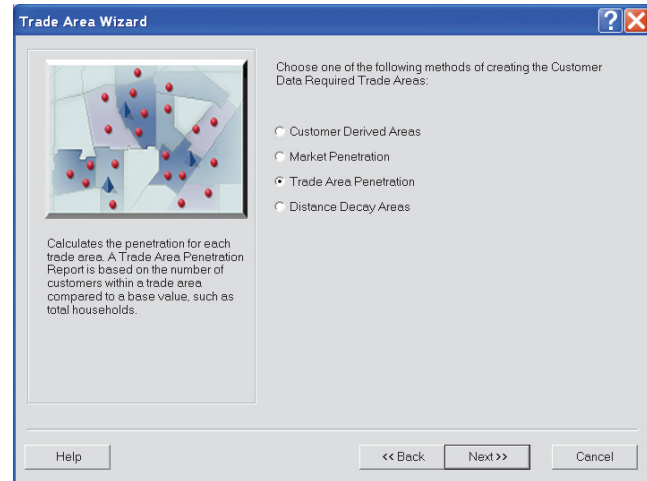
1. Click the Business Analyst drop-down menu and click Trade Area.

The Trade Area Wizard opens.

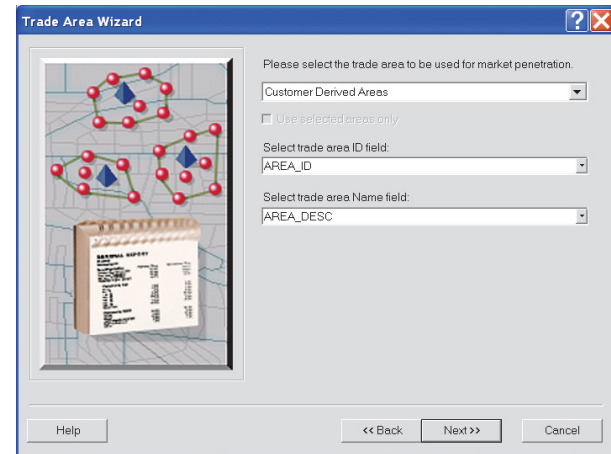
2. Click Create New Trade Area, then click Next.
3. Click Customer Data Required, then click Next. ►



4. Determine how to create the trade area, click Trade Area Penetration, then click Next.
5. Click the drop-down menu and click the layer that contains your customers.
6. If you want to calculate market penetration values using a weight field instead of customer count, click Use a weight field in customer layer, click the drop-down menu and choose a weight field, then click Next. ►

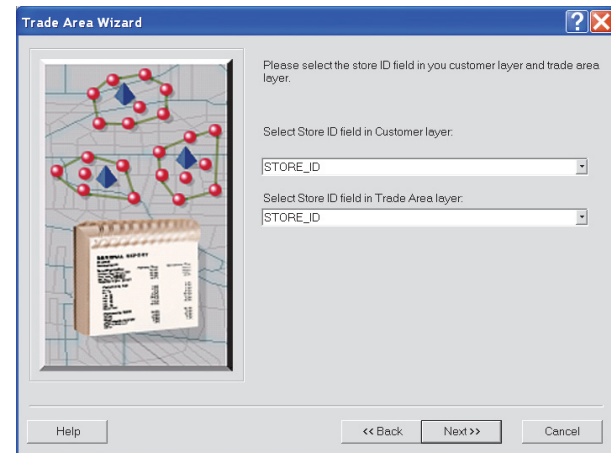


7. Click the drop-down menu to choose the trade area to use for market penetration, click the second drop-down menu to choose the trade area ID field, then click the third drop-down menu to choose the trade area Name field. Click Next to continue.
8. Click the drop-down menu to choose the Store ID field in your customer layer, click the second drop-down menu and choose the Store ID field in the Trade Area layer, then click Next. ►



The Trade Area Wizard dialog box is shown in its first step. On the left is a map with red dots and blue arrows, and a small image of a business card. The main area contains the following controls:

- Instruction: "Please select the trade area to be used for market penetration."
- Drop-down menu: "Customer Derived Areas"
- Checkbox: "Use selected areas only" (unchecked)
- Drop-down menu: "Select trade area ID field:" with "AREA\_ID" selected
- Drop-down menu: "Select trade area Name field:" with "AREA\_DESC" selected
- Buttons: "Help", "<< Back", "Next >>", and "Cancel"

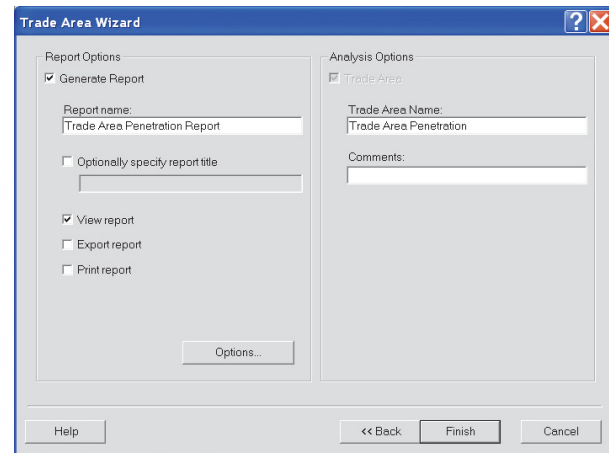
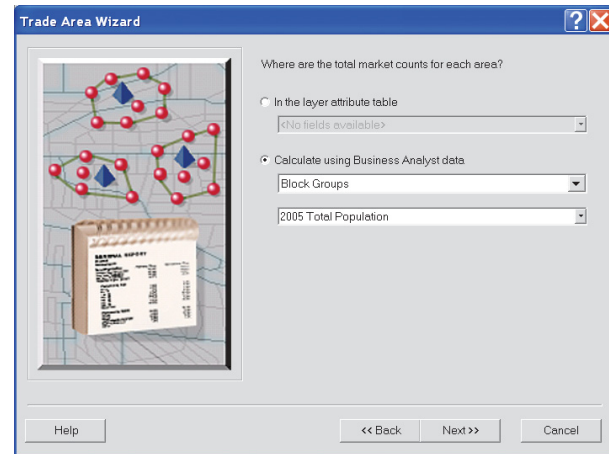


The Trade Area Wizard dialog box is shown in its second step. The map and business card image remain on the left. The main area contains the following controls:

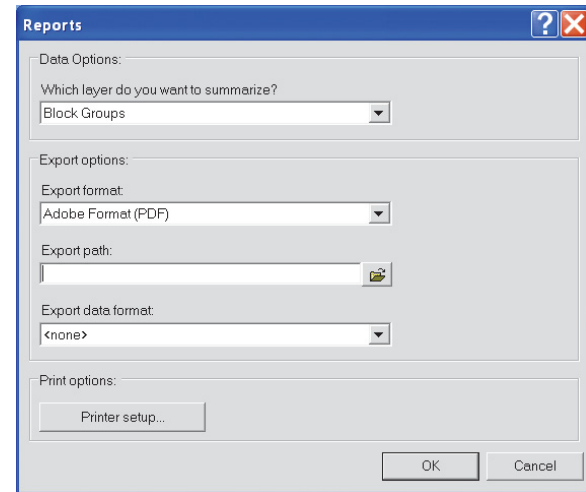
- Instruction: "Please select the store ID field in your customer layer and trade area layer."
- Drop-down menu: "Select Store ID field in Customer layer:" with "STORE\_ID" selected
- Drop-down menu: "Select Store ID field in Trade Area layer:" with "STORE\_ID" selected
- Buttons: "Help", "<< Back", "Next >>", and "Cancel"



9. Choose the source of total market counts by selecting one of the following:
  - In the layer attribute table—If you choose this option, click the drop-down menu and make a selection.
  - Calculate using Business Analyst data—If you choose this option, click the drop-down menus to make your selections.
10. Click Next.
11. Click Generate Report, enter the report name and, optionally, the report title, and check to View report, Export report, or Print report. Type a name for the trade area and any comments. ►



12. The various option buttons allow you to choose a demographic layer to summarize, the report export format, the export path, and a format for exporting the raw data to a table for further analysis. When you're finished making your selections, click OK.



The screenshot shows a 'Reports' dialog box with a blue title bar and standard window controls. It is organized into four sections: 'Data Options', 'Export options', 'Export data format', and 'Print options'. The 'Data Options' section contains a dropdown menu labeled 'Which layer do you want to summarize?' with 'Block Groups' selected. The 'Export options' section contains three fields: 'Export format' (dropdown menu with 'Adobe Format (PDF)' selected), 'Export path' (text field with a browse button icon), and 'Export data format' (dropdown menu with '<none>' selected). The 'Print options' section contains a 'Printer setup...' button. At the bottom right are 'OK' and 'Cancel' buttons.

**Reports**

Data Options:

Which layer do you want to summarize?

Block Groups

Export options:

Export format:

Adobe Format (PDF)

Export path:

Export data format:

<none>

Print options:

Printer setup...

OK Cancel

## Distance decay areas

Individual locations or pieces of geography often have greater importance or more weight if they are closer to an area of examination. For example, customers who live in a ZIP Code adjacent to a client's store are more likely to visit the store than potential customers who live in a ZIP Code five miles away. You may want to create distance decay trade areas that reflect the inverse relationship between distance and propensity to visit a location. Specifically, as distance increases, the geographic importance of a piece of geography within a study area diminishes.

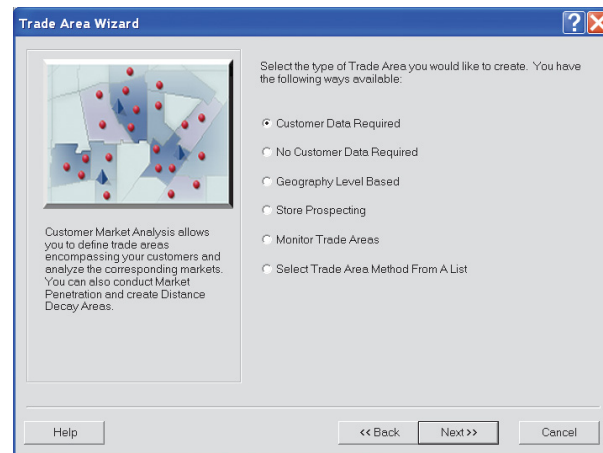
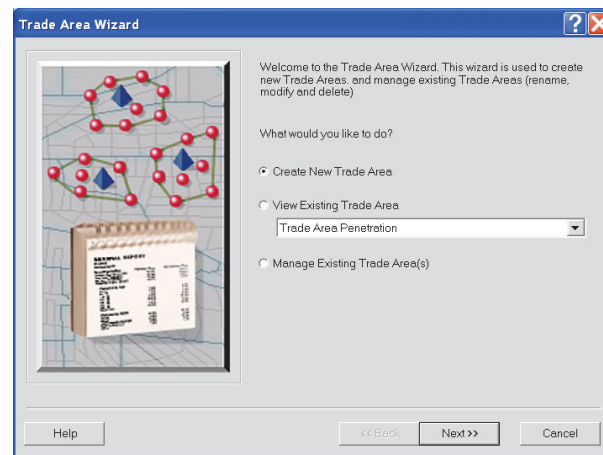
In principle, distance decay trade areas are no different than a simple weighted area. Business Analyst distance decay functionality provides the mechanism to create these areas based on the geographic principle of distance decay: The propensity to visit a store decreases as the distance to the store increases. Or, people are more likely to visit a store if they are closer to the location. ►

## Creating a trade area using distance decay areas

1. Click the Business Analyst drop-down menu and click Trade Area.

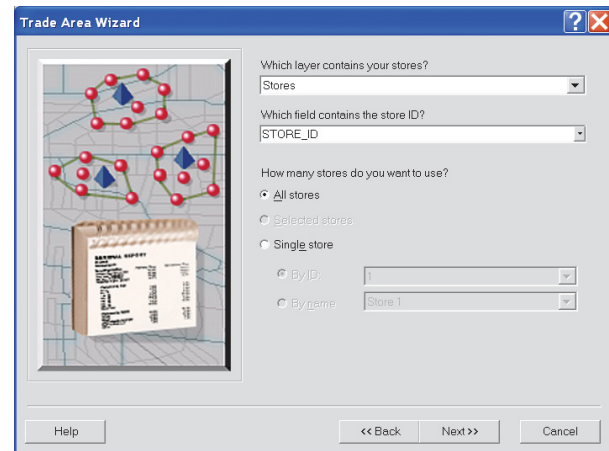
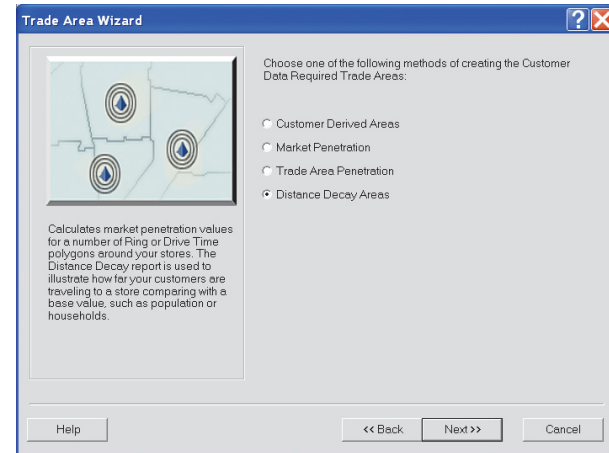
The Trade Area Wizard opens.

2. Click Create New Trade Area, then click Next.
3. Click Customer Data Required, then click Next. ►



Distance decay area calculates market penetration values for a number of ring or drive-time polygons around your stores. The Distance Decay Report shows how far your customers are traveling to a store in comparison to a base value, such as population.

4. Determine how to create the trade area, click Distance Decay Areas, then click Next.
5. Click the drop-down menu and click the layer that contains your stores.
6. Determine how many stores you want to use: All stores, Selected stores, or Single store, then click Next. ►



## Tip

### Simple ring

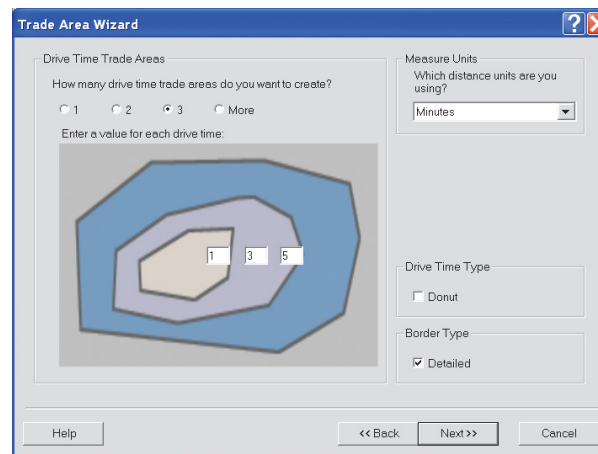
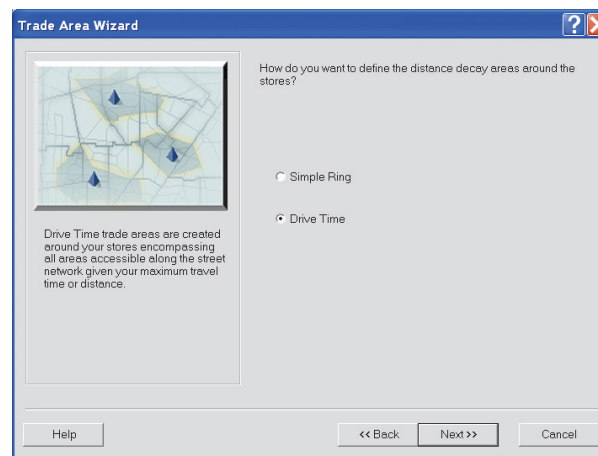
*Simple ring trade areas are created around your stores using a specified radius.*

## Tip

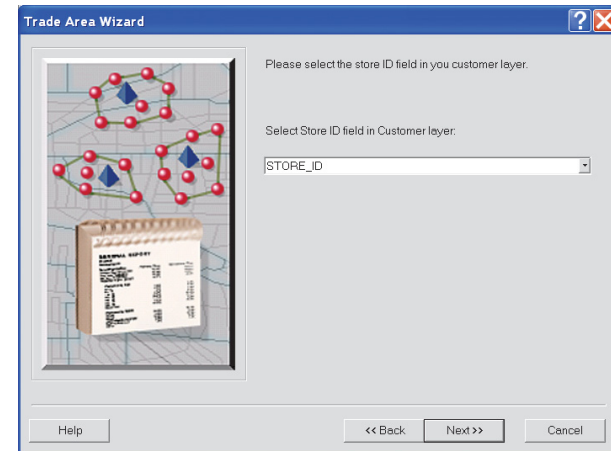
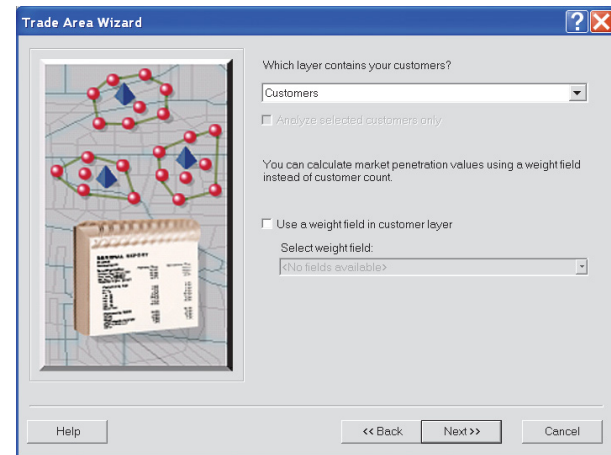
### Drive time

*Drive-time trade areas are created around your stores, including all areas accessible along the street network given your maximum travel time or distance.*

7. Click Simple Ring or Drive Time to determine how you want to define the distance decay areas around your stores, then click Next.
  - a. If you choose Simple Ring, do the following:
    - Choose the number of rings you want to create for each store: 1, 2, 3, or More.
    - Click the Distance Units drop-down menu to choose a distance from the list.
    - You have the option of choosing to click Remove Overlap or click Donut to further define the trade area.
    - Click Next.
  - b. If you choose Drive Time, do the following:
    - Choose how many drive-time trade areas you want to create: 1, 2, 3, or More.
    - Click the Measure Units drop-down menu to choose a time or distance from the list. ►



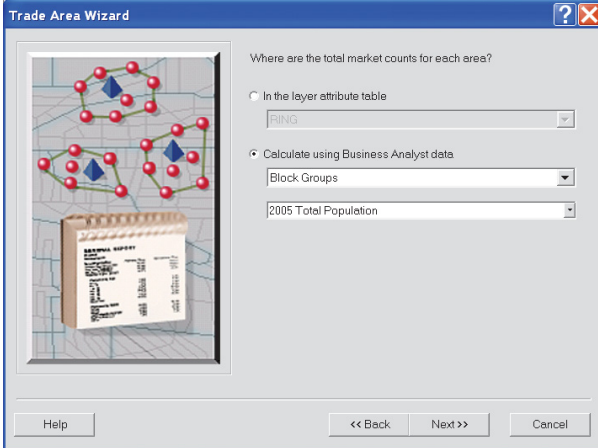
- You have the option of checking Donut for the drive-time ring type or accepting the default overlapping rings.
  - You also have the option of checking Detailed for Border Type or accepting the default generalized border.
  - Click Next.
8. Click the drop-down menu to choose the layer that contains your customers. If you want to calculate market penetration values using a weight field instead of customer count, click Use a weight field in customer layer, click the drop-down menu and choose a weight field, then click Next.
  9. Click the drop-down menu to choose the store ID field in your customer layer. ►



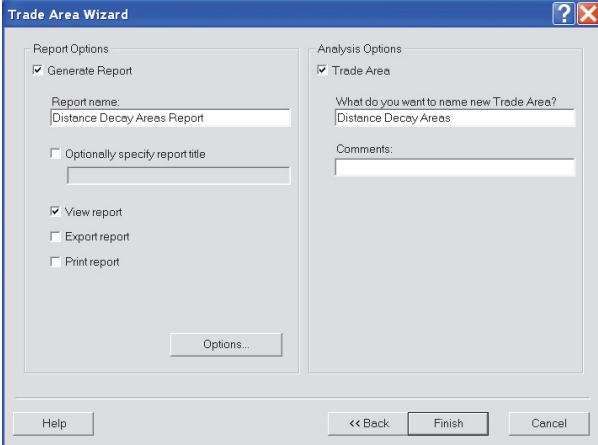
10. To determine where the total market counts are for each area, choose one of the following:

- In the layer attribute table—If you choose this option, click the drop-down menu and make a selection.
- Calculate using Business Analyst data—If you choose this option, click the drop-down menus to make your selections.

11. Click Generate Report, enter the report name and, optionally, the report title and check to View report, Export report, or Print report. Type a name for the trade area and any comments and click Finish.



The Trade Area Wizard dialog box is shown at step 10. On the left is a map view with red dots and blue polygons. On the right, the question is "Where are the total market counts for each area?". There are two radio buttons: "In the layer attribute table" (unselected) and "Calculate using Business Analyst data" (selected). Below the second radio button are two drop-down menus: "Block Groups" and "2005 Total Population". At the bottom are buttons for "Help", "<< Back", "Next >>", and "Cancel".



The Trade Area Wizard dialog box is shown at step 11. It is divided into two main sections: "Report Options" and "Analysis Options". In "Report Options", the "Generate Report" checkbox is checked. Below it is a text field for "Report name:" containing "Distance Decay Areas Report". There is an unchecked checkbox for "Optionally specify report title" with an empty text field below it. Further down are three unchecked checkboxes: "View report", "Export report", and "Print report". An "Options..." button is at the bottom of this section. In "Analysis Options", the "Trade Area" checkbox is checked. Below it is a text field for "What do you want to name new Trade Area?" containing "Distance Decay Areas". There is also a "Comments:" label followed by a large empty text area. At the bottom are buttons for "Help", "<< Back", "Finish", and "Cancel".



# Trade areas—no customer data required

# 7

## IN THIS CHAPTER

- Simple rings
- Nonoverlapping rings
- Data-driven rings
- Drive-time polygons
- Threshold rings
- Equal competition (Thiessen)
- Huff equal probability trade areas
- Grid areas

Customer-based market analysis requires geocoded customer data. Often such data is not available—your business may not collect customer addresses, it may be too expensive to acquire customer locations from credit card services, or you may have no customer data if your company is expanding into a new area. Other methods of analysis are available to help you visualize, analyze, and evaluate business locations. These methods all use existing or proposed store locations instead of customer points. Only stores that fall within your study area will be analyzed.



## Simple rings

*Ring studies* are the simplest and most widely used type of market area analysis. The concept of a simple ring is easily understood. Since a business person might not know what shape the market or service area should be, a simple circle is used to begin the process. Many preliminary market studies begin with an analysis of one-, three-, and five-mile rings, but this may vary from retailer to retailer.

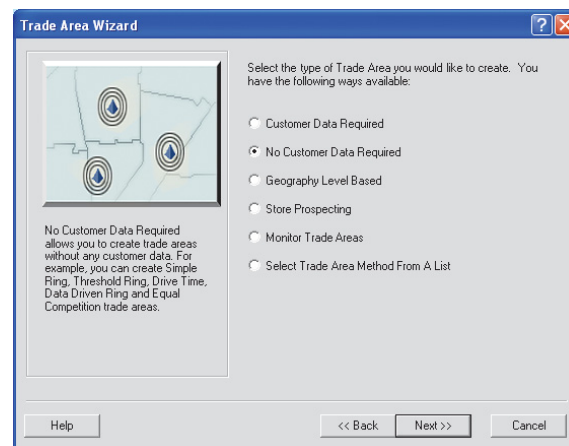
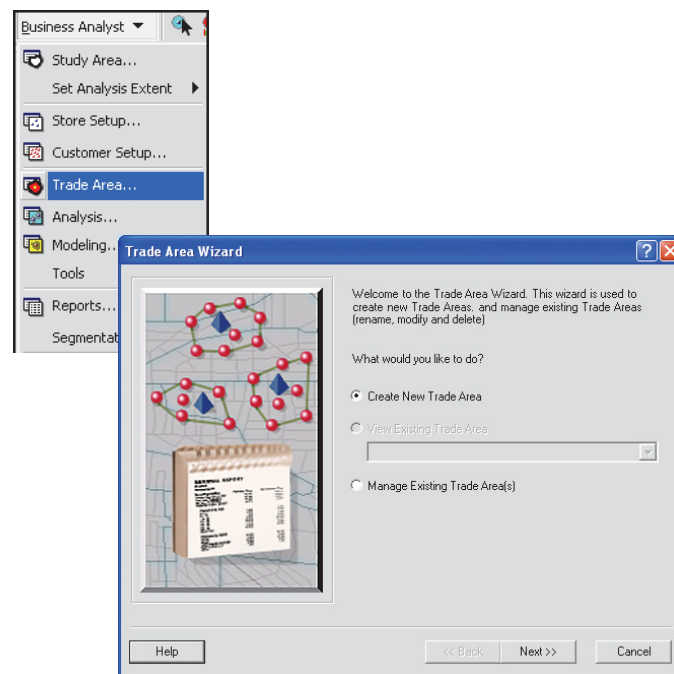
Once the rings have been generated, the underlying demographics are extracted. What is the total population within one mile? How many households are within three miles? What is the average household income within five miles? These are all questions that ring studies can quickly and easily answer.

Simple ring studies are generally used to generate a rough visualization of the market areas around points. Suppose a company is expanding into a new market and plans on leasing space in the major shopping centers in that market. The company may begin the analysis process with a series of ring studies around the major malls. The characteristics of these rings can be ►

## Creating a no customer data required trade area using simple rings

1. Click the Business Analyst drop-down menu and click Trade Area.
2. Click Create New Trade Area, then click Next.
3. Click No Customer Data Required as the type of trade area you want to create, then click Next. ►

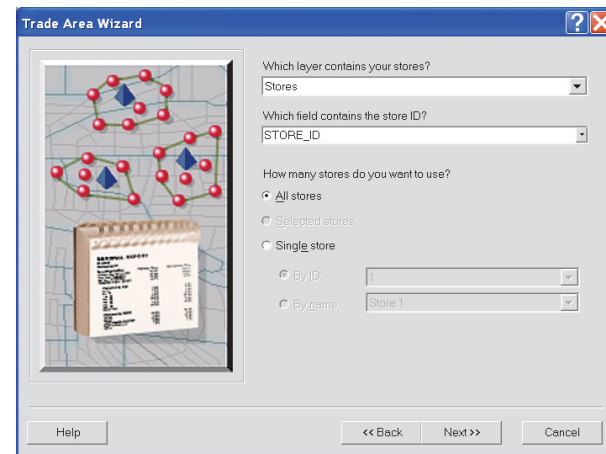
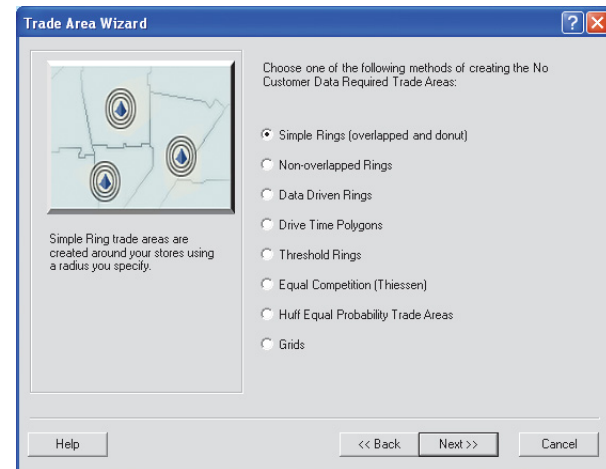
The Trade Area Wizard opens.



compared to similar rings around successful existing operations.

Other examples of simple ring store-based analysis include:

- A commercial real estate company calculates underlying demographics for five- and ten-mile rings around each available property as part of a standard report.
  - A large HMO provides a count of the number of employees within three, five, and ten miles of each of its branch clinics as part of its proposal to potential clients.
4. Determine how to create the trade area; click Simple Rings (overlapped and donut), then click Next.
  5. Click the drop-down menu and click the layer that contains your stores.
  6. Click the second drop-down menu and click the field that contains the store ID.
  7. Determine how many stores you want to use by clicking All stores, Selected stores, or Single store. If you choose Single store, click By ID or By name and choose an option from the respective drop-down menu. Click Next to continue. ►

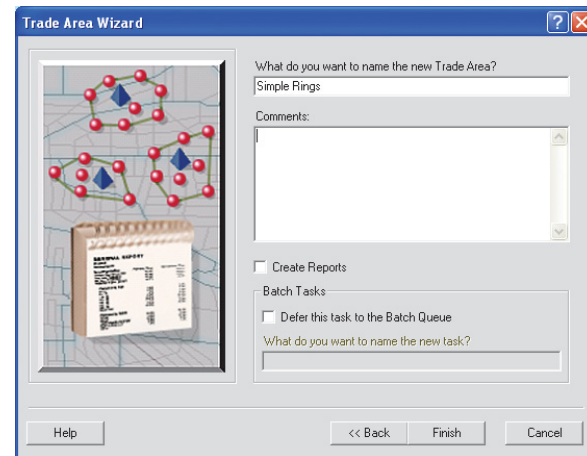
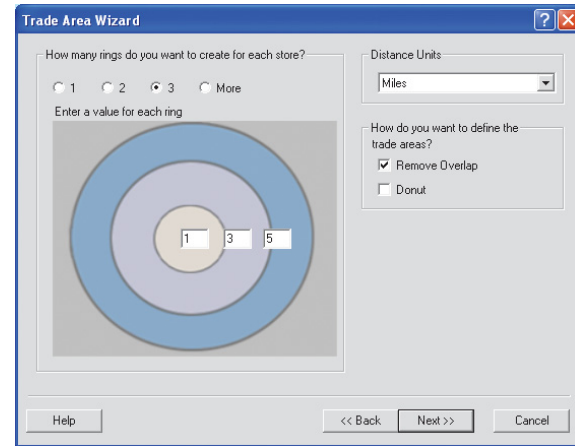


8. Choose how many rings you want to create for each store, 1, 2, 3, or More, then type a value for each ring in the text boxes.
9. Click the Distance Units drop-down menu to choose a distance from the list.
10. To define the trade area, click either Remove Overlap or Donut, then click Next. By default, Business Analyst defines rings using the radius you choose, measuring from the center outward. If you check Donut, Business Analyst calculates values between rings, for example, Center to Ring 1, Ring 1 to Ring 2, Ring 2 to Ring 3, and so on.

If you check Remove Overlap and have rings from two different stores that intersect, Business Analyst will calculate a straight-line boundary between the intersect points of the two rings.

11. Type a name for the new trade area in the text box and type any comments, then click Finish.

Your new trade area is created and displayed on the map.



# Nonoverlapping rings

Nonoverlapping rings are trade areas created around your stores using a radius that you specify.

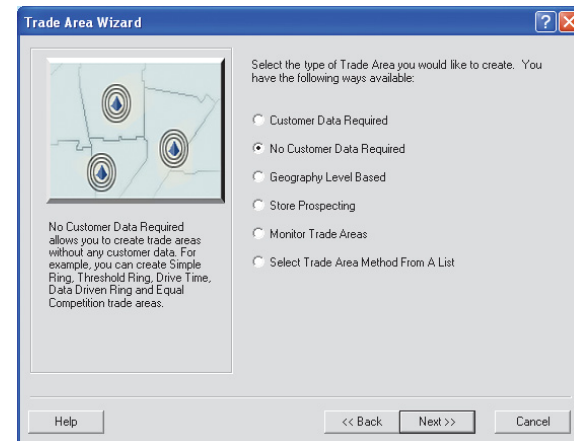
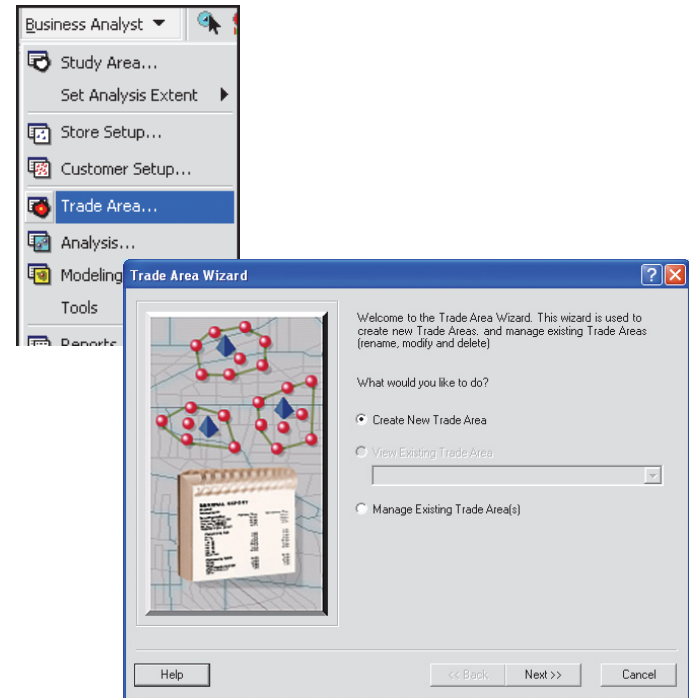
Alternatively, you can calculate the rings based on some field value in your store layer. Any rings that intersect will have the overlap removed. Business Analyst does this by calculating a straight-line boundary between the points of intersection.

## Creating a no customer data required trade area using nonoverlapping rings

1. Click the Business Analyst drop-down menu and click Trade Area.

The Trade Area Wizard opens.

2. Click Create New Trade Area, then click Next.
3. Click No Customer Data Required as the type of trade area you want to create, then click Next. ►

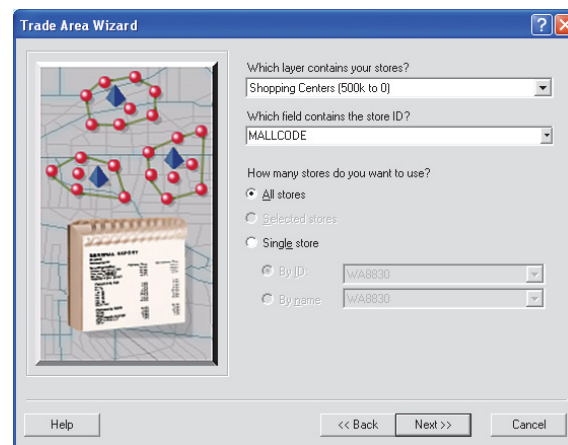
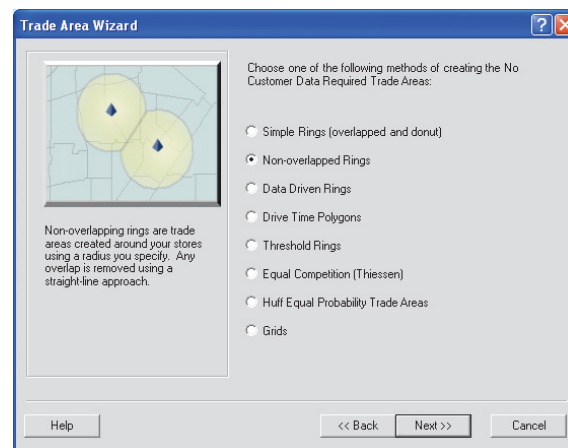


## Tip

### Calculating Statistics

Click the **Update Stats** button to have **Business Analyst** calculate statistics for all values in the selected field. These statistics can be helpful in choosing the value in the next box that will equate with one distance unit. For example, if you choose store sales, a store with more sales would have a larger ring around it. You can determine the area of the rings on the map by changing the value that equates to one distance unit.

4. Determine how to create the trade area; click **Non-overlapped Rings**, then click **Next**.
5. Click the drop-down menu and click the layer that contains your stores. Click the second drop-down menu and click the field that contains the store ID.
6. Determine how many stores you want to use by clicking **All stores**, **Selected stores**, or **Single store**. If you choose **Single store**, click **By ID** or **By name** and click an option from the respective drop-down menu, then click **Next**. ►



7. Choose the ring sizes:

Click All rings will have the same ring size, then type a number for the distance. To change the distance units, click the Distance Units drop-down menu and choose from the list. Or click Ring size will depend on a field value, click the Distance Units drop-down menu and choose from the list. Or click Ring size will depend on a field value and click the drop-down menu to choose which field determines the size of the trade area. Type a number in the text box: What value in this field is proportional to one distance unit?

The Trade Area Wizard dialog box is shown at Step 7. The 'Ring sizes' section has two radio buttons. The first, 'All rings will have the same ring size', is selected. Below it is a text box containing the number '3' and a label 'Miles'. The second radio button, 'Ring size will depend on a field value', is unselected. Below it are two text boxes: 'Which field determines the size of the trade area?' containing '<No fields available>' and 'What value in this field is proportional to one distance unit?' containing '1'. There is an 'Update State' button next to the first text box. Below these is a note: 'As an example you can use mean value from Field Statistic'. To the right, the 'Distance units' section has a dropdown menu set to 'Miles'. Below that, the 'Field statistic' section has labels for 'MAX:', 'MEAN:', 'MIN:', and 'STD DEV:'. At the bottom are buttons for 'Help', '<< Back', 'Next >>', and 'Cancel'.

8. Type a name for the new trade area in the text box, type any comments, then click Finish.

Your new trade area is created and displayed on the map.

The Trade Area Wizard dialog box is shown at Step 8. The left pane displays a map with a trade area defined by red dots connected by lines, and a small inset image of a spiral notebook. The right pane has a text box for naming the trade area, containing 'Non-overlapped Rings'. Below it is a 'Comments:' label and a large text area. There is a 'Create Reports' checkbox which is unselected. Below that is a 'Batch Tasks' section with a 'Defer this task to the Batch Queue' checkbox, also unselected, and a text box for naming the new task containing 'What do you want to name the new task?'. At the bottom are buttons for 'Help', '<< Back', 'Finish', and 'Cancel'.

## Data-driven rings

You can generate *data-driven rings* in store market analysis. The size of the ring is determined by some numeric value in the store data, such as sales or store size (square feet). For health care, for example, it could be number of hospital beds, while for media it might be signal strength for radio stations. The greater the data value, the larger the size of the ring. This analysis is primarily used to look at your competition, but it can also be used to analyze potential new locations.

A shopping mall with 1,000,000 square feet should be able to attract customers over a larger distance than one with 250,000 square feet. Data-driven rings can give an analyst a rough idea of the drawing radius of shopping centers. The estimated population can determine if the center's service area meets a certain threshold population required for a business. Other examples of data-driven rings include:

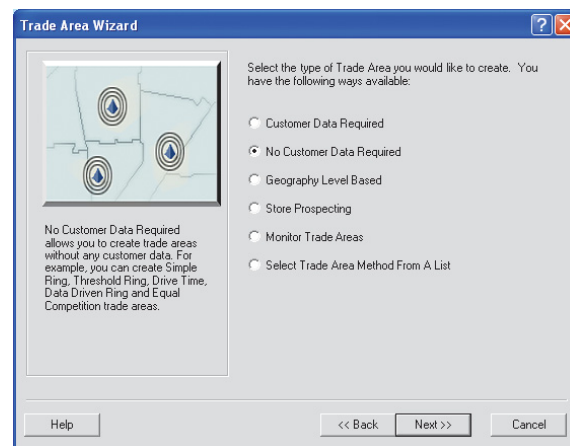
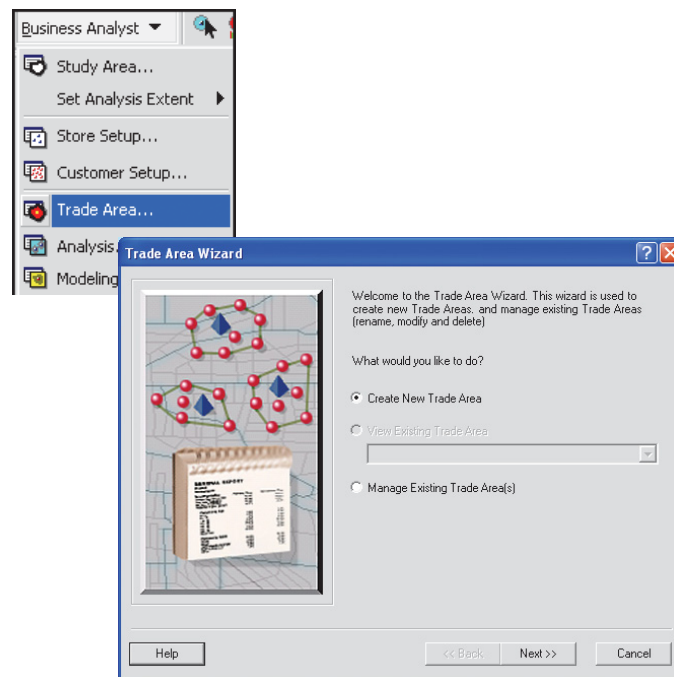
- The developer of small shopping centers uses rings based on gross leasable area (GLA) to analyze the effects of competing centers. ►

## Creating a no customer data required trade area using data-driven rings

1. Click the Business Analyst drop-down menu and click Trade Area...

The Trade Area Wizard opens.

2. Click Create New Trade Area, then click Next.
3. Click No Customer Data Required as the type of trade area you want to create, then click Next. ►





- Store managers can use rings driven by total sales to justify higher real estate costs in larger power centers.

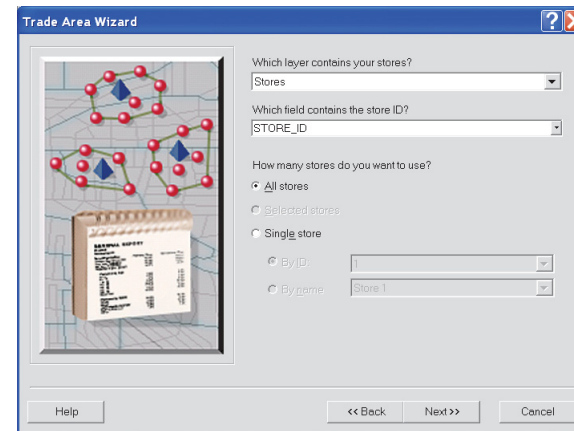
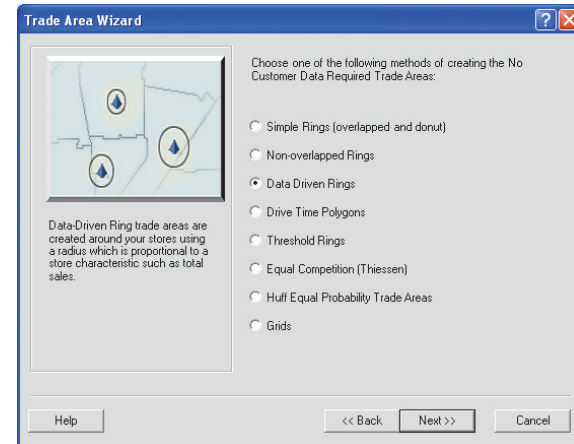
Data-driven rings can be created around your stores when you specify a value in the store data. This value is set equal to a distance and the rings are calculated in this way.

This is typically used to create radius trade areas for competitors so a store owner can see if a store is being cannibalized by the competition. It can also be used to look for gaps in the market area.

To determine what value you want to use, choose the field that determines the size of the trade area. If you already know what value you want to use, type it in the text box. If you aren't sure what value you want to use, click Field statistic. The minimum, maximum, and mean values appear on the left side of the wizard.

If you choose your stores' total sales field and specify \$100,000, for example, to be proportional to a one-mile ring, then a store with \$200,000 in sales will have a two-mile ring, a store with \$750,000 will have a 7.5-mile ring, and so on. This task guides you through this process.

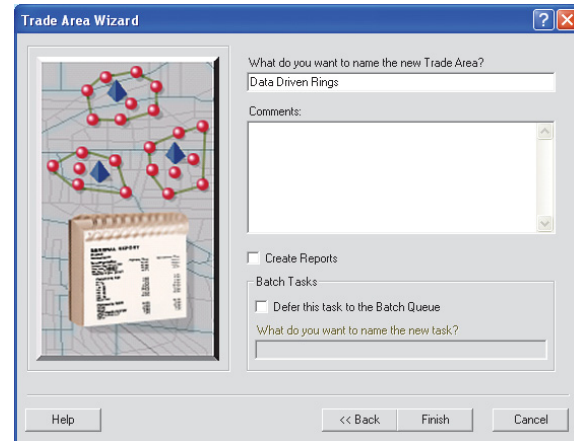
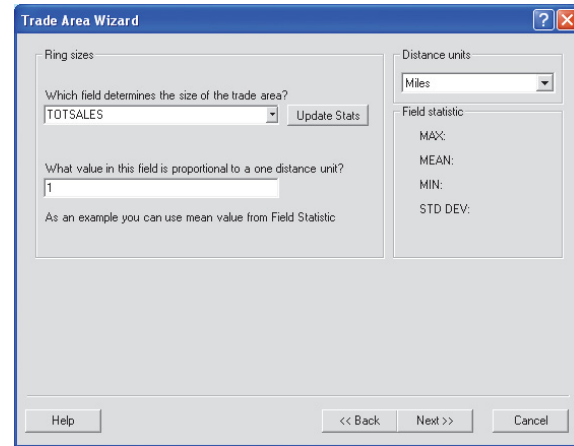
4. Determine how to create the trade area; click Data Driven Rings, then click Next.
5. Click the drop-down menu and click the layer that contains your stores. Click the second drop-down menu and click the field that contains the store ID.
6. Determine how many stores you want to use by clicking All stores, Selected stores, or Single store. If you choose Single store, click By ID or By name and choose an option from the respective drop-down menu. Click Next to continue. ►





7. Click the drop-down menu and click Which field determines the size of the trade area, then type a number in the text box: What value in this field is proportional to a one distance unit?
8. Click the Distance Units drop-down menu and choose a distance unit from the list, then click Next.
9. Type a name for the new trade area in the text box, type any comments, then click Finish.

Your new trade area is created and displayed on the map.



## Drive-time polygons

You can generate drive-time areas that use actual street networks and approximated driving times. Equal competition market areas do not adjust for the way people actually travel on the ground. Equal competition market areas are based on as-the-crow-flies distances, while people in the real world have to use real roads and streets to get where they want to go. A two-mile trip might take five minutes on one road network and fifteen on another.

Pizza delivery once again provides a good example for the use of drive-time polygons. A company may want to limit deliveries to a total of 15 minutes. This means that the delivery limit of each store might be restricted to eight minutes (six minutes to the delivery point, three minutes at the delivery site, and six minutes to return).

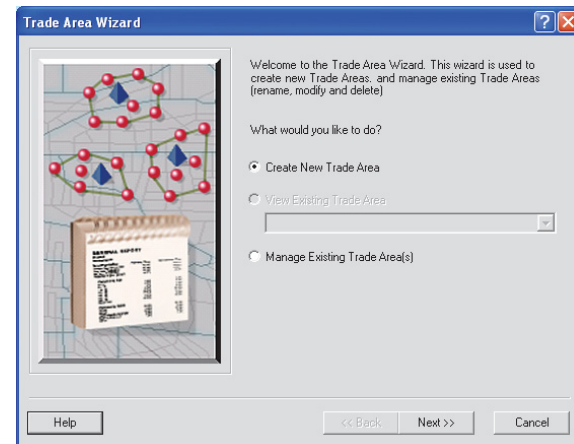
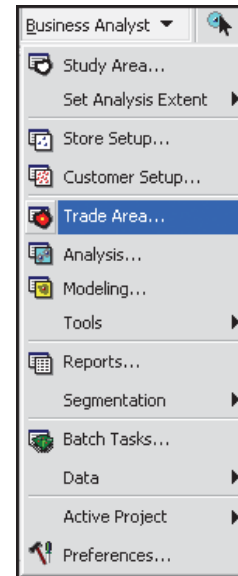
Overlap can occur. Some chains have solved this problem by using equal competition areas where drive-time overlap occurs to make each service zone unique and using the drive times at the edge of built-up urban areas to restrict delivery distances and times. ►

## Creating a no customer data required trade area using drive-time polygons

1. Click the Business Analyst drop-down menu and click Trade Area.

The Trade Area Wizard opens.

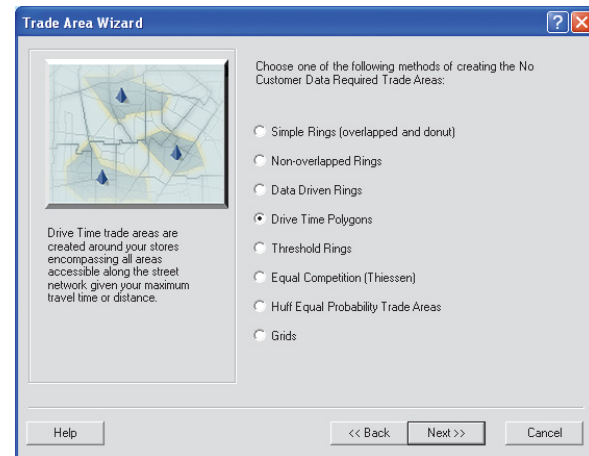
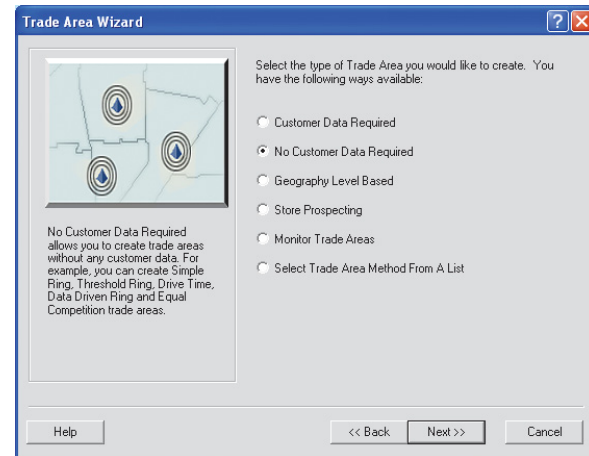
2. Click Create New Trade Area, then click Next. ►



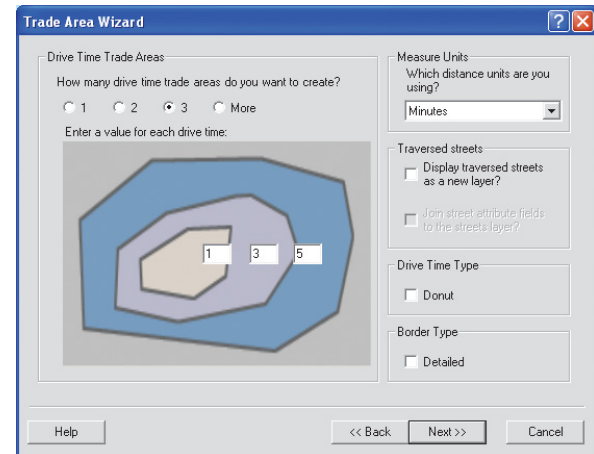
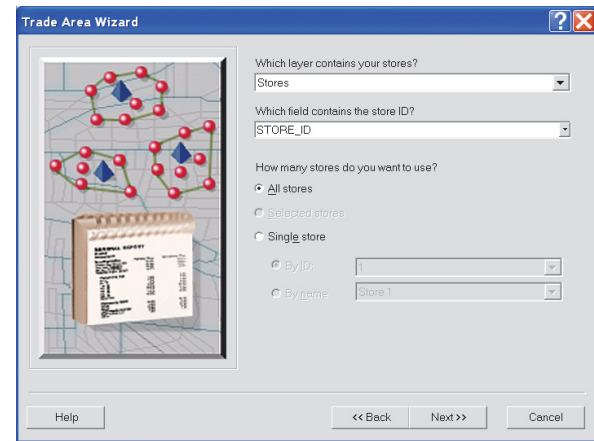
Other examples of drive-time areas include:

- Drive time is the defining measure for most urban travel. Potential customers respond much more to a location advertised as being within five minutes than one within two miles.
- Appliance repair operations use drive-time polygons to estimate the total length of service calls.
- Video stores locate stores so at least some minimum population is within five minutes of each store. The threshold population is also dependent on the number and location of competitors within each drive-time polygon.
- Drive-time analysis creates three types of results: drive time (by actual street network drive distance), drive distance, and service area boundaries.

3. Click No Customer Data Required as the type of trade area you want to create, then click Next.
4. Determine how to create the trade area; click Drive Time Polygons, then click Next. ►



5. Click the drop-down menu and click the layer that contains your stores. Click the second drop-down menu and click the field that contains the store ID.
6. Determine how many stores you want to use by clicking All stores, Selected stores, or Single store. If you choose Single store, click By ID or By name and click an option from the respective drop-down menu. Click Next to continue.
7. Choose how many drive-time trade areas you want to create, 1, 2, 3, or More, then type a value for each drive time in the text boxes.
8. Click the Measure Units drop-down menu and click the units you want to use. Under Traversed streets, check the box if you want to Display traversed streets as a new layer. Under Drive Time Type, check the box if you want to Display traversed streets as a new layer. Under Border Type, check the box if you want to Display traversed streets as a new layer.  
  
By default, drive-time rings are calculated from the center outward, for example, 0 to 1, 0 to 3, and 0 to 5 miles. You can choose Donut, which will summarize values between rings, for example, 0 to 1, 1 to 3, and 3 to 5 miles. ►



## Tip

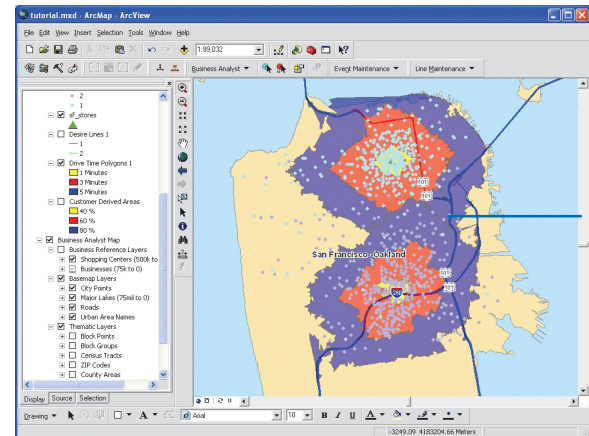
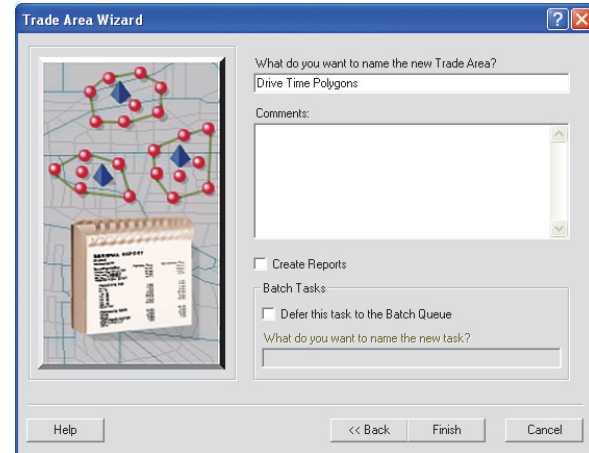
### Choosing Measure Units

*On the Measure Units drop-down menu, you can choose time or distance. If you choose a distance, decimal entries are acceptable.*

Borders of the rings are simple by default but you have the option of making them detailed, which will connect more points and display a more detailed boundary.

9. Type a name for the new trade area in the text box, type any comments, then click Finish.

Your new trade area is created and displayed on the map.



# Threshold rings

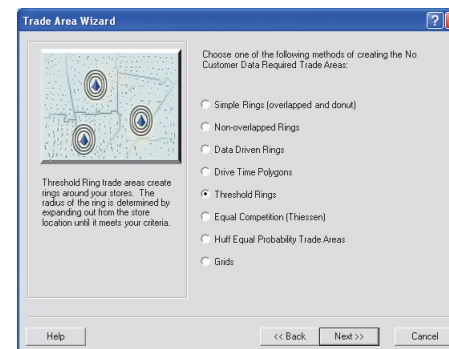
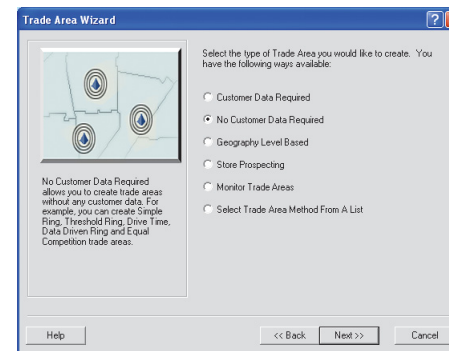
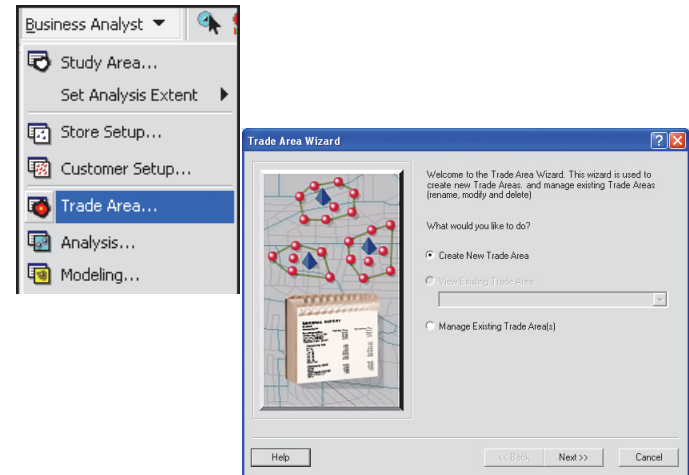
Threshold ring trade areas create rings around your stores. The radius of the ring is determined by expanding out from the store location until it meets your criteria.

You can choose any layer and field in that layer to use in creating the rings. Typically, the Block Points layer is used. It contains 2000 Population, 2000 Households, and 2000 Housing Units and Business Counts. You can also use any of the ESRI Community demographic data from the Block Group layer. Business Analyst automatically uses block-point data aggregation to more accurately define the threshold rings.

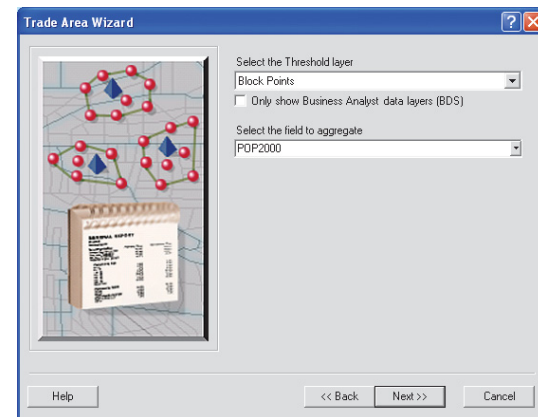
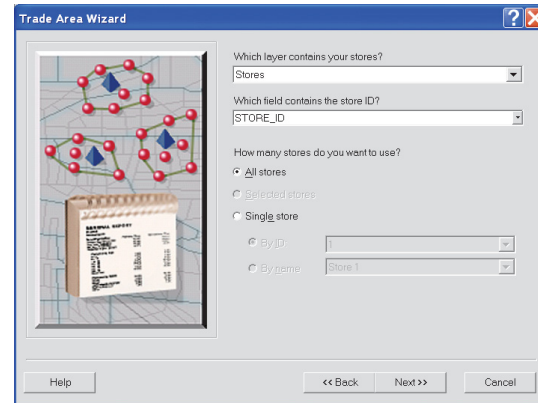
## Creating a no customer data required trade area using threshold rings

1. Click the Business Analyst drop-down menu and click Trade Area.
2. Click Create New Trade Area, then click Next.
3. Click No Customer Data Required as the type of trade area you want to create, then click Next.
4. Determine how to create the trade area; click Threshold Rings, then click Next. ►

The Trade Area Wizard opens.

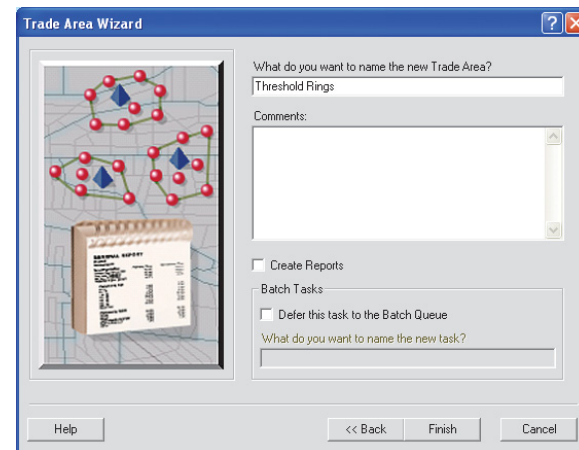
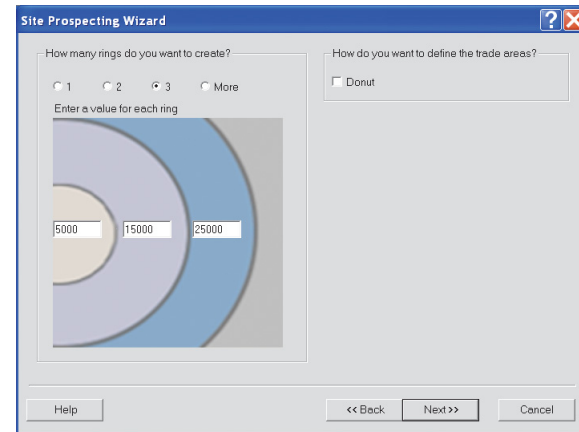


5. Click the drop-down menu and click the layer that contains your stores. Click the second drop-down menu and click the field that contains the store ID.
6. Determine how many stores you want to use by clicking All stores, Selected stores, or Single store. If you choose Single store, click By ID or By name and click an option from the respective drop-down menu. Click Next to continue.
7. Click the drop-down menu and click the layer that contains the Threshold field for summarization. Note that you can choose to show only the Business Analyst data layers. Click the second drop-down menu and click the field to aggregate, then click Next. ►



8. Choose how many rings you want to create, 1, 2, 3, or More, then type a value for each ring in the text boxes. By default, all rings are summarized from the center point outward. You can click Donut, which will summarize values between rings, for example, 0 to ring 1, between ring 1 and ring 2, between ring 2 and ring 3, and so on.
9. Type a name for the new trade area in the text box, type any comments, then click Finish.

Your new trade area is created and displayed on the map.





## Equal competition (Thiessen)

Another type of store-based market area is called *equal competition* (also called *Thiessen polygons*). This type of trade area assumes that consumers will travel to the closest store or facility. A line is drawn exactly halfway between two competing centers.

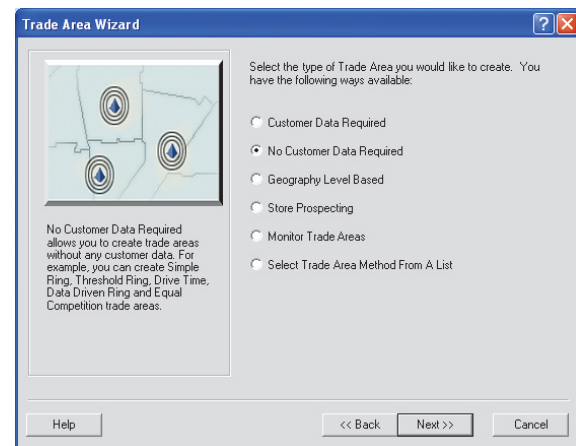
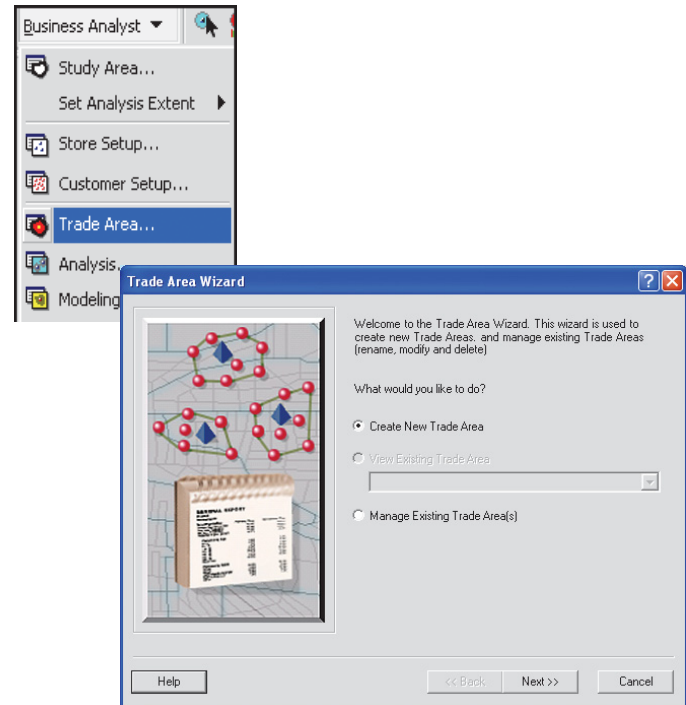
Equal competition areas can provide a better understanding of the natural market areas of a facility. This is the best type of market area to use for store-specific direct mail. Each customer gets advertising geared toward a specific store location. There are no multiple mailings, and the customer is directed to the nearest store. This lowers direct mail costs and generally increases the hit rate.

Home delivery pizza stores have used equal competition areas to define delivery markets. The order is directed to the outlet closest to the customer, and there is no competing overlap. All locations in each equal competition area can be geocoded by street address. Each incoming call can be ►

## Creating a no customer data required trade area using equal competition (Thiessen)

1. Click the Business Analyst drop-down menu and click Trade Area...
2. Click Create New Trade Area, then click Next.
3. Click No Customer Data Required as the type of trade area you want to create, then click Next. ►

The Trade Area Wizard opens.



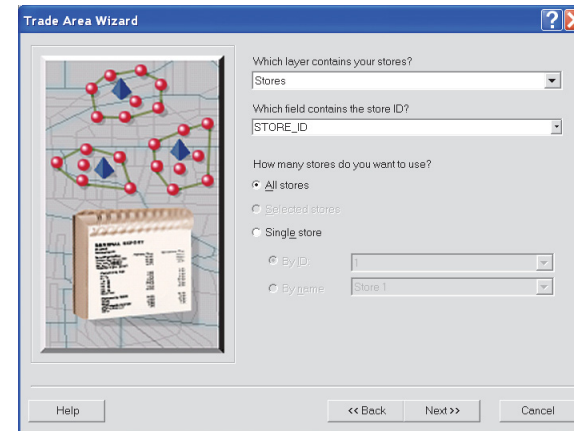
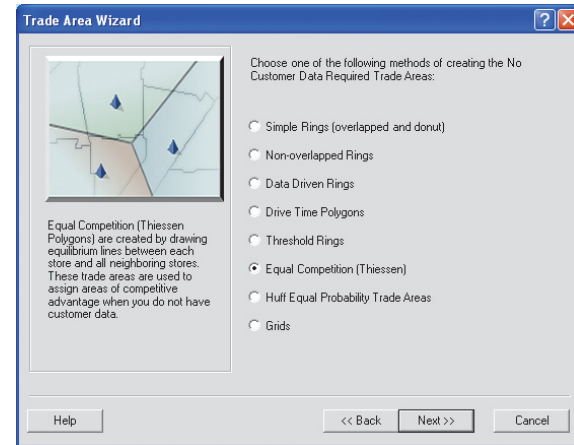
automatically routed to the proper store by asking the customer for a street address.

Equal competition areas provide accurate estimates of store trade areas for operations without customer records. The corners of multiple equal competition areas are often good locations for new store expansion.

Available area is apportioned into trade areas for each store by creating boundary lines equidistant from each of the store locations.

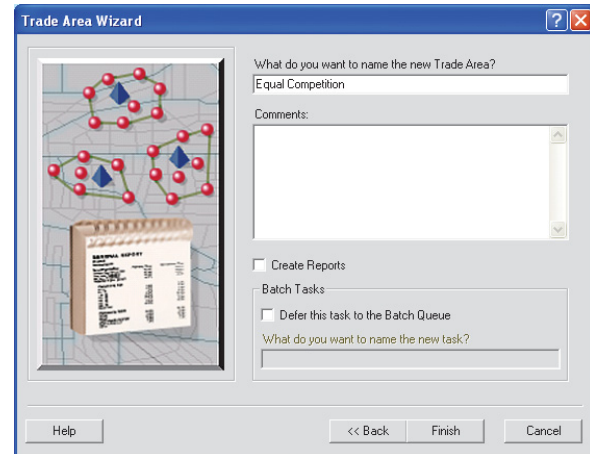
Equal competition (Thiessen polygons) are created by drawing equilibrium lines between each store and all neighboring stores. These trade areas are used to assign areas of competitive advantage when you do not have customer data.

4. Determine how to create the trade area; click Equal Competition (Thiessen), then click Next.
5. Click the drop-down menu and click the layer that contains your stores. Click the second drop-down menu and click the field that contains the store ID.
6. Determine how many stores you want to use by clicking All stores, Selected stores, or Single store. If you choose Single store, click By ID or By name and click an option from the respective drop-down menu. Click Next to continue. ►



7. Type a name for the new trade area in the text box, type any comments, then click Finish.

Your new trade area is created and displayed on the map.



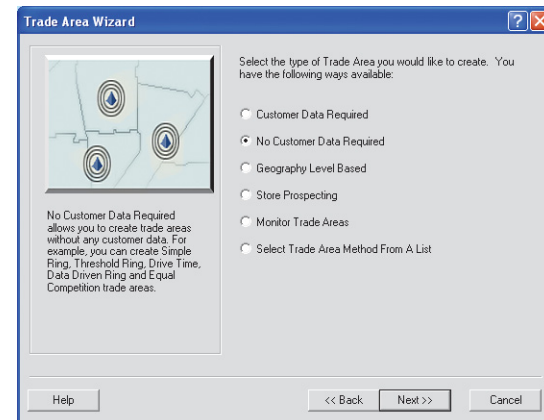
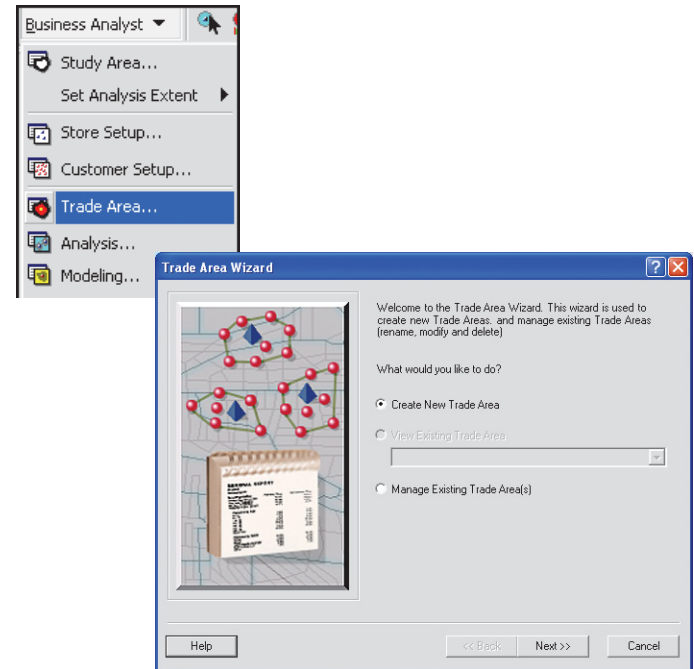
# Huff equal probability trade areas

Huff equal probability trade areas are similar to equal competition areas, but the boundaries between the stores are weighted based on one or more variables. These weights can be calculated from results of a Huff model you have run, or you can enter the parameters manually using predictor variables in your store layer.

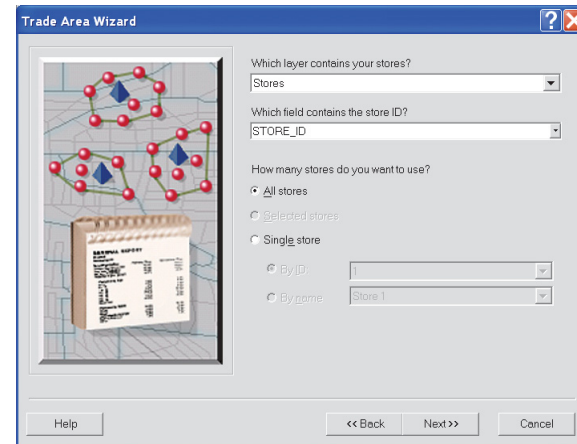
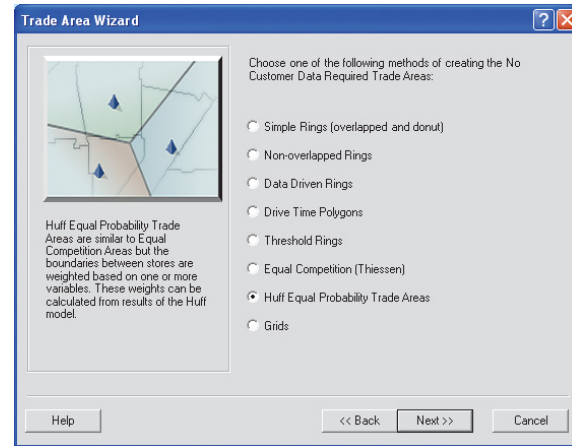
## Creating a no customer data required trade area using Huff equal probability

1. Click the Business Analyst drop-down menu and click Trade Area.
2. Click Create New Trade Area, then click Next.
3. Click No Customer Data Required as the type of trade area you want to create, then click Next. ►

The Trade Area Wizard opens.

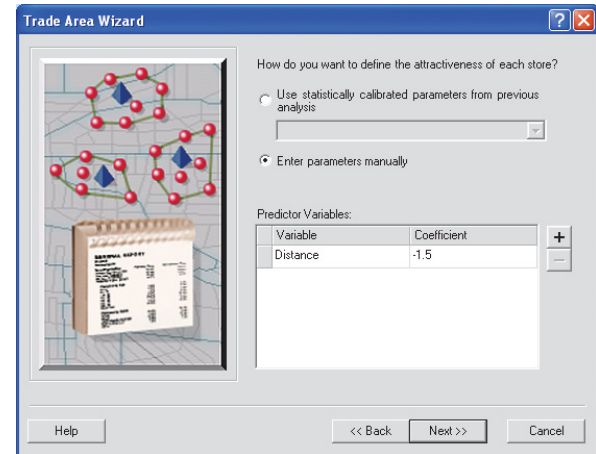


4. Determine how to create the trade area; click Huff Equal Probability Trade Areas, then click Next.
5. Click the drop-down menu and click the layer that contains your stores. Click the second drop-down menu and click the field that contains the store ID.
6. Determine how many stores you want to use by clicking All stores, Selected stores, or Single store. If you choose Single store, click By ID or By name and click an option from the respective drop-down menu. Click Next to continue. ►



7. Determine how you want to define the attractiveness of each store. You can click Use statistically calibrated parameters from previous analysis, then click the drop-down menu to make a selection. Alternatively, you can click Enter parameters manually, and set the Predictor Variables using the plus (+) and minus (-) buttons, then click Next.
8. Type a name for the new trade area in the text box, type any comments, then click Finish.

Your new trade area is created and displayed on the map.



The Trade Area Wizard dialog box is shown in Step 7. On the left is a map with red dots representing stores and blue diamonds representing potential trade areas. Below the map is a small image of a spiral-bound notebook with a list of items. The main text area asks: "How do you want to define the attractiveness of each store?". There are two radio buttons: "Use statistically calibrated parameters from previous analysis" (which is currently unselected) and "Enter parameters manually" (which is selected). Below the radio buttons is a drop-down menu. To the right of the main text area is a section titled "Predictor Variables:" containing a table with two columns: "Variable" and "Coefficient". The table has one row with "Distance" in the Variable column and "-1.5" in the Coefficient column. To the right of the table are plus (+) and minus (-) buttons. At the bottom of the dialog are buttons for "Help", "<< Back", "Next >>", and "Cancel".

How do you want to define the attractiveness of each store?

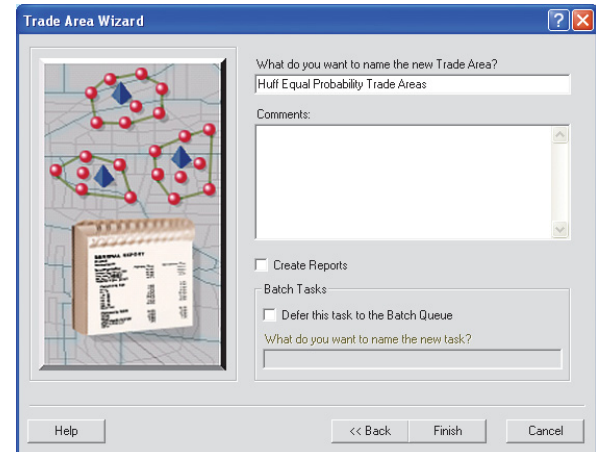
☐ Use statistically calibrated parameters from previous analysis

☒ Enter parameters manually

Predictor Variables:

Variable	Coefficient
Distance	-1.5

Help << Back Next >> Cancel



The Trade Area Wizard dialog box is shown in Step 8. On the left is the same map and notebook image as in Step 7. The main text area asks: "What do you want to name the new Trade Area?". Below this is a text box containing the text "Huff Equal Probability Trade Areas". Below the text box is a section titled "Comments:" followed by a large text area for entering comments. Below the comments section are two checkboxes: "Create Reports" (which is unselected) and "Batch Tasks" (which is also unselected). Below the "Batch Tasks" checkbox is a text box asking "What do you want to name the new task?". At the bottom of the dialog are buttons for "Help", "<< Back", "Finish", and "Cancel".

What do you want to name the new Trade Area?

Huff Equal Probability Trade Areas

Comments:

☐ Create Reports

☐ Batch Tasks

☐ Defer this task to the Batch Queue

What do you want to name the new task?

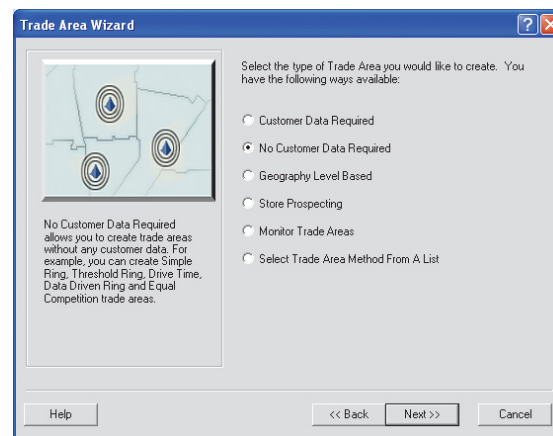
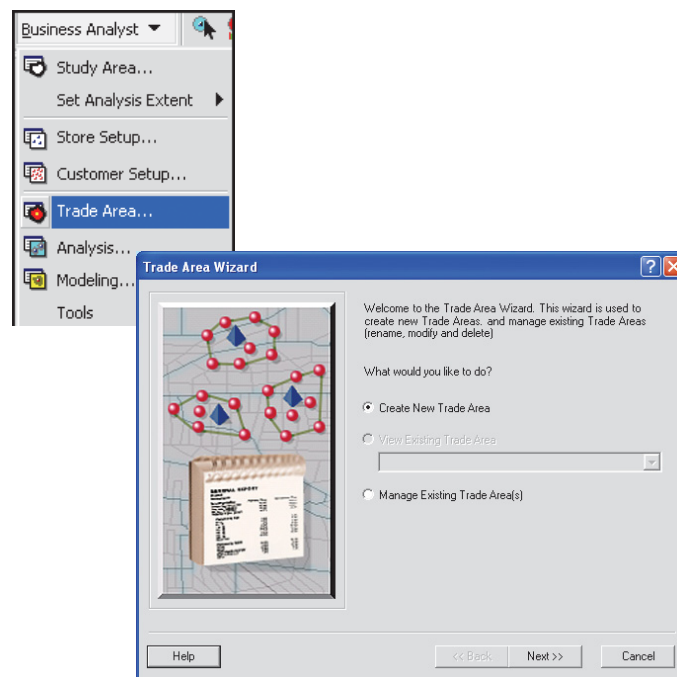
Help << Back Finish Cancel

## Grid areas

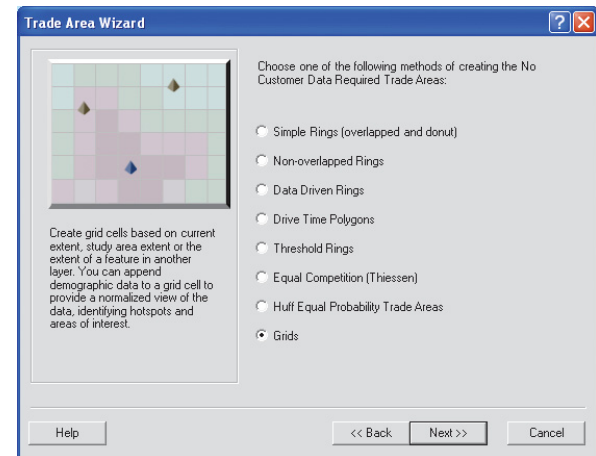
An area of equal-sized grids is created over the designated study area. You can create grid cells based on the current extent, study area extent, or the extent of a feature in another layer. You can append demographic data to a grid cell to provide a normalized view of the data, identifying hot spots and areas of interest. Hot spot grid areas appear with prominent red coloring, by default.

### Creating a no customer data required trade area using grid areas

1. Click the Business Analyst drop-down menu and click Trade Area...  
The Trade Area Wizard opens.
2. Click Create New Trade Area, then click Next.
3. Click No Customer Data Required as the type of trade area you want to create, then click Next. ►

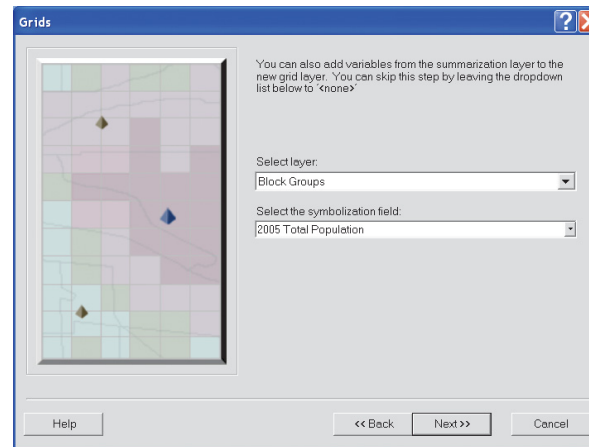
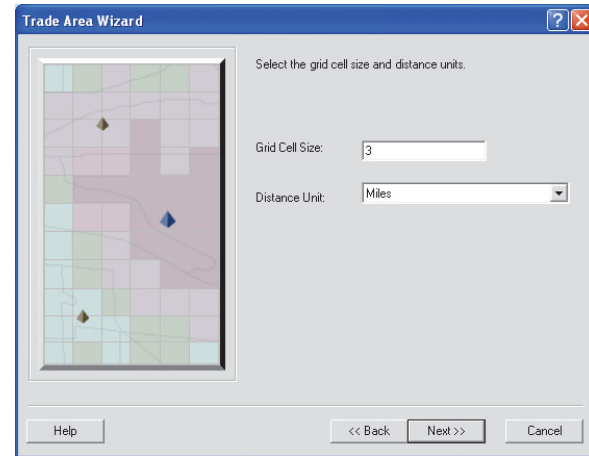


4. Determine how to create the trade area; click Grids, then click Next.
5. Define the grid extent; click Use Current Extent, Use Study Area, Use feature from a layer, Use selected graphic polygon, or Use layer extent, then click Next. ►



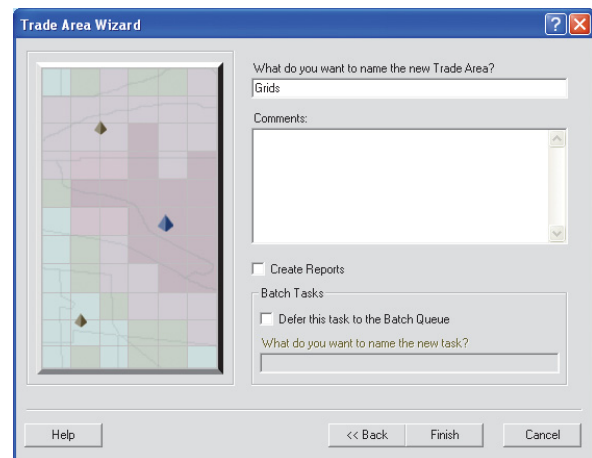
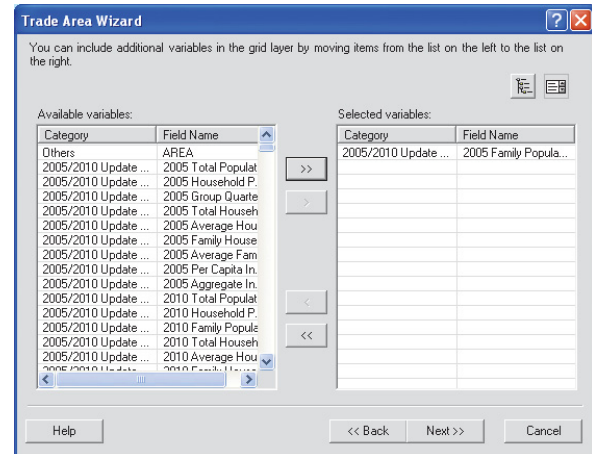


6. Determine the grid cell size and distance units. Type a number in the Grid Cell Size text box and choose distance units from the Distance Unit drop-down menu and click Next.
7. You can add variables from the summarization layer to the new grid layer, or you can skip this step by leaving the drop-down menu set to <none>. To add variables from the summarization layer, click the Select layer drop-down menu and click a layer, then click the Select the symbolization field drop-down menu and choose from the list. ►



8. To include additional variables, choose from the Available variables list, then click the Add button to add them to the Selected variables column. Click Next when you are finished adding variables.
9. Type a name for the new trade area in the text box, type any comments, then click Finish.

Your new trade area is created and displayed on the map.





# Trade areas—geography level based

# 8

## IN THIS CHAPTER

- **Standard levels of geography**
- **Subgeography**

Geography level-based trade areas are created using standard geography. For example, you can create trade areas from a list of geographies, such as states, counties, or ZIP Codes. You can import your own list, choose from a Business Analyst list, or make a selection from a map of geographies.

You also have the option of creating trade areas by subgeography. This is creating trade areas for each standard geography boundary inside another layer boundary, such as drive-time trade area.

Once you have created trade areas using either of these geography methods, you can group geographies into larger geographies (for instance, territories) using the Business Analyst Dissolve by Attribute tool.

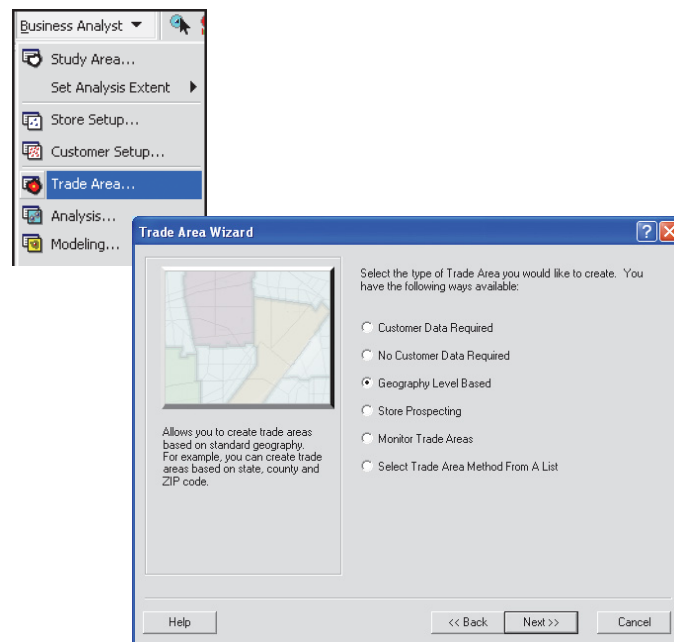
## Standard levels of geography

You create trade areas for a list of standard geography units, such as states, counties, tracts, ZIP Codes, Block Groups, CBSAs (CBSA) or DMAs (DMA). Individual trade areas are created for each unique geography—for example, each state, each ZIP Code—that you select.

## Creating a geography level-based trade area using standard levels of geography

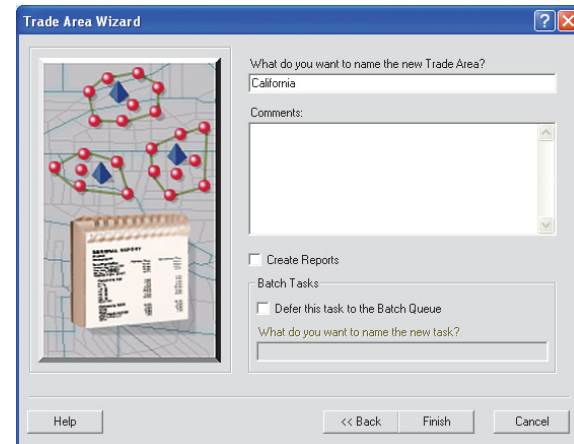
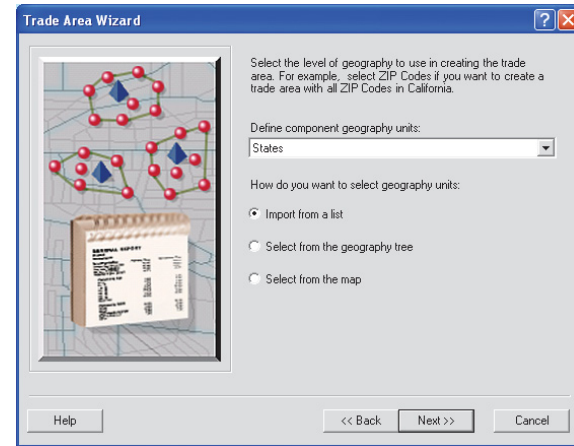
1. Click the Business Analyst drop-down menu and click Trade Area.
2. Click Create New Trade Area, then click Next.
3. Click Geography Level Based as the type of trade area you want to create, then click Next.
4. Click Standard Levels of Geography as the method of creating the trade areas.
5. Determine how to create the trade area, click Standard Levels of Geography, then click Next. ►

The Trade Area Wizard opens.



6. Click the drop-down menu to choose the level of geography to use in creating the trade area—for example, ZIP Codes, CBSAs, and so forth.
7. Choose how you want to select geography units: Import from a list, Select from the geography tree, or Select from the map; then click Next.
8. Depending on which option you chose in step 7, browse to select the file containing geography units, select from the geography tree, or use the Select Features tool on the map, then click Next.
9. Type a name for the new trade area in the text box and type any comments, then click Finish.

Your new trade area layer is created and displayed on the map. It contains polygon areas for each geography. If you want to separate the polygons into trade area layers, you can use the Business Analyst Dissolve by Attribute tool.



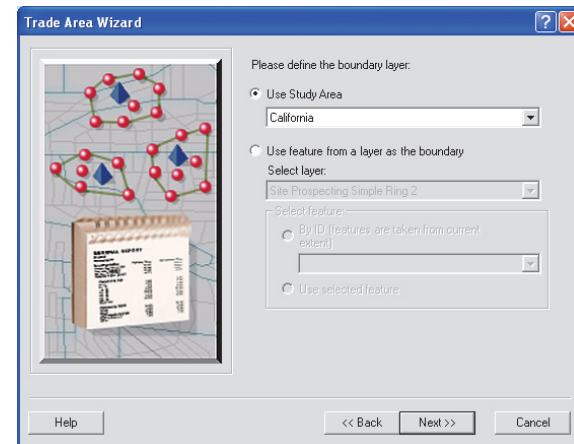
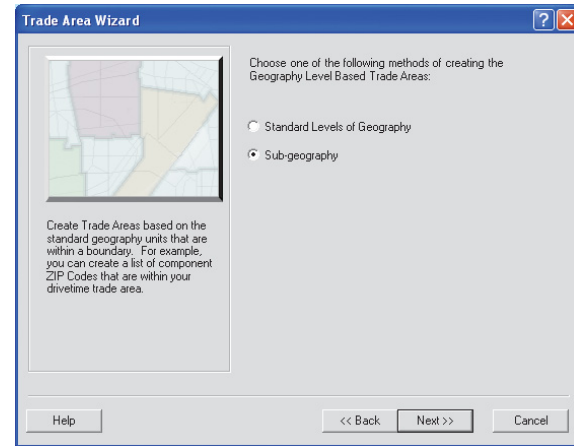
## Subgeography

Clicking Sub-geography trade areas allows you to create trade areas for each standard geography boundary inside another layer boundary, for example, block groups inside a drive-time boundary.

### Creating a geography level-based trade area using subgeography

1. Click the Business Analyst drop-down menu and click Trade Area.  
  
The Trade Area Wizard opens.
2. Click Create New Trade Area, then click Next.
3. Click Geography Level Based as the type of trade area you want to create, then click Next.

4. Determine how to create the trade area, click Sub-geography, then click Next.
5. To define the boundary layer, click Use Study Area and click a study area from the drop-down menu, or click Use feature from a layer as the boundary, then choose the layer from the drop-down menu. Then, click By ID (features are taken from current extent) and choose from the drop-down list, or click Use selected feature and click Next. ►



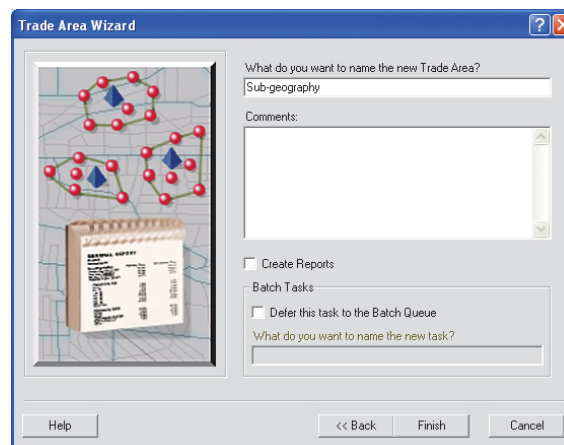
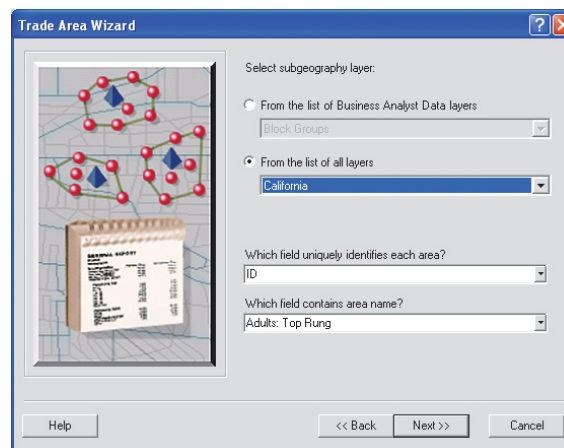


## Tip

*After creating your new layer of subgeography polygon areas, you can separate them or group some of them using the Business Analyst Dissolve by Attribute tool. Grouping some of the areas will require you to edit the layer attribute table to add a numeric assignment field. This assignment field will contain the same numeric value for trade areas that are to be grouped together. For more information see the 'Adding and deleting fields in a table' topic in the 'ArcMap—working with tables' section of the ArcGIS Desktop Help.*

6. To select the subgeography layer, click From the list of Business Analyst Data layers and choose from the drop-down menu, or click From the list of all layers and choose from the drop-down menu. Click which field uniquely identifies each area and Which field contains area name from the drop-down menus and click Next.
7. Type a name for the new trade area in the text box and type any comments, then click Finish.

Your new trade area layer is created and displayed on the map. It contains polygon areas for each subgeography that was inside the boundary.







# Trade areas—store prospecting

# 9

## IN THIS CHAPTER

- Using a store layer
- Entering store addresses
- Using a table of store addresses

Business Analyst provides a powerful tool to search for new sites for your operation. It summarizes underlying demographics around possible new sites for comparison and analysis. You can prospect a site by typing in a street address, for example, if you know that a specific property is coming up for sale or lease. The Site Prospecting tool also provides this capability in a quick, easy operation performed on a single site. The Store Prospecting Wizard is most commonly used for accessing a database of potential store locations, although it is also capable of performing the function for a single site. You can prospect a number of sites by starting with a layer of points contained in a layer, for example, if your real estate department has identified a number of possible expansion sites in a market. You would then generate demographic reports to compare sites, then possibly use the Find Similar Wizard to rank the sites against a known good site.

Once sites are identified, the Analysis Wizard generates either a simple ring; a drive-time area around the potential site or sites based on a parameter that you provide (radius or minutes); or a threshold ring based on population, households, total housing units, number of businesses, or any other variable you choose to use. The exact value may be based on data collected for different stores—for example, most of your customers live within two miles or four minutes in similar markets—or an estimate developed for comparison. For example, you can determine the population within a two-mile ring for all points being analyzed.

## Using a store layer

You can prospect a number of sites by starting with a layer of stores you have set up for use in Business Analyst.

### Tip

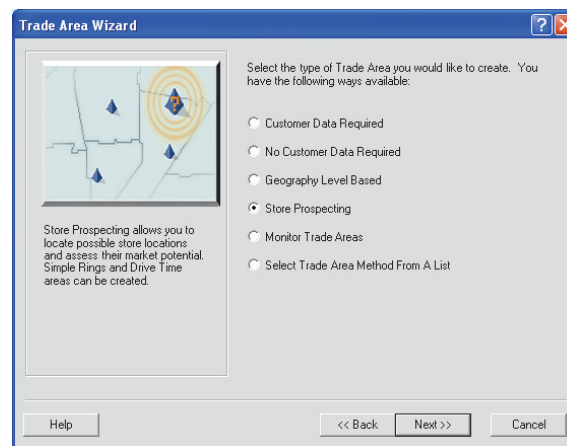
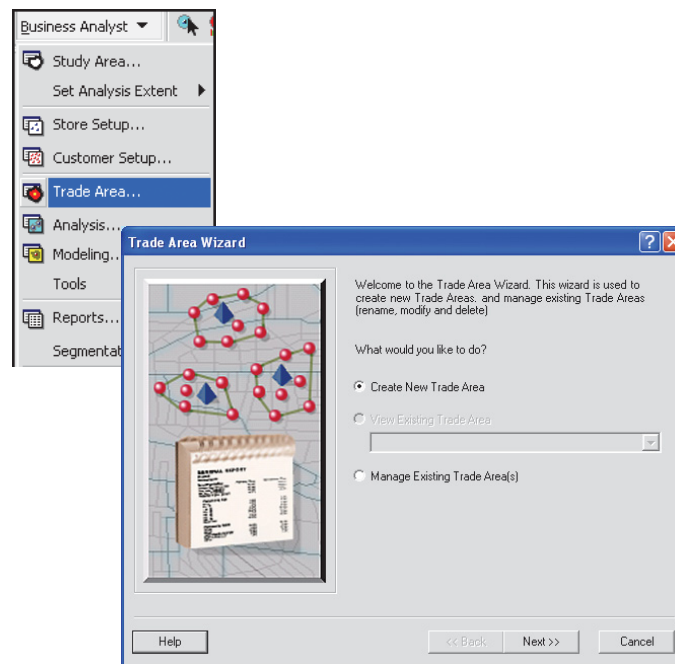
*Threshold rings are usually calculated using the Block Point layer and one of the demographic variables collected at that level (Population, Households, or Housing Units). Business Analyst provides business counts as well. You can also use any other variable and Business Analyst will use a method of block point aggregation to sum the information.*

## Creating a store prospecting trade area using a store layer

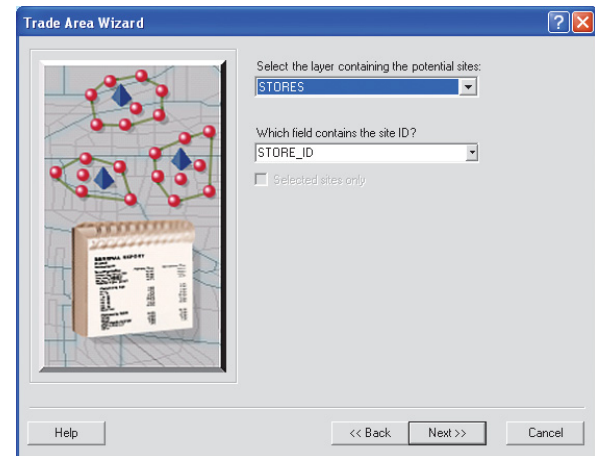
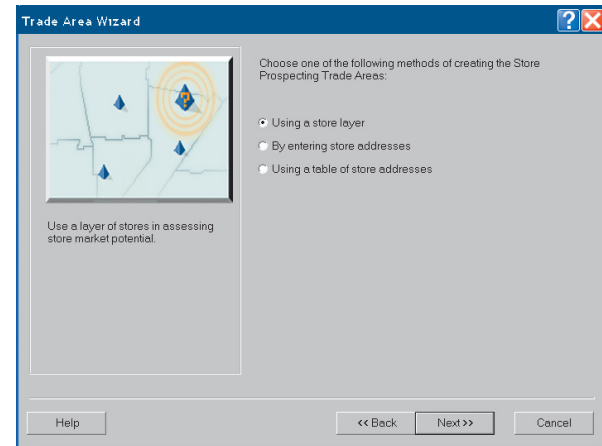
1. Click the Business Analyst drop-down menu and click Trade Area.

The Trade Area Wizard opens.

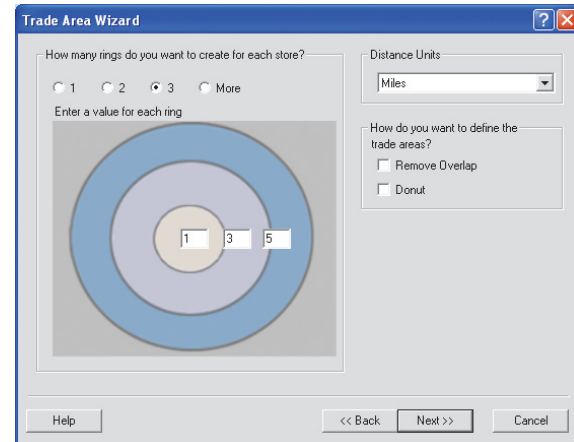
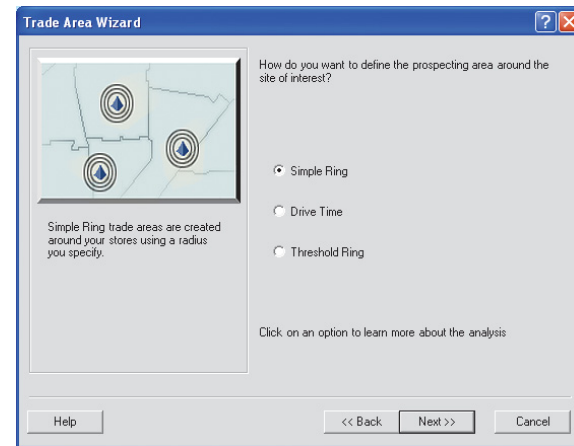
2. Click Create New Trade Area, then click Next.
3. Click Store Prospecting as the type of trade area you want to create, then click Next.



4. Determine how to create the trade area, click Using a store layer, then click Next.
5. Click the drop-down menu and click the layer containing the potential sites.
6. Click the second drop-down menu and click the field that contains the site ID, then click Next. ►



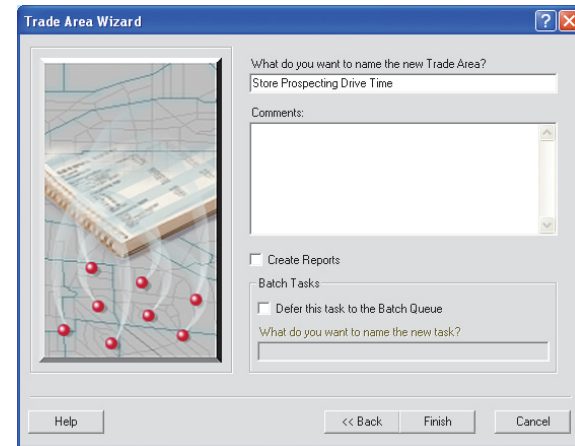
7. Choose how you want to define the prospecting area around the site of interest by clicking Simple Ring, Drive Time, or Threshold Ring, then click Next. For simple rings and drive times, skip to step 9.
8. For threshold rings, click the layer and field to be aggregated around each of your site locations. Click the first drop-down menu and click the Threshold layer. Click the second drop-down menu and click the field to be aggregated.
9. Choose how many rings you want to create for each store, 1, 2, 3, or More, then type a value for each ring in the text boxes.
10. Click the Distance Units drop-down menu to choose a distance from the list.
11. To define the trade area, click either Remove Overlap or Donut, then click Next. Remove Overlap will use a straight line to connect the intersecting edges of any two rings that overlap. Donuts include only the values between rings, center to ring 1 boundary, ring 1 boundary to ring 2 boundary, ring 2 boundary to ring 3 boundary, and so forth. ►



For drive times, you can choose to display traversed streets as a layer or create a detailed border for each drive time area.

12. Type a name for the new trade area in the text box and type any comments, then click Finish.

Your new trade area is created and displayed on the map.



## Entering store addresses

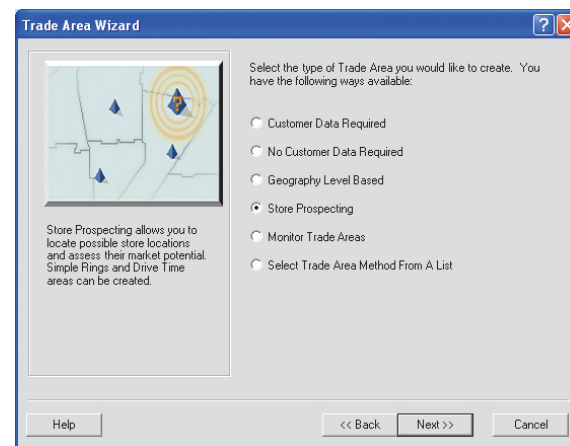
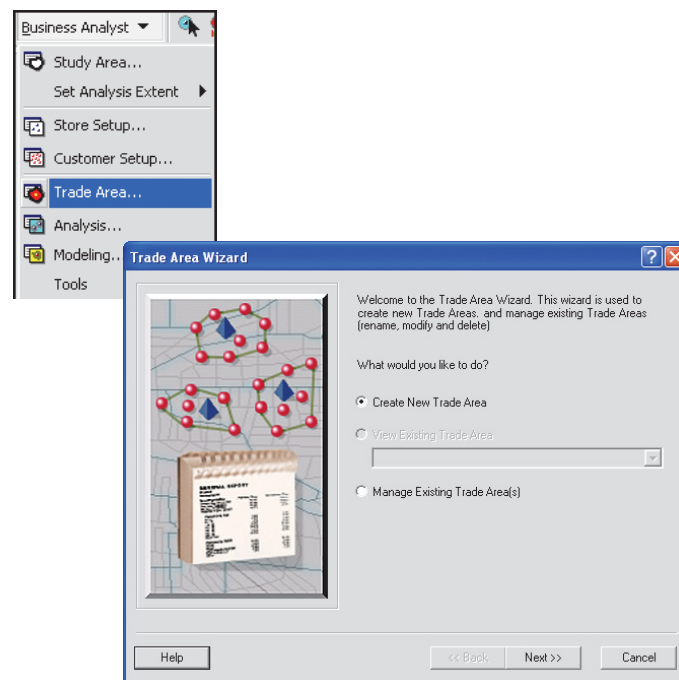
You can also enter individual store addresses to be used in assessing market potential of each store.

## Creating a store prospecting trade area by entering store addresses

1. Click the Business Analyst drop-down menu and click Trade Area...

The Trade Area Wizard opens.

2. Click Create New Trade Area, then click Next.
3. Click Store Prospecting as the type of trade area you want to create, then click Next.

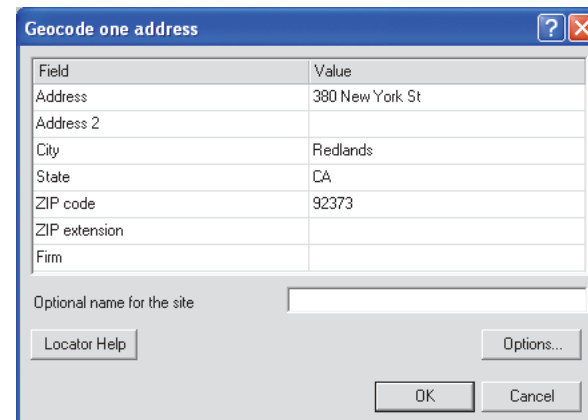
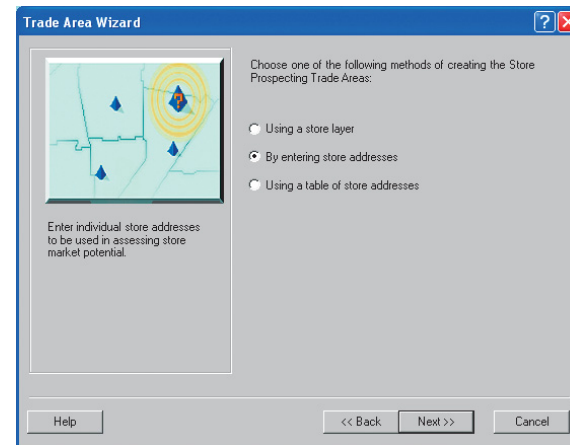




## Tip

Threshold rings are usually calculated using the Block Point layer and one of the demographic variables collected at that level (Population, Households, or Housing Units). Business Analyst provides business counts as well. You can also use any other variable and Business Analyst will use a method of block point aggregation to sum the information.

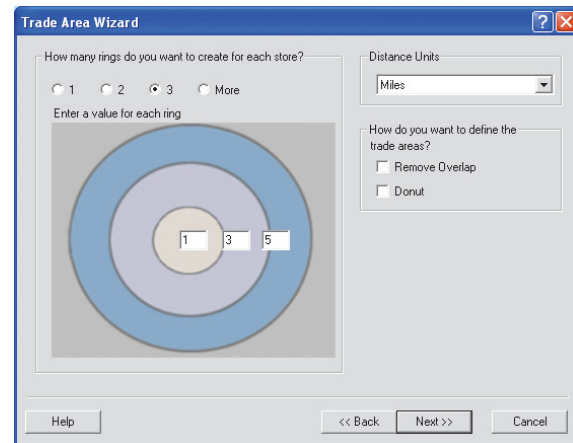
4. Determine how to create the trade area, click By entering store addresses, then click Next.
5. Click the Add button, and the Geocode one address dialog box opens. Type your store address and click OK to close the dialog box. To add another address, click the Add button again and type another store address. When you're finished, click Next. ►





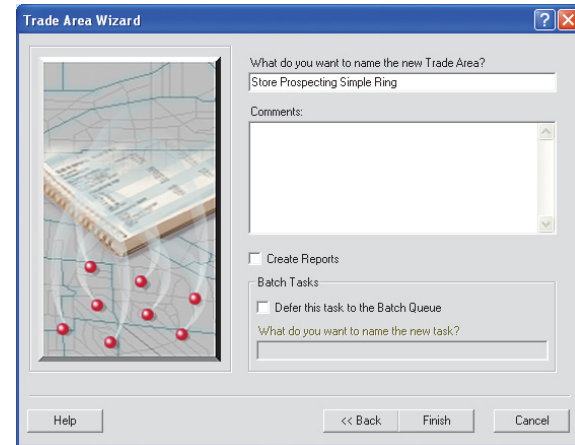
6. Choose how you want to define the prospecting area around the site of interest by clicking Simple Ring, Drive Time, or Threshold Ring, then click Next. For simple rings and drive times, skip to step 8.
7. Choose how many rings you want to create for each store, 1, 2, 3, or More, then type a value for each ring in the text boxes.
8. Click the Distance Units drop-down menu to choose a distance from the list.
9. To define the trade area, click either Remove Overlap or Donut, then click Next. Remove Overlap will use a straight line to connect the intersecting edges of any two rings that overlap. Donuts include only the values between rings, center to ring 1 boundary, ring 1 boundary to ring 2 boundary, and so forth.

For drive times, you can display traversed streets as a layer or create a detailed border for each drive time area. ►



10. Type a name for the new trade area in the text box and type any comments, then click Finish.

Your new trade area is created and displayed on the map.



## Using a table of store addresses

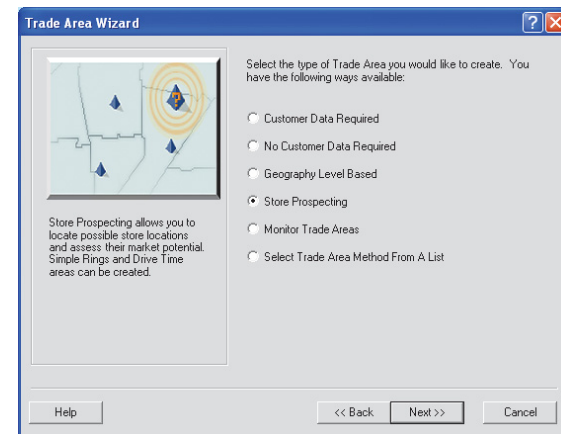
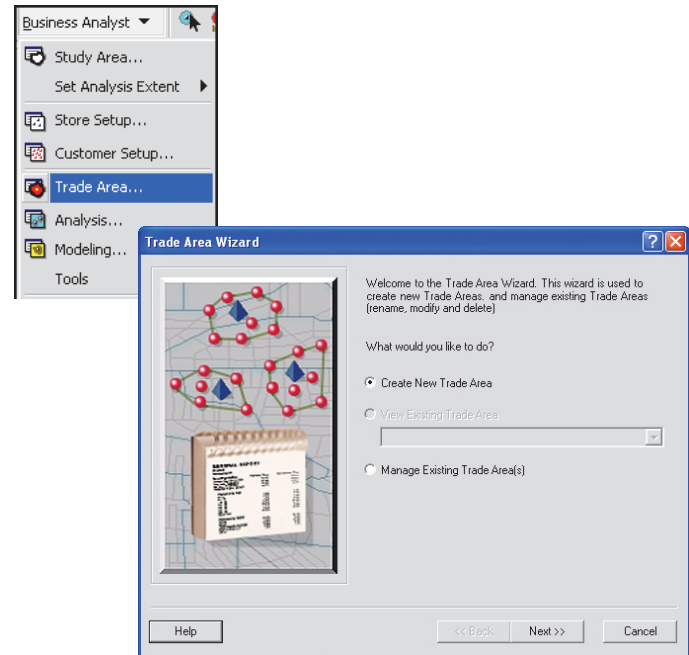
This is similar to using a store layer except in this wizard, the step of geocoding the database is also performed. This converts your table into a spatially referenced layer on the map.

### Creating a store prospecting trade area using store addresses

1. Click the Business Analyst drop-down menu and click Trade Area...

The Trade Area Wizard opens.

2. Click Create New Trade Area, then click Next.
3. Click Store Prospecting as the type of trade area you want to create, then click Next.

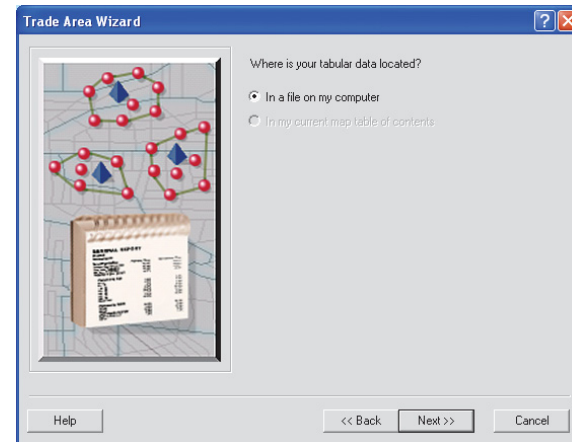


## Tip

*Threshold rings are usually calculated using the Block Point layer and one of the demographic variables collected at that level (Population, Households, or Housing Units). Business Analyst provides business counts as well. You can also use any other variable and Business Analyst will use a method of block point aggregation to sum the information.*

4. Determine how to create the trade area, click Using a table of store addresses, then click Next.
5. Choose where your tabular data is located by clicking In a file on my computer or In my current map table of contents, then click Next.

The option In my current map table of contents is unavailable unless you have added a table by clicking the ArcMap Add Data button. ►



6. Click the browse button to browse to the location of your tabular data, then click Next.
7. Click the drop-down menus to populate the address fields: Address, Address 2, City, State, ZIP Code, ZIP extension, and Firm, then click Next.
8. Choose how you want to define the prospecting area around the site of interest by clicking Simple Ring, Drive Time, or Threshold Ring, then click Next. For simple rings and drive times, skip to step 10.
9. For threshold rings, click the layer and field to be aggregated around each of your site locations. Click the first drop-down menu and click the Threshold layer. Click the second drop-down menu and click the field to be aggregated. ►

The Trade Area Wizard dialog box is shown in its first step. On the left, a map displays several red dots representing site locations. A small inset image shows a business card. On the right, there are six drop-down menus for the following fields: Address (set to ADDRESS), Address 2 (set to <none>), City (set to <none>), State (set to <none>), ZIP code (set to ZIP), ZIP extension (set to <none>), and Firm (set to NAME). At the bottom, there are buttons for Help, << Back, Next >>, and Cancel.

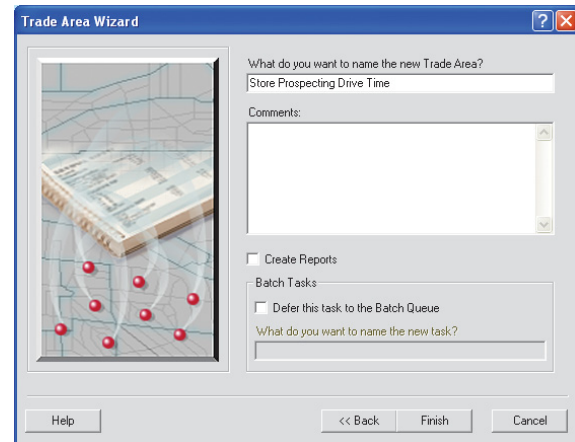
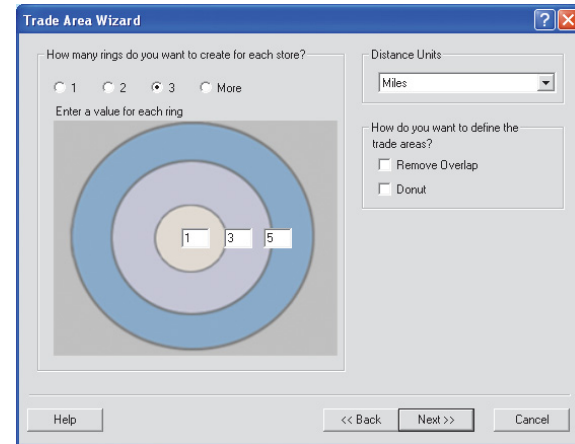
The Trade Area Wizard dialog box is shown in its second step. On the left, a map displays three blue dots, each with concentric circles representing trade areas. Below the map, text states: "Simple Ring trade areas are created around your stores using a radius you specify." On the right, the question "How do you want to define the prospecting area around the site of interest?" is followed by three radio button options: Simple Ring (selected), Drive Time, and Threshold Ring. Below these options, a link says "Click on an option to learn more about the analysis". At the bottom, there are buttons for Help, << Back, Next >>, and Cancel.

10. Choose how many rings you want to create for each store, 1, 2, 3, or More, then type a value for each ring in the text boxes.
11. Click the Distance Units drop-down menu to choose a distance from the list.
12. To define the trade area, click either Remove Overlap or Donut, then click Next. Remove Overlap will use a straight line to connect the intersecting edges of any two rings that overlap. Donuts include only the values between rings, center to ring 1 boundary, ring 1 boundary to ring 2 boundary, and so forth.

For drive times, you can display traversed streets as a layer or create a detailed border for each drive time area.

13. Type a name for the new trade area in the text box and type any comments, then click Finish.

Your new trade area is created and displayed on the map.





# Monitor and manage trade areas

# 10

## IN THIS CHAPTER

- Measure cannibalization
- Track trade area change
- Manage existing trade areas

Monitor Trade Areas allows you to track trade area change or measure cannibalization.



# Measure cannibalization

Measure Cannibalization calculates the amount of overlap between two or more trade areas.

## Creating the Monitor Trade Areas trade area using Measure Cannibalization

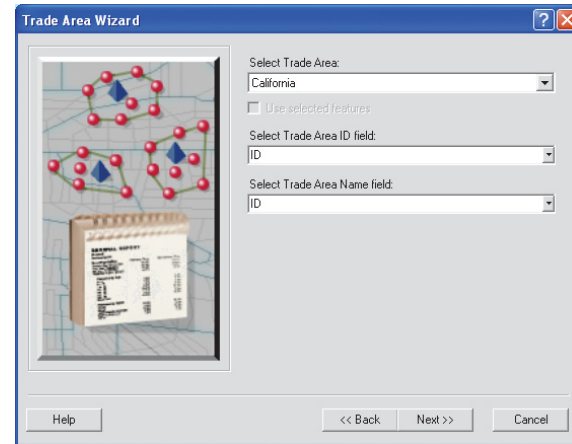
1. Click the Business Analyst drop-down menu and click Trade Area.
2. Click Create New Trade Area, then click next.
3. Click Monitor Trade Areas as the type of trade area you want to create, then click Next.
4. Determine how to create the trade area; click Measure Cannibalization, then click Next. ►

The Trade Area Wizard opens.

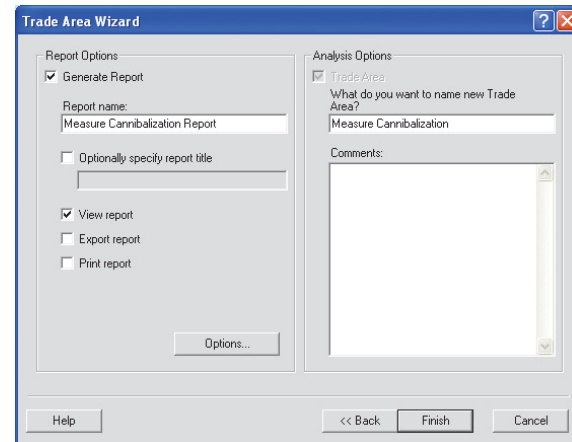


5. Click the drop-down menu to select the trade area. Click the second drop-down menu to select the trade area ID field, click the third drop-down menu to select the trade area name field, then click Next.
6. Click Generate Report, then type a name in the Report name text box. Optionally, specify a report title.
7. Type a name for the new trade area in the text box and enter any comments, then click Finish.

Your new trade area is created and displayed on the map.



The Trade Area Wizard dialog box is shown in its first step. On the left is a map view with red dots and blue diamonds. On the right, there are three dropdown menus: 'Select Trade Area:' (set to 'California'), 'Select Trade Area ID field:' (set to 'ID'), and 'Select Trade Area Name field:' (set to 'ID'). There is a checkbox for 'Use selected features' which is unchecked. At the bottom are buttons for 'Help', '<< Back', 'Next >>', and 'Cancel'.



The Trade Area Wizard dialog box is shown in its second step. It is divided into two main sections: 'Report Options' and 'Analysis Options'. In 'Report Options', the 'Generate Report' checkbox is checked, and the 'Report name:' text box contains 'Measure Cannibalization Report'. There is an unchecked checkbox for 'Optionally specify report title' with an adjacent text box. Below are checkboxes for 'View report' (checked), 'Export report' (unchecked), and 'Print report' (unchecked). An 'Options...' button is at the bottom right of this section. The 'Analysis Options' section has a checked 'Trade Area' checkbox, followed by the text 'What do you want to name new Trade Area?' and a text box containing 'Measure Cannibalization'. Below this is a large 'Comments:' text area. At the bottom are buttons for 'Help', '<< Back', 'Finish', and 'Cancel'.

## Track trade area change

Track Trade Area Change is used primarily to track trade area change over time. This tool can also be used to compare any two overlapping trade areas.

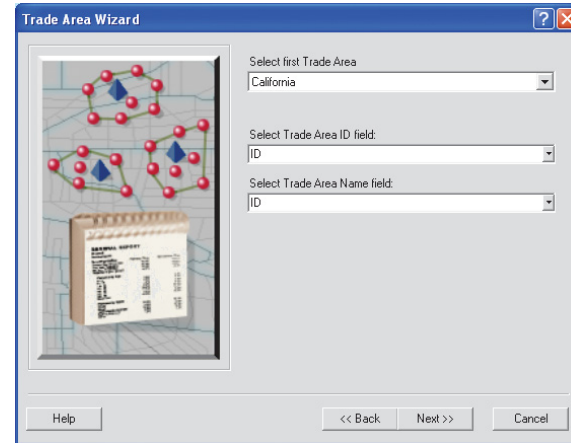
### Creating the Monitor Trade Areas trade area using Track Trade Area Change

1. Click the Business Analyst drop-down menu and click Trade Area.
2. Click Create New Trade Area, then click next.
3. Click Monitor Trade Areas as the type of trade area you want to create, then click Next.
4. Determine how to create the trade area; click Track Trade Area Change, then click Next. ►

The Trade Area Wizard opens.



5. Click the drop-down menu to select the first trade area. Click the second drop-down menu to select the trade area ID field, click the third drop-down menu to select the trade area name field, then click Next.
6. Click the drop-down menu to select the second trade area. Note that the first and second trade areas must be different. Click the second drop-down menu to select the trade area ID field, click the third drop-down menu to select the trade area name field, then click Next. ►



The Trade Area Wizard dialog box is shown in its first step. On the left is a map with red dots and blue diamonds, and a small inset image of a document. On the right, there are three drop-down menus. The first menu is labeled 'Select first Trade Area' and has 'California' selected. The second menu is labeled 'Select Trade Area ID field:' and has 'ID' selected. The third menu is labeled 'Select Trade Area Name field:' and has 'ID' selected. At the bottom are buttons for 'Help', '<< Back', 'Next >>', and 'Cancel'.

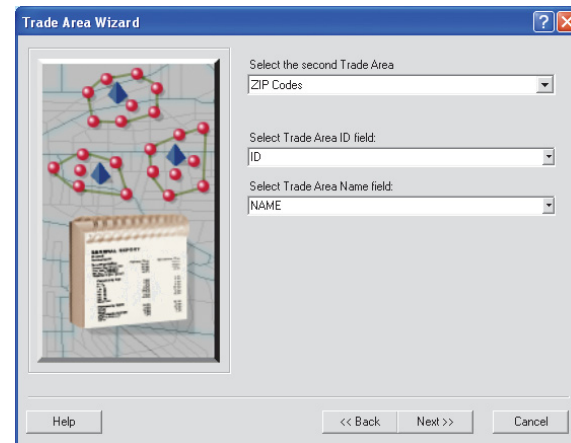
Trade Area Wizard

Select first Trade Area  
California

Select Trade Area ID field:  
ID

Select Trade Area Name field:  
ID

Help << Back Next >> Cancel



The Trade Area Wizard dialog box is shown in its second step. The layout is identical to the first step, but the first drop-down menu is now labeled 'Select the second Trade Area' and has 'ZIP Codes' selected. The second and third drop-down menus remain 'ID' and 'ID' respectively. The 'Next >>' button is now enabled.

Trade Area Wizard

Select the second Trade Area  
ZIP Codes

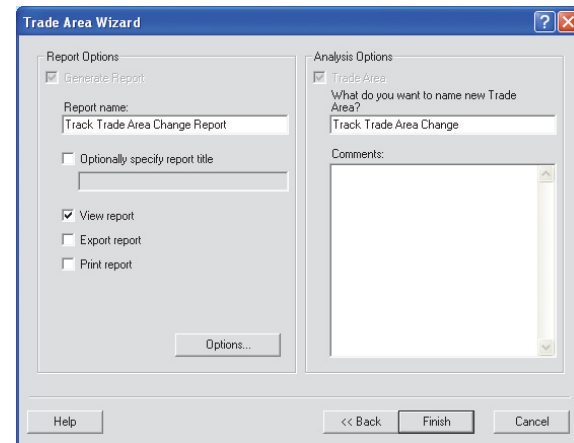
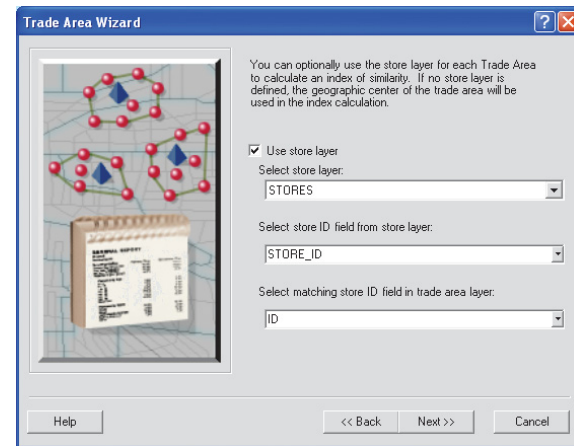
Select Trade Area ID field:  
ID

Select Trade Area Name field:  
NAME

Help << Back Next >> Cancel

7. Optionally, you can use the store layer for each trade area to calculate an index of similarity. To do this, click Use store layer, then click the drop-down menus to select the store layer, store ID field from store layer, and the matching store ID field in the trade area layer, then click Next.
8. Click Generate Report, then type a name in the Report name text box. Optionally, specify a report title. Then click View report, Export report, or Print report.
9. Type a name for the new trade area in the text box and enter any comments, then click Finish.

Your new trade area is created and displayed on the map.

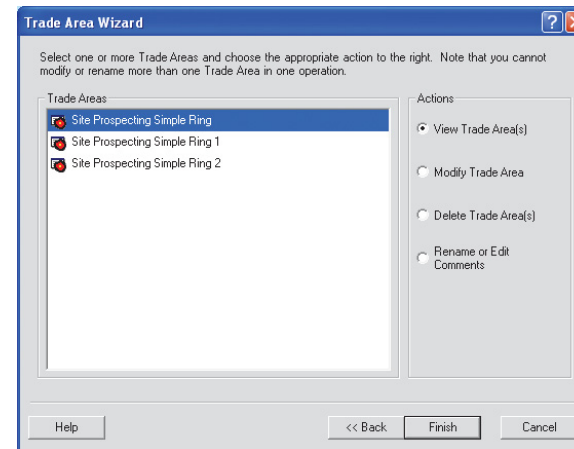
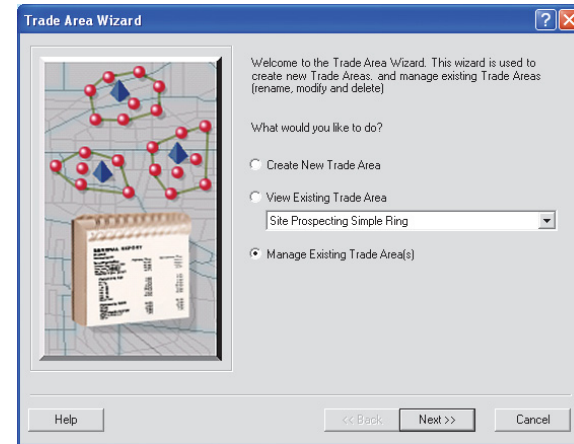


## Manage existing trade areas

This option allows you to view trade areas, modify trade areas, delete trade areas, or rename and edit comments for trade areas.

### Managing existing trade areas

1. Click the Business Analyst drop-down menu and click Trade Area.  
The Trade Area Wizard opens.
2. Click Manage Existing Trade Area(s), then click Next.
3. Select one or more Trade Areas and choose the appropriate action: View Trade Area(s), Modify Trade Area, Delete Trade Area(s), or Rename or Edit Comments for trade areas, then click Finish.





# Analysis

# 11

## IN THIS CHAPTER

- **Customer prospecting and profiling**
- **Using customer prospecting**
- **Desire lines**
- **Using desire lines**
- **Find similar**
- **Mean store center**
- **Using mean store center**
- **Spatial overlay**
- **Using spatial overlay**
- **Managing existing analyses**

This chapter contains a variety of analysis techniques, most oriented to helping you better understand your customer data and make better decisions about future business. Each of the analysis types listed to the left are discussed in more detail in this chapter.

*Customer prospecting* is based on two important questions:

- What are the demographic characteristics of my best customers?
- Where are areas with customers with the same or similar demographics?

If you know what kind of customers you're looking for, you can enter them directly into the Customer Prospecting analysis. If you want to look at an existing set of customers (perhaps those in your most successful market areas) and determine their profile, you can use customer profiling to do so.



# Customer prospecting and profiling

## What are the demographic characteristics of my customers?

To use the Customer Prospecting Wizard, you must know what type of customers to tell the Customer Prospecting Wizard to look for. You may not be sure what the profile of your best customers is. You can use *customer profiling* to find the demographic profile of a set of customers.

Customer profiling works this way: every area—ZIP Codes, block groups, tracts—has demographic data associated with it. The example below shows each block group with an average household income.

In this example, four customers living in different block groups are being profiled. Each customer is tagged with the value of the block group they fall within. The values for each customer are totaled and divided by the number of customers.

Customer	Average household income
1	\$ 25,000
2	\$ 25,000
3	\$100,000
4	\$ 50,000
Total	\$200,000

Total avg. income / Total no. of cust. = Profile average  
\$200,000 / 4 = \$50,000

Now that you know the profile of your customers, you can use these values in customer prospecting to look for other areas with the same type of customers.

Some examples of customer profiling include the following:

- A national retail chain uses customer profiling to provide benchmark customer characteristics for each regional division. The data is analyzed to uncover regional differences in the customer database. These characteristics are used to fine-tune the merchandise mix in different regions of the country.
- Another retail chain uses customer profiling to determine that it serves three distinct markets: inner city, suburban, and freestanding small city. Each market responds to different types of advertising.
- A large insurance company finds that the number and kind of policies vary considerably with customer profile. This information is used to provide better agent leads.
- Using lifestyle segmentation data in the Household data option will provide a profile of customers based on the dominant lifestyle segmentation data code. You can then identify how many customers you have in each segment. The lifestyle segmentation data descriptions provide detailed profiles of each segment. They can be used to find other segments nationwide at the census tract level to locate more areas that look like your existing customers. Lifestyle segmentation data is only available in the ESRI demographic dataset. The detailed segmentation descriptions are found in the ArcGIS Desktop Help under 'Extensions: Business Analyst'.

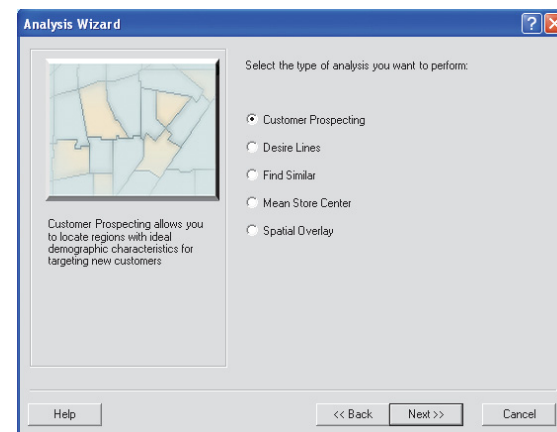
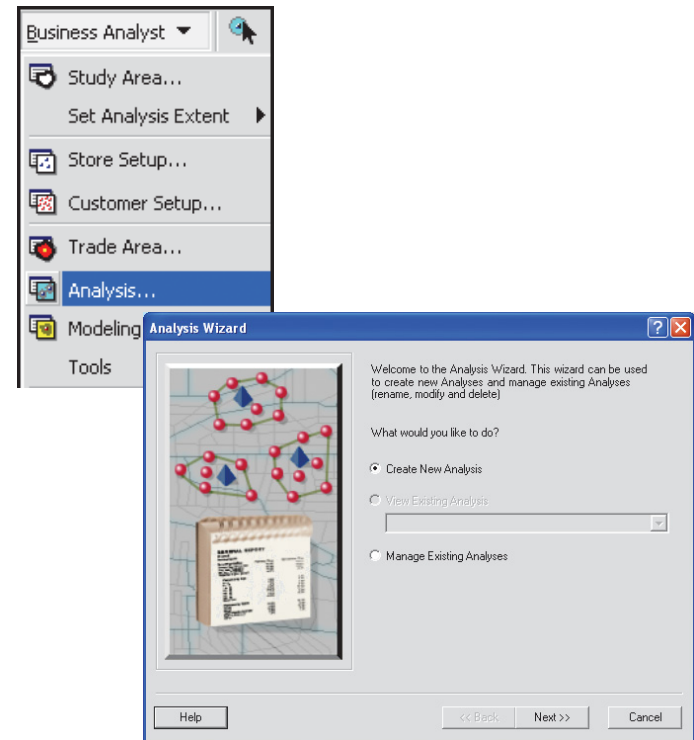
## Using customer prospecting

Customer prospecting allows you to locate regions with ideal demographic characteristics for targeting new customers.

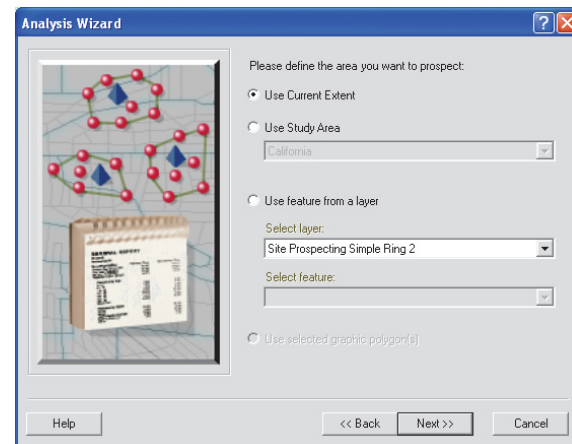
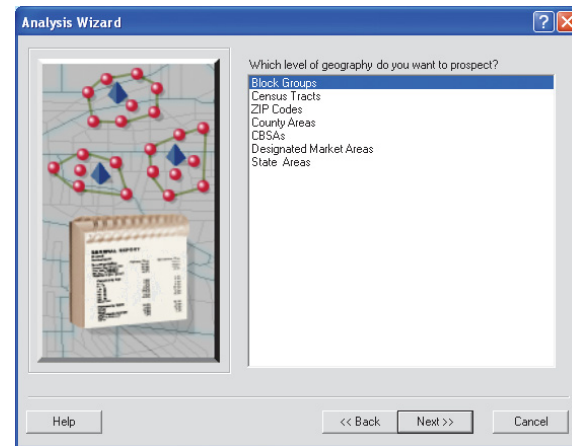
### Performing an analysis using customer prospecting

1. Click the Business Analyst drop-down menu and click Analysis.
2. Click Create New Analysis, then click Next.
3. Click Customer Prospecting as the type of analysis you want to perform, then click Next.

The Analysis Wizard opens.



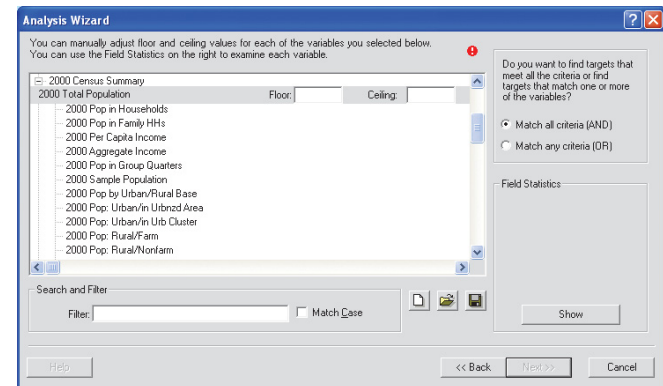
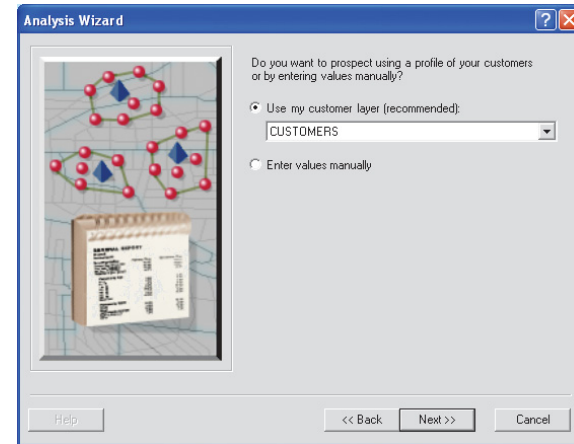
4. Click the level of geography you want to prospect, then click Next.
5. Define the area you want to prospect. Click Use Current Extent, Use Study Area, Use feature from a layer, or Use selected graphic polygon(s), then click Next. ►



6. Choose whether you want to prospect using a profile of your customers (recommended) or by entering values manually, then click Next.

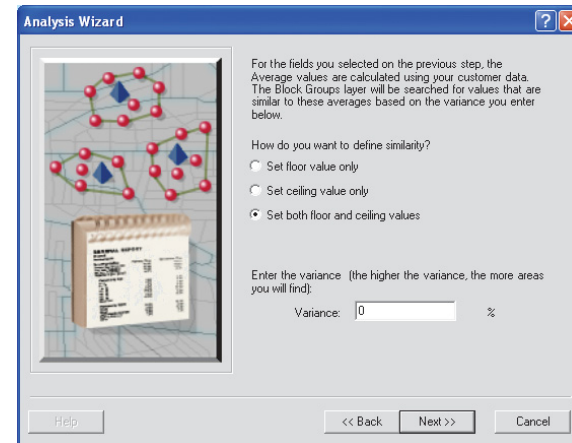
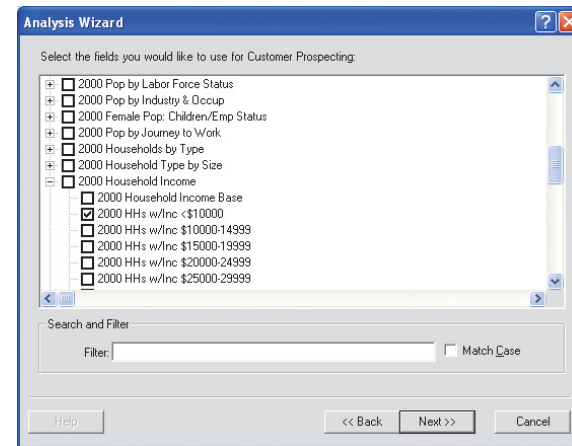
a. If you choose Enter values manually, click the desired variables from the 2000 Total Population list, then you can manually adjust the Floor and Ceiling values for each variable you choose. To find targets that meet all the criteria, click Match all criteria (AND), or to find targets that match one or more of the variables, click Match any criteria (OR).

At any time, you can click a variable and click Show in the Field Statistics box. This information can be helpful in setting Floor or Ceiling values. ►



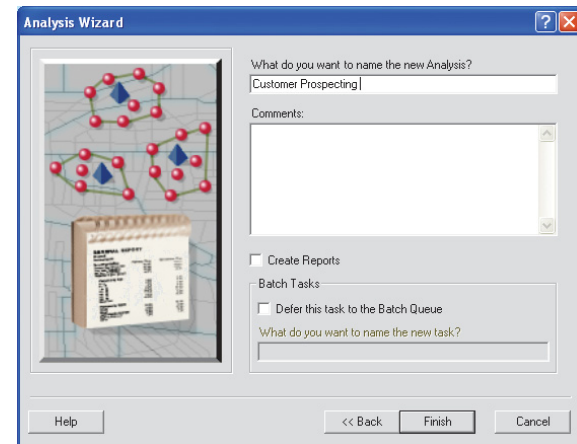
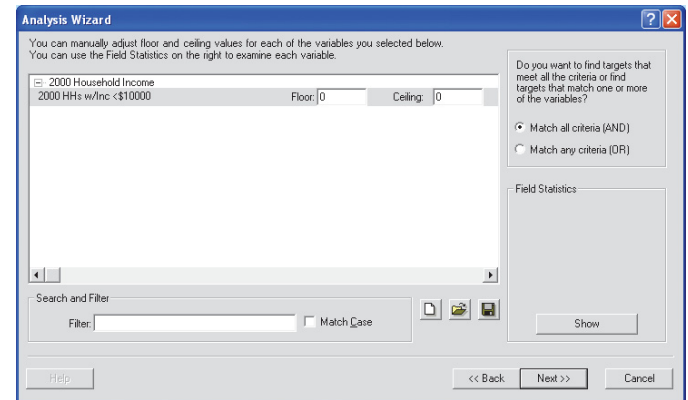
b. If you choose Use my customer layer, check the fields you want to use for customer prospecting, then click Next.

7. Choose how you want to define similarity. Click Set floor value only, Set ceiling value only, or Set both floor and ceiling values. Type the variance in the Variance text box, then click Next. ►



8. The Validating Parameters dialog box opens and processes the information. When it's finished, you can manually adjust the floor and ceiling values for each variable by clicking the variable and typing values in the Floor and Ceiling text boxes.
9. Determine if you want to find targets that meet all the criteria or targets that match one or more of the variables. Click Match all criteria (AND) or Match any criteria (OR).
10. If you want to view field statistics, click the Show button.
11. Type a name for the new analysis, type any comments in the Comments text box, then click Finish.

The analysis is displayed on the map.



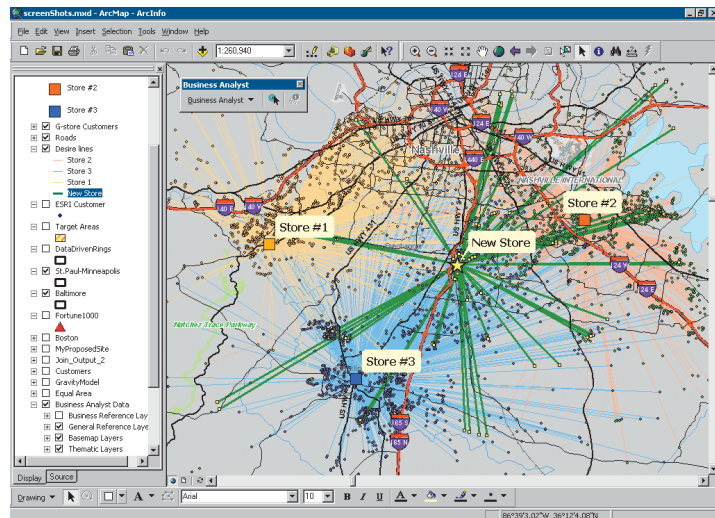
# Desire lines

*Desire lines*, or *spider diagrams*, are a series of rays drawn from each customer to the store. They can be both unweighted (where each customer is counted equally) or weighted (the line from each customer is drawn in different colors or thicknesses depending on variables such as sales or visits). Desire lines graphically illustrate the direction or directions of pull in the marketplace.

More customers may be pulled from one or two directions than from other directions. Desire lines also provide a quick and simple method to see if stores are cannibalizing each other.

The graphic below shows unweighted desire lines drawn from each customer to its store. The desire lines have been drawn as different colors for each store.

Weighted values aren't used to calculate desire lines but to display the lines differently. The thickness (or color) of each desire line is proportional to the weighted variable for that particular customer.



Desire lines can be weighted by any number in the customer database. For example, a hospital might weight each patient line by the number of hospital stays per year. Insurance policy holders might be weighted by the number of policies or the dollar value of claims.

Some other examples of desire lines include:

- A lawn and garden operation uses desire lines to adjust advertising expenditures by visualizing the greater draw toward expanding suburbs and a more limited reach toward the inner city. New locations are located accordingly.
- A national home improvement/builder's supply operation maps weekday and weekend desire lines to better understand variations in these market segments.
- A convenience store/gas chain creates desire lines based on affinity card data to examine the impact of new, suburban locations on older, highway-oriented stores. Older, marginal operations are closed when excessive cannibalization can be seen.
- A multistore dry cleaning/laundry operation uses customer addresses and time of day to visualize customer travel patterns such as going to work versus going home.
- Large supermarket chains use desire lines weighted by sales to analyze the effect of distance on expenditures per visit.
- A retailer uses desire lines to identify weekday versus weekend shoppers. The resulting analysis can then be used to identify consumer behavior and shopping patterns. For example, weekday shoppers travel shorter distances than weekend shoppers.

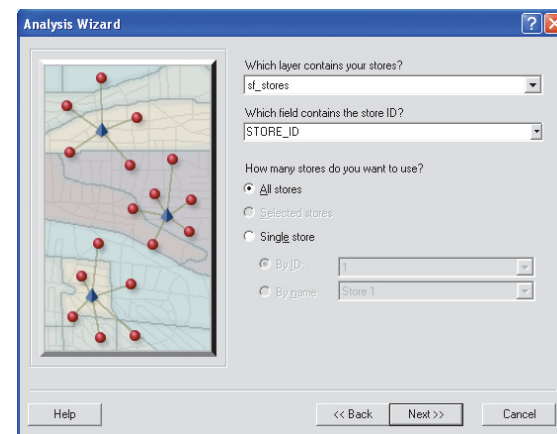
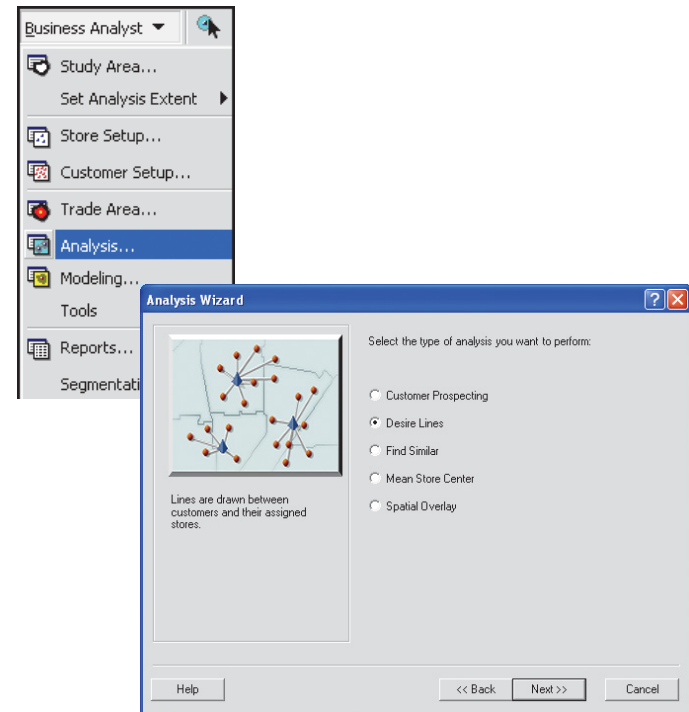
## Using desire lines

Desire lines show which customers visit which stores. A line is drawn from each customer point to its associated store point, making it easy to see the actual area of influence of each store.

To represent your data even more accurately on the map, use the Thematic Mapping Wizard to display the lines as different colors or widths based on other fields in the database. For more information, see Chapter 13.

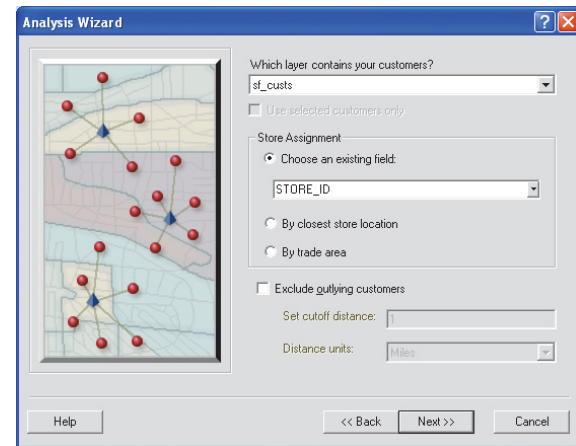
## Performing an analysis using desire lines

1. Click the Business Analyst drop-down menu and click Analysis.
2. Click Create New Analysis, then click Next.
3. Click Desire Lines as the type of analysis you want to perform, then click Next.
4. Click the drop-down menu and click the layer that contains your stores. Click the second drop-down menu to choose the field that contains a unique ID for each store.
5. Choose how many stores you want to use, click All stores, or Single store, then click Next. ►





6. Click the drop-down menu and click the layer that contains your customers. Click the second drop-down menu and click the layer that contains your store ID. If you don't have a store assignment for each customer, Business Analyst can create one by assigning customers to the closest store location or by using a trade area layer that contains trade areas for each store.
7. You have the option of checking the box to Exclude outlying customers. If you check this box, type a distance and click the Distance units from the drop-down menu. This is the distance outward from each store beyond which customers will not be included. ►



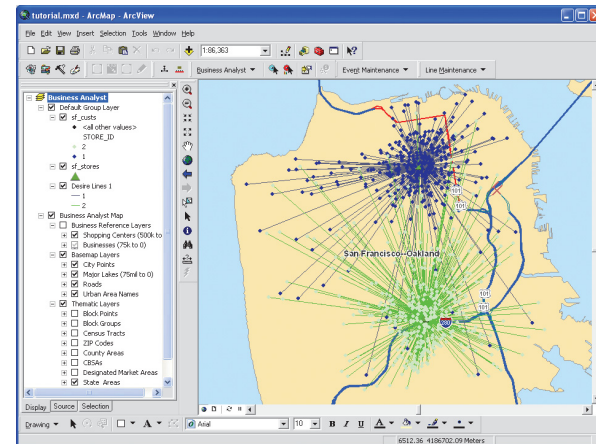
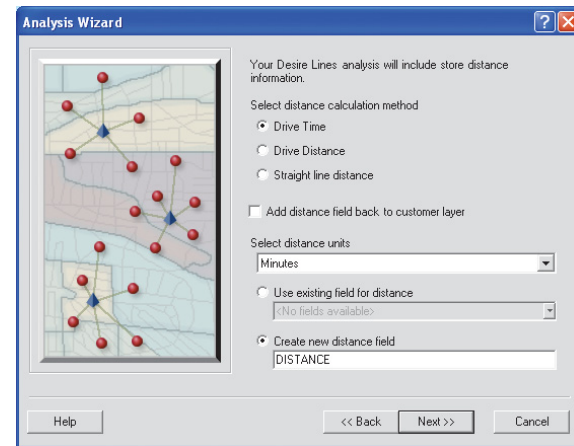
8. Your Desire Lines analysis layer will contain store distance information. To choose the distance calculation method, click Drive Time, Drive Distance, or Straight line distance. Note that the distance displayed on the map will always appear as straight lines.

You have the option of checking the box that will also add this distance information to each record in the customer layer.

9. Choose the distance units from the Select distance units drop-down menu, then click Use existing field for distance or click Create new distance field, then click Next. This applies to the field in the customer layer to use for the customer distances from their assigned stores. You can use an existing field or Business Analyst will create a new one.

10. Type a name for the new analysis, type any comments, then click Finish.

The Desire Lines Analysis layer displays on the map.



## Find similar

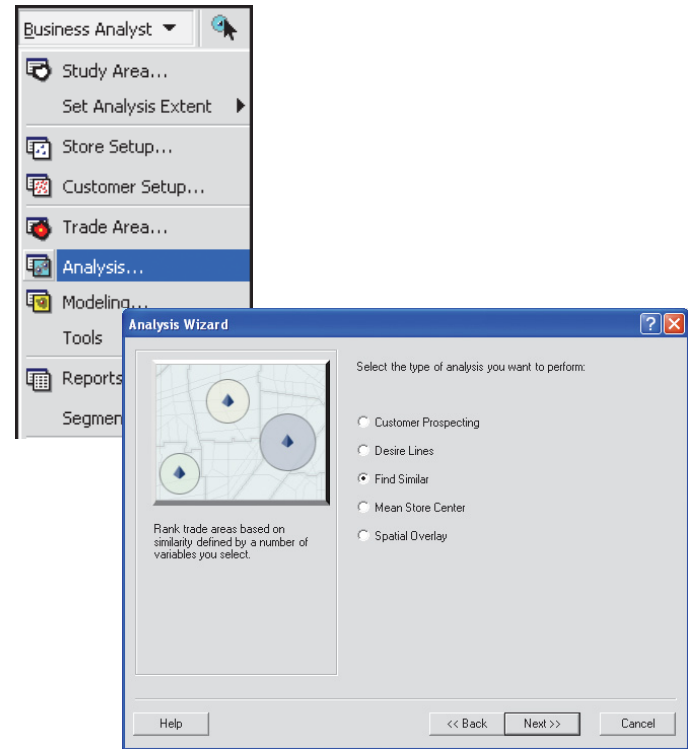
*Find Similar* is a tool to score potential new sites against a known, well-performing site called a *master site*. Two techniques are available. The first, or conventional, technique does this by comparing values for up to five variables between the master site and the scored sites. You will assign a +/- percentage of the master site value that you want the new sites values to fall within. Sites are then assigned a score of 1–5 based on the number of variables that match the criteria you set.

The second, more powerful technique uses a series of multivariate statistical techniques, including Principal Component Analysis (PCA), to create groups (factors) of like variables. This approach will then rank the trade areas around each of the scored sites by comparing each of the scored site variable groups with the same variable groups of the master site. You choose the number of best (most similar) sites you want shown.

Why do some stores do better than others? The old real estate axiom of “Location, location, location” is usually the most important part of the answer. ►

## Performing an analysis using find similar

1. Click the Business Analyst drop-down menu and click Analysis.
2. Click Create New Analysis, then click Next.
3. Click Find Similar as the type of analysis you want to perform, then click Next. ►



The Find Similar module is based on the idea that the characteristics of a master site can be used to find similar sites elsewhere. Find similar allows you to score any polygon data (for example, simple rings, drive times, other forms of trade areas, and census tracts). It also allows you to score point locations by associating the point with its underlying geography polygon and the characteristics of that polygon. Use find similar to get a quick overview of a large number of potential sites and pick the top-scoring sites for additional analysis.

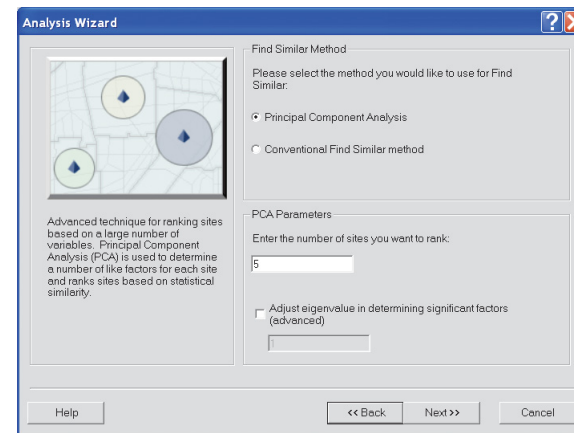
The master site might be based on your best location or a typical location. You might choose a master site based on a store with a particular product mix or one that has the highest rate of same-store sales. You must select a master site candidate for the Find Similar tool to score against.

The Find Similar tool also needs a number of sites to be scored (scored sites) against the master site. The master site and scored sites need to be in the same layer.

The Find Similar Wizard is quite flexible as to what is used for sites. Some examples of site inputs are a database of points added as a layer using the ►

4. Click the drop-down menu and click the layer containing sites or trade areas to be scored.
5. Type the buffer distance around each site and choose the distance units from the drop-down menu.
6. Click the drop-down menu and choose the master site to calculate similarity against. Click the second drop-down menu and choose the level of geography to summarize data with, then click Next.
7. Choose the distance calculation method, then choose the distance units and click Next.
8. Choose the method you want to use to find similar sites. Principal Component Analysis is recommended.
9. From your layer of sites to be scored, you will probably want to see the top three to ten locations. Type the number of sites you want to rank in the PCA Parameters text box, then click Next.

Eigenvalue is a factor used in Principal Component Analysis and, in most cases, is used with a value of 1. This value should only be changed by users with statistical backgrounds who understand the workings of PCA. ►



Store Setup Wizard; a database of points geocoded by latitude/longitude or address and set up using the Analysis Layer Setup Wizard; rings, drive times, or other trade areas created in Business Analyst; or any polygons added as a layer on the map and set up using the Analysis Layer Setup Wizard. Although it isn't required, in most cases you should compare similar-sized areas around the master and scored sites. For example, if you're using a five-minute drive time around your master site, you should create and use a five-minute drive time around your scored sites.

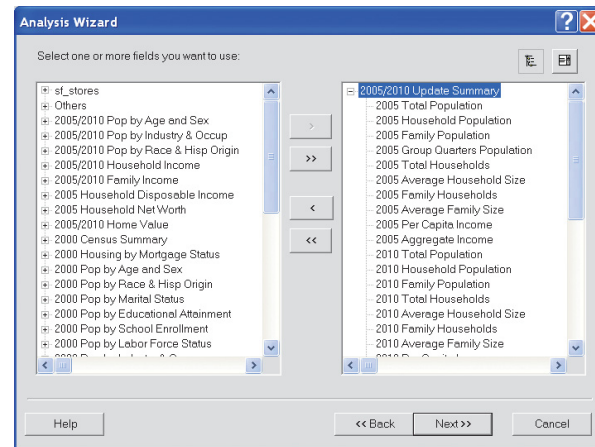
Scored site rings can be generated around a set of points you determine to be important. Examples include points with traffic counts higher than a user-defined value, points representing empty parcels zoned commercial, or buildings for sale or lease.

10. Click one or more fields you want to use, then click Next.

When using the PCA technique, you may want to choose entire categories of variables and let the software calculate the statistically significant variables.

11. Type a name for the new analysis, type any comments, then click Finish.

Your results are displayed on the map.



## Mean store center

When considering sites for a new store, potential customers are your first concern—their location and their demographics. The mean store center analysis creates a centroid in the mean geographic center of your customer points.

This centroid can be calculated by:

- Number of customers
- Weighted value (such as sales or visits)

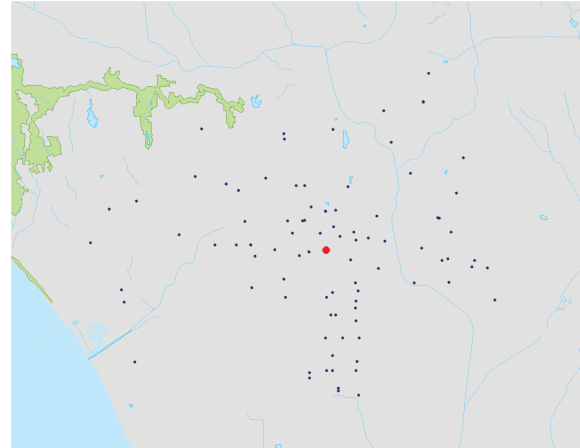
### Calculating the centroid by number of customers

When the centroid is calculated by the number of customers, each customer point has an equal value. Since the centroid represents a balance point between all customers, it will be located roughly in the center of the customers. If customers are more densely populated on one side, the centroid will be pulled in that direction.

#### Example: By using customer locations

Suppose you want to expand your chain of sporting equipment stores into a new market area. Your existing customer profile shows that you sell to a limited demographic segment—high-income, well-educated people who play golf.

To begin, you might purchase a mailing list of households with similar demographics in the expansion market, geocode them using the Customer Setup Wizard, then calculate the centroid by the number of prospects. The resulting centroid would be a good place to start looking for a new location.

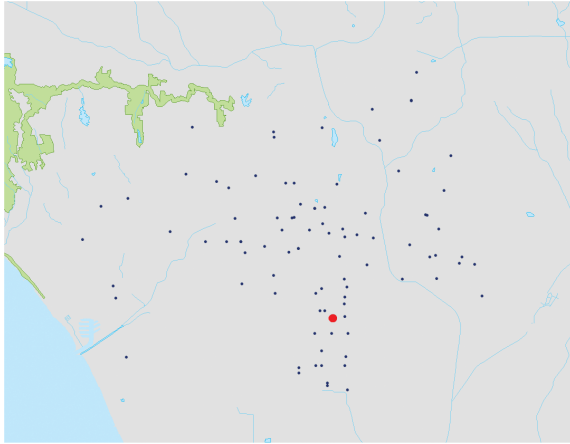


### Calculating the centroid by weighted value

A centroid calculated by a weighted value considers each customer to have an individual value. The centroid is not created in the center of all customers but in the center of the customers who most satisfy the value you've weighted.

Suppose you want to calculate the centroid by customer sales. The location of a customer who has spent \$100 at your store will be counted 100 times more than a customer spending only one dollar. When the centroid is calculated, this weighting pulls the centroid toward the more important points.

Notice the location of the centroid in the following graphic when calculated by a weighted value, in this case, sales. No longer is the centroid in the center of the customer points, but it has shifted toward the customers who spend more money.



### Example: New store by weighted value

Suppose the building leases for two of your bank's branches expire at the end of the year. You want to know if the leases are worth renewing. Using each branch's customer set, you calculate a centroid weighted by the number of visits or total deposits. You can then compare the resulting centroids with where the actual branches are. If a branch is fairly far from a centroid, you might consider looking at other properties instead of renewing the leases.

Some other examples of how businesses use centroids include:

- A high-end men's clothing store loses its lease at a long-time location. It uses its customer database weighted by total sales per year as the base in its search for a new location.
- A rapid auto oil change franchise uses the business addresses of existing customers to find an optimum location for a new operation to serve customers near their workplace.
- A bank derives a weighed centroid for each product type (home equity loans, auto loans, CDs, investments, and so on) and assigns the branch closest to each centroid to specialize in that product.

## Using mean store center

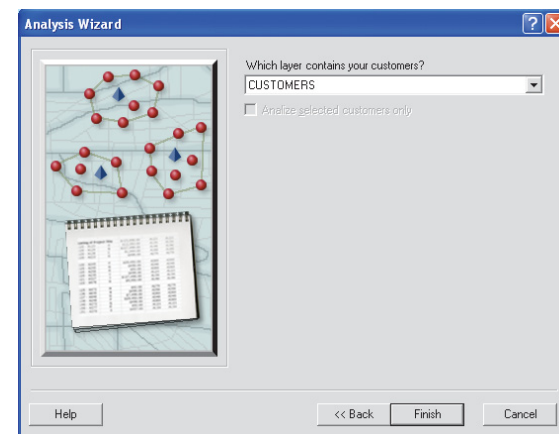
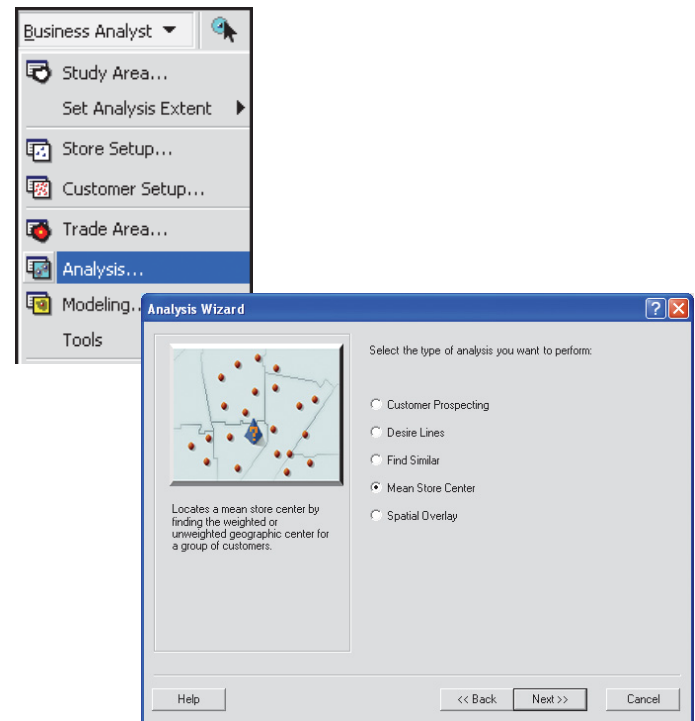
Mean store center finds the weighted or unweighted geographic center of a group of customers.

Any numeric variable, such as sales or number of visits, can be used for weighting.

### Performing an analysis using mean store center

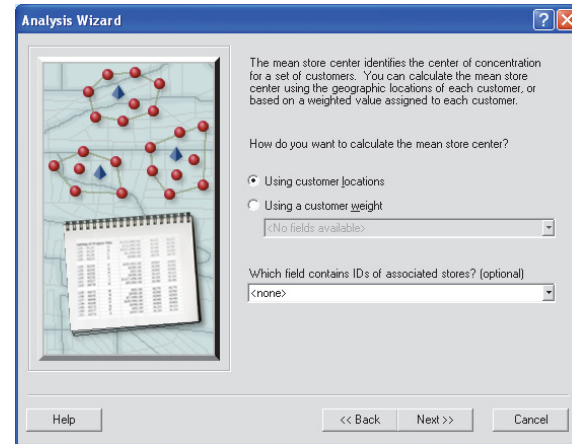
1. Click the Business Analyst drop-down menu and click Analysis.
2. Click Create New Analysis, then click Next.
3. Click Mean Store Center as the type of analysis you want to perform, then click Next.
4. Click the layer that contains your customers, then click Next.

The Analysis Wizard opens.





5. Choose how you want to calculate the mean store center.
6. Optionally, click the drop-down menu to choose which field contains IDs of associated stores, then click Next.  
  
Use this option if you have customers from multiple stores in one layer. If you choose <none>, the mean store center is calculated for all customers in the layer.
7. Type a name for the new analysis, type any comments, then click Finish.



# Spatial overlay

*Spatial overlay* allows you to extract data from one layer, such as block groups, to an overlay layer, such as a trade area you have created in Business Analyst.

You begin this analysis with two layers. The first, input layer, contains the underlying data that you want to extract. Data is extracted from this layer into a second, or *overlay*, layer. For example, suppose you have demographic and socioeconomic data at the block group level. You then create a market area as a new layer based on your knowledge of the draw of a particular store. You might also create some sales territories (layers) that cut across the boundaries of the underlying input data layer.

Spatial overlay in Business Analyst has been improved to work not only with polygons but also with point layers. The possible input layer and overlay layer combinations are:

<b>Input layer</b>	<b>Overlay layer</b>
--------------------	----------------------

Polygon	Polygon
Point	Polygon
Polygon	Point

An example of a point layer as the overlay layer is using your customer layer to overlay block group polygons with demographics to add demographic characteristics for each customer into your customer layer database.

Spatial overlay allows you to answer questions such as How many households are there in my overlay polygons, what are the demographic characteristics of each of my customers, or what is the per capita income in this market area? Spatial overlay gives better answers to such questions than competing methods. The key idea is that data fields are assigned from an underlying data layer to an overlay layer.

If the overlay layer is a polygon and cuts across a polygon input layer, the data will be apportioned based on the apportionment method identified in the Analysis Layer Setup Wizard. This will be one of the four methods of area, population (block point), households (block point), or total housing units (block point). Geography layers that come with Business Analyst are already set up but can be changed using the Analysis Layer Setup Wizard.

You will begin with a simple example of area apportionment of population. If a block group falls totally within the overlay polygon, all of its population is counted. If only 50 percent of the block group falls within the overlay polygon, only 50 percent of its population is counted. This gives you a more accurate estimate than if you just added up the polygons that touched or had their center within the overlay polygon.

Apportioning based on block point data (population, households, or housing units) is a much better method than area apportionment. A majority of a block group's population may reside in one quadrant of the block group. Apportioning by area doesn't take this into account.

The process is straightforward when considering data that represents whole quantities—for example, population, households, housing units, people aged 12–17, and so on—but it becomes more complicated for proportional data such as average age, per capita income, or median household income. For these cases, a weighted average must be used.

Consider the following exaggerated example of two underlying polygons—for example, block groups—and a single overlay polygon—for example, a market area. The situation is illustrated by the following graphic:

A	B
Population = 10	Population = 1,000
Per Capita Income = \$100,000	Per Capita Income = \$25,000

The overlay polygon, shown in red, is assigned all the population in data polygon B but only 50 percent of the population in data polygon A for a total of 1,005 people. What is the best estimate of per capita income? You could just average the two figures  $(\$100,000 + \$25,000)/2$  for an estimated value of \$62,500. This figure, however, is not a good estimate of the income of the market area. There are a few (5) with high incomes and a large number (1,000) with much more modest incomes.

The best estimate of per capita income for this market area can be obtained from a weighted average. You should always weight data on individuals—for example, per capita income or median age—by population and weight data on households—for example, average household size or median household income—by households. In this example, you'll multiply the estimated overlay population of A (5) by per capita income (\$100,000) for a total of \$500,000. Next, you'll multiply the overlay population of B (1,000) by per capita income (\$25,000) for a total of \$25,000,000.

Adding these two sums together gives a total of \$25,500,000. When you then divide by the total number of people in the overlay polygon (1,005), you get an estimated per capita income of \$25,373. This figure is a much better estimate of the per capita income of a randomly selected person from within the overlay polygon. Weighting of variables can be set up using the Analysis Layer Setup Wizard.

## Using spatial overlay

Spatial overlay analysis extracts data from one layer and joins it to another layer.

To get access to and run the Spatial Overlay Wizard, you must have at least one polygon layer in your map document.

The *Spatial Overlay Wizard* is a simple tool to use. You choose an input layer, overlay layer, and a name for the new spatial overlay layer that is created.

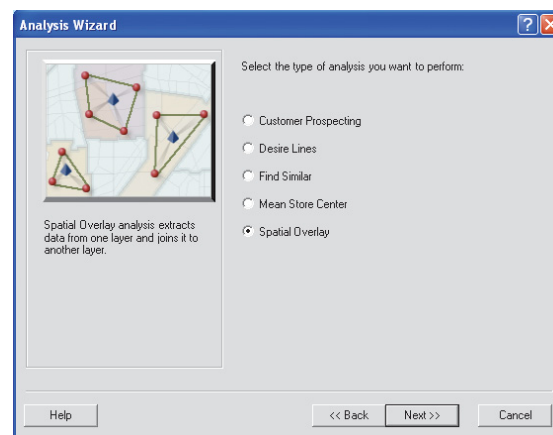
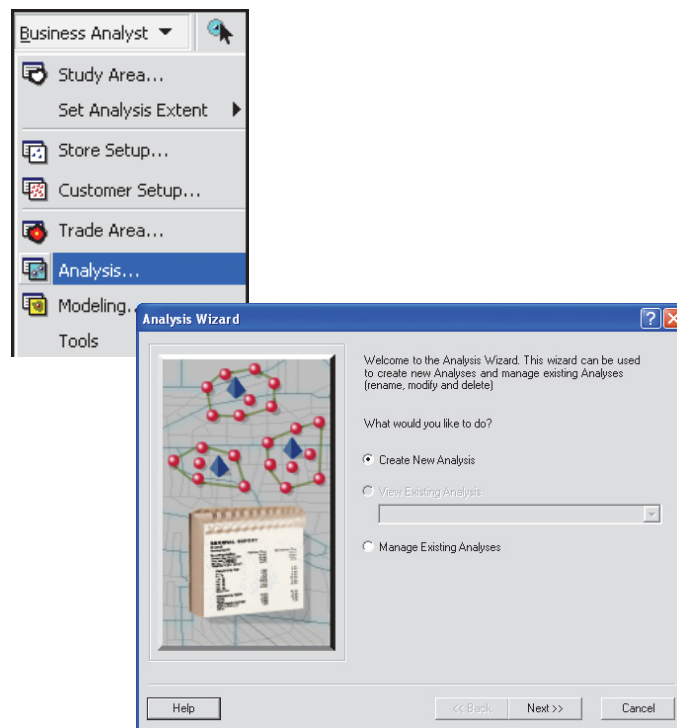
If you added a layer of your own to the map and want to use it as an input layer for spatial overlay, you will first need to proceed through the Analysis Layer Setup Wizard for that layer. It is a brief wizard that lets Business Analyst know how you want data in that layer aggregated.

## Performing an analysis using spatial overlay

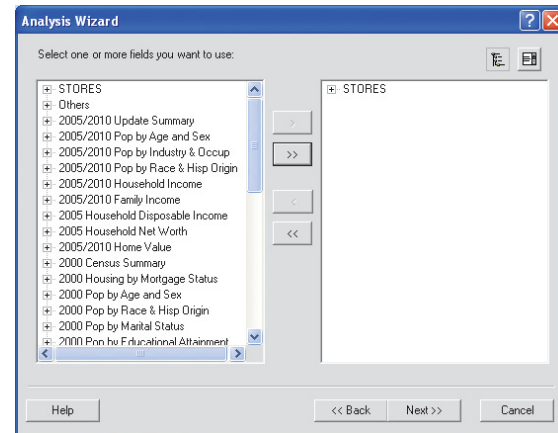
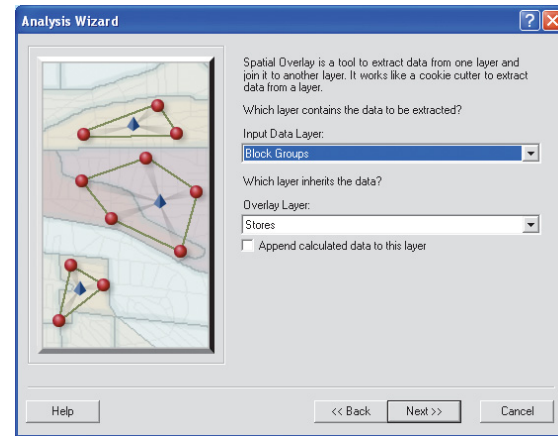
1. Click the Business Analyst drop-down menu and click Analysis.

The Analysis Wizard opens.

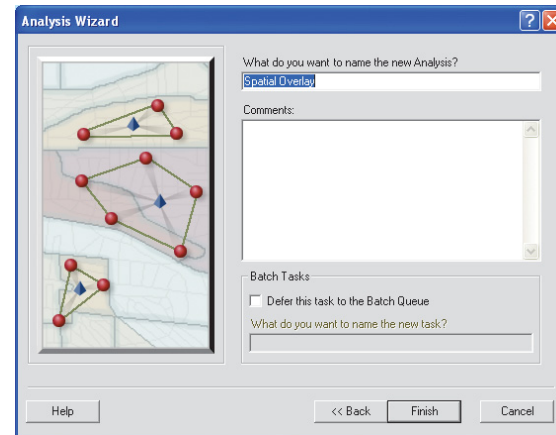
2. Click Create New Analysis, then click Next.
3. Click Spatial Overlay as the type of analysis you want to perform, then click Next. ►



4. Click the Input Data Layer drop-down menu to choose the layer that contains the data to be extracted, click the second drop-down menu to choose the Overlay Layer, then click Next. In the diagram shown, Block Group demographics are being added to a store layer.
5. Select one or more fields you want to use from the list, then click the right arrow button to move the field(s) to the column on the right. To select multiple fields, hold down the Ctrl key and click the fields you want use, then click the right arrow button. To move all fields in the list to the right column, click the double right arrow button. When you're finished adding fields, click Next. ►



6. Type a name for the new analysis, type any comments, then click Finish.



# Managing existing analyses

This wizard option is used to open, modify, delete, or rename an existing analysis.

## Tip

### Using the analysis options on the Analysis Wizard

*Open Analysis(es)*—Adds a previously created analysis to your current map document (.mxd).

*Modify Analysis*—Steps you through the wizard selections of a previously created analysis and permits changes.

*Delete Analysis(es)*—Removes an analysis from your current map document and permanently deletes it from your My Output Data folder on your hard drive.

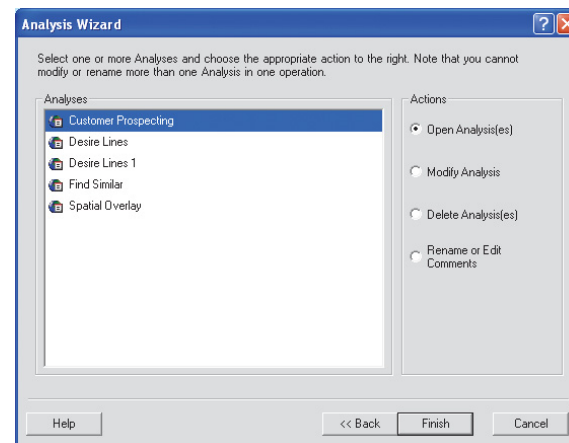
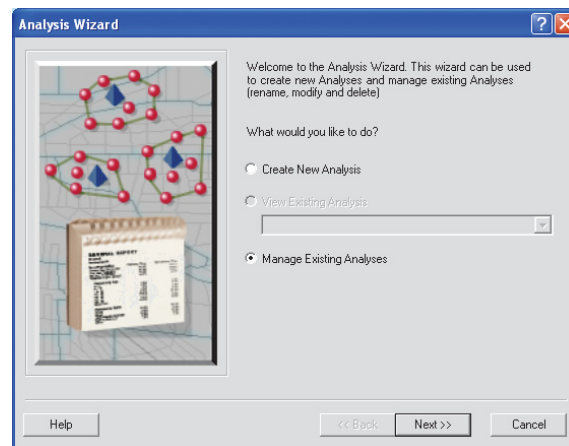
*Rename or Edit Comments*—Allows you to rename the analysis or change the Comments block.

1. Click the Business Analyst drop-down menu and click Analysis.

The Analysis Wizard opens.

2. Click Manage Existing Analyses, then click Next.
3. Click one or more analyses and choose one of the following options: Open Analysis(es), Modify Analysis, Delete Analysis(es), or Rename or Edit Comments, then click Finish.

The options listed above change depending on how many analyses you choose to manage at once. For example, if you choose two analyses at once, you can only open or delete them. The other actions become inactive.





# Modeling

# 12

## IN THIS CHAPTER

- **How the original Huff model (in Business Analyst) works**
- **Original Huff model**
- **Advanced Huff model with statistical calibration**
- **Huff model calibration**
- **Using dissolve by attribute**
- **Managing existing modeling analyses**
- **Managing model calibration parameters**

This chapter provides tools to generate sales predictability models based on basic and advanced approaches utilizing the Huff model developed by Dr. David Huff. Methods of statistical calibration of the model are provided to make use of either survey data or real customer data that you may have.



# How the original Huff model (in Business Analyst) works

The *Huff model* is an established theory in spatial analysis. It is based on the principle that the probability of a given consumer visiting and purchasing at a given site is some function of the distance to that site, its attractiveness, and the distance and attractiveness of competing sites.

This specific model, in the area of spatial interaction research, was refined and made operational by Dr. David Huff of the University of Texas nearly 40 years ago. The advent of powerful desktop computers has made it possible to apply the model.

The basic Huff formulation of the model takes the following form:

$$P_{ij} = \frac{W_i / D_{ij}^\alpha}{\sum_{i=1}^n \left( W_i / D_{ij}^\alpha \right)}$$

Where:

$P_{ij}$  = the probability of consumer  $j$  shopping at store  $i$ .

$W_i$  = a measure of the attractiveness of each store or site  $i$ .

$D_{ij}$  = the distance from consumer  $j$  to store or site  $i$ .

$\alpha$  = an exponent applied to distance so that the probability of distant sites is dampened. It usually ranges between 1.5 and 2.

In practice, census polygons (for example, block groups) are substituted for individual consumers. The calculated probability for each polygon is then multiplied by some data element in the polygon database (for instance, households and dollars spent on groceries). This measure can then be summarized to give an estimate of the total. Some measure of size, such as gross leasable area (GLA), is often used as a surrogate for attractiveness.

A site has many attributes that make it attractive to consumers. *Attractiveness* can be computed as a function of many attributes. For a retail store, these would be its retail floor space, number of parking spaces, or product pricing. Attractiveness of a car dealer could be a function of its display area, frontage, and advertisement. The attractiveness of an office building could be a function of how many offices are currently located within it. Attractiveness is expressed as one number that combines all the factors that make a center attractive. This number is usually referred to as an index. An *index of attractiveness* for a center is one number describing the factors that make it attractive to its customers. This index could also be derived by counting how many people come to that destination or by conducting a consumer survey.

You can control the distance that the Huff model will extend. Type a value that will encompass all your competitors. You can use the Measure tool to estimate the distance that should be used.

You can choose the distance units to be either miles or kilometers.

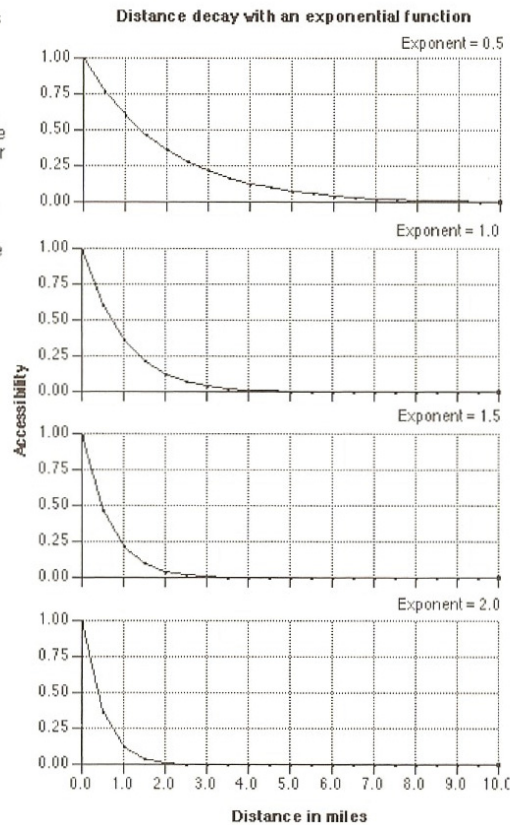
This section lists some commonly used terms and their meanings in the context of the Huff model.

## Distance–decay function

A person's perception of how far a destination is may not be a linear function of distance. That is, customers are more likely to shop at a place closer to home than far away. In other words, distance is viewed as a nonlinear deterrent to movement. This phenomenon can be modeled by using a distance-decay function. The use of a power distance-decay function is borrowed from Newton's famous law of gravitation from which the term gravity model is derived. A distance-decay parameter, symbolized by the Greek letter beta, can be used to exaggerate the distance to destinations. Some activities, such as grocery shopping, have a large exponent indicating that customers will travel only a short

distance for such things. Other activities such as furniture shopping have a small exponent because customers are willing to travel farther to shop for furniture.

This series of graphs shows how accessibility of a location decreases with distance when using an exponential function. The distance decay is presented for four values of the distance exponent, from 0.5 to 2.0. Note that as distance approaches zero, the values become one.



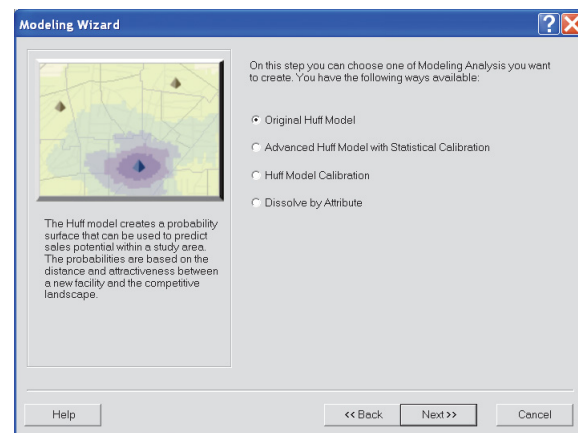
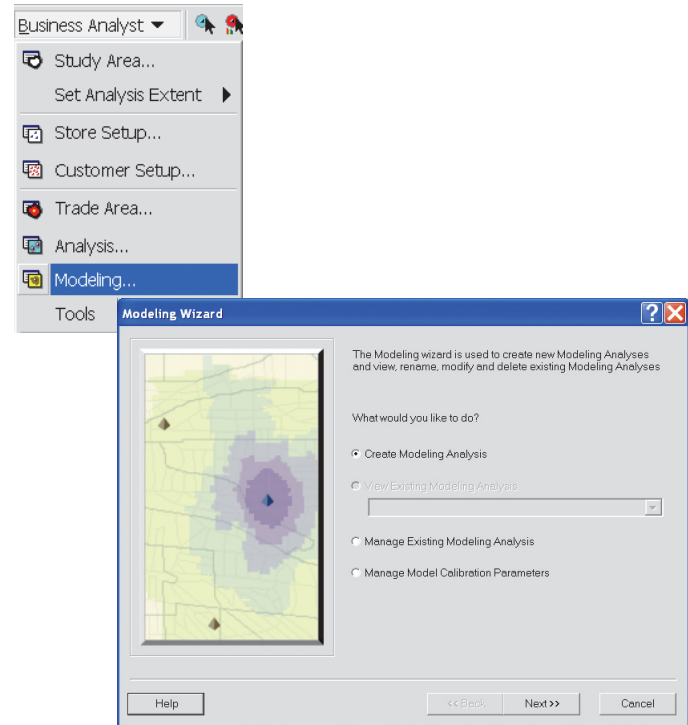
The exponential function is typically used for computing interactions over a small distance, such as within a city.

All Huff model inputs, exponents, trade area size, and results require detailed analysis by someone who is well versed in the operation of such a model. Some calibration is always required to account for other factors such as leakage (when people don't buy all their groceries at supermarkets, some of that spending leaks to other trade areas, such as convenience stores, farmer's markets, and mail order).

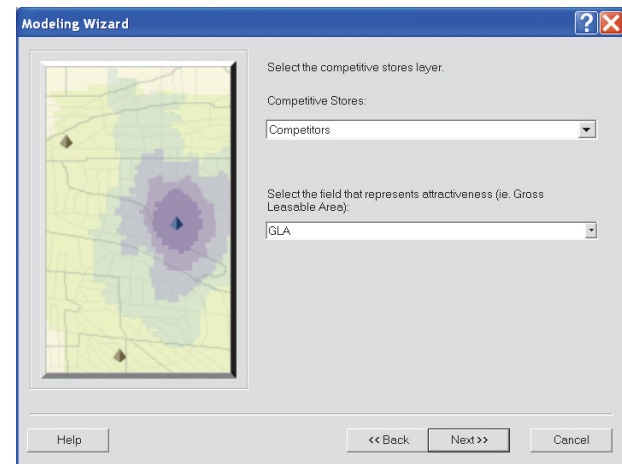
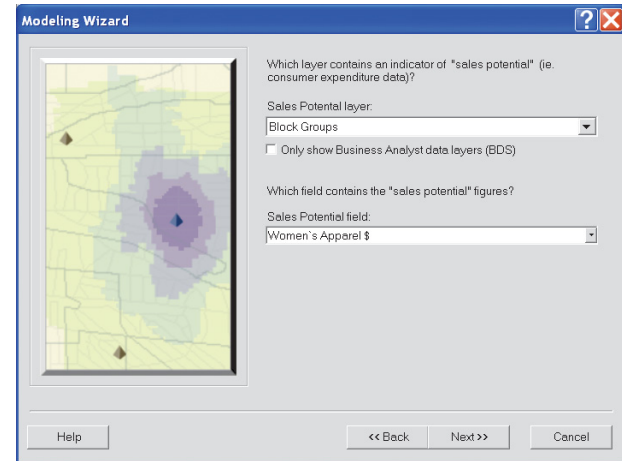
## Original Huff model

The original Huff model described on the previous pages provides a simple tool to estimate sales potential of an area. It takes into consideration your proposed site location, competitor locations, sales potential data, and attractiveness field. The sales potential data is often a geography layer—that is, block group or tract—containing a sales potential field such as consumer expenditure on furniture, apparel, auto repairs, and so on. Business Analyst geography contains consumer expenditure fields. The attractiveness field shows how attractive the competitor is to its customers. The most commonly used attractiveness attribute is GLA.

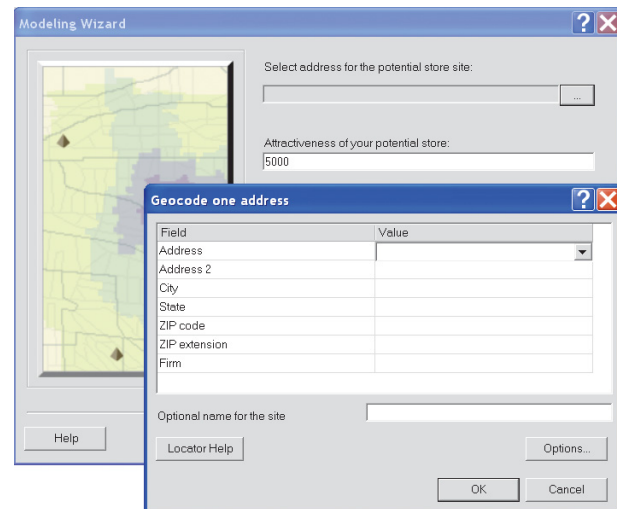
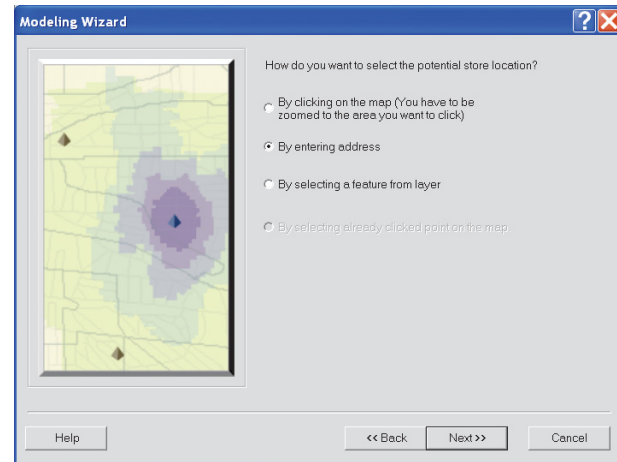
1. Click the Business Analyst drop-down menu and click Modeling.
2. Click Create Modeling Analysis and click Next.
3. Click Original Huff Model as the type of modeling analysis and click Next. ►



4. Click the first drop-down menu and click the layer containing your sales potential field. You have the option of checking the box to Only show Business Analyst data layers (BDS). Business Analyst geography layers contain many fields, including consumer expenditure data, that can be used as an indicator of sales potential.
5. Click the second drop-down menu and click the field that contains the sales potential figures. Business Analyst geography layers often use a tree structure to present categories of fields that can be expanded to show individual fields in that category. You can hold the Ctrl key and click any plus (+) or minus (-) sign in the tree structure to expand or collapse the tree structure. Click Next.
6. Click the first drop-down menu and click the layer containing your competitive stores. Click the second drop-down menu and click a field that represents attractiveness for the competitive stores to GLA, for example. Click Next. ►



7. Click one of the methods of selecting a potential store location.
8. If you click By entering address, enter the address of the location by clicking each field in the Value column. Click OK to continue.
9. Type an attractiveness value for the potential site. This field can be compared to the attractiveness field of the competitive stores. Click Next. ►



10. If you click By selecting a feature from layer, click the first drop-down menu and click the layer containing the potential site. Click the second drop-down menu and click the individual feature to use for the site location, then click the third drop-down menu and click the attractiveness field for the potential site. This field can be compared to the attractiveness field of the competitive stores. Click Next.

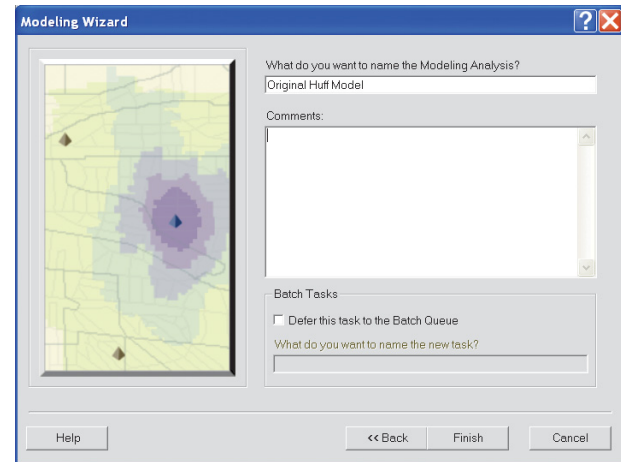
The Modeling Wizard dialog box is shown with a map on the left and configuration options on the right. The map displays a green area with a purple circular region and a blue dot. The right panel has three sections: 'Select the layer you want to pick a potential site from:' with a dropdown menu set to 'Potential Locations'; 'Select the potential site from this layer:' with a checkbox for 'Use selected features' and a 'Select feature:' dropdown menu set to '1 : Store 1'; and 'Potential site attractiveness:' with an 'Attractiveness field:' dropdown menu set to 'GLA'. At the bottom are buttons for 'Help', '<< Back', 'Next >>', and 'Cancel'.

11. Type a distance that the model will extend out from your potential site location. Click the Distance units drop-down menu and click the distance units.
12. Use the slider bar or type a number between 1 and 3 to indicate the impact of travel distance on a customer's willingness to travel to make a purchase at the store. The lower the number, the more willing the customer is to travel a greater distance to make the purchase. Click Next. ►

The Modeling Wizard dialog box is shown with a map on the left and configuration options on the right. The right panel has three sections: 'Enter a distance for how far the model will extend out from your location:' with a text input field containing '5'; 'Distance units:' with a dropdown menu set to 'Miles'; and 'Please select the distance impact. Note that examples below the slider are given only for reference.' with a slider bar and a text input field set to '1.5'. Below the slider are labels for 'High order goods (eg. Auto Dealer)' and 'Low order goods (eg. Convenience Store)'. At the bottom are buttons for 'Help', '<< Back', 'Next >>', and 'Cancel'.

13. Type a name for the new model in the text box and type any comments, then click Finish.

Your new analysis area is created and displayed on the map.



## Advanced Huff model with statistical calibration

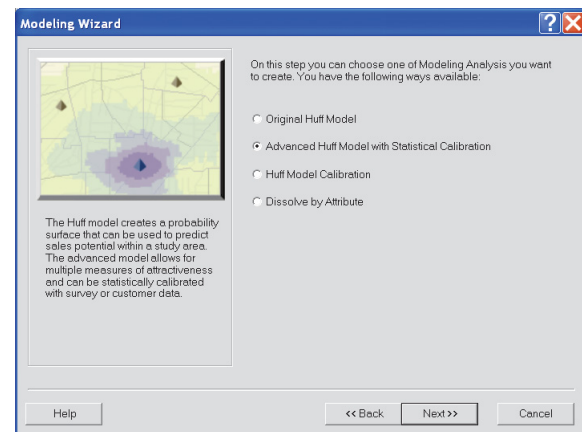
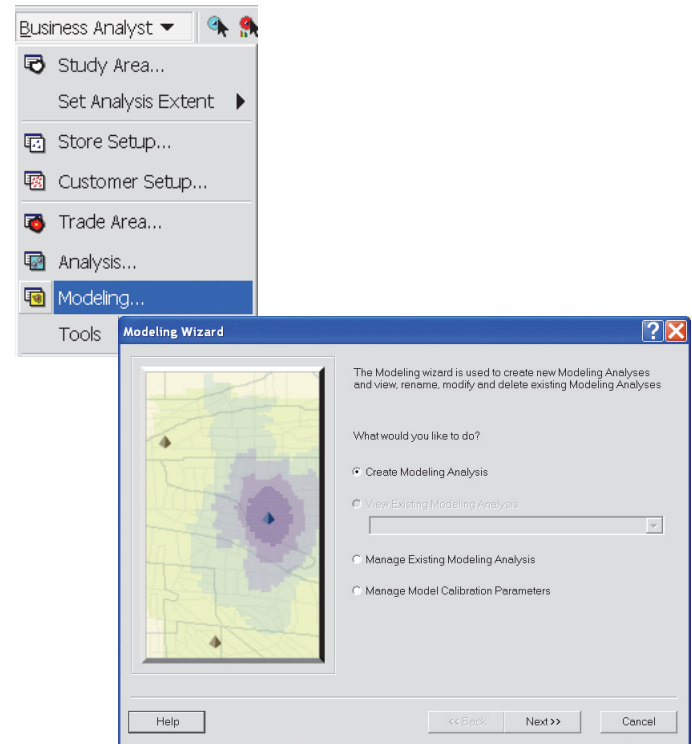
The advanced Huff model uses improvements by Dr. David Huff on the original Huff model to enhance its performance. Specifically, this method will allow distance between stores and customers to be calculated through standard Euclidean (straight-line) distance or, alternatively, drive time or drive distance. Multiple parameters can be selected for each store rather than a single variable. The advanced Huff model also contains a calibration utility that allows you to calculate the proper exponent values in the model through observed shopping behavior or through a market survey. The calibration utility is discussed in more detail in the Huff model calibration section that follows.

The results of the Huff model can be used to:

- Estimate, define, and analyze market potential.
- Assess economic impact of a new site location. ►

1. Click the Business Analyst drop-down menu and click Modeling.
2. Click Create Modeling Analysis and click Next.
3. Click Advanced Huff Model with Statistical Calibration as the type of modeling analysis and click Next. ►

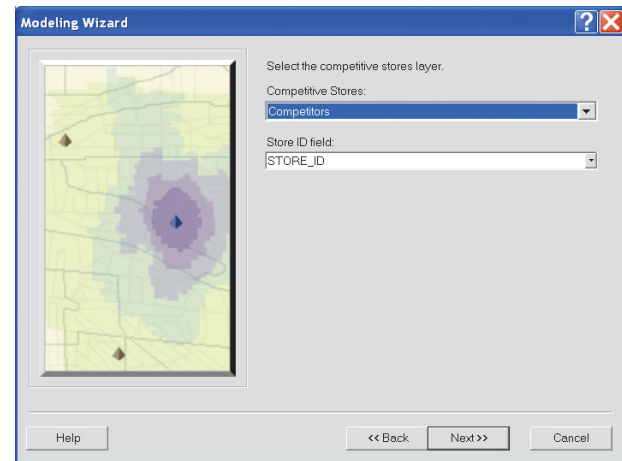
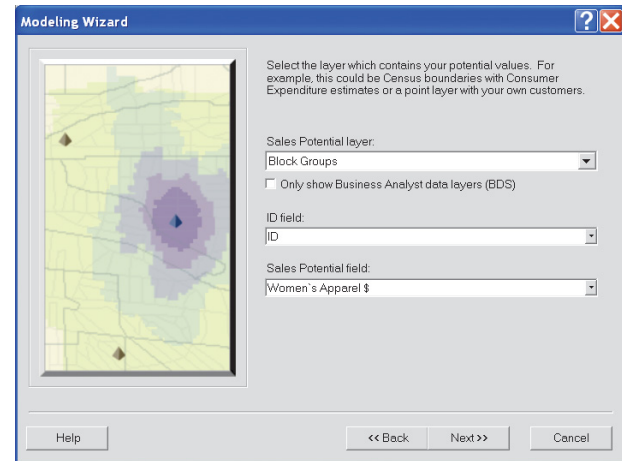
The Modeling Wizard opens.



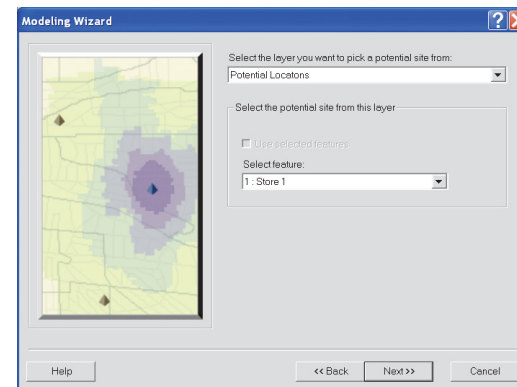
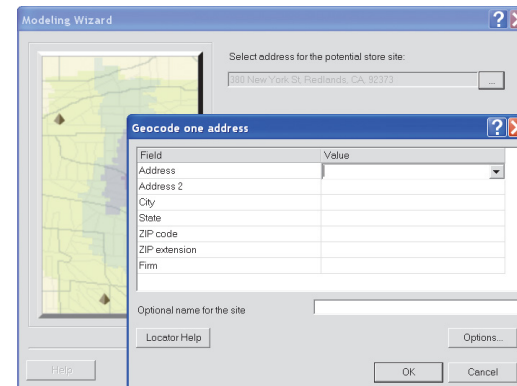


- Forecast sales and potential of existing stores and outlets.
- Assess the impact of competitive and environmental changes on outlet performance.

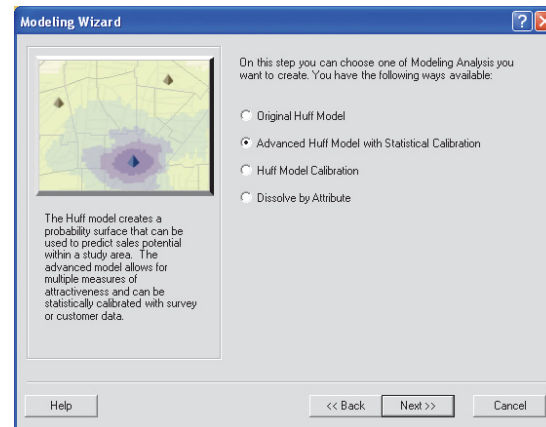
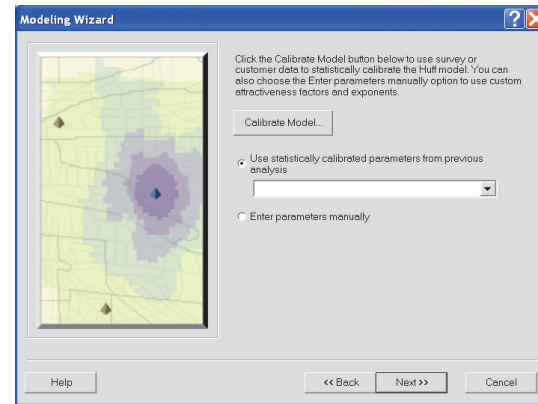
4. Click the first drop-down menu and click the layer containing your sales potential field. You have the option of checking the box to Only show Business Analyst data layers (BDS). Business Analyst geography layers contain many fields, including consumer expenditure data, that can be used as an indicator of sales potential.
5. Click the second drop-down menu and click the ID field for your Sales Potential layer. Click the third drop-down menu and click the sales potential field. Business Analyst geography layers often use a tree structure to present categories of fields that can be expanded to show individual fields in that category. You can hold the Ctrl key and click any plus (+) or minus (-) sign in the tree to expand or collapse the tree structure. Click Next.
6. Click the first drop-down menu and click the competitive stores layer. Click the second drop-down menu and click the Store ID field. Click Next. ►



7. Click one of the methods of selecting a potential store location.
8. If you click By entering address, enter the address of the location by clicking each field in the Value column. Click OK to continue.
9. If you click By selecting a feature from layer, click the first drop-down menu and click the layer containing the potential site. Click the second drop-down menu and click the individual feature to use for the site location. Click Next. ►



10. The Calibrate Model utility is covered in detail in the Huff model calibration section that follows. You can also access this information by clicking the Advanced Huff Model with Statistical Calibration option on the Modeling Wizard. Click Use statistically calibrated parameters from previous analysis or click Enter parameters manually. Choose either and click Next. ►



11. If you click Enter parameters manually, the dialog box to the right will appear. Click a method for how distance will be calculated in the model. Use the + or - buttons to add or remove predictor variables. After adding a variable, click the variable in the Variable column to activate a drop-down menu for choosing any variable in the layer. Click the Variable table in the Potential Site Value column and type a value. Click the Coefficient column and type a value between -1.0 and -3.0 that indicates the impact of travel distance on a customer's willingness to travel to make a purchase at the store. The closer the number is to -1.0, the more willing the customer is to travel a greater distance to make the purchase. Click Next.

12. Type a name for the new model in the text box and type any comments, then click Finish.

Your new analysis area is created and displayed on the map.

The Modeling Wizard dialog box is shown with the 'Distance measurement' section selected. It contains three radio buttons: 'Use Drive Time' (selected), 'Use Drive Distance', and 'Use straight line distance'. Below this is the 'Predictor variables' section, which includes a table with three columns: 'Variable', 'Potential Site Value', and 'Coefficient'. The table has two rows: 'Distance' with 'N/A' and '-1.5', and 'GLA' with '5000' and '-1.5'. To the right of the table are '+' and '-' buttons. At the bottom are 'Help', '<< Back', 'Next >>', and 'Cancel' buttons.

Variable	Potential Site Value	Coefficient
Distance	N/A	-1.5
GLA	5000	-1.5

The Modeling Wizard dialog box is shown with the 'What do you want to name the Modeling Analysis?' section selected. It contains a text box with 'Advanced Huff Model' and a 'Comments' text area. Below this is the 'Batch Tasks' section with a checkbox 'Defer this task to the Batch Queue' and a text box 'What do you want to name the new task?'. On the left is a map preview showing a green area with a purple circular region. At the bottom are 'Help', '<< Back', 'Finish', and 'Cancel' buttons.

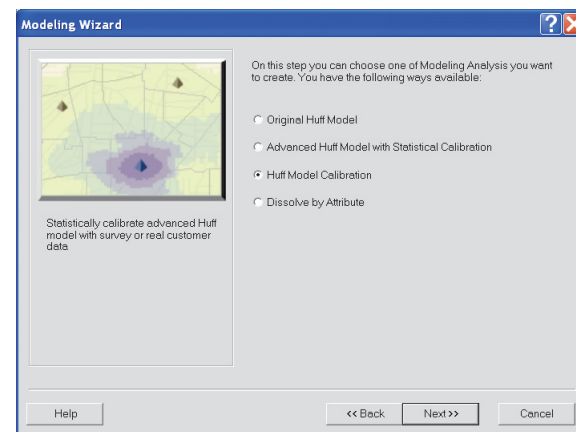
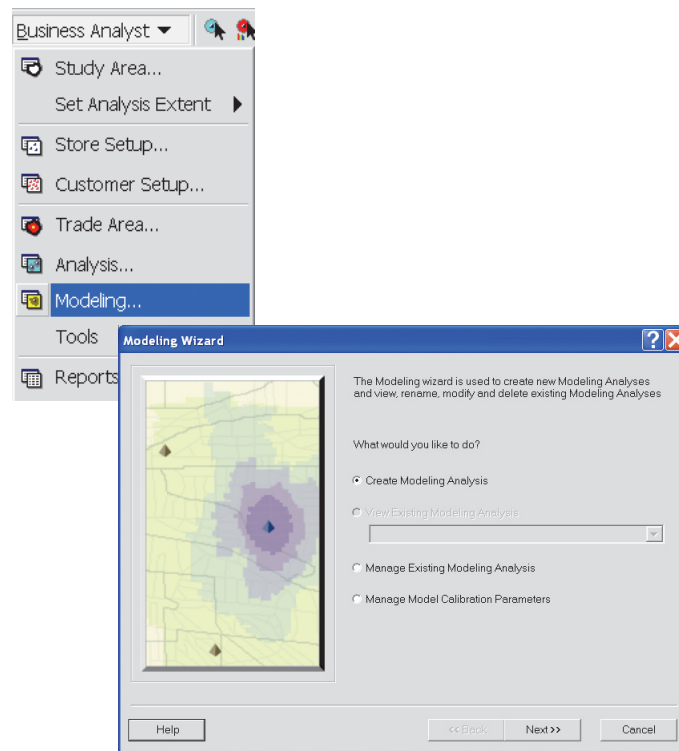
# Huff model calibration

Business Analyst offers two forms of model calibration—using real customer data and using survey data. Calibration of any model is critical to maximizing its predictive value. You will need the following to calibrate your model:

- If using real customer data, it must contain information from a sample of households in each subgeography area within the study area. You need customer data for each existing and competitive store location in the study area. The customer information is converted in the model to proportions for each subgeography area.
- Survey data will be used to determine the frequency of shopping trips each respondent makes to the stores within the study area. Exit interviews are a good method for collecting this information.
- Ensure that each subgeography area is adequately represented in the sample. ►

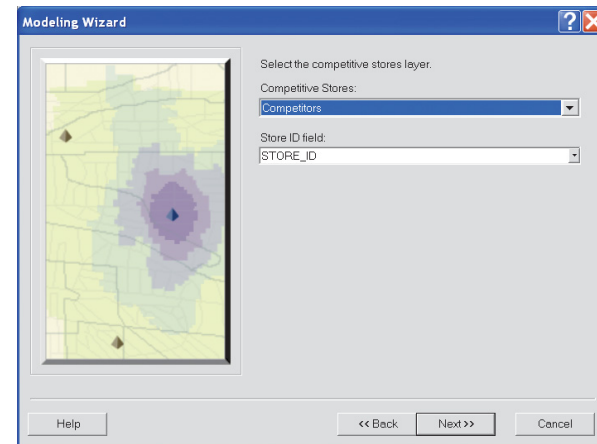
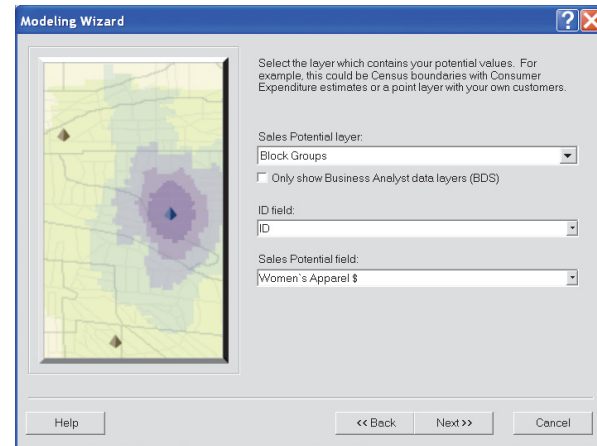
1. Click the Business Analyst drop-down menu and click Modeling.
2. Click Create Modeling Analysis.
3. Click Huff Model Calibration as the type of modeling analysis and click Next. ►

The Modeling Wizard opens.



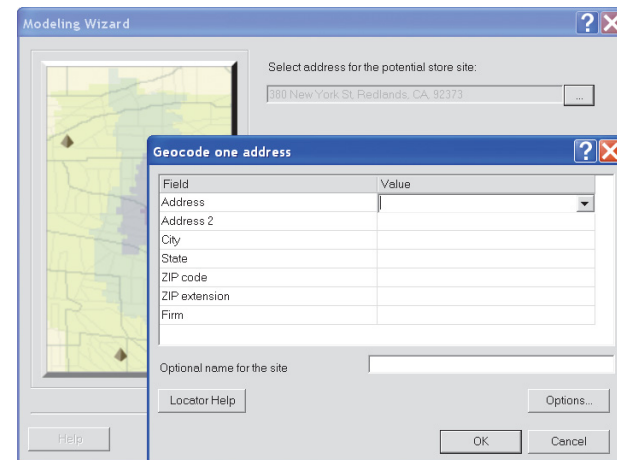
- The Potential Customers geographic level is usually a polygon trade area representing subareas where potential customers live. This can also be a point layer (for example, block centroids) that has associated demographic data.
- The competitive store layer should include all competitive locations in a given study area. This layer should also include any of your existing store locations in the study area, since they will act as competitors to a new store location. In most cases, this layer will be a Business Analyst store layer.
- Competitive store locations can be extracted from the Add Business Listings function in ArcGIS Business Analyst.
- The first step in executing this wizard is to define a study area that includes all the trade areas of all competing stores being analyzed. ►

4. Click the first drop-down menu to select the layer containing your sales potential field. You have the option of checking the box to Only show Business Analyst data layers (BDS). Business Analyst geography layers contain many fields, including consumer expenditure data, that can be used as an indicator of sales potential.
5. Click the second drop-down menu and click the ID field for your sales potential layer. Click the third drop-down menu and click the sales potential field. Business Analyst geography layers often use a tree structure to present categories of fields that can be expanded to show individual fields in that category. You can hold down the Ctrl key and click any + or - in the tree to expand or collapse the tree structure. Click Next.
6. Click the first drop-down menu and click the competitive stores layer. Click the second drop-down menu and click the Store ID field. Click Next. ►

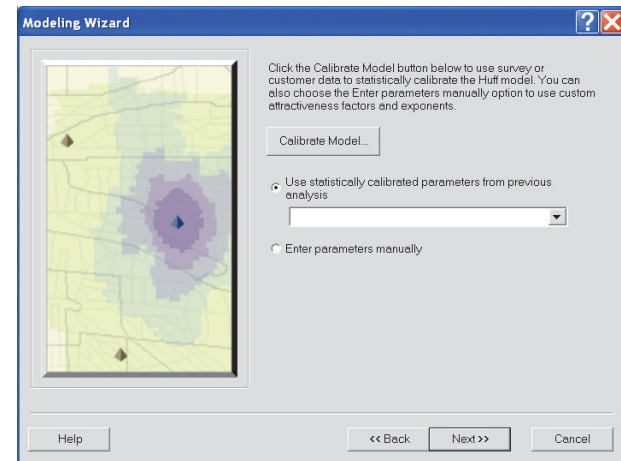
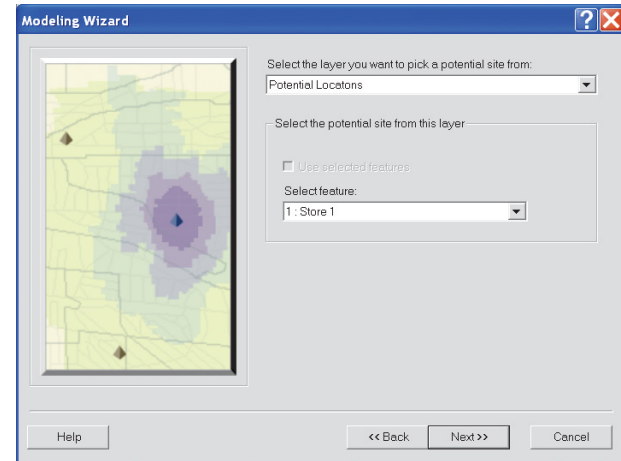


- Store attraction fields, also known as predictor values, often include attributes of a store, such as square footage, number of parking spaces, advertising, store hours, prices, age, appearance, signage, accessibility, and so forth.

7. Click one of the methods of selecting a potential store location.
8. If you click By entering address, enter the address of the location by clicking each field in the Value column. Click OK to continue. ►



9. If you click By selecting a feature from layer, click the first drop-down menu and click the layer containing the potential site. Click the second drop-down menu and click the individual feature to use for the site location. Click Next.
10. The Calibrate Model utility is covered in detail in the Huff model calibration section that follows. It is also provided in the Advanced Huff model wizard as a convenience. You have a choice of selecting the statistically calibrated parameter from a previous analysis or entering the parameters manually. Choose an alternative and click Next. ►





11. If you click Enter parameters manually, the dialog box to the right will appear. Click a method for how distance will be calculated in the model. Use the + or - buttons to add or remove predictor variables. After adding a variable, click the variable in the Variable column to activate a drop-down menu for choosing any variable in the layer. Click the variable table in the Potential Site Value column and type a value.

Click the Coefficient column and type a value between -1.0 and -3.0 to indicate the impact of travel distance on a customer's willingness to travel to make a purchase at the store. The closer the number is to -1.0, the more willing the customer is to travel a greater distance to make the purchase. Click Next.

12. Type a name for the new model in the text box and type any comments, then click Finish.

Your new analysis area is created and displayed on the map.

The Modeling Wizard dialog box is shown with the title bar 'Modeling Wizard'. It has a question mark icon and a close button. The main area is divided into two sections. The first section, 'Distance measurement', has the instruction 'Please select how distance will be calculated in the model.' and three radio buttons: 'Use Drive Time' (selected), 'Use Drive Distance', and 'Use straight line distance'. The second section, 'Predictor variables', has the instruction 'If you choose the "Enter parameters manually" option in the previous step, you can add and remove predictor variables using the plus and minus buttons below. Predictor variables include physical attributes (square footage, parking area, store age) and marketing factors (advertising, store hours). Each variable needs a coefficient value that determines how it impacts the model.' Below this is a table with three columns: 'Variable', 'Potential Site Value', and 'Coefficient'. The table contains two rows: 'Distance' with 'N/A' and '-1.5', and 'GLA' with '5000' and '-1.5'. To the right of the table are '+' and '-' buttons. At the bottom are 'Help', '<< Back', 'Next >>', and 'Cancel' buttons.

Variable	Potential Site Value	Coefficient
Distance	N/A	-1.5
GLA	5000	-1.5

The Modeling Wizard dialog box is shown with the title bar 'Modeling Wizard'. It has a question mark icon and a close button. The main area is divided into three sections. The first section, 'What do you want to name the Modeling Analysis?', has a text box containing 'Advanced Huff Model'. The second section, 'Comments:', has a large text area. The third section, 'Batch Tasks', has a checkbox 'Defer this task to the Batch Queue' which is unchecked, and a text box 'What do you want to name the new task?'. At the bottom are 'Help', '<< Back', 'Finish', and 'Cancel' buttons.

## Using dissolve by attribute

You can use the Dissolve by Attribute function on the Modeling Wizard with the output from the original or advanced Huff model and dissolve the attribute probability field. For example, you can create primary, secondary, and tertiary trade areas based on the output probabilities of the original Huff model. The output from the Huff Model tools in Business Analyst creates a probability for each subgeography unit in the study area. For example, the output from the Huff models will create a probability of households in each block group of patronizing a new store location.

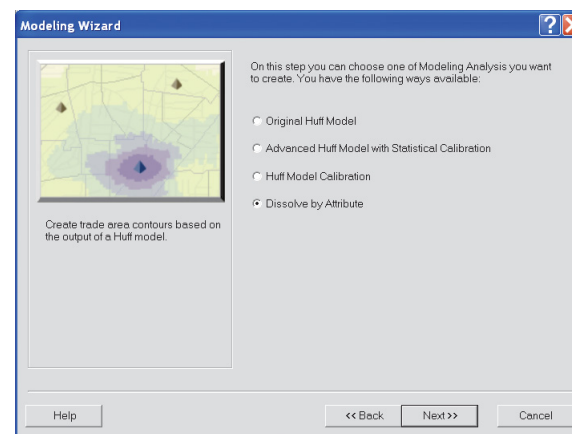
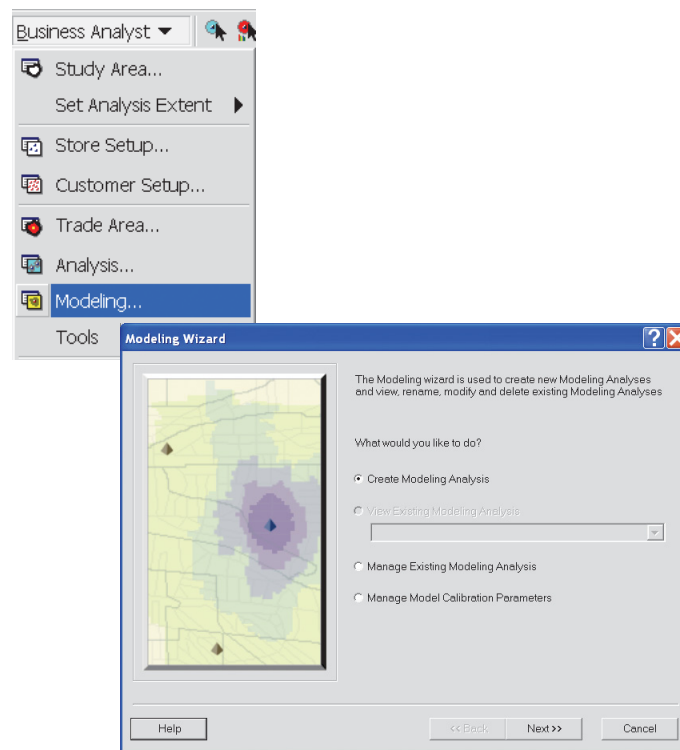
The Dissolve by Attribute option allows you to collapse the probability attributes in the block groups to create trade areas. For example, you can create three trade areas with the following probabilities:

- 70–100 percent
- 40–70 percent
- 10–40 percent

In this case, the layer created would contain the three polygon features based on the ranges above. You can then use these trade areas to ►

1. Click the Business Analyst drop-down menu and click Modeling.
2. Click Create Modeling Analysis and click Next.
3. Click Dissolve by Attribute as the type of modeling analysis and click Next. ►

The Modeling Wizard opens.



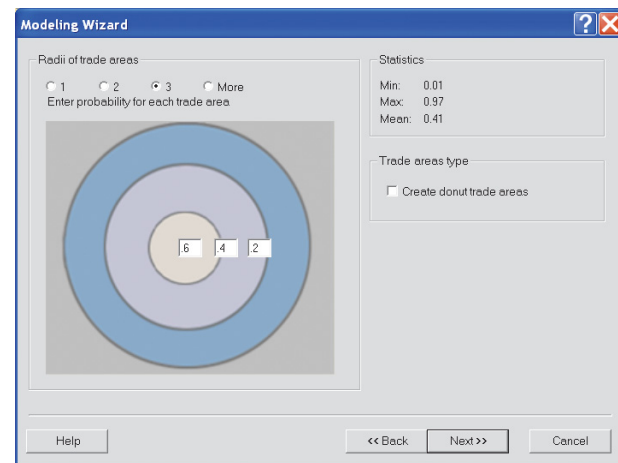
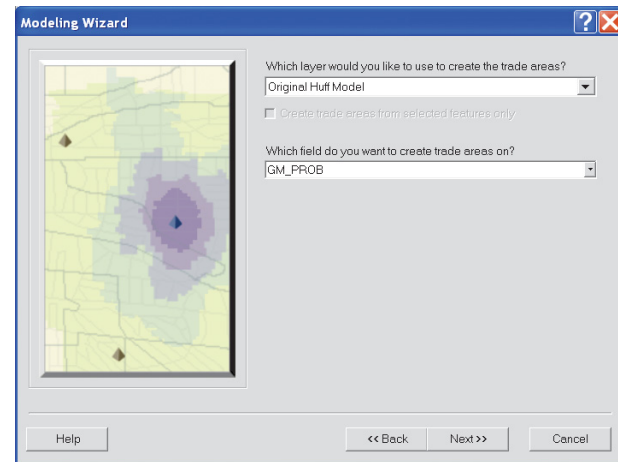
effectively target potential clients in these areas to suit your business needs, such as marketing campaigns, sales territory generation, and so forth.

Use the Dissolve by Attribute option when you want to aggregate and dissolve features based on a specified attribute or attributes. For example, you could take a layer containing sales data collected on a county-by-county basis and use the Dissolve by Attribute option to create a layer containing contiguous sales regions based on the name of the salesperson in each county.

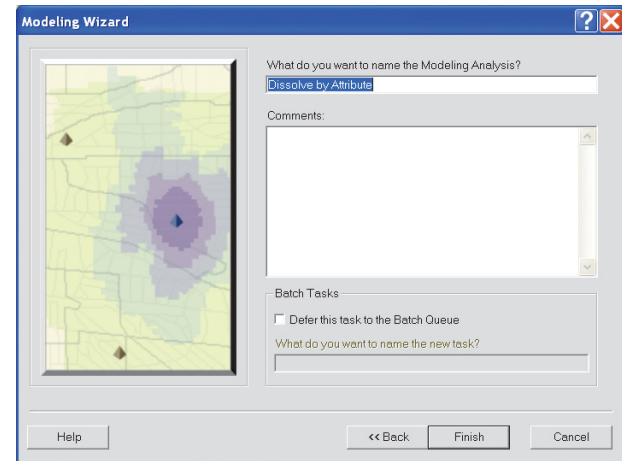
4. Click the first drop-down menu and click the results from an original or advanced Huff model. If you have pre-selected particular trade areas, the check box will be visible and available to check.

Click the second drop-down menu and click the field you want to use in creating the trade areas. In the case of the Huff models you have created, this will probably be the GM\_PROB field. Click Next.

5. Click the number of probability rings you want and type the probability using decimal points (for example, enter 60% as .60). Statistics are shown with the Min, Max, and Mean probabilities for your reference. You have the option of clicking the box to Create donut trade areas. Click Next. ►



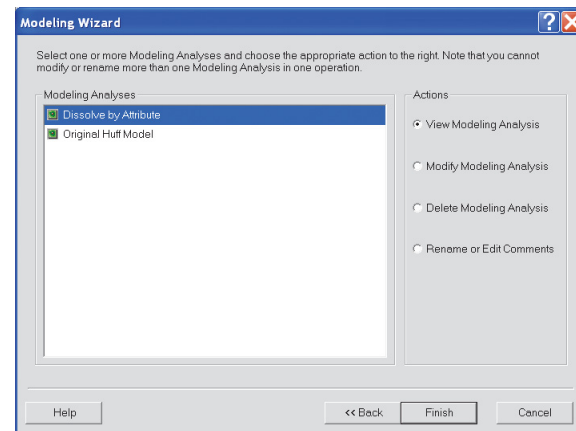
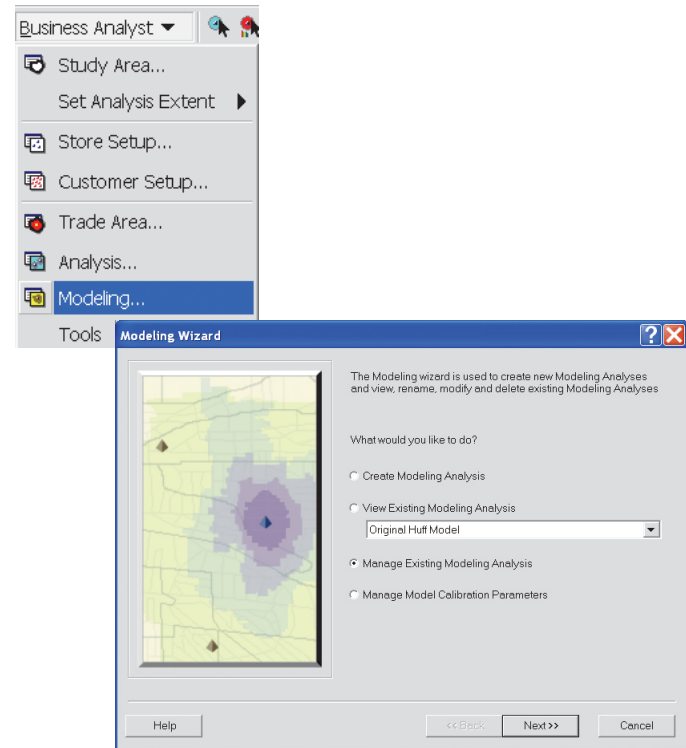
6. Type a name in the text box to save the new probability trade areas and type any comments, then click Finish.
- Your new trade area layer is created and displayed on the map.



## Managing existing modeling analyses

You can use the Managing existing modeling analyses tool to view, modify, delete, or rename an existing modeling analysis. For example, if you have previously created a Huff model, you can use this tool to rename the output layer. You can also modify the parameters for a model and rerun the analysis.

1. Click the Business Analyst drop-down menu and click Modeling.
2. Click Manage Existing Modeling Analysis and click Next.
3. Click the modeling analysis you want to use. Click View Modeling Analysis to add the model layer to the map, click Modify Modeling Analysis (which steps you through the wizard), click Delete Modeling Analysis, or click Rename or Edit Comments. Click Next or Finish, depending on your chosen action.

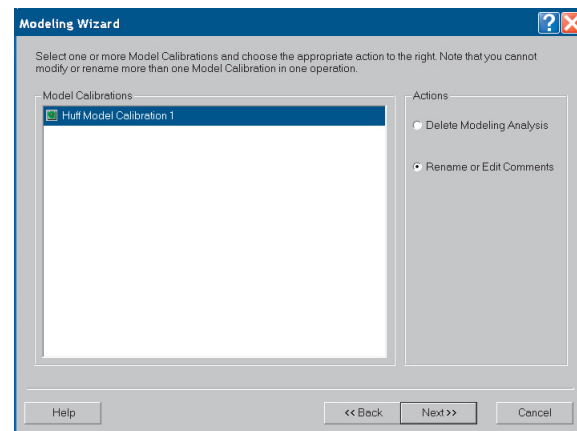
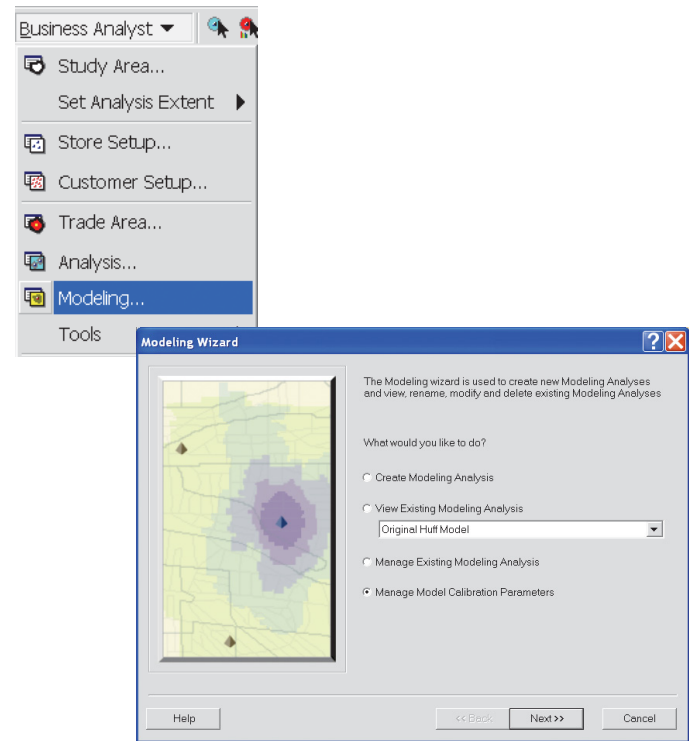


# Managing model calibration parameters

You can use the Managing model calibration parameters to view, modify, delete, or rename an existing modeling calibration parameter. For example, if you have previously created an advanced Huff model with statistical calibrations, you can use this tool to rename the output parameters. You can also modify the settings for a model calibration and re-create the analysis.

1. Click the Business Analyst drop-down menu and click Modeling.
2. Click Manage Model Calibration Parameters and click Next.
3. Click one or more model calibrations and click the desired action to either delete, or rename/edit comments. Click Next or Finish, depending on your chosen action.

The Modeling Wizard opens.







# Working with maps

## IN THIS CHAPTER

- Displaying points as charts
- Classification methods
- Displaying points as different colors
- Displaying points as different sizes
- Displaying lines as different colors
- Displaying lines as different thicknesses
- Displaying charts in areas
- Displaying areas as different colors
- Setting dot density in areas

This chapter will show you different methods you can use to improve the appearance of your maps. It also presents methods for thematic analysis of maps.



## Displaying points as charts

You can display the points on your map as charts using the Thematic Mapping Wizard. Charts can be effective for comparing several values at once. For instance, you might display your stores as a pie chart, each wedge representing the percentage of total yearly sales for a specific product.

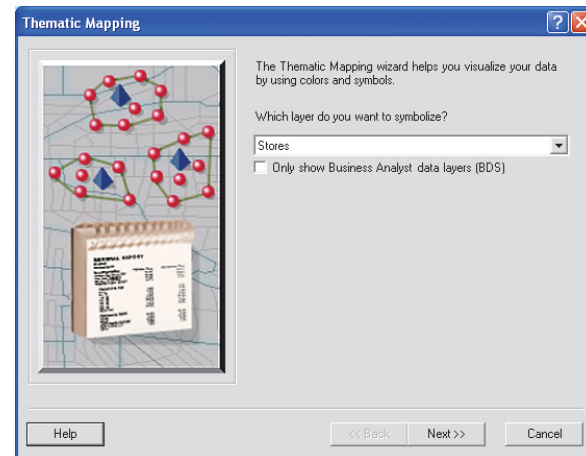
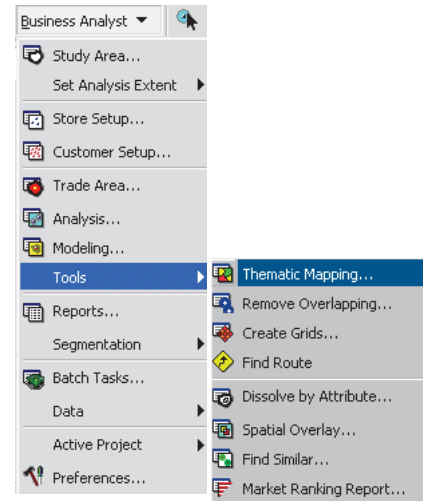
A pie chart is useful for comparing proportions of different categories in a total amount, whereas a bar chart compares actual values rather than proportions of a total.

### Tip

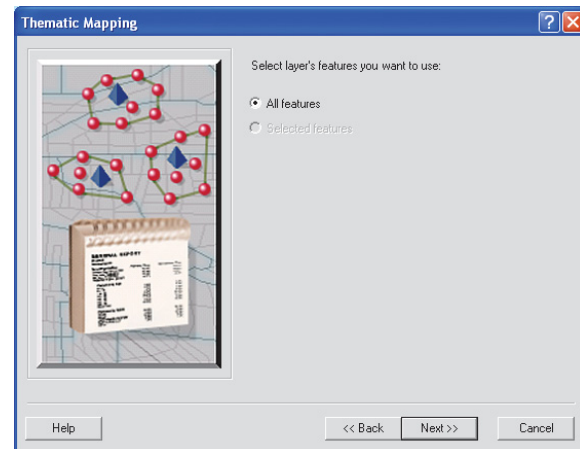
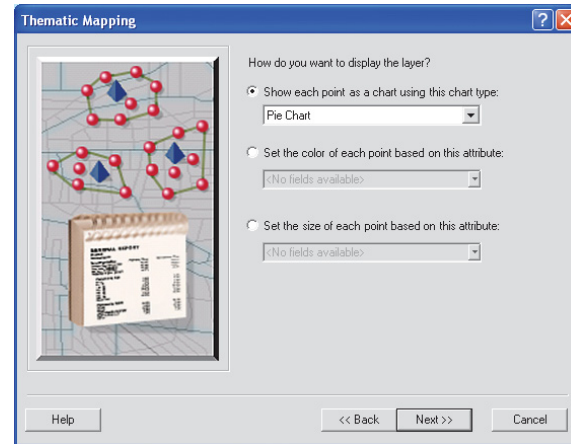
#### Using charts

- Compare only a few points (20 or 30 at most).
- Use five categories or less on your chart.
- Make sure that the values between points vary enough to actually show differences.

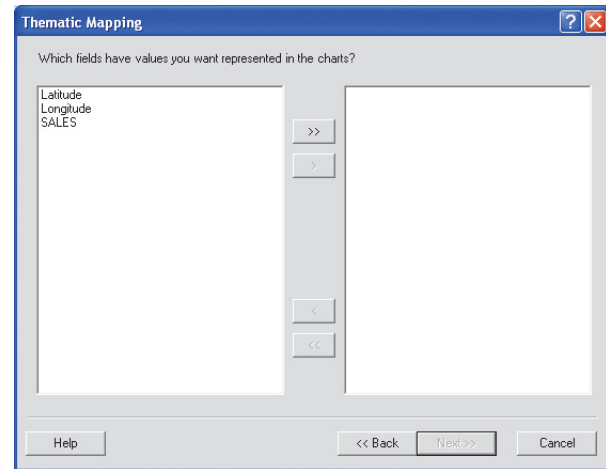
1. In ArcMap, open the study area with the points you want to display as charts.
2. Click the Business Analyst drop-down menu and click Tools > Thematic Mapping. The Thematic Mapping Wizard opens.
3. Click the drop-down arrow and click the layer you want to symbolize, then click Next. ►



4. Click Show each point as a chart using this chart type, click the drop-down arrow and click Pie Chart, then click Next.
5. If you want to use all features, click All features, then click Next. To use Selected features, you will first need to have the features selected on the map or in the layer's attribute table. ►

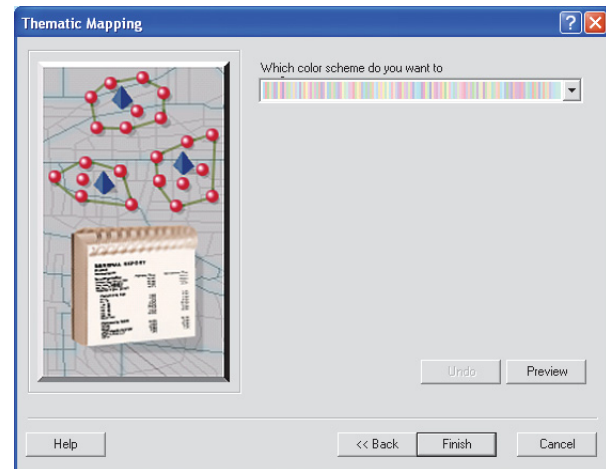


6. From the list on the left, click the field that has values you want represented in the charts, then click the single Right arrow button to move it to the column on the right. To choose more than one field, hold down the Ctrl key and click each field you want, then click the single Right arrow button to move them to the column on the right. To move all the fields to the right column, click the double Right arrow button. To move all the fields to the right column, click the double Right arrow button. When you're finished, click Next.



7. Click the drop-down menu and choose the color scheme you want to use, then click Finish.

The charts display on the map.



# Classification methods

There are several different classification methods you can choose to organize your data when performing thematic mapping. These include equal interval, natural breaks, quantile, equal area, and standard deviation.

In the *Equal Interval classification method*, each class has an equal range of values; that is, the difference between the high and low value is equal for each class. You should use this method if your data is evenly distributed and you want to emphasize the difference in values between the features.

With the *Natural Breaks classification method*, data values that cluster are placed into a single class. Class breaks occur where there is a gap between clusters. You should use this method if your data is unevenly distributed; that is, many features have the same or similar values and there are gaps between groups of values.

With the *Quantile classification method*, each class has roughly the same number of features. If your data is evenly distributed and you want to emphasize the difference in relative position between features, you should use the quantile classification method. If, for example, the point values are divided into five classes, points in the highest class would fall into the top fifth of all points.

With the *Equal Area classification method*, classes are formed so that the total area in each class is approximately the same (available only when working with areas).

With the *Standard Deviation classification method*, class breaks are placed above and below the mean value at intervals of 1, 0.5, or 0.25 standard deviations until all the data values are included in a class.

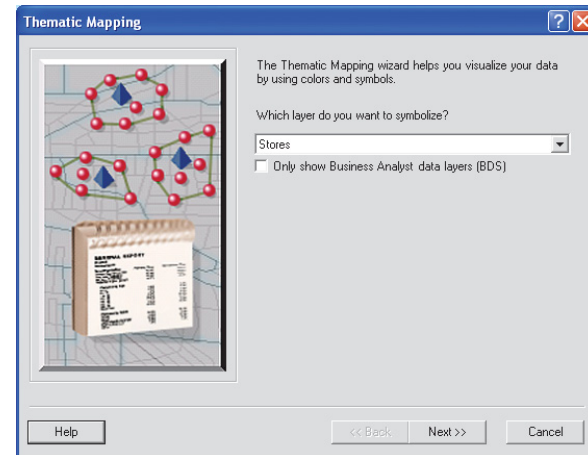
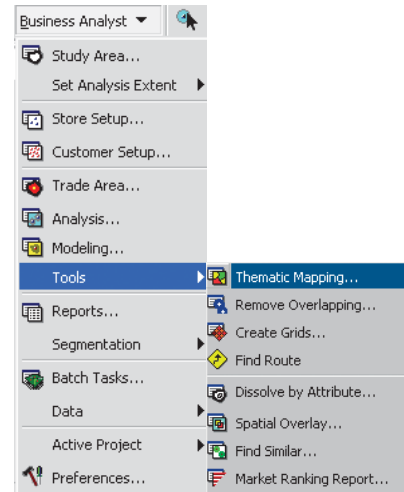
## Displaying points as different colors

Displaying points as different colors based on the values of a numeric attribute is an example of a *graduated color map*. Because colors don't necessarily imply a magnitude, this kind of map is most useful for showing data that is ranked, such as 1 to 10 or low to high, or has some kind of numerical progression, such as measurements, counts, rates, or percentages.

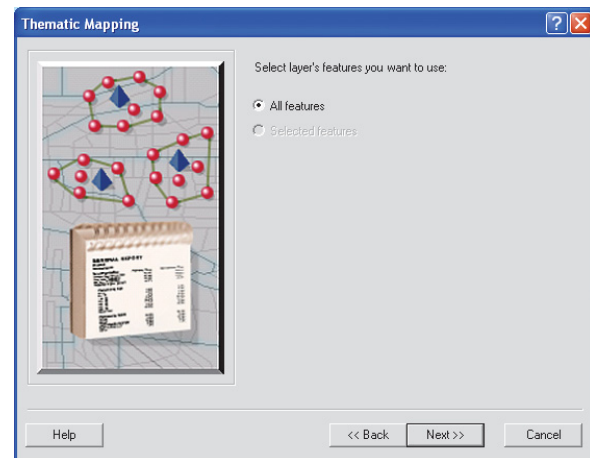
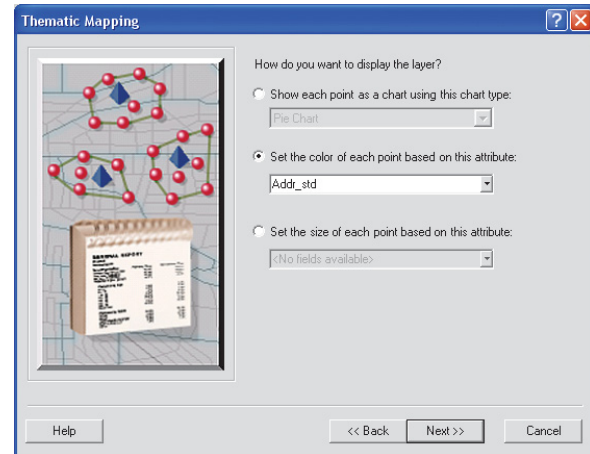
For example, you might want to display your customers as different colors, depending on how many times a year they visit the store.

You can also use a nonnumeric attribute to display points as different colors. For example, you could display your stores as different colors according to the name of their regional manager.

1. In ArcMap, open the study area with the points you want to display as different colors.
2. Click the Business Analyst drop-down menu and click Tools > Thematic Mapping. The Thematic Mapping Wizard opens.
3. Click the drop-down arrow and click the layer you want to symbolize, then click Next. ►



4. Click Set the color of each point based on this attribute, then click Next.
5. Click All features to use all features. Click Selected features to use only the features you have selected on the map or in the layer's attribute table. Click Next to continue. ►



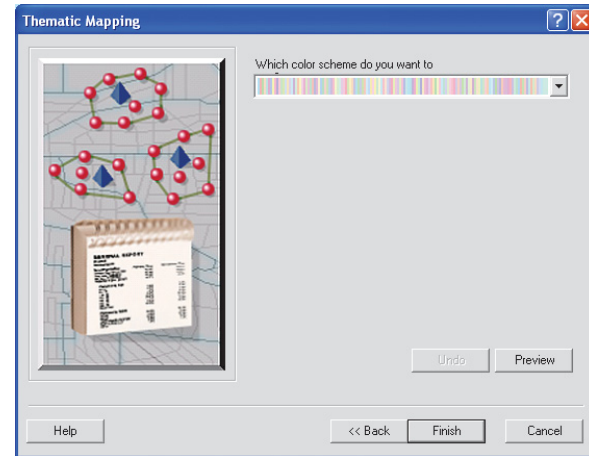
## Tip

### Previewing your results

*Optionally, click the Preview button to see the results on your map without changing it permanently. To return to the original legend, click Undo.*

6. Click the drop-down arrow and click the color scheme you want to use.
7. Optionally, click the Preview button to see the results on your map without changing it permanently. To return to the original legend, click Undo.
8. Click Finish.

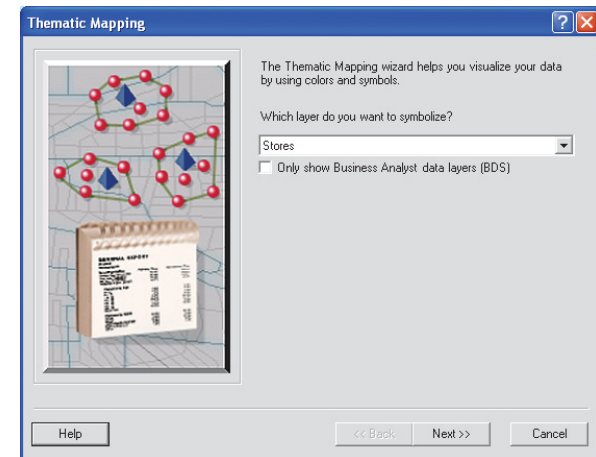
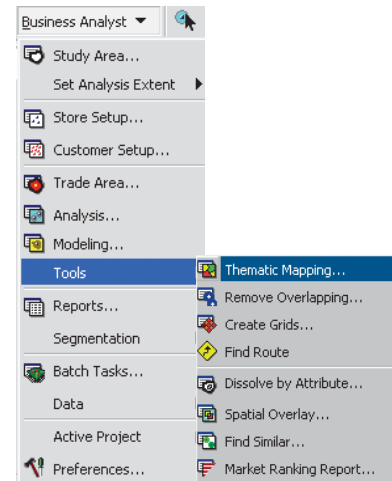
The points in the chosen layer are displayed as different colors on the map.



## Displaying points as different sizes

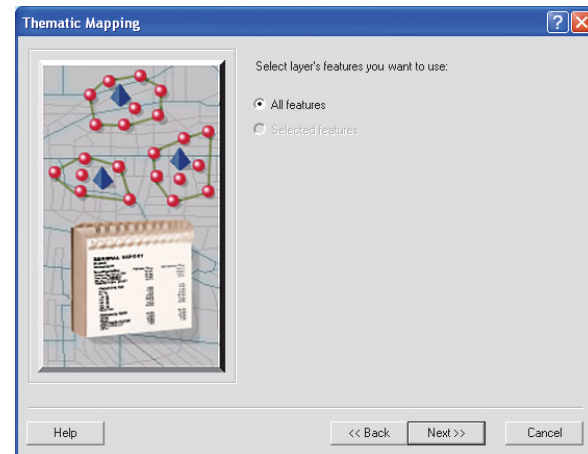
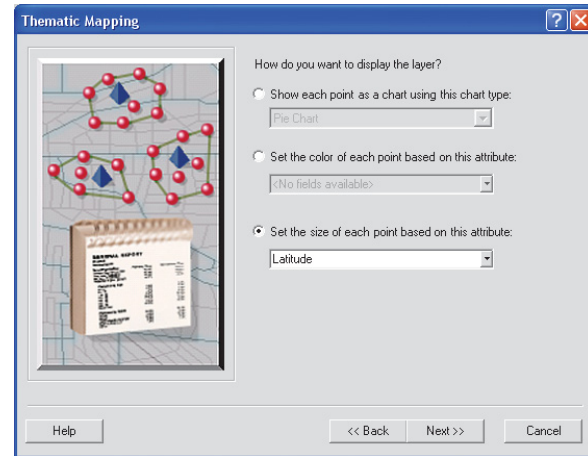
You can display points using a symbol that varies in size to represent different values. This is an example of a *graduated symbol map*. Graduated symbols work best for counts and amounts, since most people associate the size of the symbol with magnitude. For example, stores could be displayed as different sizes according to their sales volume, or you could show customers according to total purchases or visits.

1. In ArcMap, open the study area with the points you want to display as different sizes.
2. Click the Business Analyst drop-down menu and click Tools > Thematic Mapping.  
The Thematic Mapping Wizard opens.
3. Click the drop-down arrow and click the layer you want to symbolize, then click Next. ►





4. Click Set the size of each point based on this attribute, then click Next.
5. Click All features to use all features. Click Selected features to use only the features you have selected on the map or in the layer's attribute table. Click Next to continue. ►



## Tip

### Normalizing data

Normalization is the process of dividing one numeric attribute value by another to minimize differences in values based on the size of areas or the number of features in each area—for example, normalizing (or dividing) total population by total area gives population per unit area, or density.

You have the option to choose a normalization field when you are displaying points as different sizes. You can also choose <none> if you don't want your point data normalized.

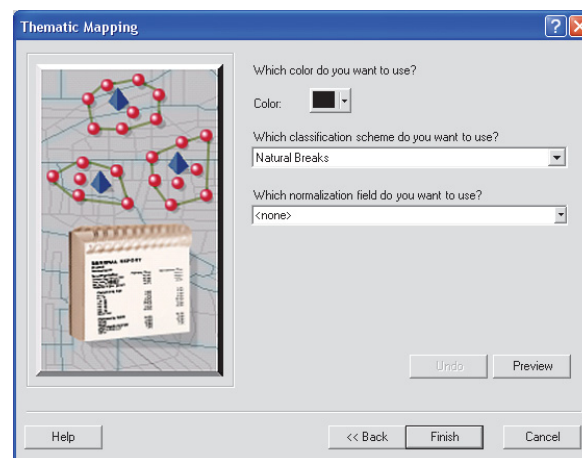
## Tip

### Previewing your results

Click the Preview button to see the results on your map without changing it permanently. To return to the original legend, click Undo.

6. Click the Color drop-down menu and click the color you want to use.
7. Click the second drop-down menu to choose the classification scheme you want to use.
8. Optionally, click the third drop-down menu to choose which normalization field you want to use.
9. Click Finish.

The points in the chosen layer are displayed as different sizes.

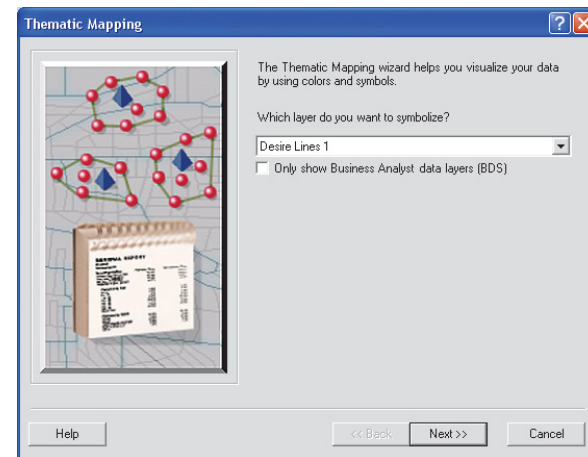
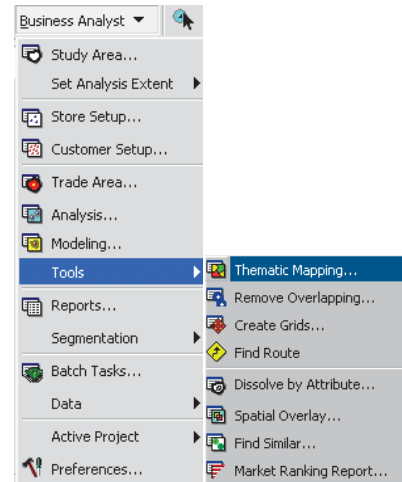


## Displaying lines as different colors

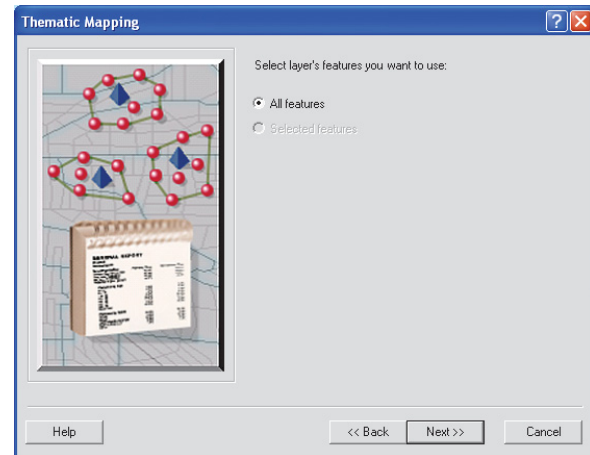
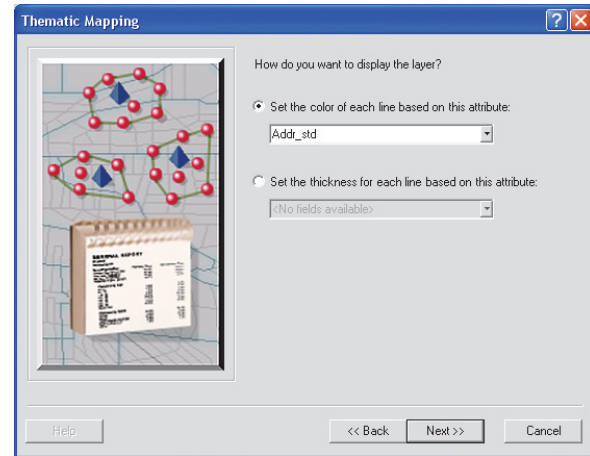
Using different colors can also be an effective method for displaying lines; the color of the lines varies according to the value of a particular attribute. Because colors don't necessarily imply a magnitude, this is most useful for showing data that is ranked, such as 1 to 10 or low to high, or has some kind of numerical progression, such as measurements, rates, or percentages.

For example, you could display desire lines as different colors according to the store each customer visits or whether or not the customer is a preferred shopper.

1. In ArcMap, open the study area with the lines you want to display as different colors.
2. Click the Business Analyst drop-down menu and click Tools > Thematic Mapping. The Thematic Mapping Wizard opens.
3. Click the drop-down arrow and click the line layer you want to symbolize, then click Next. ►



4. Click Set the color of each line based on this attribute, then click an attribute from the drop-down menu and click Next.
5. Click All features to use all features. Click Selected features to use only the features you have selected on the map or in the layer's attribute table. Click Next to continue. ►



## Tip

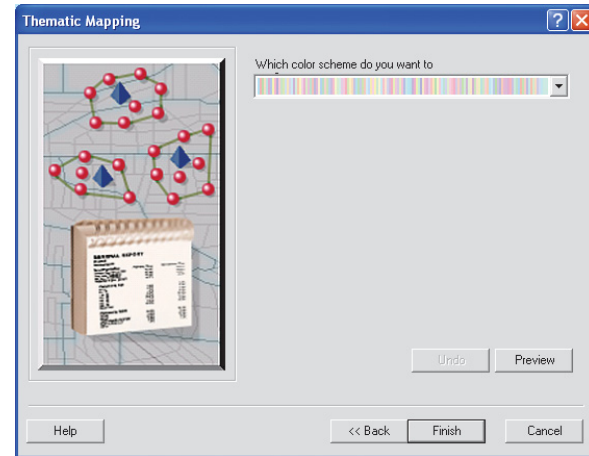
### Previewing your results

*Optionally, click the Preview button to see the results on your map without changing it permanently. To return to the original legend, click Undo.*

6. Click the drop-down arrow and click the color scheme you want to use.

7. Click Finish.

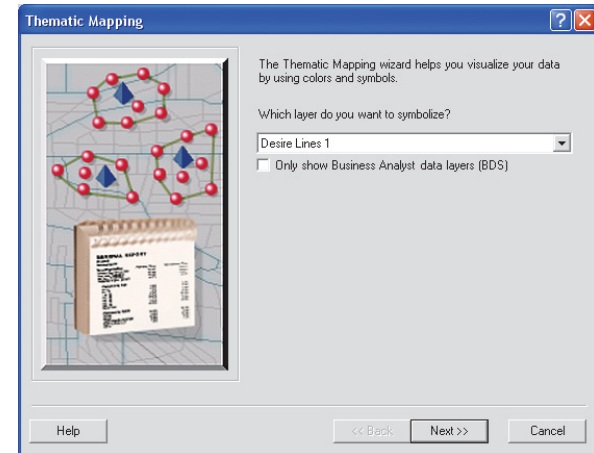
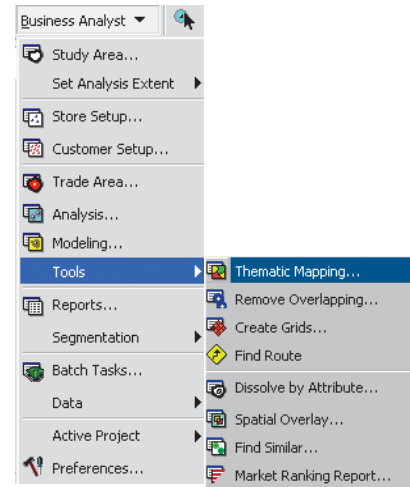
The lines in the chosen layer are displayed as different colors on the map.



## Displaying lines as different thicknesses

You can display lines as different thicknesses to represent different values. This is another example of a graduated symbol map. Graduated symbols work best for counts and amounts, since most people associate the size of the symbol with magnitude. For example, roads could be displayed as different thicknesses based on traffic volume during rush hour. Desire lines could be displayed by total sales or number of visits for each customer.

1. In ArcMap, open the study area with the lines you want to display as different colors.
2. Click the Business Analyst drop-down menu and click Tools > Thematic Mapping.  
The Thematic Mapping Wizard opens.
3. Click the drop-down arrow and click the line layer you want to symbolize, then click Next. ►



## Tip

### Normalizing data

Normalization is the process of dividing one numeric attribute value by another to minimize differences in values based on the size of areas or the number of features in each area. For example, normalizing (or dividing) total population by total area gives population per unit area, or density.

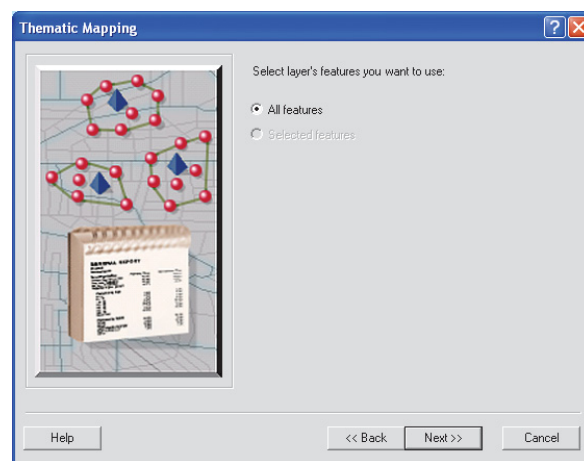
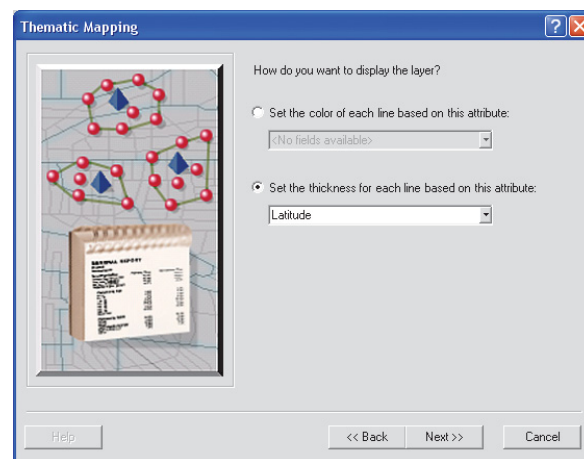
You have the option to choose a normalization field when you are displaying points as different sizes. You can also choose <none> if you don't want your point data normalized.

## Tip

### Previewing your results

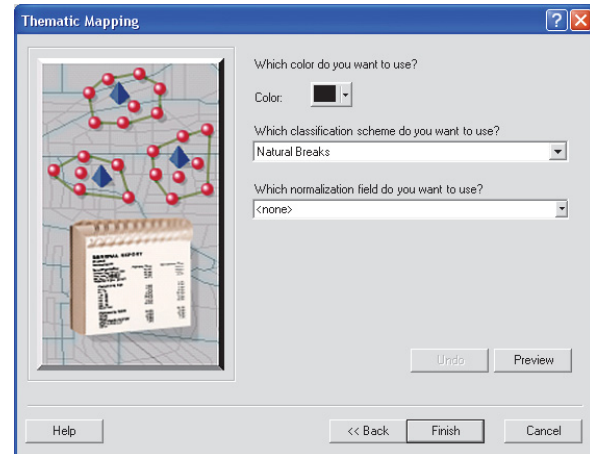
Click the Preview button to see the results on your map without changing it permanently. To return to the original legend, click Undo.

4. Click Set the thickness for each line based on this attribute and click an attribute from the drop-down menu, then click Next.
5. Click All features to use all features or click Selected features to use only selected features. Click Next to continue. ►



6. Click the Color drop-down menu and click the color you want to use.
7. Click the second drop-down menu to choose the classification scheme you want to use.
8. Click the third drop-down menu to choose which normalization field you want to use.
9. Click Finish.

The lines in the chosen layer are displayed as different thicknesses.





## Displaying charts in areas

You can display charts in areas on your map using the Thematic Mapping Wizard. Charts can be effective for comparing several values at once. For instance, you might display ZIP Codes as a pie chart, each wedge representing population by race. You could display tracts as bar charts representing the number of people who rent and those who are homeowners.

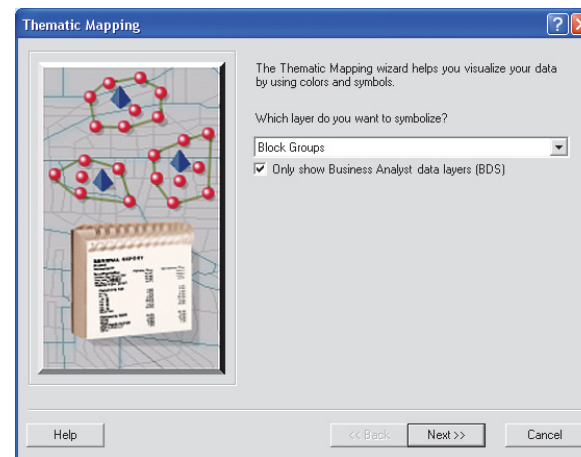
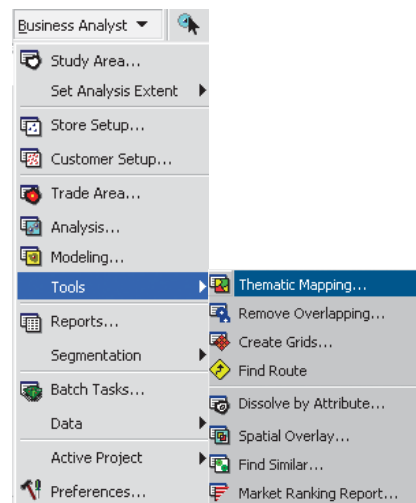
A pie chart is useful for comparing proportions of different categories in a total amount, whereas a bar chart compares actual values rather than proportions of a total.

### Tip

#### Using charts

- Compare only a few areas (20 or 30 at most).
- Use five categories or less on your chart.
- Make sure that the values between points vary enough to actually show differences.

1. In ArcMap, open the study area with the lines you want to display different colors.
2. Click the Business Analyst drop-down menu and click Tools > Thematic Mapping. The Thematic Mapping Wizard opens.
3. Click the drop-down arrow and click the layer with areas you want to symbolize, then click Next. ►

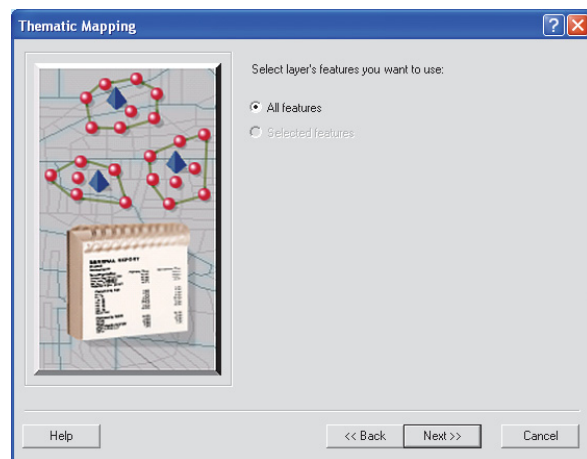
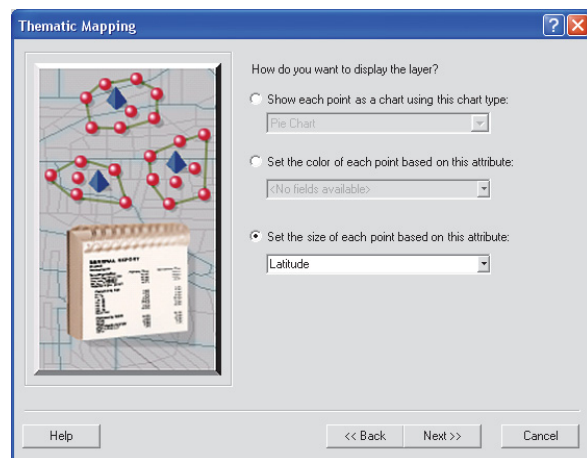


## Tip

### Previewing your results

Click the *Preview* button to see the results on your map without changing it permanently. To return to the original legend, click *Undo*.

4. Choose one of the following: Click *Show each point as a chart* using this chart type and choose a chart type from the drop-down menu, click *Set the color of each point based on this attribute* and choose an attribute from the drop-down menu, or click *Set the size of each point based on this attribute* and choose an attribute from the drop-down menu. Once you've made your selection, click *Next*.
5. Click *All features* if you want to use all features or *Selected features* if you only want to use selected features. Click *Next* to continue. ►

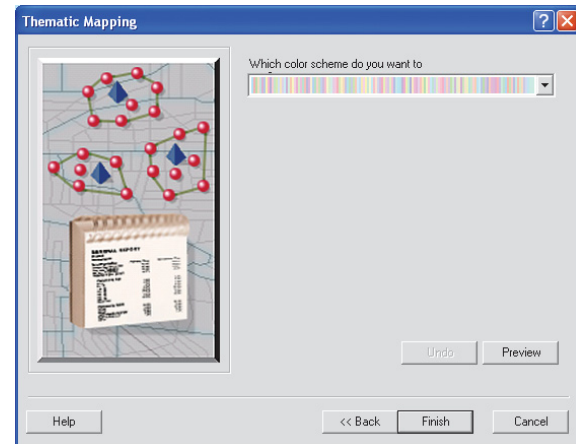
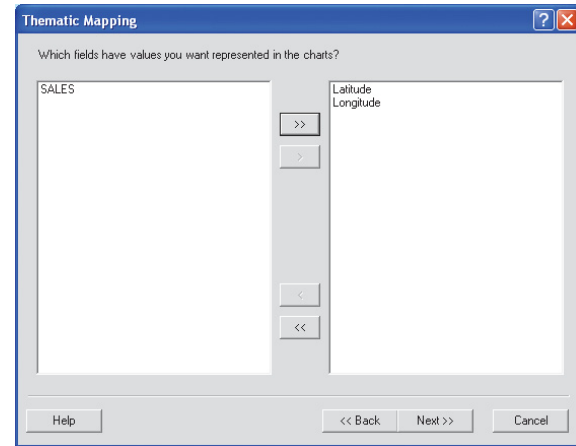


6. This step depends on the option you chose in step 4.
- a. If you chose Show each point as a chart using this chart type, you are prompted to choose which fields have values you want represented in the charts. Click a field from the left column and click the Right arrow button to move it to the right column. To move all fields to the right column, click the double Right arrow.

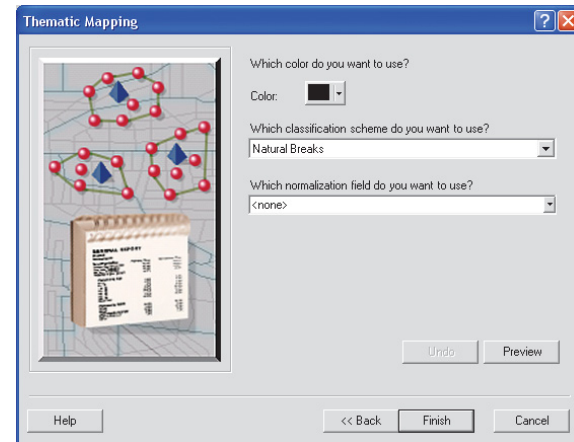
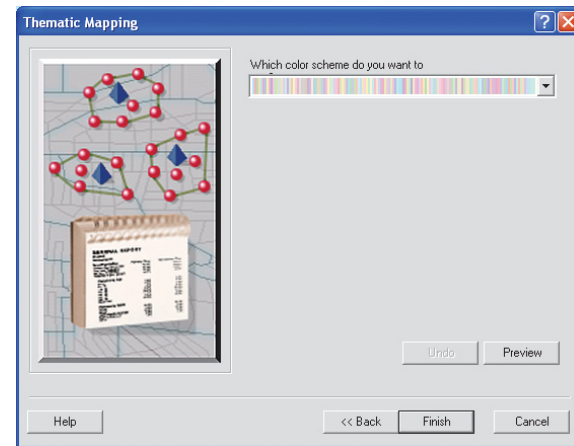
To remove the fields, click the field you want to remove and click the Left arrow, or to remove all fields, click the double Left arrow. When you're finished adding fields, click Next.

Click the drop-down arrow to choose a color scheme you want to use, then click Finish.

The charts are displayed on the map. ►



- b. If you chose Set the color of each point based on this attribute, you are prompted to choose the color scheme you want to use, then click Finish. The points are displayed on the map in the color scheme you selected.
- c. If you chose Set the size of each point based on this attribute, you are prompted to choose a color from the drop-down menu. Then, click the classification scheme and normalization field from the drop-down menus and click Finish.

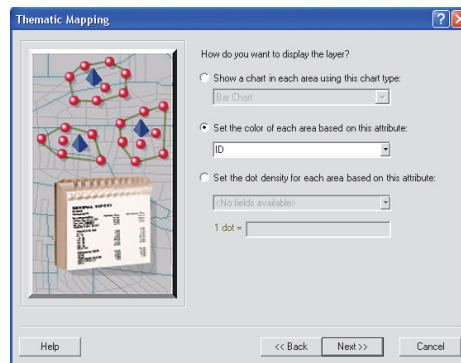
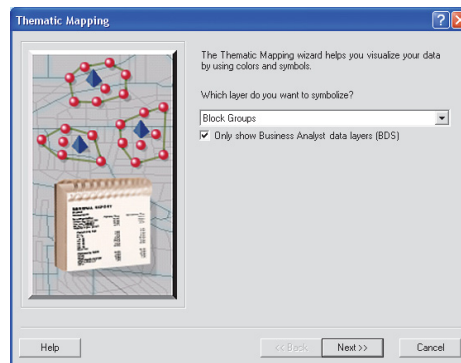
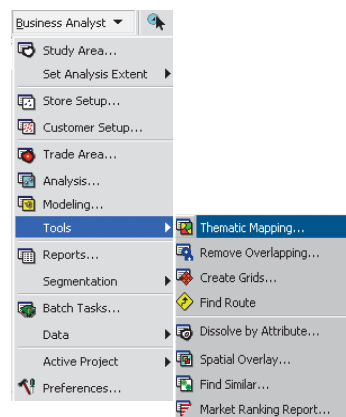


## Displaying areas as different colors

Displaying areas as different colors based on the values of a numeric attribute is another example of a graduated color map. Because colors don't necessarily imply a magnitude, this kind of map is most useful for showing data that is ranked, such as 1 to 10 or low to high, or has some kind of numerical progression, such as measurements, rates, or percentages. For example, you could display block groups according to average income or ZIP Codes by number.

You can also use a nonnumeric attribute to display areas as different colors. For example, you could display counties as different colors according to their name.

1. In ArcMap, open the study area with the lines you want to display as different colors.
2. Click the Business Analyst drop-down menu and click Tools > Thematic Mapping. The Thematic Mapping Wizard opens.
3. Click the drop-down arrow and click the layer with areas you want to symbolize, then click Next.
4. Click Set the color of each area based on this attribute, then click Next. ►



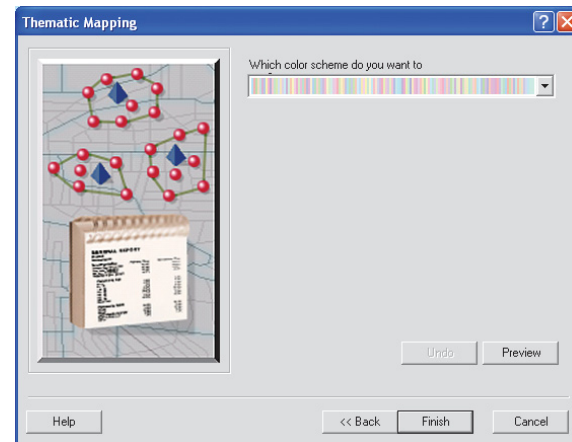
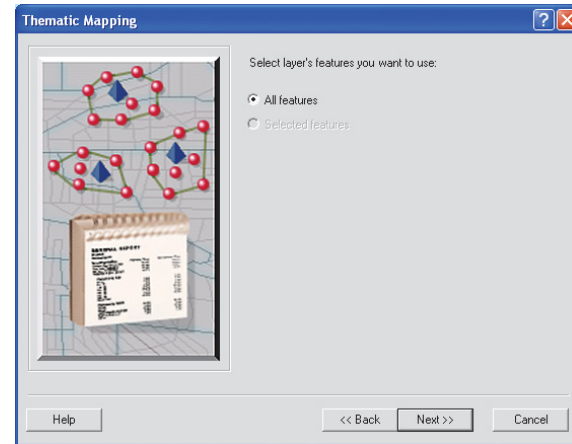
## Tip

### Previewing your results

Click the Preview button to see the results on your map without changing it permanently. To return to the original legend, click Undo.

5. Click All features to use all features or click Selected features to use selected features. Click Next to continue.
6. Click the drop-down arrow and click the color scheme you want to use.
7. Click Finish.

The areas in the layer are displayed as different colors.



## Setting dot density in areas

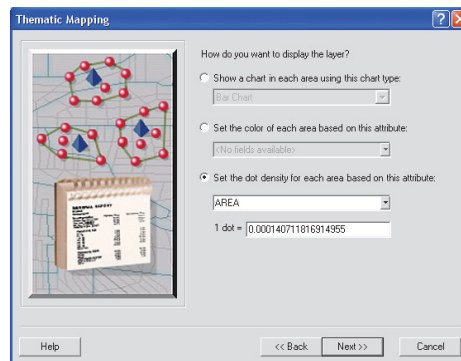
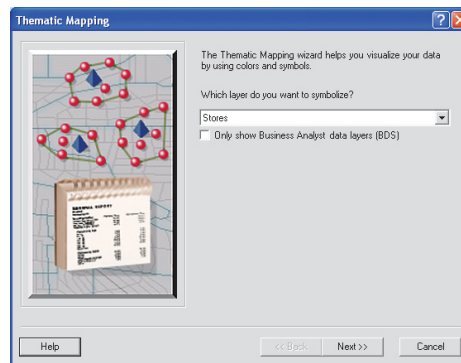
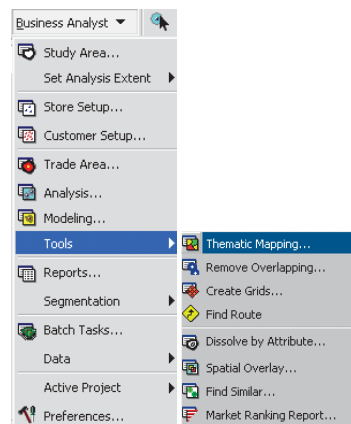
Dot density allows you to show where things are concentrated, such as people per square mile. This is good for showing how an attribute is distributed throughout an area. For instance, a dot density map depicting population will show the strongest concentrations of dots where most people live, such as along rivers and near coastlines.

1. In ArcMap, open the study area with the areas you want to show using dot density.
2. Click the Business Analyst drop-down menu and click Tools > Thematic Mapping.

The Thematic Mapping Wizard opens.

3. Click the drop-down arrow and click the layer with areas you want to symbolize, then click Next.
4. Click Set the dot density for each area based on this attribute and click the drop-down menu to choose the field for which you want to determine the dot density.

Type the value you want one dot to represent, then click Next.



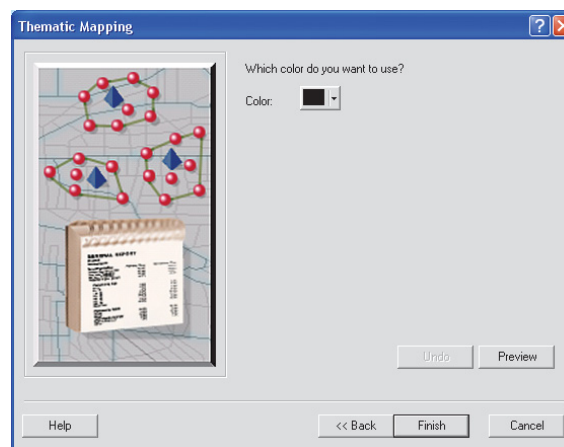
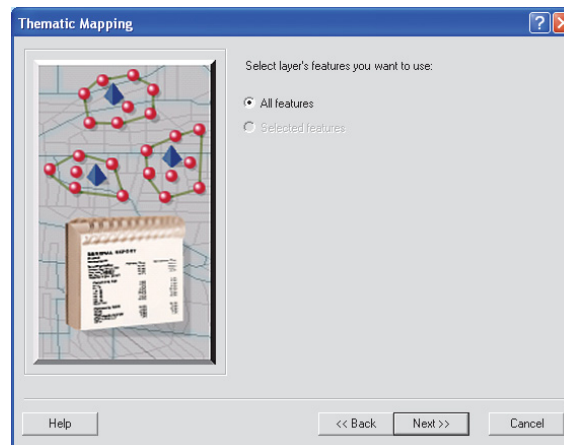
## Tip

### Previewing your results

Click the *Preview* button to see the results on your map without changing it permanently. To return to the original legend, click *Undo*.

5. Click All features to use all features or click Selected features to use only selected features. Click Next to continue.
6. Click the Color drop-down menu to choose a color for the dots.
7. Click Finish.

The areas in the layer are displayed using dot density.







# Tools

# 14

## IN THIS CHAPTER

- **Remove trade area overlap**
- **Create grids**
- **Dissolve by attribute**
- **Spatial overlay**
- **Find similar**
- **Market Ranking report**
- **Site prospecting**

This chapter explains a number of helpful tools that you can use to supplement and support other forms of analysis. These include:

- Removal of overlapping area between two or more trade areas
- Creating grids to permit normalized looks at demographics and other variables over an area with grid sizes that you can define
- Dissolving boundaries between trade areas
- Extracting data from one layer and appending it to another
- Ranking a number of potential sites by statistically comparing them to a master site
- Creating Market Ranking reports
- Prospecting a site using one of several methods

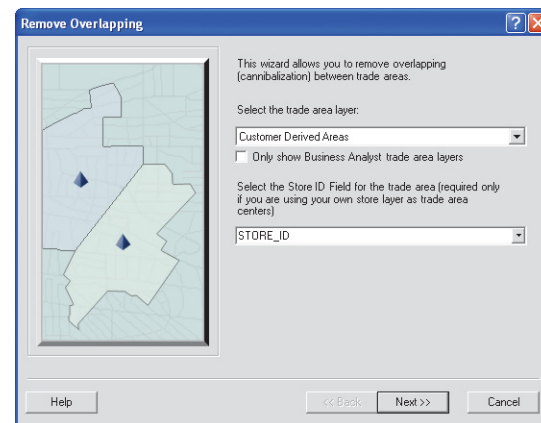
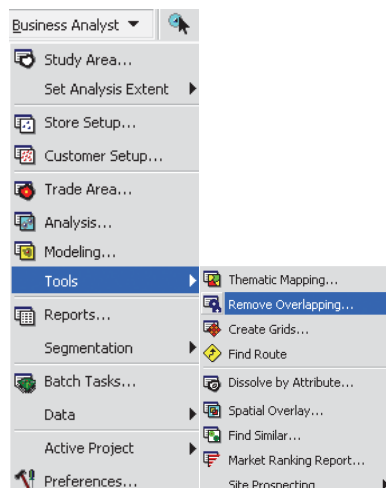
## Remove trade area overlap

The Remove Overlapping tool provides several methods to remove overlap between two or more trade areas, such as the Thiessen polygon approach and grids (unweighted and weighted).

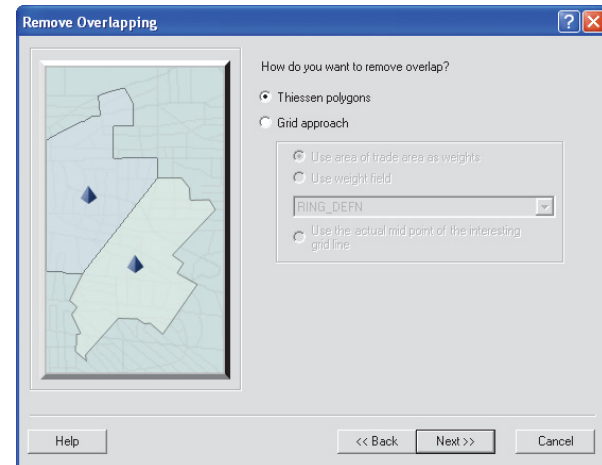
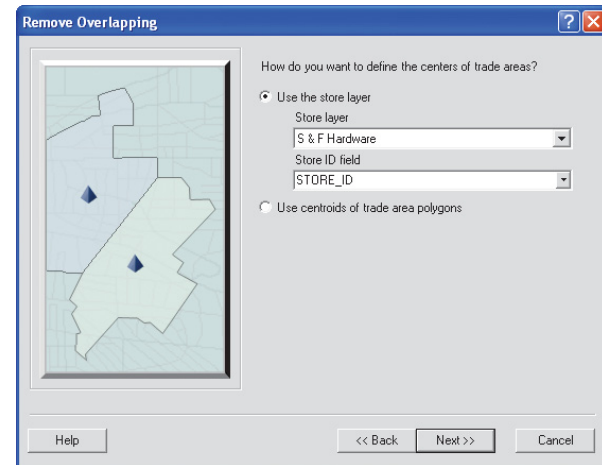
1. Click the Business Analyst drop-down menu and click Tools, then click Remove Overlapping.

The Remove Overlapping Wizard opens.

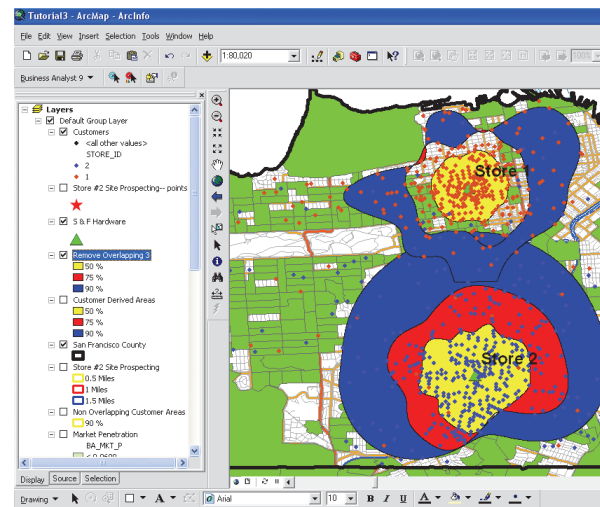
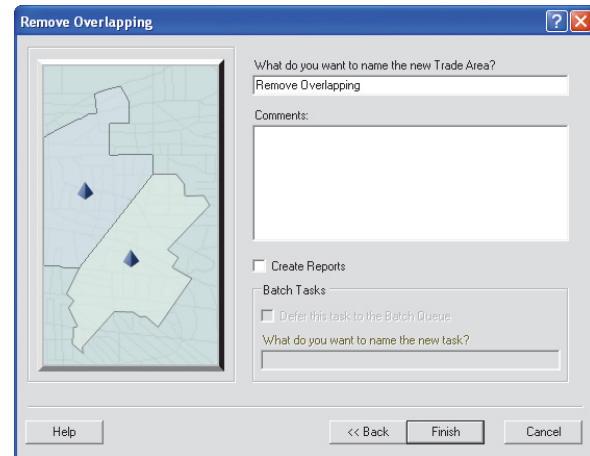
2. Click the first drop-down menu and click the trade area layer. Click the second drop-down menu and click the STORE\_ID field for the trade area, then click Next. ►



3. To define the centers of the trade areas, click Use the store layer. Click the first drop-down menu and click the store layer, click the second drop-down menu and click the STORE\_ID field, then click Next.
4. Choose how you want to remove the overlap. Click Thiessen polygons or Grid approach. ►



5. Type a name for your new trade area in the text box, type any comments, then click Finish.  
The results are shown on the map.



## Create grids

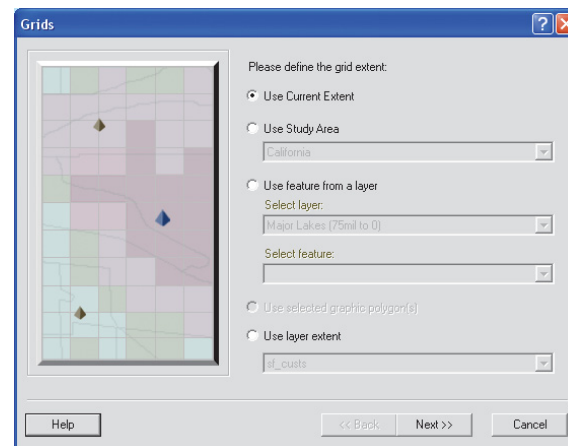
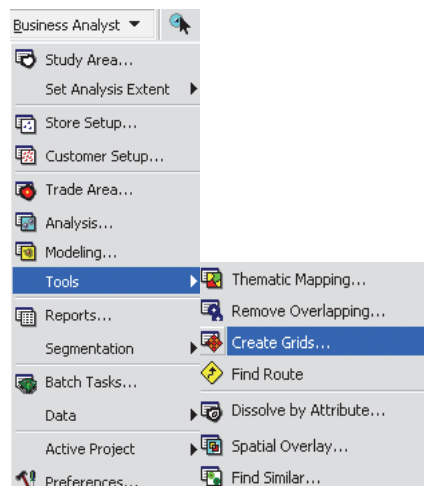
You can append demographic data to a grid cell to provide a normalized view of the data, identifying hot spots and areas of interest.

### See Also

*See Chapter 7, ‘Trade areas—no customer data required’, for more information about grids.*

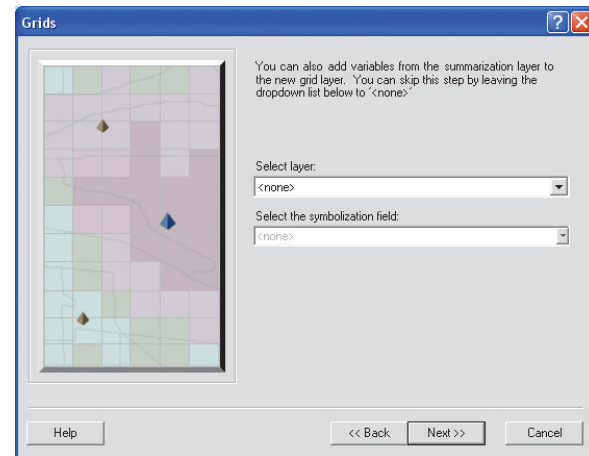
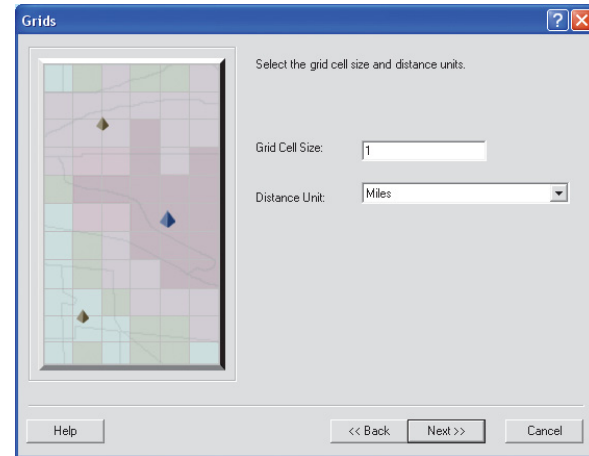
1. Click the Business Analyst drop-down menu and click Tools, then click Create Grids.
2. To define the grid extent you want to use, click one of the following: Use Current Extent, Use Study Area, Use feature from a layer, Use selected graphic polygon(s), or Use layer extent, then click Next.

The Grids Wizard opens.

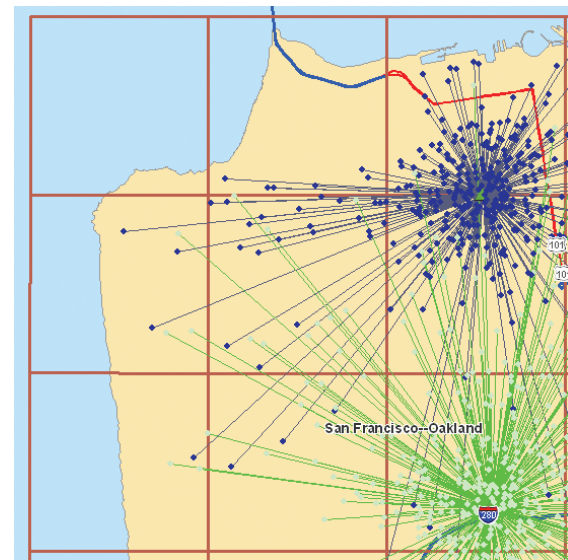
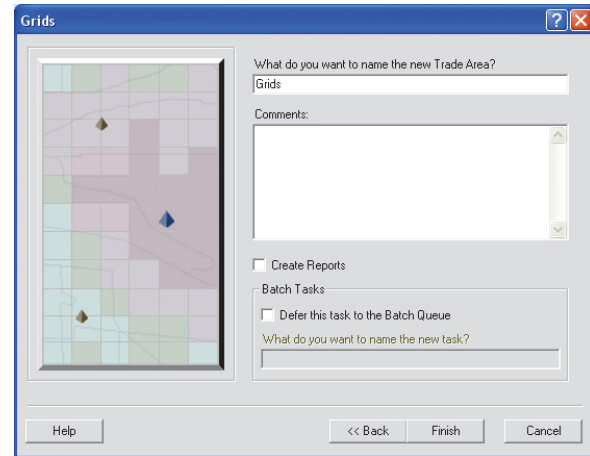


3. Type a value in the Grid Cell Size text box, click the Distance Unit drop-down menu and click the distance units, then click Next.
4. Optionally, you can add variables from the summarization layer to the new grid layer. To do this, click the Select layer drop-down menu and click a layer from the list, then click the Select the symbolization field drop-down menu and click a field from the list.

To skip this step, leave the drop-down lists set to <none> and click Next. ►



5. Type a name for the new trade area in the text box, type any comments in the Comments text box, then click Finish.
- The grid displays on the map.





## Dissolve by attribute

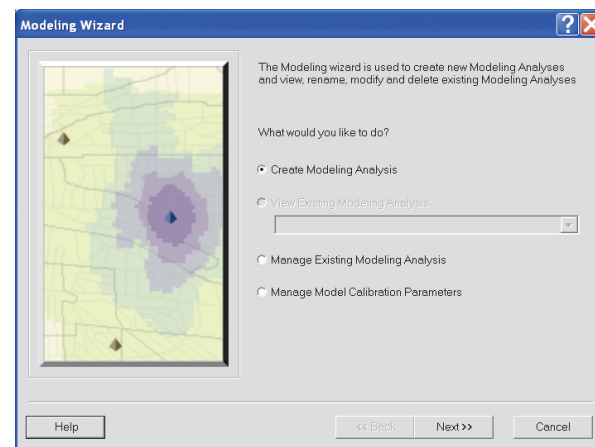
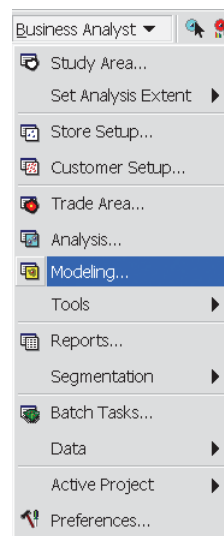
You can use the Dissolve by Attribute function on the Modeling Wizard with the output from the original or advanced Huff model and dissolve the attribute probability field. For example, you can create primary, secondary, and tertiary trade areas based on the output probabilities of the original Huff model. The output from the Huff model tools in Business Analyst creates a probability for each subgeography unit in the study area. For example, the output from the Huff model will create a probability of households in each block group of patronizing a new store location.

The Dissolve by Attribute option allows you to collapse the probability attributes in the block groups to create trade areas. For example, you can create three trade areas with the following probabilities:

- 70–100 percent
- 40–70 percent
- 10–40 percent

In this case, the layer created would contain the three polygon features based on the ranges above. You can then use these trade areas to ►

1. Click the Business Analyst drop-down menu and click Modeling.
2. Click Create Modeling Analysis and click Next. ►

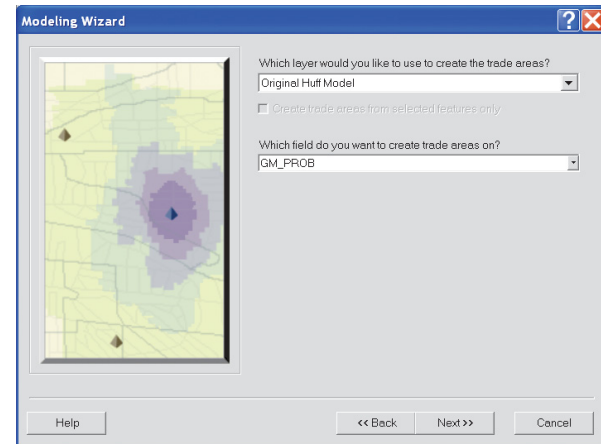
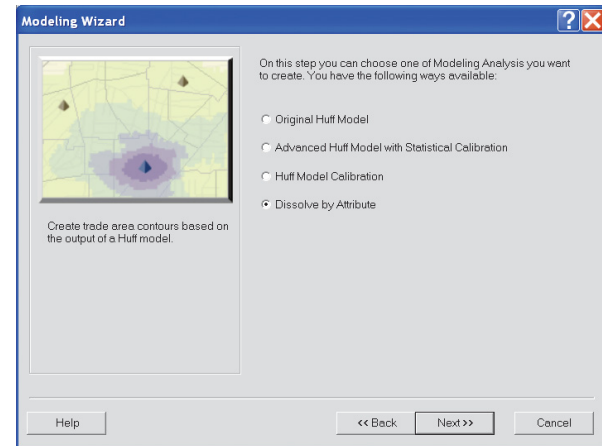


effectively target potential clients in these areas to suit your business needs, such as marketing campaigns, sales territory generation, and so forth.

Use the Dissolve by Attribute option when you want to aggregate and dissolve features based on a specified attribute or attributes. For example, you could take a layer containing sales data collected on a county-by-county basis and use the Dissolve by Attribute option to create a layer containing contiguous sales regions based on the name of the salesperson in each county.

3. Click Dissolve by Attribute as the type of modeling analysis and click Next.
4. Click the first drop-down menu and click the results from an original or advanced Huff model. If you have preselected particular trade areas, the check box will be visible and available to check.

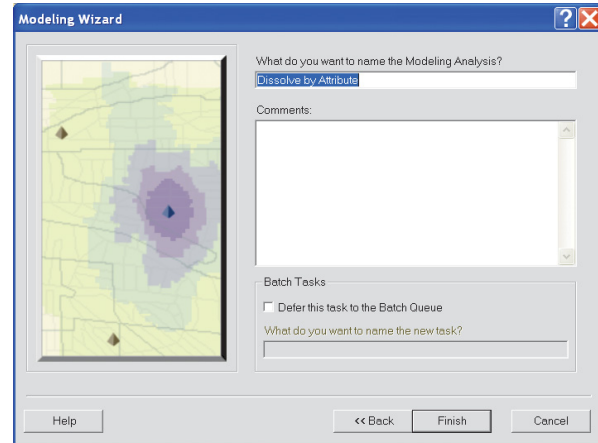
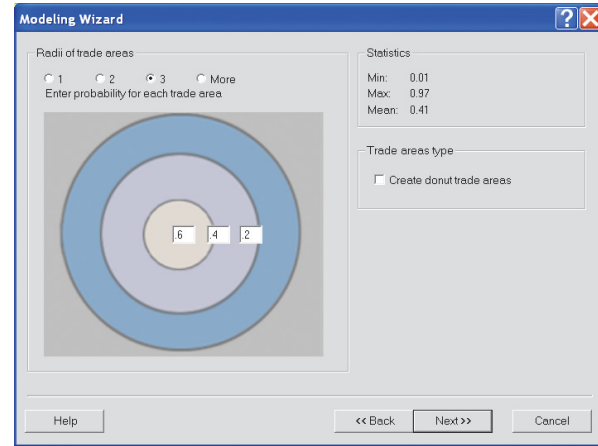
Click the second drop-down menu and click the field you want to use in creating the trade areas. In the case of the Huff models you have created, this will probably be the GM\_PROB field. Click Next. ►



- Click the number of probability rings you want and type the probability using decimal points (for example, enter 60% as .60). Statistics are shown with the Min, Max, and Mean probabilities for your reference. You have the option of clicking the box to Create donut trade areas. Click Next.

- Type a name in the text box to save the new probability trade areas and type any comments, then click Finish.

Your new trade area layer is created and displayed on the map.

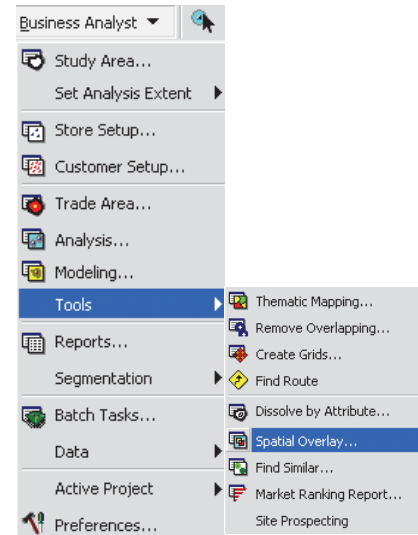


# Spatial overlay

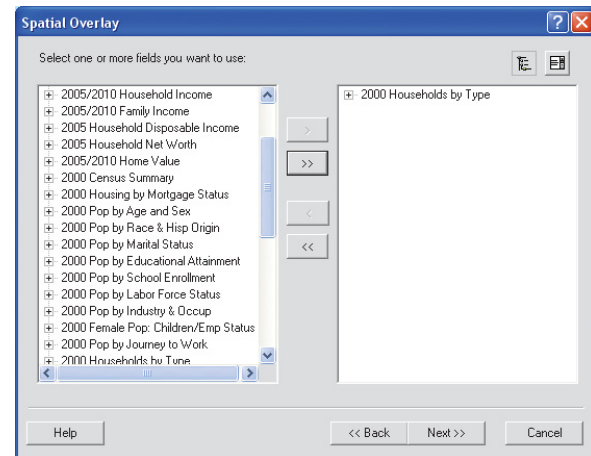
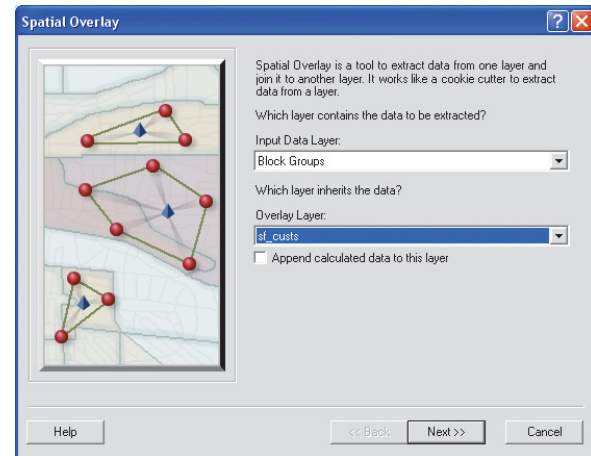
The Spatial Overlay tool extracts data from one layer and joins it to another layer.

1. Click the Business Analyst drop-down menu and click Tools, then click Spatial Overlay.

The Spatial Overlay Wizard opens. ►

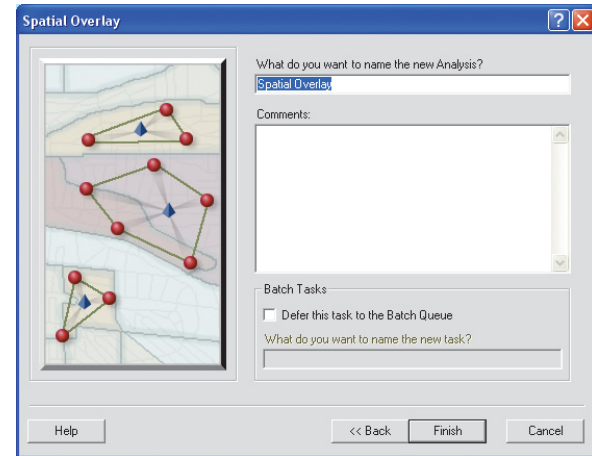


2. Click the Input Data Layer drop-down menu and click the layer that contains the data to be extracted. Click the Overlay Layer drop-down menu and click the layer that inherits the data, then click Next.
3. Click one or more fields from the column on the left and click the single Right arrow to move them to the column on the right. To click more than one field at a time, hold down the Ctrl key and click the desired fields. ►



4. Type a name for the new analysis in the text box, type any comments in the Comments text box, then click Finish.

The Attributes of Spatial Overlay dialog box opens.



Attributes of Spatial Overlay													
Shape	Addr_srl	City_srl	State_srl	Zip_srl	Zip_srl	Latitude	Longitude	MATCH_CODE	LOC_CODE	CMS	NAME	ADDRESS	ZIP
Point	100 Henderson Ave	San Francisco	CA	94115	3228	37.73375	-122.437037	SE0	AS0	1	Customer 1	100 Henderson Ave	94115
Point	100 Larkin St	San Francisco	CA	94102	3720	37.78623	-122.46307	SP0	AS0	2	Customer 2	100 Larkin St	94102
Point	1000 Turk St	San Francisco	CA	94102	3186	37.791376	-122.425504	SE0	AS0	3	Customer 3	1000 Turk St	94102
Point	104 Florida Ave	San Francisco	CA	94110	4831	37.747411	-122.407345	SE0	AS0	4	Customer 4	104 Florida Ave	94110
Point	1043 Baker St	San Francisco	CA	94115	3812	37.78085	-122.441977	SE0	AS0	5	Customer 5	1043 Baker St	94115
Point	1050 Divisadero St	San Francisco	CA	94115	4489	37.77938	-122.43668	SE0	AS0	6	Customer 6	1050 Divisadero St	94115
Point	1050 Florida St	San Francisco	CA	94110	3437	37.75514	-122.41592	SE0	AS0	7	Customer 7	1050 Florida St	94110
Point	1050 Fulton St	San Francisco	CA	94117	1688	37.77426	-122.43412	SE0	AS0	8	Customer 8	1050 Fulton St	94117
Point	1050 Hayes St	San Francisco	CA	94117	1687	37.75516	-122.43768	SE0	AS0	9	Customer 9	1050 Hayes St	94117
Point	1050 Page St	San Francisco	CA	94117	2219	37.772136	-122.43812	SE0	AS0	10	Customer 10	1050 Page St	94117
Point	100 Trinity Ave	San Francisco	CA	94110	4320	37.745164	-122.431203	SE0	AS0	11	Customer 11	100 Trinity Ave	94110
Point	11 Western Shore Ln	San Francisco	CA	94110	3719	37.70273	-122.42646	SE0	AS0	12	Customer 12	11 Western Shore Ln	94110
Point	1150 Eddy St	San Francisco	CA	94109	7673	37.782236	-122.425771	SE0	AS0	13	Customer 13	1150 Eddy St	94109
Point	1126 Church St	San Francisco	CA	94114	3404	37.752899	-122.427581	SE0	AS0	14	Customer 14	1126 Church St	94114
Point	1129 Mission St	San Francisco	CA	94103	1514	37.77874	-122.41148	SE0	AS0	15	Customer 15	1129 Mission St	94103
Point	1150 Buchanan St	San Francisco	CA	94115	4889	37.780748	-122.428912	SE0	AS0	16	Customer 16	1150 Buchanan St	94115
Point	1150 Divisadero St	San Francisco	CA	94115	3889	37.78016	-122.43866	SE0	AS0	17	Customer 17	1150 Divisadero St	94115
Point	1150 Filmore St	San Francisco	CA	94115	4712	37.78086	-122.432065	SE0	AS0	18	Customer 18	1150 Filmore St	94115
Point	1150 Fulton St	San Francisco	CA	94117	1610	37.777226	-122.435712	SE0	AS0	19	Customer 19	1150 Fulton St	94117
Point	1150 Gough St	San Francisco	CA	94109	6687	37.783911	-122.424365	SE0	AS0	20	Customer 20	1150 Gough St	94109
Point	1150 Meador Ave	San Francisco	CA	94117	2915	37.77687	-122.44413	SE0	AS0	21	Customer 21	1150 Meador Ave	94117
Point	1150 McAllister St	San Francisco	CA	94115	4718	37.778826	-122.431012	SE0	AS0	22	Customer 22	1150 McAllister St	94115
Point	1150 Palco Ave	San Francisco	CA	94124	3248	37.729279	-122.362482	SE0	AS0	23	Customer 23	1150 Palco Ave	94124
Point	1150 Turk St	San Francisco	CA	94115	4823	37.781026	-122.438962	SE0	AS0	24	Customer 24	1150 Turk St	94115
Point	1150 Valencia St	San Francisco	CA	94110	3069	37.75444	-122.439224	SE0	AS0	25	Customer 25	1150 Valencia St	94110
Point	1150 Van Ness Ave	San Francisco	CA	94109	6937	37.78311	-122.421365	SE0	AS0	26	Customer 26	1150 Van Ness Ave	94109
Point	1180 Chicago Ave	San Francisco	CA	94112	37	37.71875	-122.445114	SE0	AS0	27	Customer 27	1180 Chicago Ave	94112
Point	1200 Divisadero St	San Francisco	CA	94112	1434	37.77289	-122.430281	SE0	AS0	28	Customer 28	1200 Divisadero St	94112
Point	1200 Divisadero St	San Francisco	CA	94109	7630	37.78227	-122.42583	SE0	AS0	29	Customer 29	1200 Divisadero St	94109
Point	122 Van Ness Ave	San Francisco	CA	94109	1640	37.742891	-122.444226	SE0	AS0	30	Customer 30	122 Van Ness Ave	94109
Point	1221 Bush St	San Francisco	CA	94109	5788	37.788973	-122.417419	SE0	AS0	31	Customer 31	1221 Bush St	94109
Point	1225 Hayes St	San Francisco	CA	94117	1687	37.75516	-122.43768	SE0	AS0	32	Customer 32	1225 Hayes St	94117
Point	125 Arguello Blvd	San Francisco	CA	94116	1404	37.78088	-122.44646	SE0	AS0	33	Customer 33	125 Arguello Blvd	94116
Point	125 Beaumont Ave	San Francisco	CA	94118	4388	37.779485	-122.44473	SE0	AS0	34	Customer 34	125 Beaumont Ave	94118
Point	125 Mission Ave	San Francisco	CA	94103	2401	37.73375	-122.444698	SE0	AS0	35	Customer 35	125 Mission Ave	94103
Point	154 Divisadero Ave	San Francisco	CA	94115	3228	37.73375	-122.437037	SE0	AS0	36	Customer 36	154 Divisadero Ave	94115

## Find similar

The Find Similar tool ranks trade areas based on similarity defined by a number of variables you select.

### See Also

See Chapter 11, 'Analysis', for more information on the Find Similar tool.

1. Click the Business Analyst drop-down menu and click Tools, then click Find Similar.

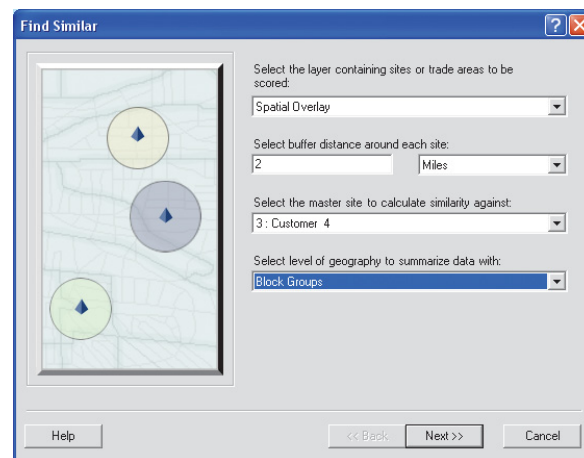
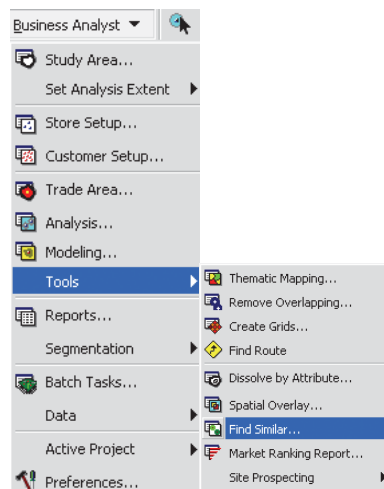
The Find Similar Wizard opens.

2. Click the first drop-down menu and click the layer containing sites or trade areas to be scored.

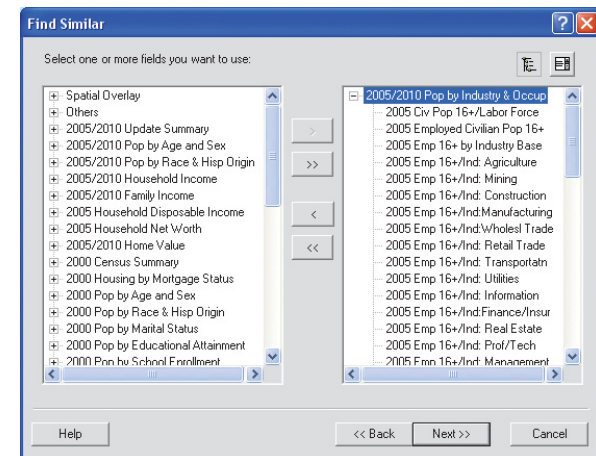
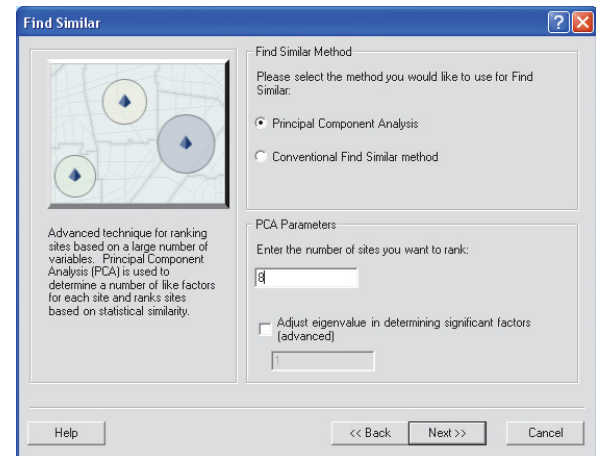
Choose the buffer distance around each site. To do this, type a value in the text box, then click the drop-down menu and click the distance units.

Choose the master site to calculate similarity against. To do this, click the drop-down menu and choose from the list.

Choose the level of geography to summarize data with. To do this, click the drop-down menu and choose from the list, then click Next. ►



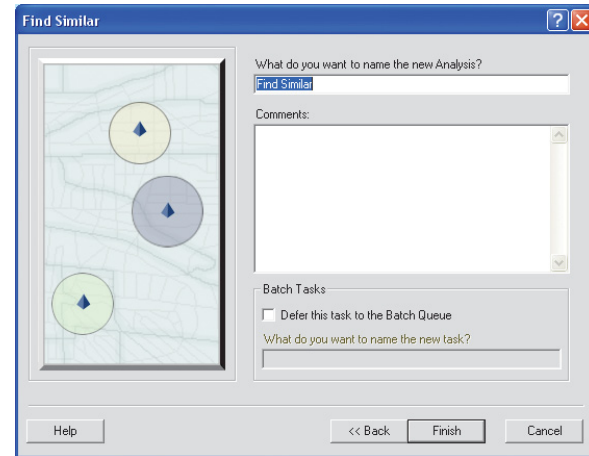
3. Choose the method you want to use for Find Similar. Click Principal Component Analysis or Conventional Find Similar method.
4. Set the PCA Parameters. Type a value in the text box to set the number of sites you want to rank.
5. Click one or more fields you want to use. To click more than one field at a time, hold down the Ctrl key and click the desired fields. ►





6. Type a name for the new analysis in the text box, type any comments in the Comments text box, then click Finish.

Your results are displayed on the map.

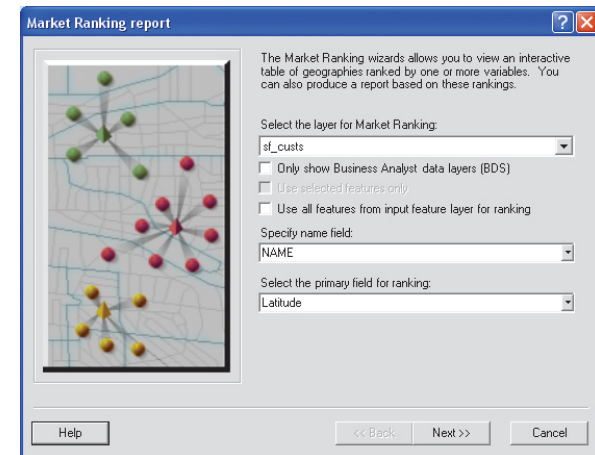
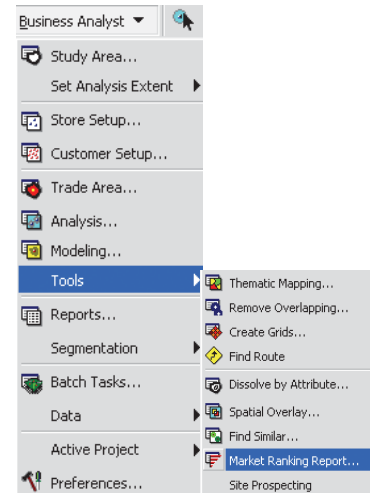


# Market Ranking report

The Market Ranking report Wizard allows you to view an interactive table of geographies ranked by one or more variables.

1. Click the Business Analyst drop-down menu and click Tools, then click Market Ranking Report.
2. Click the first drop-down menu and click the layer for market ranking. Click the second drop-down menu to specify the name field, click the last drop-down menu and click the primary field for ranking, then click Next. ▶

The Market Ranking report Wizard opens.



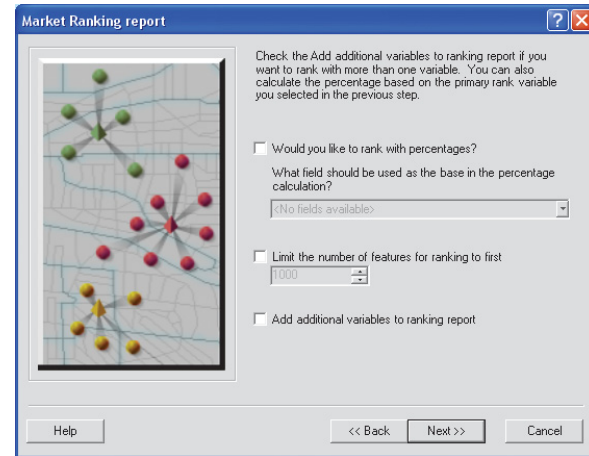
3. Check the Would you like to rank with percentages? check box to calculate the percentage based on the primary rank variable you selected in step 2, then click the drop-down menu and click the field you want to use as the base in the percentage calculation.

To limit the number of features that rank first, check the Limit the number of features for ranking to first check box, then click a value from the drop-down menu.

Click Add additional variables to ranking report to rank with more than one variable. Click the variables you want to add from the left column, then click the Right arrow button to move them to the right column.

When you're finished making your selections, click Next.

4. The Market Ranking report is displayed and populated with values. Click Next. ►



Market Ranking report

Check the Add additional variables to ranking report if you want to rank with more than one variable. You can also calculate the percentage based on the primary rank variable you selected in the previous step.

☐ Would you like to rank with percentages?

What field should be used as the base in the percentage calculation?

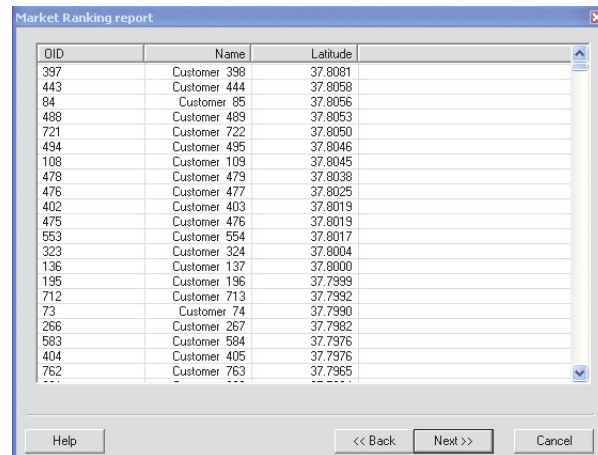
<No fields available>

☐ Limit the number of features for ranking to first

1000

☐ Add additional variables to ranking report

Help << Back Next >> Cancel

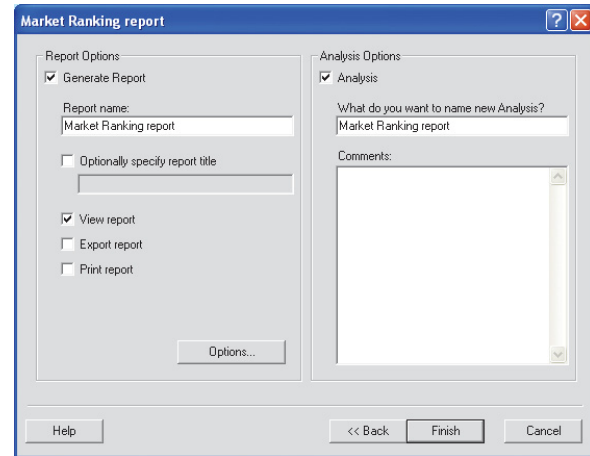


Market Ranking report

OID	Name	Latitude
397	Customer 398	37.8081
443	Customer 444	37.8058
84	Customer 85	37.8056
488	Customer 489	37.8053
721	Customer 722	37.8050
494	Customer 495	37.8046
108	Customer 109	37.8045
478	Customer 479	37.8038
476	Customer 477	37.8025
402	Customer 403	37.8019
475	Customer 476	37.8019
553	Customer 554	37.8017
323	Customer 324	37.8004
136	Customer 137	37.8000
195	Customer 196	37.7999
712	Customer 713	37.7992
73	Customer 74	37.7990
266	Customer 267	37.7982
583	Customer 584	37.7976
404	Customer 405	37.7976
762	Customer 763	37.7965
...	...	...

Help << Back Next >> Cancel

5. Click Generate Report; type a report name in the text box and optionally a report title; choose if you want to view, export, or print the report; then click Finish.



The image shows a software dialog box titled "Market Ranking report". It is divided into two main sections: "Report Options" on the left and "Analysis Options" on the right. In the "Report Options" section, the "Generate Report" checkbox is checked. Below it, the "Report name:" text box contains the text "Market Ranking report". There is also an unchecked checkbox for "Optionally specify report title" with an empty text box below it. Further down, there are three more checkboxes: "View report" (checked), "Export report" (unchecked), and "Print report" (unchecked). An "Options..." button is located at the bottom right of this section. The "Analysis Options" section has a checked "Analysis" checkbox. Below it, the text "What do you want to name new Analysis?" is followed by a text box containing "Market Ranking report". A large "Comments:" text area is positioned below this. At the bottom of the dialog, there are three buttons: "Help", "<< Back", and "Finish", followed by a "Cancel" button.

## Site prospecting

This section shows you how to perform site prospecting in a number of different ways, such as using the Site Prospecting tool, performing site prospecting from the Business Analyst drop-down menu, and using the Site Prospecting context menu.

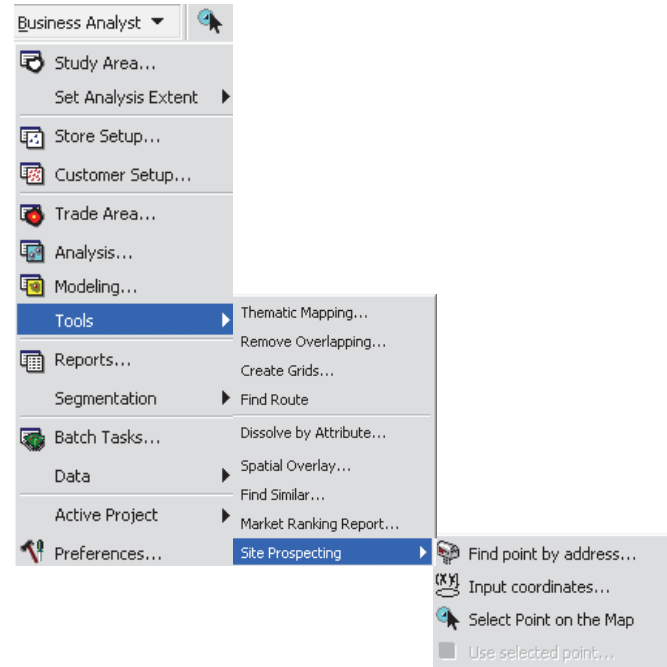
You can perform *site prospecting* by clicking the Site Prospecting tool on the Business Analyst tools menu, by clicking the Business Analyst drop-down menu and selecting Site Prospecting, or by using the ArcMap Find tool.

When you select Site Prospecting under the Business Analyst drop-down menu, you have the option to perform site prospecting by inputting an address, inputting coordinates, selecting a point on the map, or using a selected point. When you click the Site Prospecting tool on the Business Analyst toolbar, you can click directly on the map or you can right-click anywhere on the map to open a context menu with the option to perform site prospecting by using a selected point or by inputting an address or coordinates.

1. Click the Business Analyst drop-down menu and click Tools, then click Site Prospecting to expand the menu. Click the Site Prospecting command you want to use: Find point by address, Input coordinates, Select Point on the Map, or Use selected point.

You can also click the Site Prospecting tool on the Business Analyst toolbar to select a point on the map.

The next steps depend on which site prospecting option you selected above. The following sections provide instructions for each option. ►



Site Prospecting tool

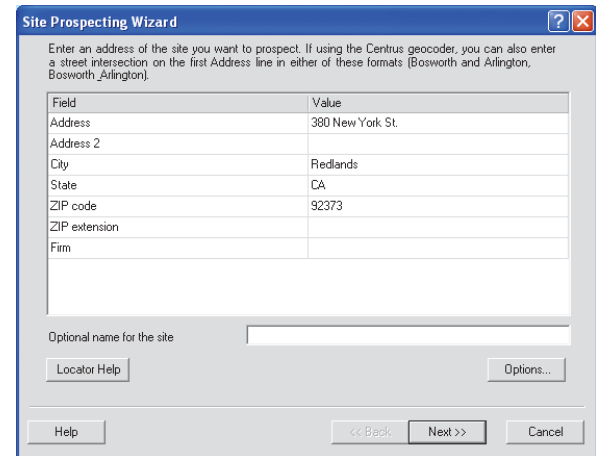
## Tip

### Centrus geocoding options

Click the *Options* button on the *Site Prospecting Wizard* address input screen; the *Centrus Geocoding Options* dialog box opens. This dialog box allows you to view and change settings and add or remove outputs.

## Find point by address

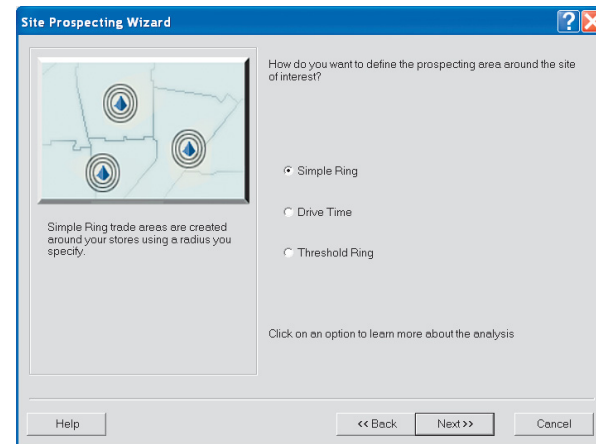
1. Click Find point by address from the Site Prospecting menu; the Site Prospecting Wizard opens. Type the address of the site you want to prospect, then click Next.
  2. Click Simple Ring, Drive Time, or Threshold Ring to define the prospecting area around the site you want to prospect, then click Next.
  3. This step depends on which option you selected in step 2.
- Each of these analyses is described in detail in chapter 7.
- These options are described in detail on the following pages. ►



The Site Prospecting Wizard dialog box is shown with the title bar 'Site Prospecting Wizard'. The main text area contains instructions: 'Enter an address of the site you want to prospect. If using the Centrus geocoder, you can also enter a street intersection on the first Address line in either of these formats (Bosworth and Arlington, Bosworth\_Arlington)'. Below this is a table with two columns: 'Field' and 'Value'. The table contains the following data:

Field	Value
Address	380 New York St.
Address 2	
City	Redlands
State	CA
ZIP code	92373
ZIP extension	
Firm	

Below the table is a text field labeled 'Optional name for the site'. At the bottom are four buttons: 'Locator Help', 'Options...', 'Help', and a set of navigation buttons: '<< Back', 'Next >>', and 'Cancel'.

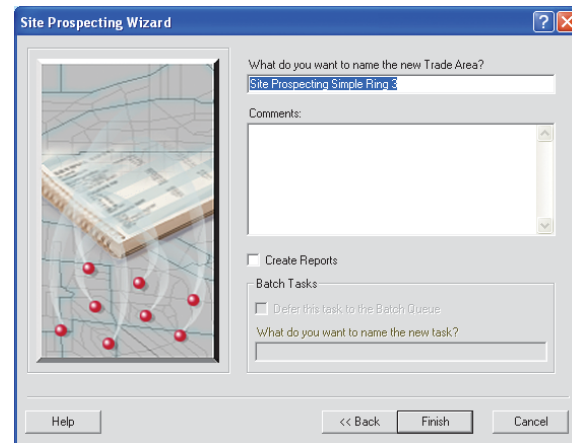
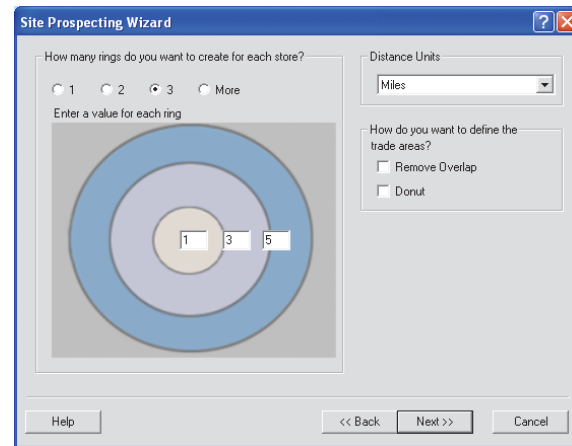


The Site Prospecting Wizard dialog box is shown with the title bar 'Site Prospecting Wizard'. The main text area contains the question: 'How do you want to define the prospecting area around the site of interest?'. Below this are three radio button options: 'Simple Ring' (selected), 'Drive Time', and 'Threshold Ring'. To the left of these options is a map showing three blue circular trade areas around points on a street network. Below the map is a text box that says: 'Simple Ring trade areas are created around your stores using a radius you specify.' At the bottom right, there is a link: 'Click on an option to learn more about the analysis'. At the bottom are four buttons: 'Help', '<< Back', 'Next >>', and 'Cancel'.

If you selected **Simple Ring**

- a. Click the number of rings you want to create for each store, then type a value for each ring in the text boxes.
- b. Click the distance units from the drop-down menu, click Remove Overlap or Donut to define the trade areas, then click Next.
- c. Type a name for the new trade area, type any comments, then click Finish.

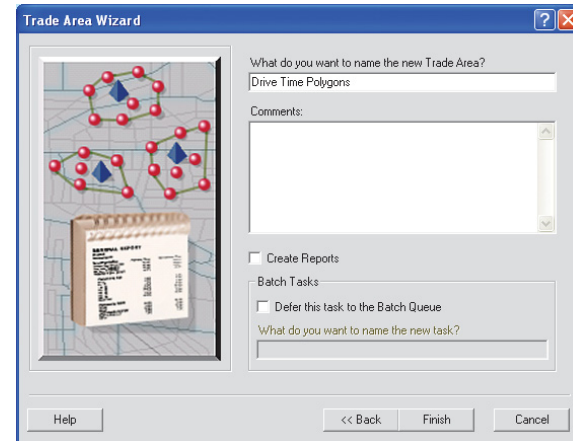
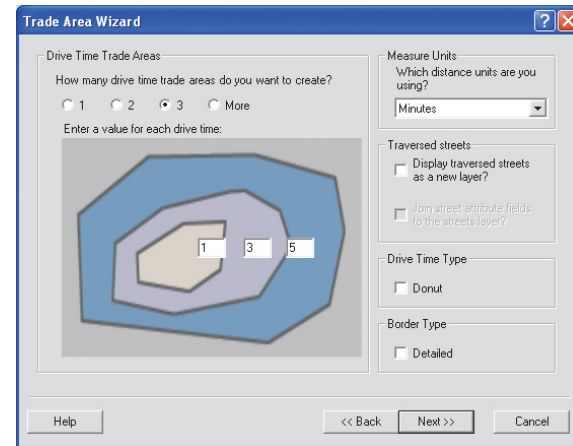
The results are displayed on the map. ►



If you selected **Drive Time**

- Click the number of drive-time trade areas you want to create, then type a value for each drive time in the text boxes.
- Click the Measure Units drop-down menu and click the distance units you want to use.
- Optionally, complete the Traversed streets and Drive Time Type sections, then click Next.
- Type a name for the new trade area, type any comments, then click Finish.

The results are displayed on the map. ►

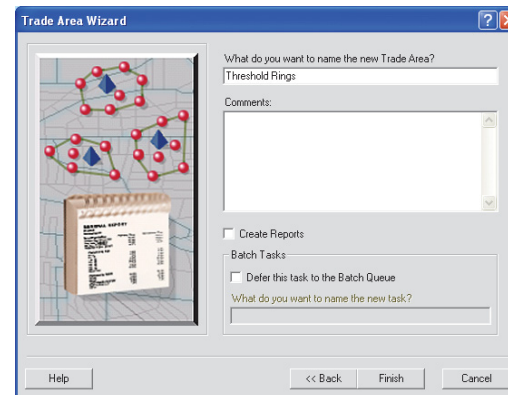
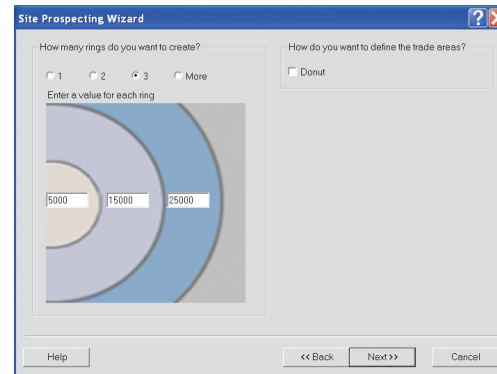
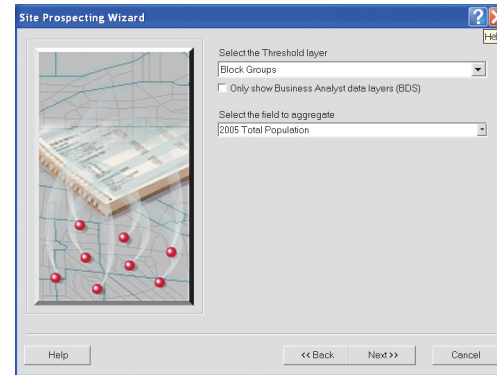




If you selected **Threshold Ring**

- a. Click the threshold layer from the drop-down menu, choose the field to aggregate from the second drop-down menu, and click Next.
- b. Click the number of rings you want to create, and type a value for each ring in the text boxes. You can check the Donut box to define the trade areas. Click Next.
- c. Type a name for the new trade area, type any comments, then click Finish.

The results are displayed on the map.



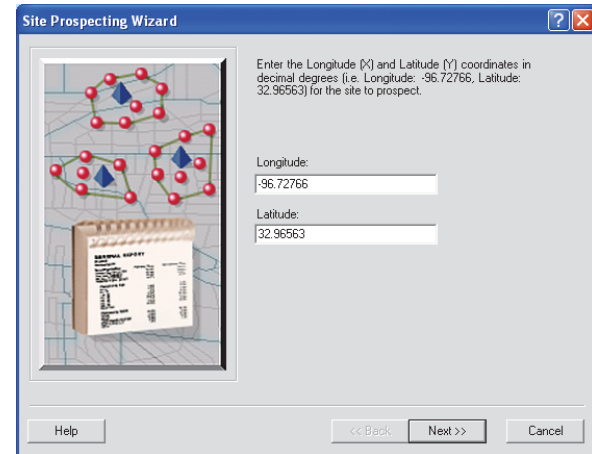
## Input coordinates

1. Click the Business Analyst drop-down menu and click Tools, then click Site Prospecting to expand the menu and click Input coordinates.

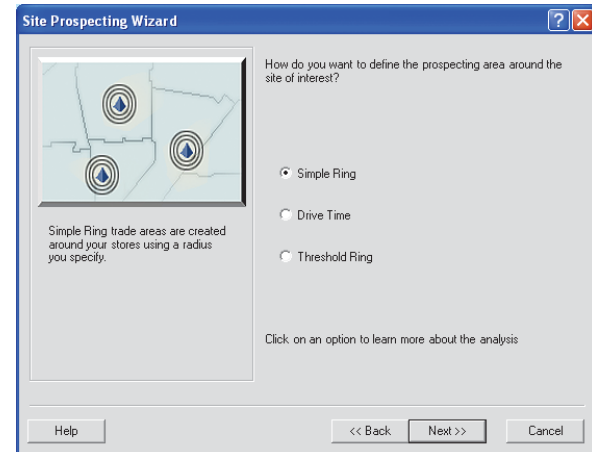
The Site Prospecting Wizard opens.

2. Type the longitude and latitude in the text boxes, then click Next.
3. Click Simple Ring, Drive Time, or Threshold Ring to define the prospecting area around the site you want to prospect.

4. This step depends on which option you selected in step 3. These options are described in detail on the following pages. ►



The Site Prospecting Wizard dialog box is shown. On the left is a map with red dots and blue diamonds. Below the map is a small image of a business analyst report. On the right, there is a text area with instructions: "Enter the Longitude (X) and Latitude (Y) coordinates in decimal degrees (i.e. Longitude: -96.72766, Latitude: 32.96563) for the site to prospect." Below this are two text input fields: "Longitude:" with the value "-96.72766" and "Latitude:" with the value "32.96563". At the bottom are buttons for "Help", "<< Back", "Next >>", and "Cancel".

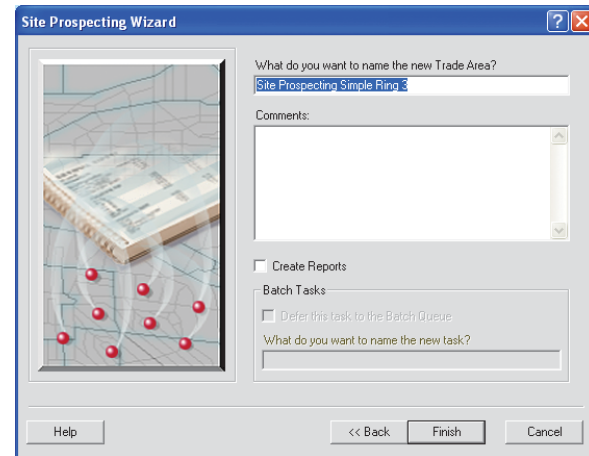
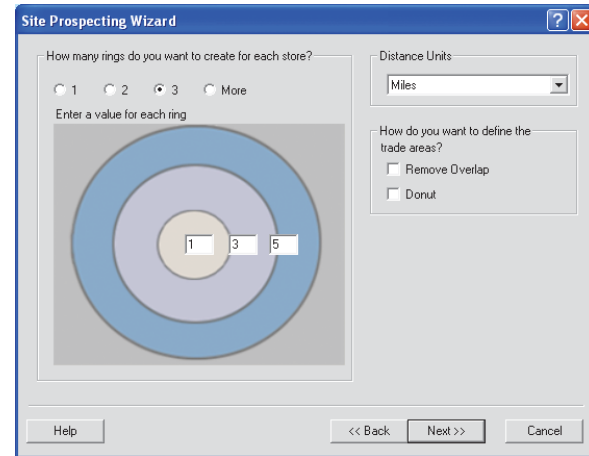


The Site Prospecting Wizard dialog box is shown. On the left is a map with three concentric circles around a point. Below the map is a text box: "Simple Ring trade areas are created around your stores using a radius you specify." On the right, there is a text area with the question: "How do you want to define the prospecting area around the site of interest?" Below this are three radio button options: "Simple Ring" (selected), "Drive Time", and "Threshold Ring". At the bottom is a link: "Click on an option to learn more about the analysis". At the very bottom are buttons for "Help", "<< Back", "Next >>", and "Cancel".

If you selected **Simple Ring**

- Click the number of rings you want to create for each store, then type a value for each ring in the text boxes.
- Click the distance units from the drop-down menu, click Remove Overlap or Donut to define the trade areas, then click Next.
- Type a name for the new trade area, type any comments, then click Finish.

The results are displayed on the map. ►



If you selected **Drive Time**

- a. Click the number of drive-time trade areas you want to create, then type a value for each drive time in the text boxes.
- b. Click the Measure Units drop-down menu and click the distance units you want to use.
- c. Optionally, complete the Traversed streets and Drive Time Type sections, then click Next.
- d. Type a name for the new trade area, type any comments, then click Finish.

The results are displayed on the map. ►

The 'Trade Area Wizard' dialog box is shown in its first step, 'Drive Time Trade Areas'. It has a blue title bar with a question mark and a close button. The main area is divided into several sections. At the top, it asks 'How many drive time trade areas do you want to create?' with radio buttons for 1, 2, 3, and 'More'. Below this is a section titled 'Enter a value for each drive time:' which contains a map showing three concentric, irregular polygons. The innermost polygon is light yellow and labeled '1', the middle one is light blue and labeled '3', and the outermost one is dark blue and labeled '5'. To the right of the map are three sections: 'Measure Units' with a dropdown menu set to 'Minutes'; 'Traversed streets' with two checkboxes, 'Display traversed streets as a new layer?' and 'Join street attribute fields to the streets layer?'; and 'Drive Time Type' with a checkbox for 'Donut'. Below these is a 'Border Type' section with a checkbox for 'Detailed'. At the bottom are buttons for 'Help', '<< Back', 'Next >>', and 'Cancel'.

The 'Trade Area Wizard' dialog box is shown in its second step. The title bar remains the same. The main area is divided into two main sections. On the left is a map showing a network of streets with red dots at intersections and blue diamonds along the segments. Below the map is a small icon of a spiral-bound notebook. On the right, there is a text field for 'What do you want to name the new Trade Area?' containing the text 'Drive Time Polygons'. Below this is a large text area for 'Comments:'. At the bottom right, there are three sections: 'Create Reports' with a checkbox; 'Batch Tasks' with a checkbox 'Defer this task to the Batch Queue' and a text field 'What do you want to name the new task?'; and buttons for 'Help', '<< Back', 'Finish', and 'Cancel'.

If you selected **Threshold Ring**

- a. Click the threshold layer from the drop-down menu, choose the field to aggregate from the second drop-down menu, and click Next.
- b. Click the number of rings you want to create, and type a value for each ring in the text boxes. You can check the Donut box to define the trade areas. Click Next. ►

The Site Prospecting Wizard dialog box is shown. On the left is a map view with red dots representing potential sites. The main area contains the following controls:

- Select the Threshold layer:** A dropdown menu with "Block Groups" selected.
- ☐ Only show Business Analyst data layers (BDS)
- Select the field to aggregate:** A dropdown menu with "2005 Total Population" selected.

At the bottom are buttons for "Help", "<< Back", "Next >>", and "Cancel".

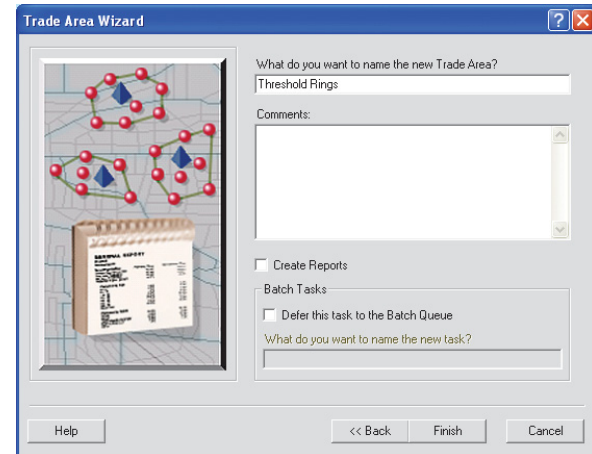
The Site Prospecting Wizard dialog box is shown at the next step. The controls are:

- How many rings do you want to create?:** Radio buttons for 1, 2, 3 (selected), and More.
- Enter a value for each ring:** Three text input boxes containing the values 5000, 15000, and 25000, corresponding to the three rings shown in the diagram.
- How do you want to define the trade areas?:** A checkbox for "Donut" which is currently unchecked.

At the bottom are buttons for "Help", "<< Back", "Next >>", and "Cancel".

- c. Type a name for the new trade area, type any comments, then click Finish.

The results are displayed on the map.



## Select point on the map

1. Click the Business Analyst drop-down menu and click Tools, then click Site Prospecting to expand the menu. Click Select Point on the Map.

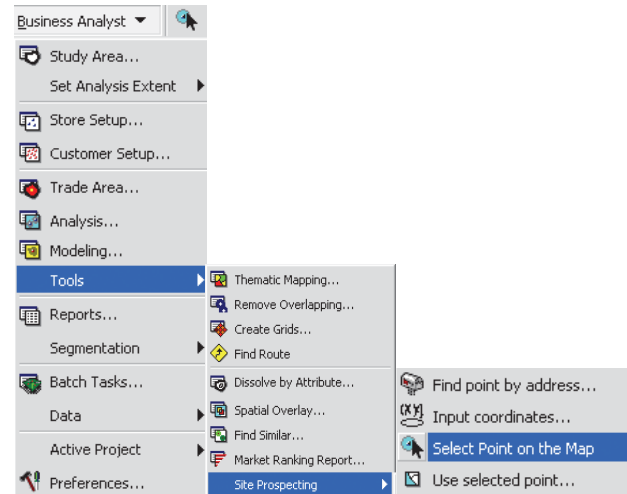
A black circle appears on the map. When you move the mouse, the circle moves with it.

2. Move the circle to the area you want to prospect and click once with your mouse.

The Site Prospecting Wizard opens.

3. Click Simple Ring, Drive Time, or Threshold Ring to define the area around the site you want to prospect.
4. This step depends on which option you selected in step 3.

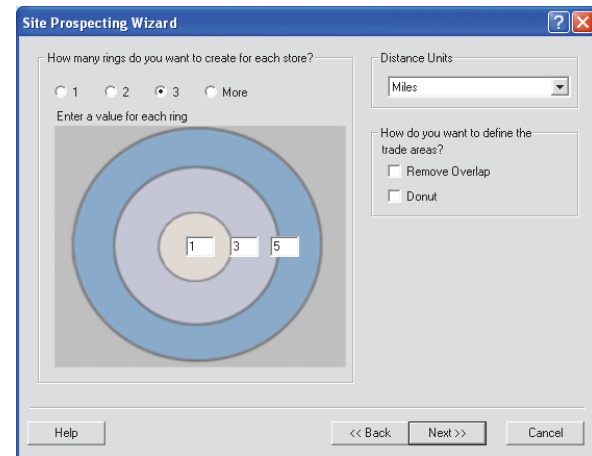
These options are described in detail on the following pages. ►



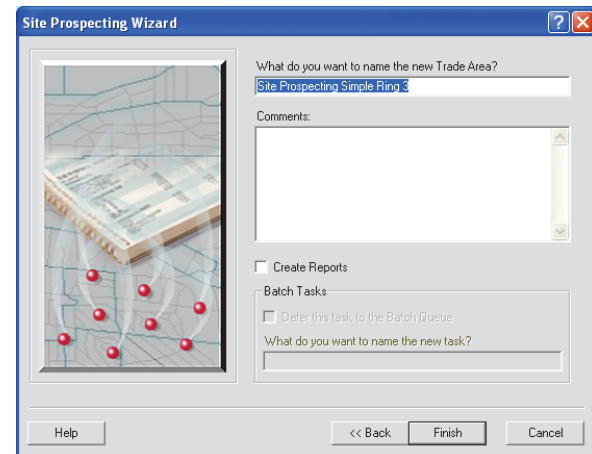
If you selected **Simple Ring**

- Click the number of rings you want to create for each store, then type a value for each ring in the text boxes.
- Click the distance units from the drop-down menu, click Remove Overlap or Donut to define the trade areas, then click Next.
- Type a name for the new trade area, type any comments, then click Finish.

The results are displayed on the map. ►



The 'Site Prospecting Wizard' dialog box is shown in its first step. It has a title bar with a question mark and a close button. The main area is divided into three sections. The top section, 'How many rings do you want to create for each store?', has radio buttons for 1, 2, 3, and More, with '3' selected. Below it is a text box labeled 'Enter a value for each ring' containing the numbers '1', '3', and '5' in separate boxes. The middle section shows a diagram of three concentric circles (yellow, light blue, and dark blue) representing the trade areas. The bottom right section, 'How do you want to define the trade areas?', has checkboxes for 'Remove Overlap' and 'Donut', both of which are unchecked. A 'Distance Units' dropdown menu is set to 'Miles'. At the bottom are buttons for 'Help', '<< Back', 'Next >>', and 'Cancel'.



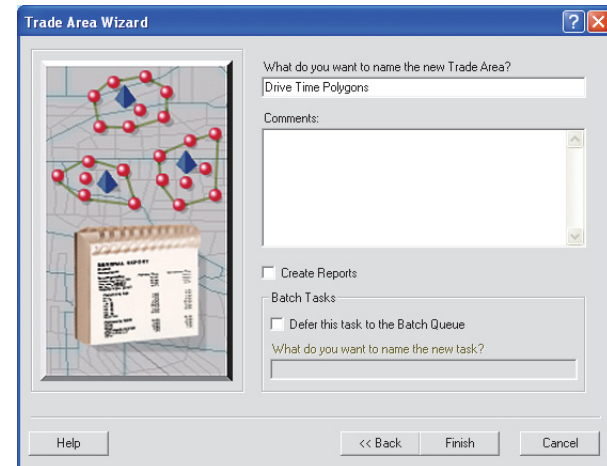
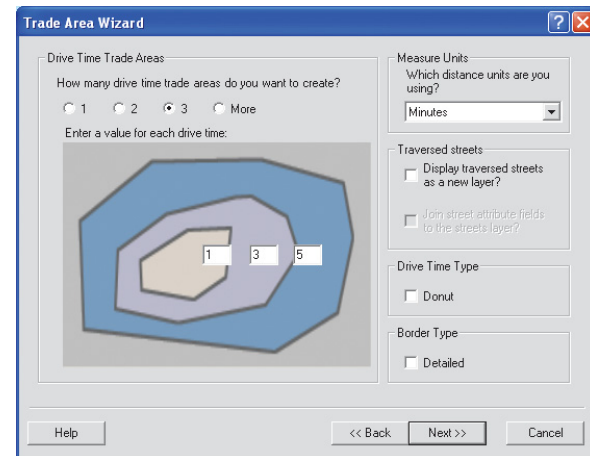
The 'Site Prospecting Wizard' dialog box is shown in its second step. It has a title bar with a question mark and a close button. The left side features a map with several red location pins and lines connecting them. The right side contains a text box for naming the trade area, with 'Site Prospecting Simple Ring 3' entered. Below this is a 'Comments' section with a text area. Further down are checkboxes for 'Create Reports' (unchecked) and 'Batch Tasks' (unchecked). Under 'Batch Tasks', there is a checkbox for 'Defer this task to the Batch Queue' (unchecked) and a text box for naming the new task. At the bottom are buttons for 'Help', '<< Back', 'Finish', and 'Cancel'.



If you selected **Drive Time**

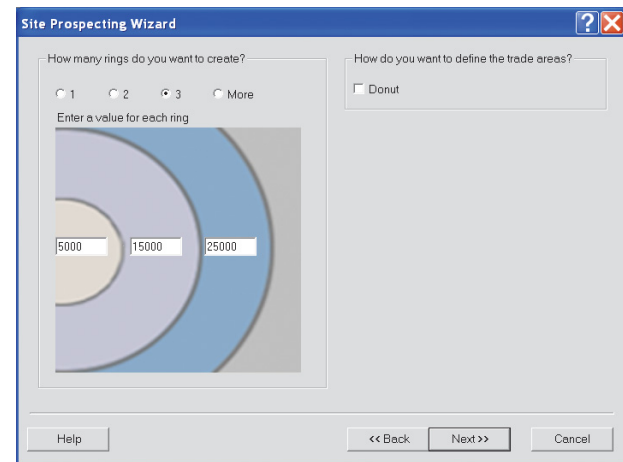
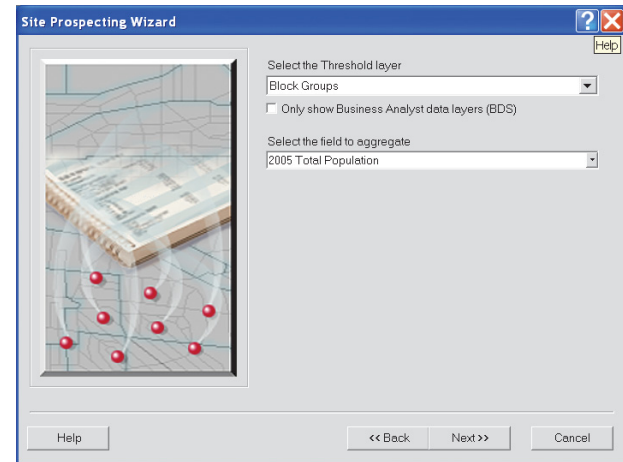
- Click the number of drive-time trade areas you want to create, then type a value for each drive time in the text boxes.
- Click the Measure Units drop-down menu and click the distance units you want to use.
- Optionally, complete the Traversed streets and Drive Time Type sections, then click Next.
- Type a name for the new trade area, type any comments, then click Finish.

The results are displayed on the map. ►



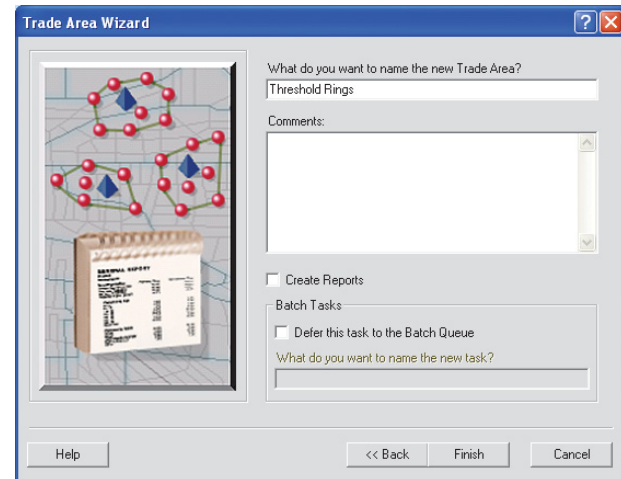
If you selected **Threshold Ring**

- a. Click the threshold layer from the drop-down menu, choose the field to aggregate from the second drop-down menu, and click Next.
- b. Click the number of rings you want to create, and type a value for each ring in the text boxes. You can check the Donut box to define the trade areas. Click Next. ►



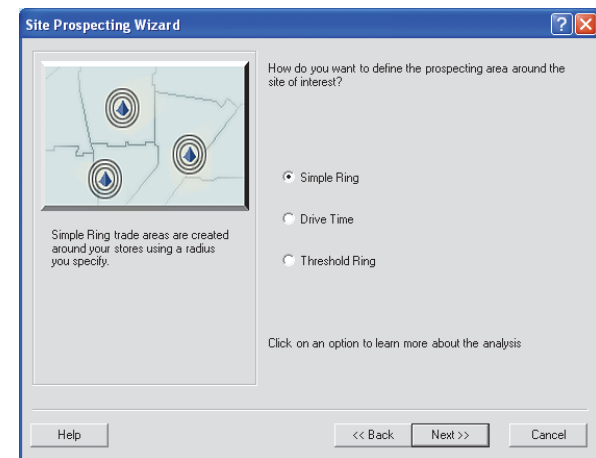
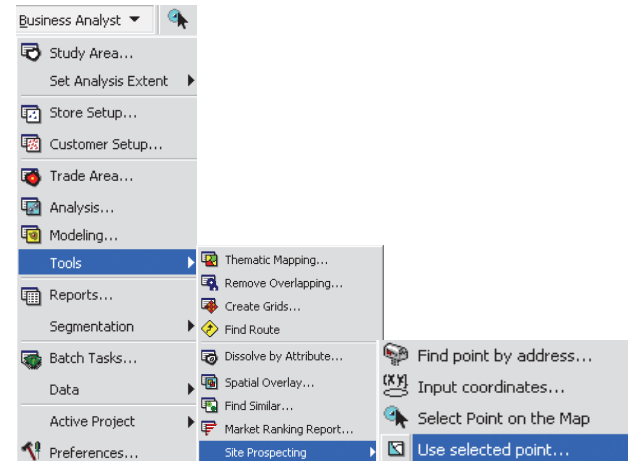
- c. Type a name for the new trade area, type any comments, then click Finish.

The results are displayed on the map.



## Use selected point

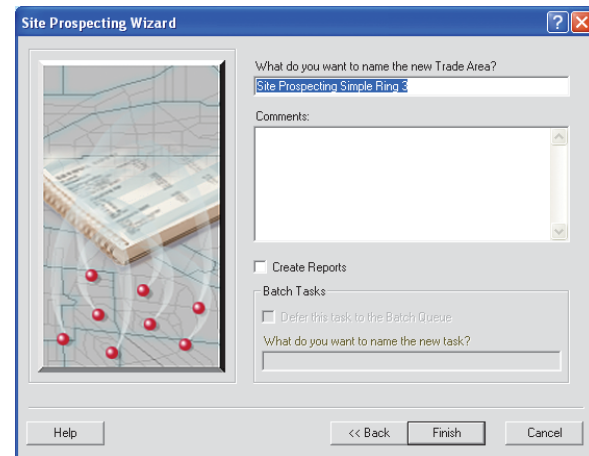
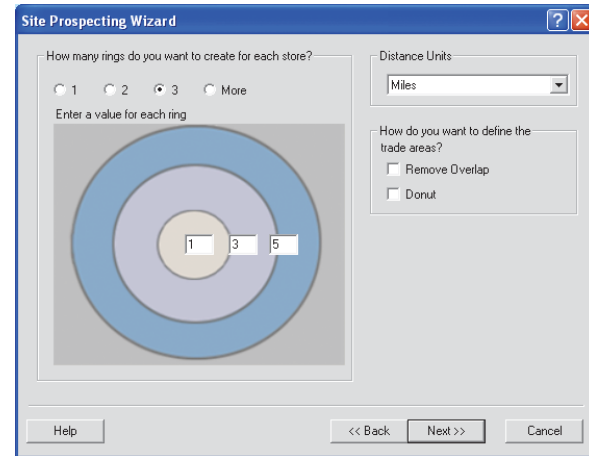
1. Click the Business Analyst drop-down menu and click Tools, then click Site Prospecting to expand the menu and click Use selected point. The Site Prospecting Wizard opens.
2. Click Simple Ring, Drive Time, or Threshold Ring to define the prospecting area around the site you want to prospect.
3. This step depends on which option you selected in step 2. These options are described in detail on the following pages. ►



If you selected **Simple Ring**

- a. Click the number of rings you want to create for each store, then type a value for each ring in the text boxes.
- b. Click the distance units from the drop-down menu, click Remove Overlap or Donut to define the trade areas, then click Next.
- c. Type a name for the new trade area, type any comments, then click Finish.

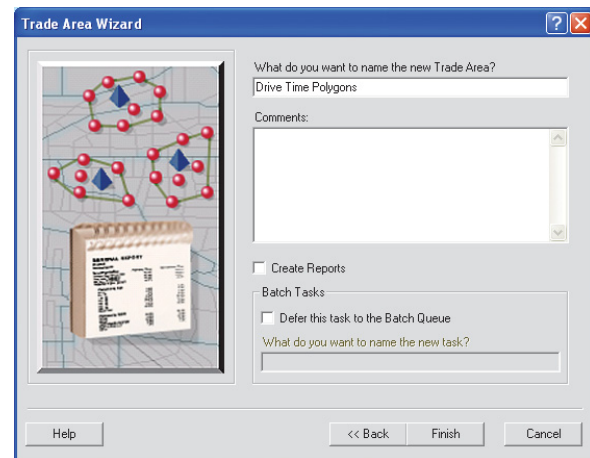
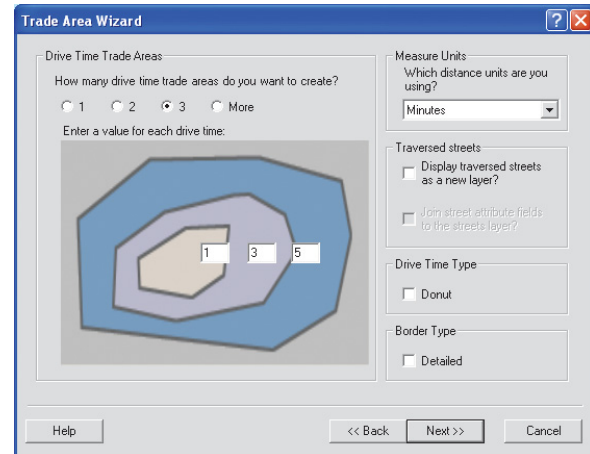
The results are displayed on the map. ►



If you selected **Drive Time**

- Click the number of drive-time trade areas you want to create, then type a value for each drive time in the text boxes.
- Click the Measure Units drop-down menu and click the distance units you want to use.
- Optionally, complete the Traversed streets and Drive Time Type sections, then click Next.
- Type a name for the new trade area, type any comments, then click Finish.

The results are displayed on the map. ►



If you selected **Threshold Ring**

- a. Click the threshold layer from the drop-down menu, choose the field to aggregate from the second drop-down menu, and click Next.
- b. Click the number of rings you want to create, and type a value for each ring in the text boxes. You can check the Donut box to define the trade areas. Click Next. ►

Site Prospecting Wizard

Select the Threshold layer  
Block Groups

☐ Only show Business Analyst data layers (BDS)

Select the field to aggregate  
2005 Total Population

Help << Back Next >> Cancel

Site Prospecting Wizard

How many rings do you want to create?  
☐ 1 ☐ 2 ☒ 3 ☐ More

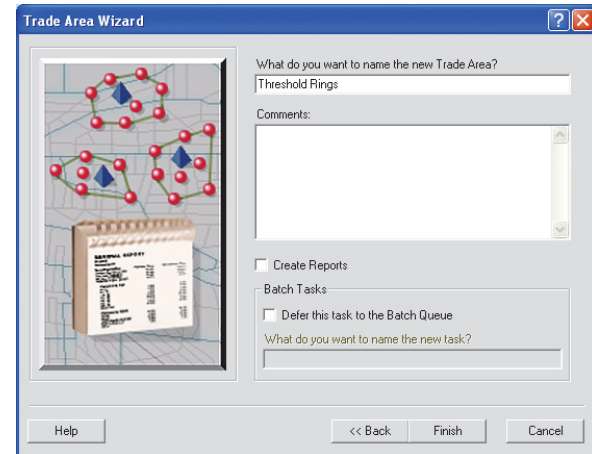
Enter a value for each ring  
5000 15000 25000

How do you want to define the trade areas?  
☐ Donut

Help << Back Next >> Cancel

- c. Type a name for the new trade area, type any comments, then click Finish.

The results are displayed on the map.





## Select the Site Prospecting tool on the Business Analyst toolbar

1. Click the Site Prospecting tool on the Business Analyst toolbar; a black circle appears on the map. When you move the mouse, the circle moves with it.
2. Move the circle to the area you want to prospect and click once with your mouse.  
The Site Prospecting Wizard opens.
3. Click Simple Ring, Drive Time, or Threshold Ring to define the area around the site you want to prospect.
4. This step depends on which option you selected in step 3.

These options are described in detail on the following pages. ►

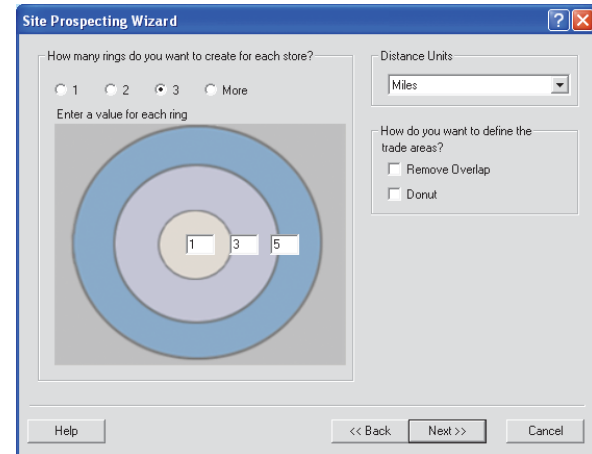


Site Prospecting tool

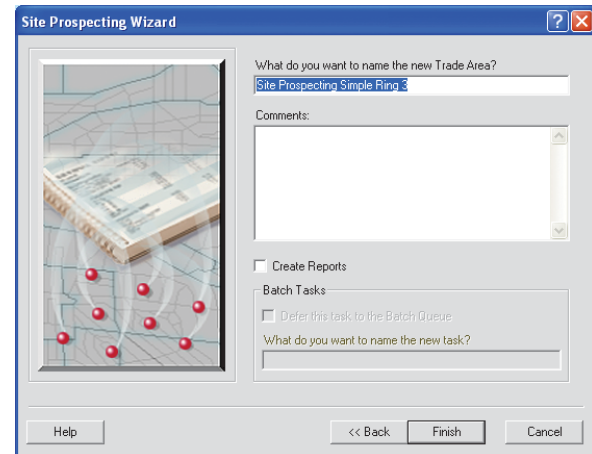
If you selected **Simple Ring**

- Click the number of rings you want to create for each store, then type a value for each ring in the text boxes.
- Click the distance units from the drop-down menu, click Remove Overlap or Donut to define the trade areas, then click Next.
- Type a name for the new trade area, type any comments, then click Finish.

The results are displayed on the map. ►



The 'Site Prospecting Wizard' dialog box is shown at Step 1. The title bar reads 'Site Prospecting Wizard'. The main question is 'How many rings do you want to create for each store?'. There are four radio buttons: '1', '2', '3' (which is selected), and 'More'. Below this is a section titled 'Enter a value for each ring' with a visual representation of three concentric rings. The innermost ring has a text box with the value '1', the middle ring has '3', and the outermost ring has '5'. To the right, there is a 'Distance Units' section with a dropdown menu currently set to 'Miles'. Below that is a section titled 'How do you want to define the trade areas?' with two checkboxes: 'Remove Overlap' and 'Donut', both of which are currently unchecked. At the bottom, there are buttons for 'Help', '<< Back', 'Next >>', and 'Cancel'.

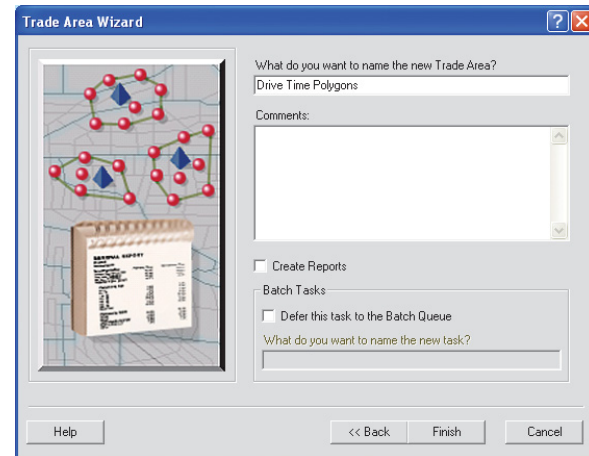
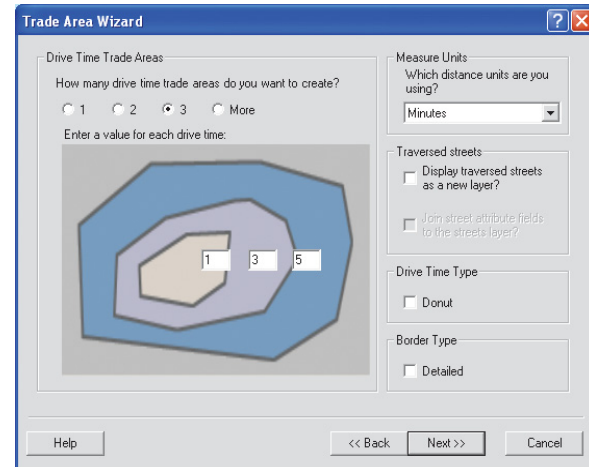


The 'Site Prospecting Wizard' dialog box is shown at Step 2. The title bar reads 'Site Prospecting Wizard'. On the left, there is a preview window showing a map with several red dots representing store locations and white lines representing trade area boundaries. The main question is 'What do you want to name the new Trade Area?'. The text 'Site Prospecting Simple Ring 3' is entered into the text box. Below this is a 'Comments:' section with a large text area. Further down, there is a checkbox for 'Create Reports' which is unchecked. Below that is a section titled 'Batch Tasks' with a checkbox 'Defer this task to the Batch Queue' which is also unchecked. At the bottom, there is a text box for 'What do you want to name the new task?'. At the very bottom, there are buttons for 'Help', '<< Back', 'Finish', and 'Cancel'.

If you selected **Drive Time**

- Click the number of drive-time trade areas you want to create, then type a value for each drive time in the text boxes.
- Click the Measure Units drop-down menu to choose the distance units you want to use.
- Optionally, complete the Traversed streets and Drive Time Type sections, then click Next.
- Type a name for the new trade area, type any comments, then click Finish.

The results are displayed on the map. ►



If you selected **Threshold Ring**

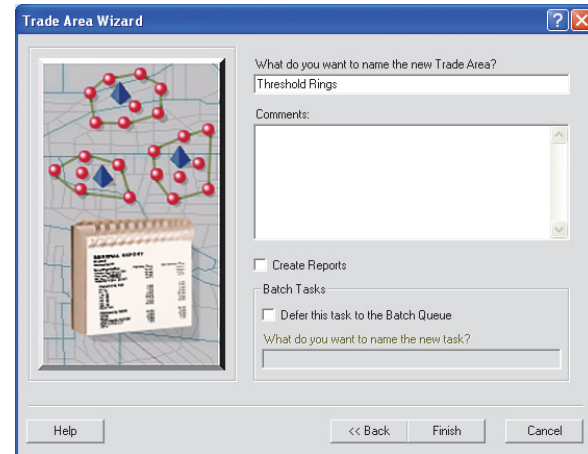
- a. Click the threshold layer from the drop-down menu, choose the field to aggregate from the second drop-down menu, and click Next.
- b. Click the number of rings you want to create, and type a value for each ring in the text boxes. You can check the Donut box to define the trade areas. Click Next. ►

The dialog box is titled "Site Prospecting Wizard". It features a map preview on the left showing a street grid with several red dots and white lines radiating from them. On the right, there are two drop-down menus. The first is labeled "Select the Threshold layer" and has "Block Groups" selected. Below it is a checkbox labeled "Only show Business Analyst data layers (BDS)" which is unchecked. The second drop-down menu is labeled "Select the field to aggregate" and has "2005 Total Population" selected. At the bottom, there are buttons for "Help", "<< Back", "Next >>", and "Cancel".

The dialog box is titled "Site Prospecting Wizard". It features a map preview on the left showing three concentric semi-circular rings. Below the map, there are three text input boxes with the values "5000", "15000", and "25000". On the right, there is a checkbox labeled "Donut" which is unchecked. At the bottom, there are buttons for "Help", "<< Back", "Next >>", and "Cancel".

- c. Type a name for the new trade area, type any comments, then click Finish.

The results are displayed on the map.



# Finding a route

## IN THIS CHAPTER

- **The Find Route Wizard**
- **Pointing and clicking on your map to assign stops**
- **Using a point layer or table of your stops**
- **Using addresses or ZIP Codes of your stops**
- **Using a point graphic or feature to assign stops**

When you want to know how to get somewhere, a map can provide a lot of information. But what about when you want to know the shortest way to get there? Particularly if your business has more than one stop to visit, it's often impossible to choose the most efficient route just by looking at a map.

The *Find Route Wizard* can help you:

- Find the shortest way to get somewhere or the shortest way to visit several locations.
- Determine the best sequence to visit those stops.
- Make a map showing the shortest travel route.
- Create a list of travel directions to use when driving a route.

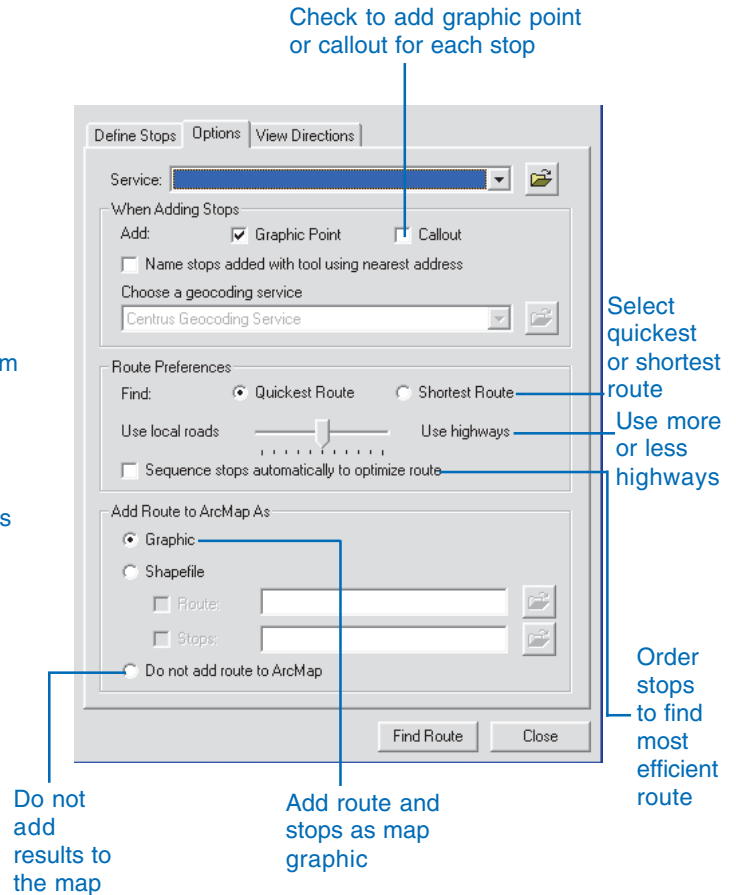
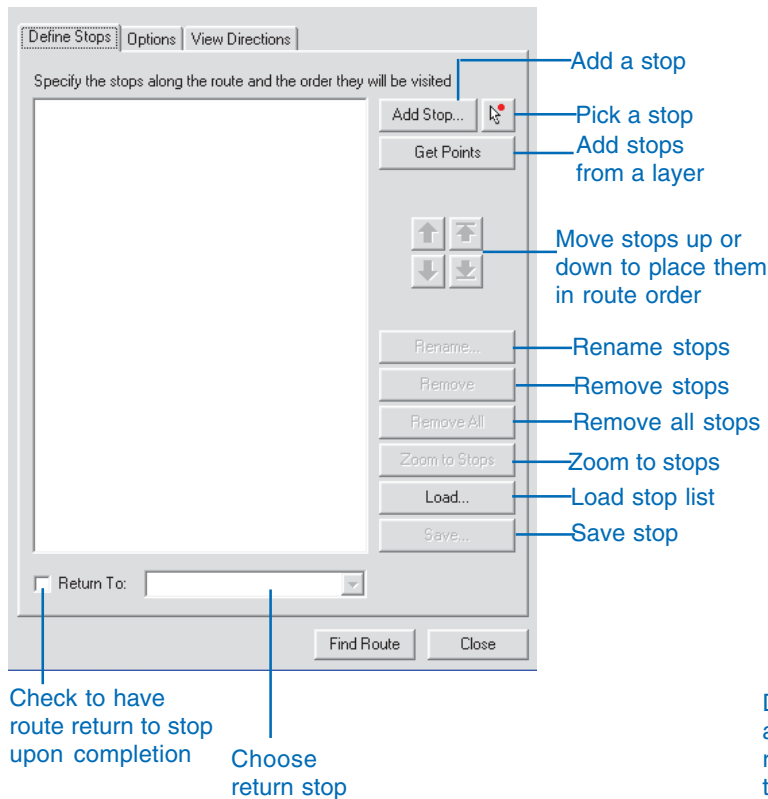
You can make a list of the stops to be calculated along your route in several ways: pointing and clicking on the map, entering the address and ZIP Code of the stop, typing the x,y coordinates of the stop, choosing a point layer of stops, selecting a point feature or features, selecting a point graphic or graphics, or selecting a table of stops that have been added to ArcMap. Use one method or a combination of several.

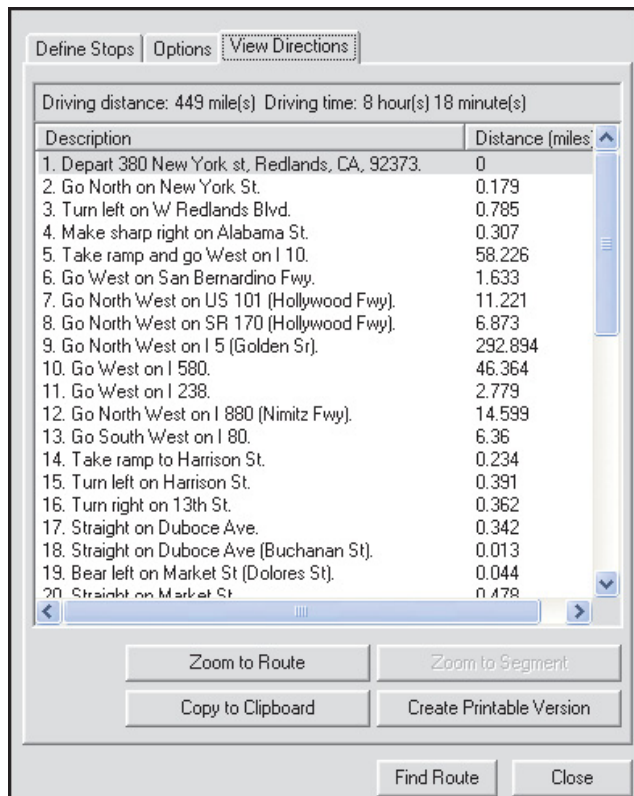
For the Find Route Wizard to be available, the Streets layer must be added to your map, but it does not have to be visible.

# The Find Route Wizard

The Find Route Wizard allows you to find routes between points using a variety of methods. You can find an optimized route, which is the shortest travel distance between the points you select, or you can find a route from point to point

based on an order you select. You can set the points, or stops, by clicking the map, by adding them from a layer, or by geocoding.





*The View Directions tab provides a listing of driving directions that can be printed, copied to the clipboard, or used to zoom to a particular route segment or the entire route.*



## Pointing and clicking on your map to assign stops

You can create stops by pointing and clicking on your study area. This is helpful if you don't know the exact address of the stop but can place it visually. The Find Route Wizard adds the stop to your map and gives you the address closest to where you clicked.

### Tip

#### Finding the best route

*If you want the order of the stops on the route to be determined by the shortest travel distance, click Sequence stops automatically to optimize route on the Options tab.*

### Tip

#### Renaming stops

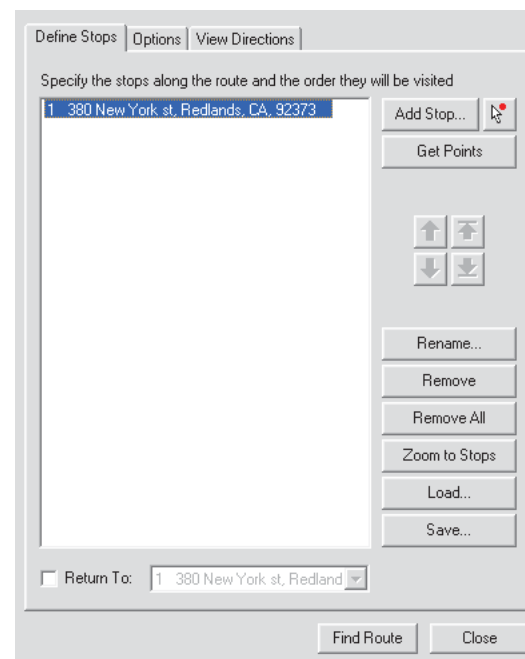
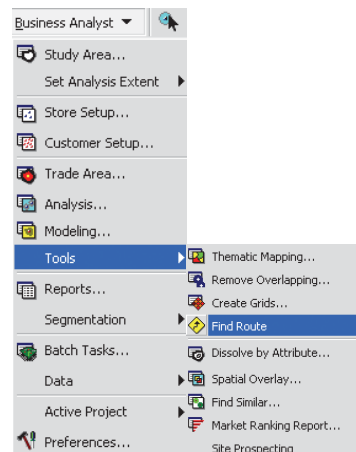
*After adding stops, you can rename them by clicking the stop and clicking the Rename button.*

### Tip

#### Calculating the route using a specific order of stops

*If you want the route calculated using a specific order of stops, make sure the list shows that order.*

1. Open the study area for which you want to find a route and zoom to the area of interest.
2. Click the Business Analyst drop-down menu and click Find Route.
3. Click the Define Stops tab.
4. Click the arrow button.
5. Click the map where you want to place a stop. A stop is added to the map, and the closest street address appears in the list.
6. Follow steps 3–5 to add more stops.
7. To move a stop up or down in the routing order list, click the stop in the list (the corresponding stop on the map is highlighted in yellow), then click the up or down arrow buttons.
8. To remove a stop, click the stop in the list, then click Remove.
9. If you want the route to end at one of the stops previously listed, check the Return To box, then select the stop from the drop-down menu.
10. Click Find Route.
11. Click the View Directions tab to see detailed directions for your route that includes distances in miles.



## Using a point layer or table of your stops

You can use a layer or table of points in your study area as stops. For example, you could use this option if you want to find the quickest delivery route that visits all your stores. Or perhaps you want to find the most efficient way for your sales representative to check in with the most valued customers in her territory. You could select those customers in the layer, then calculate the route.

### Tip

#### Finding the best route

*If you want the route drawn based on the shortest travel distance, check the box to Sequence stops automatically to optimize route.*

### Tip

#### Renaming stops

*After adding stops, you can rename them by clicking the stop and clicking the Rename button.*

1. Open the study area for which you want to find a route.
2. Click the Business Analyst drop-down menu and click Tools, then click Find Route.
3. Click the Define Stops tab, then click the Get Points button.

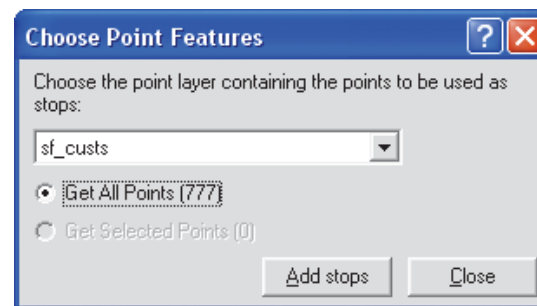
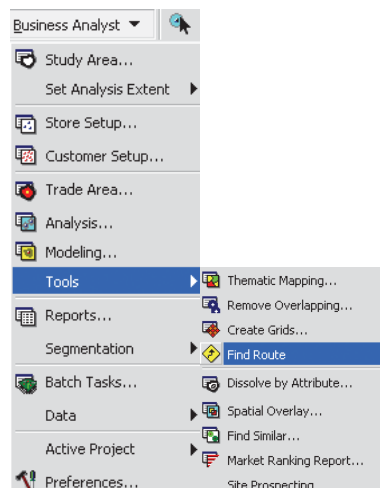
The Choose Point Features dialog box opens.

4. Click the drop-down arrow to choose the point layer containing the points to be used as stops.

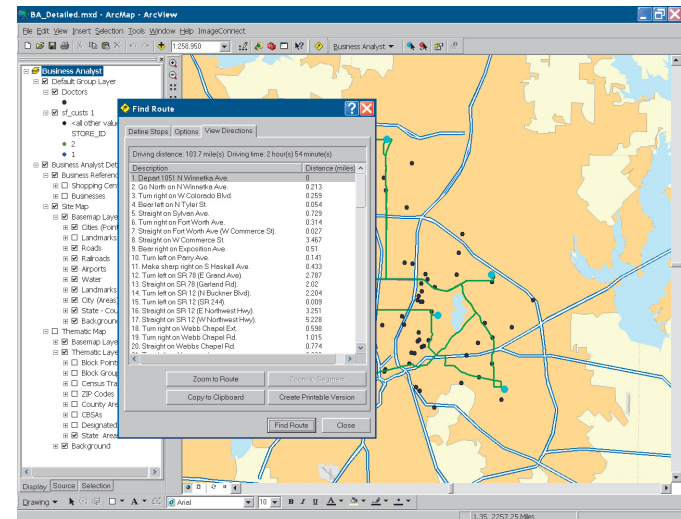
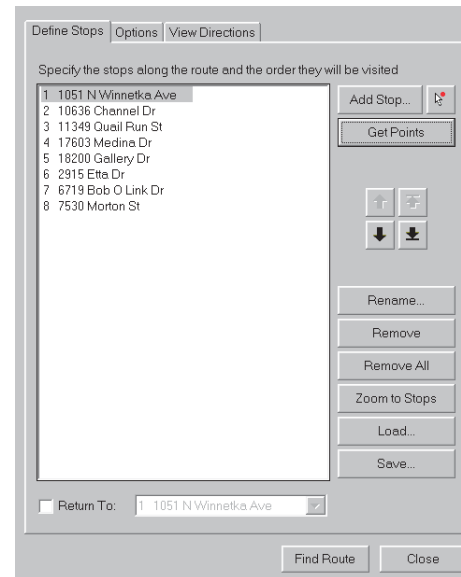
If you want the route to use every point in the layer, click Get All Points. If you want to use only selected stops, click Get Selected Points.

5. Click Add stops; the stop is added to the list of stops in the Find Route dialog box.
6. To move a stop up or down in the routing order list, click the stop in the list (the corresponding stop on the map is highlighted in yellow), then click the up or down arrow buttons.

If you want the route calculated using a specific order of stops, make sure the list shows that order. ►



7. To remove a stop, click the stop in the list and click Remove.
8. Click Find Route. The wizard calculates the route for you and draws it on the map.
9. Click the View Directions tab to see detailed directions for your route that includes distance in miles.



## Using addresses or ZIP Codes of your stops

If you know the addresses or ZIP Codes of your stops, the Find Route Wizard will place the stops on the map for you using the New Stop button.

### Tip

#### Finding the best route

*If you want the route drawn based on the shortest travel distance, click Sequence stops automatically to optimize route on the Options tab.*

### Tip

#### Renaming stops

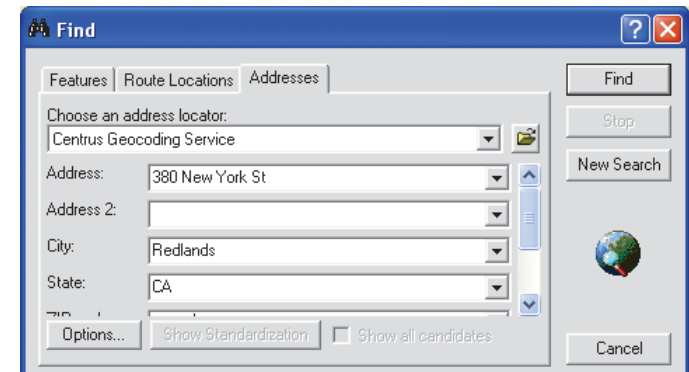
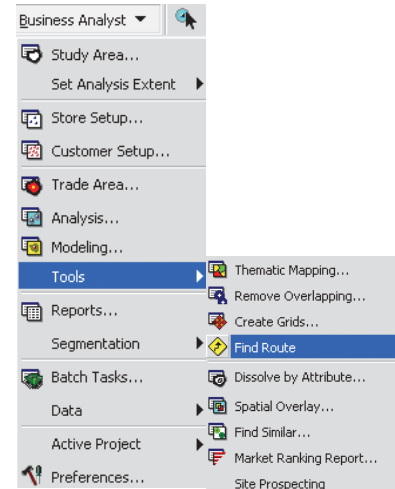
*After adding stops, you can rename them by clicking the stop and clicking the Rename button.*

### Tip

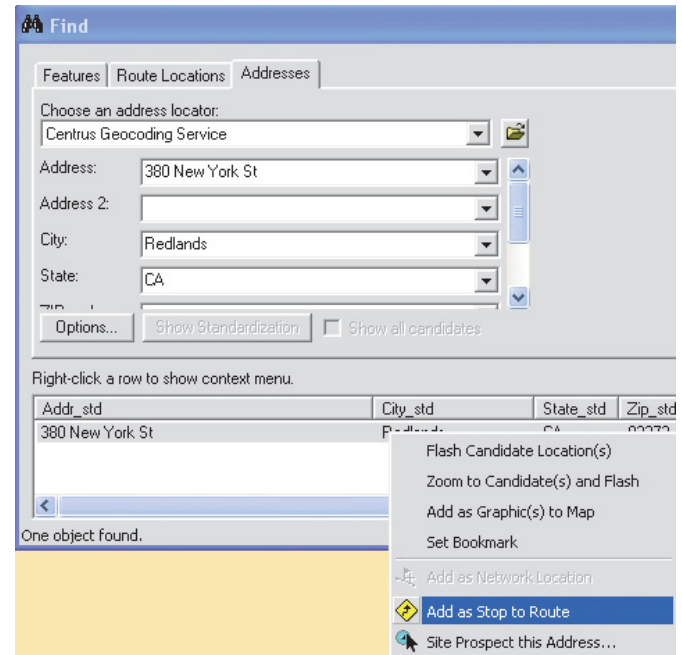
#### Adding stops

*Any stop added must be contained in the active analysis extent—that is, when using Current Extent of Map, the stop must be within the current map area.*

1. Open the study area for which you want to find a route.
2. Click the Business Analyst drop-down menu and click Find Route.
3. Click the Define Stops tab, then click the Add Stop button.
4. If using an address or ZIP Code, input address and ZIP, address/city/state, or ZIP. If you only enter the ZIP Code, the point will be located at the ZIP Code center.
5. Click Find.
6. Optionally, add additional stops to the list. ►



7. The address appears at the bottom of the dialog box. Right-click the address to view the context menu and choose Add as Stop to Route. The address is added as a stop to the list.
8. To move a stop up or down in the listed routing order, click the stop in the list (the corresponding stop on the map is highlighted in yellow), then click the up or down arrow buttons.  
  
If you want the route calculated using a specific order of stops, make sure the list shows that order.
9. To remove a stop, click the stop in the list and click Remove.
10. Click Find Route. The wizard calculates the route for you and draws it on the map.
11. Click the View Directions tab to see detailed directions for your route that includes distances in miles.



## Using a point graphic or feature to assign stops

You can use point graphics or point features as stops on your route. To do this, the graphic or feature must first be selected on the map or in the layer's attribute table.

### Tip

#### **Renaming stops**

*After adding stops, you can rename them by clicking the stop and clicking the Rename button.*

### Tip

#### **Finding the best route**

*Click **Quickest Route** to find the fastest travel time. Select **Shortest Route** to find the shortest straight-line distance.*

### Tip

#### **Selecting features and graphics**

*Point graphics that aren't part of a layer but are drawn on the map can be selected using the **Select Elements** tool on the **Drawing** toolbar. Point features can alternatively be selected by clicking the feature in the layer's attribute table. You can select multiple points by pressing **Ctrl** while clicking selections.*

1. Open the study area for which you want to find a route.
2. To select point features that are found in a layer, click the **Selection** menu and click **Set Selectable Layers** to choose the desired layer. You can then select features on the map using the **Select Features** button on the **ArcMap Tools** toolbar. Press the **Shift** key to select multiple points.

To select graphics, you must first use the **Drawing** tool located on the **Drawing** toolbar to draw one or more graphics on the map. To select graphics that are found in a layer, click the **Selection** menu and click **Set Selectable Layers** to choose the desired layer. You can then select graphics on the map using the **Select Elements** tool on the **ArcMap Tools** toolbar. Press the **Shift** key to select multiple graphics.

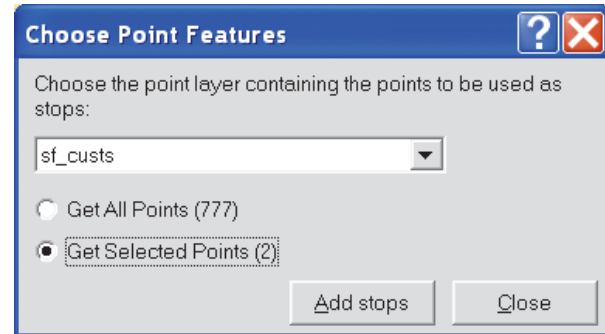
3. Click the **Business Analyst** drop-down menu and click **Tools**, then click **Find Route**. ►

The screenshot shows the 'Find Route' dialog box with the 'Define Stops' tab selected. The 'Service' dropdown is set to 'Centrus Geocoding Service'. Under 'When Adding Stops', the 'Graphic Point' checkbox is checked. In the 'Route Preferences' section, 'Quickest Route' is selected. The 'Add Route to ArcMap As' section has 'Graphic' selected. The 'Find Route' and 'Close' buttons are at the bottom right.

4. Click the Define Stops tab and click the Get Points button. Click Get Selected Points Graphic(s) or Get Point Feature(s), and all selected graphics or features will be added to the route.

If you select Get Point Feature(s), the Choose Point Features dialog box opens. Choose the layer containing the points you want to use as stops from the drop-down menu, then click Get All Points or Get Selected Points. Click the Add stops button.

5. To move a stop up or down in the listed routing order, click the stop in the list (the corresponding stop on the map is highlighted in yellow), then click the up or down arrow buttons.
6. To remove a stop, click the stop in the list and click Remove.
7. Click Find Route and the wizard calculates the route and draws it on the map.
8. After the route is drawn, you can deselect the selected points by going to the Selection menu and clicking Clear Selected Features.
9. Click the View Directions tab to see detailed directions for your route that includes distances in miles.





# Reports and batch tasks

# 16

## IN THIS CHAPTER

- **Running reports for single or multiple areas**
- **Running a Locator report**
- **Running a Market Ranking report**
- **Running a Wind Rose report**
- **Running a Geographic Customer Summary report**
- **Managing existing reports**
- **Creating custom report templates**
- **Running and managing batch tasks**

Every businessperson knows the significance of a good report. Reports present the facts and figures behind your analysis and are invaluable companions to the maps you're creating.

The reports and batch tasks toolset provides tools to generate reports based on standard demographic or custom data, allowing market ranking and geographic analysis, site location, customer distribution, and standard demographic reports.

Crystal Reports by Business Objects (formerly Crystal Decisions) formats and presents the reports. If you want to work with the summarized data in ArcGIS or other applications, you can have a table (.dbf) added to ArcGIS. You must have a printer connection (a default printer) for your computer for Crystal Reports to work. When working with tables, you can use the Tools menu to create a report or to proceed through the Crystal Reports wizard.

Report templates are stored in C:\Program Files\ArcGIS\Business Analyst\Datasets\Report Templates or in the directory where ArcGIS was installed.

When creating a custom report on a layer, the number of fields must be limited to 255. To check this, right-click the layer name, click Properties, then click the Fields Visibility tab. The desired fields for your reports should be in the visible fields column, and the count should be 255 or less.



## Running reports for single areas

A number of standard demographic report templates are provided with Business Analyst. For more information on these reports, see the appendix. You can also create a general report that contains all categories. The Report Wizard uses summary data to create standard reports.

Choose a layer in your map with boundaries, such as drive-time rings, equal competition areas, or even your own custom drawn trade area. The demographics that fall inside the boundaries of the layer will be summarized in the report.

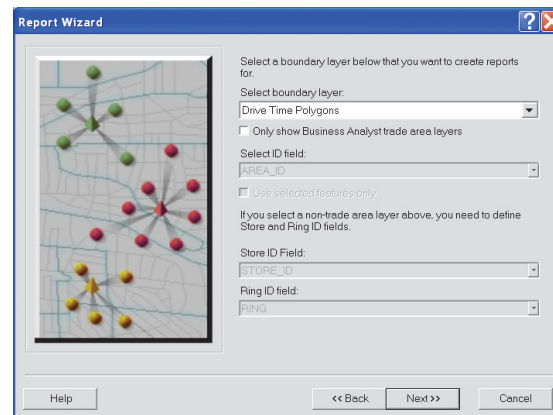
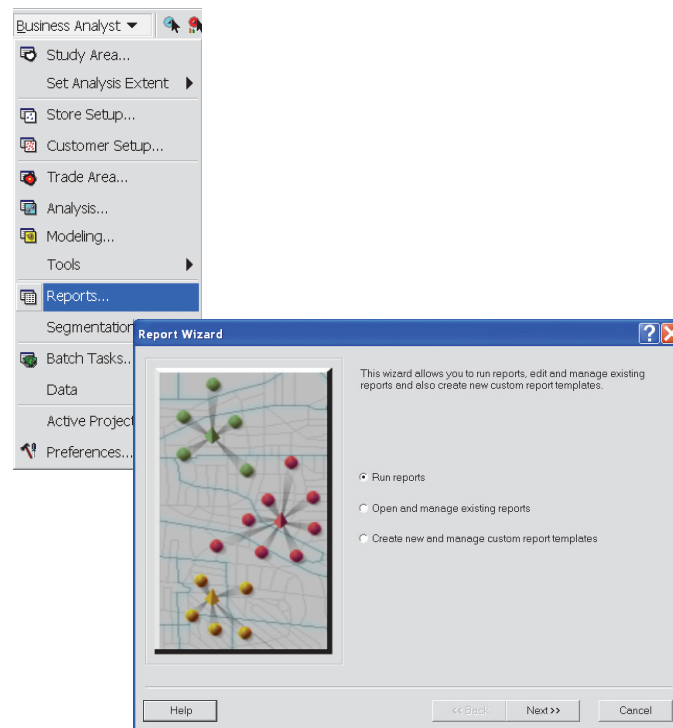
For example, if you created a Population report using simple ring trade areas as the layer with boundaries, your report would summarize the population data for each ring in the layer.

You can also create a report based on only certain boundaries of a layer. For instance, you might want to create a report using simple rings as the layer with boundaries but you might only be interested in one or two of those rings. ►

1. In ArcMap, open the map you want to use to create a report.
2. Click the Business Analyst drop-down menu and click Reports.
3. Click Run reports and click Next.

You are given the option to run a report for a single area, run a report for multiple areas, or run a point- and ranking-based report.

4. Click Run reports for a single area and click Next.
5. Choose the boundary layer for which you want to run a report. ►



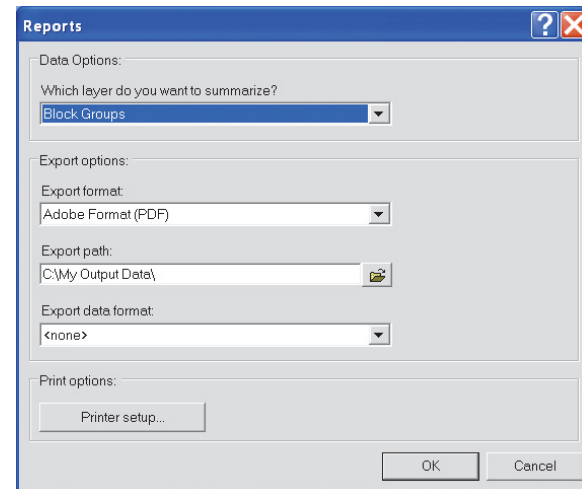
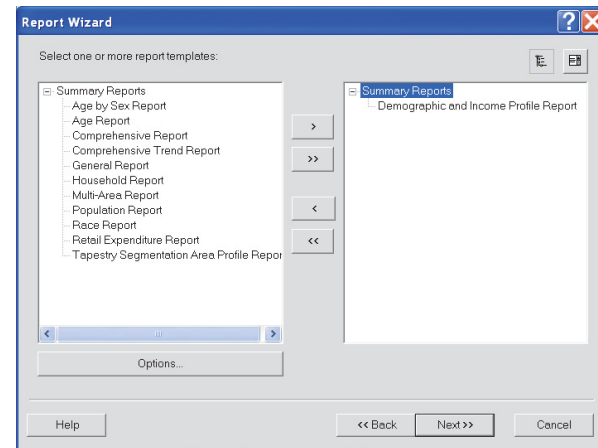
You might also want to run a report for multiple areas in different layers all at the same time. For instance, you could have a layer that consists of a simple one-mile ring and another layer that contains a 10-minute drive time. You can now load both areas at the same time.

### See Also

*For more information on creating a custom report, see 'Creating custom report templates' in this chapter.*

**Note:** The Select ID field option only appears when you load a boundary layer that was not created within the Business Analyst Trade Area wizards.

6. Click Next.
7. Choose the demographic report you want to run. You can choose one or more. Click the buttons in the middle to navigate the template from one side to the other. Click Next or the Options button.
8. You can click the Options button to change the geography by which the report will be summarized, where the report will be exported, as well as the format if you need the data in a table exported. These options can be saved permanently, or you can keep them for this time only. ►

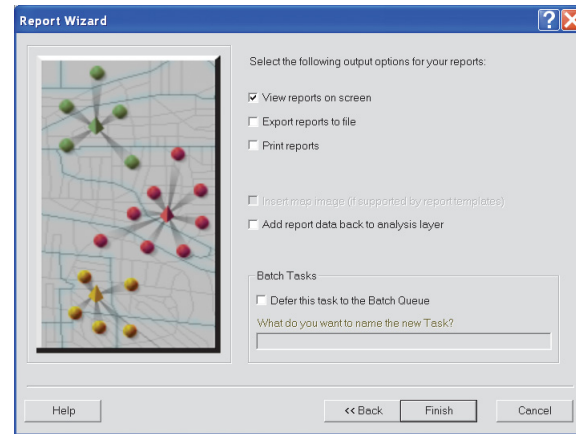


How do you want to view the final report? The View reports on screen option will open the report for viewing when it is finished.

Export reports to file will export the report to the desired output using the Options button. Print reports will print the reports to the desired printer. You can choose all or one of the options.

You can also save this analysis to run at a later time. Click Defer this task to the Batch Queue if desired and give it a batch name.

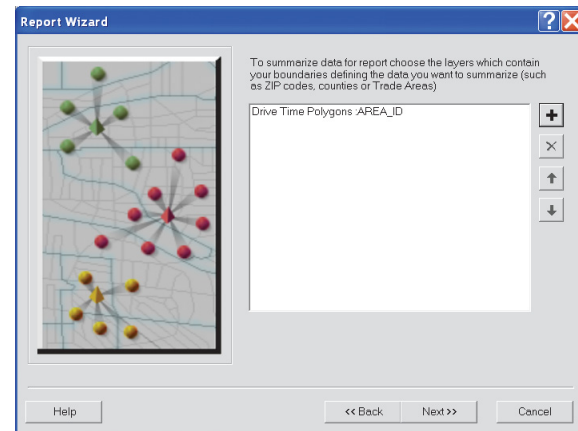
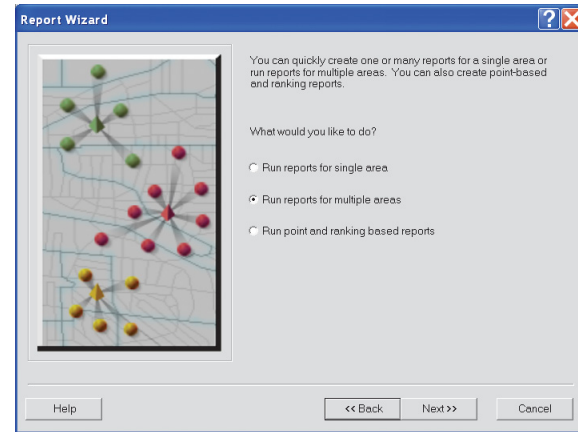
9. Click Finish.



## Running reports for multiple areas

You might want to run a report for two separate boundary layers at one time. The Run reports for multiple areas option allows you to do this. You can run a simple ring layer and a drive-time layer at the same time.

1. Click Run reports for multiple areas and click next.
2. Click the plus button to add your boundary layers. You can delete and reorder the layers as you like. Click Next. ►



3. You have the option to stitch the report templates into one or keep them separate. Click Finish.

**Add Boundary** [?] [X]

Select a boundary layer below that you want to create reports for.

Select boundary layer:  
Drive Time Polygons

☐ Only show Business Analyst trade area layers

Select ID field:  
AREA\_ID

☐ Use selected features only

If you select a non-trade area layer above, you need to define Store and Ring ID fields.

Store ID Field:  
STORE\_ID

Ring ID field:  
RING

OK Cancel

**Report Wizard** [?] [X]

Please specify how the Reports will handle same report templates for several boundaries:

☒ Create individual report for each Trade Area.  
☐ Stitch the reports together to create a single report.

Select the following output options for your reports:

☒ View reports on screen  
☐ Export reports to file  
☐ Print reports

☐ Insert map image (if supported by report templates)

Batch Tasks

☐ Defer this task to the Batch Queue

What do you want to name the new Task?  
[ ]

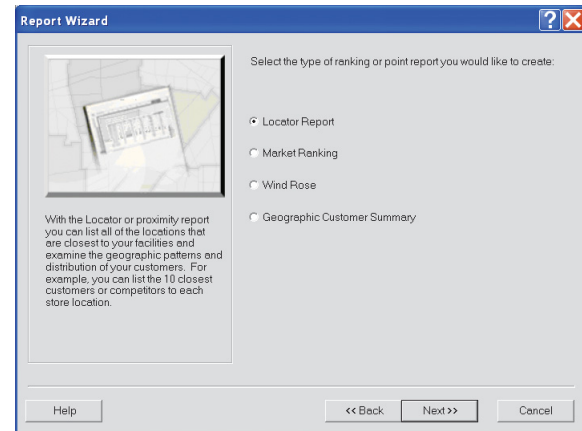
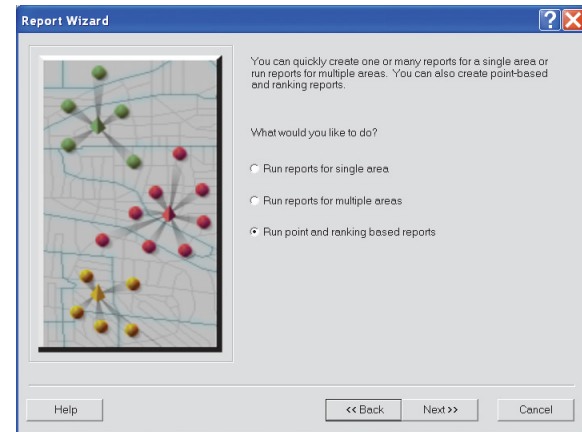
Help << Back Finish Cancel

## Running a Locator report

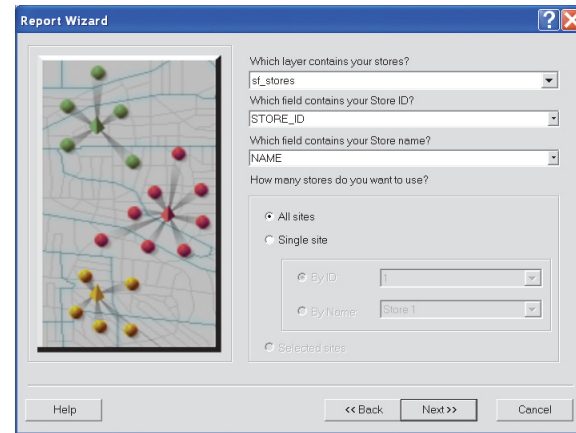
Do you ever want to know who your closest competitors are or where their store locations are compared to your store locations? The Locator report allows you to do this by telling you how many competitors fall within X miles of your store. You can also ask the software to run this report to list the X number of closest stores to your locations.

This report can be run for any two point layers in your map. You can run this report to tell you the closest ZIP centroids to your center point. All you need are two point layers, which do not have to be store or customer layers.

1. Click Run point and ranking based reports and click Next.
2. Choose to run a Locator Report and click Next. ►



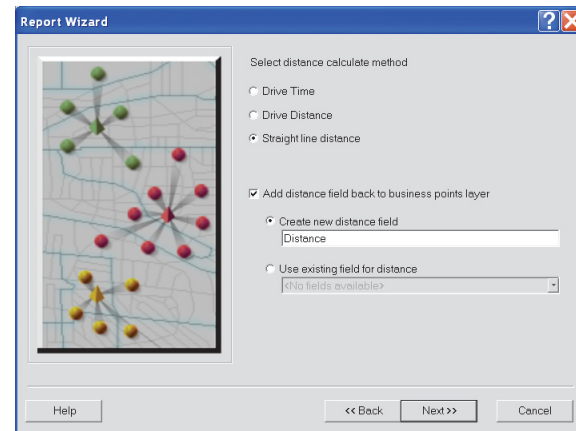
3. Select your point layer or center point. This will most likely be your store point or points. You can choose a store layer with multiple points. Click Next.
4. Select the distance calculate method, then click Next. ►



The 'Report Wizard' dialog box is shown. On the left is a map view with several colored points (green, red, yellow) connected by lines. The right side contains the following settings:

- Which layer contains your stores?:
- Which field contains your Store ID?:
- Which field contains your Store name?:
- How many stores do you want to use?:
  - ☒ All sites
  - ☐ Single site
    - By ID:
    - By Name:
  - ☐ Selected sites

At the bottom are buttons for 'Help', '<< Back', 'Next >>', and 'Cancel'.



The 'Report Wizard' dialog box is shown. On the left is the same map view. The right side contains the following settings:

- Select distance calculate method:
  - ☐ Drive Time
  - ☐ Drive Distance
  - ☒ Straight line distance
- ☒ Add distance field back to business points layer
  - ☒ Create new distance field
    -
  - ☐ Use existing field for distance
    -

At the bottom are buttons for 'Help', '<< Back', 'Next >>', and 'Cancel'.

## Tip

### Locator report page layout

A portrait report template only holds a limited number of characters per field. A landscape report can hold more information.

## Tip

### Locator report fields and headers

To fill out the Headers and Fields sections, you should have a good idea of what fields exist in your customer/competitor file.

5. Choose Portrait or Landscape.
6. Type in your desired header fields that will show up on your Locator report.
7. Click Next.
8. Choose to generate the report and give it a name. You can also have Business Analyst create an output layer.
9. Click Finish.

The 'Report Wizard' dialog box is shown at Step 6. On the left is a preview of a map with colored nodes and connecting lines. On the right, the 'Report orientation' section has 'Portrait' selected. Below it, a text box says: 'Select the fields that you want to appear on the Locator Report. You can also change the text header that will appear on the report.' There are two columns of input fields: 'Headers' and 'Fields'. The 'Headers' column has fields for 'Name', 'Address', 'City', and 'State'. The 'Fields' column has fields for 'NAME', 'ADDRESS', 'City\_std', and 'State\_std'. At the bottom are buttons for 'Help', '<< Back', 'Next >>', and 'Cancel'.

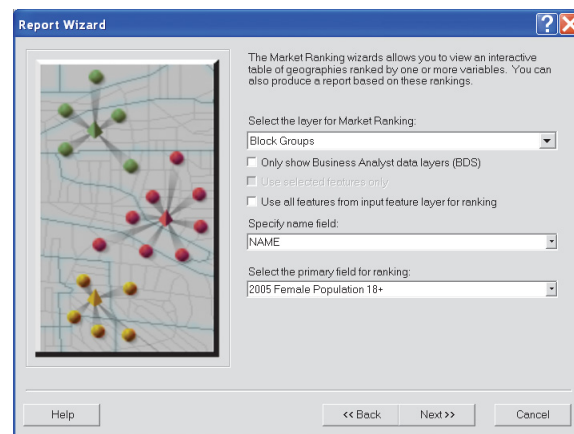
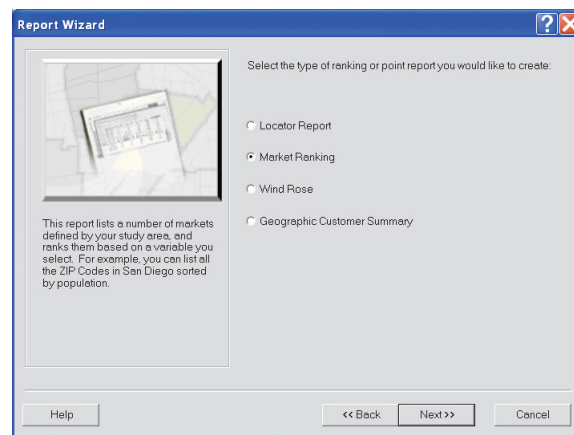
The 'Report Wizard' dialog box is shown at Step 7. It is divided into two main sections: 'Report Options' and 'Analysis Options'. In 'Report Options', 'Generate Report' is checked, and the 'Report name' is 'Locator Report'. There are checkboxes for 'Optionally specify report title', 'View report', 'Export report', and 'Print report'. An 'Options...' button is at the bottom right of this section. In 'Analysis Options', 'Create analysis layer' is checked, and the 'Analysis layer name' is 'Locator Report'. There is a large 'Comments' text area. At the bottom are buttons for 'Help', '<< Back', 'Finish', and 'Cancel'.



# Running a Market Ranking report

Do you know how all the ZIP Codes in San Diego rank based on income? Which ZIP Code has the highest median household income? This report will allow you to see this in a report template.

1. Choose the Market Ranking report and click Next.
2. Select the boundaries you want to create a Market Ranking report.  
**Note:** Click Only show Business Analyst data layers (BDS) to help minimize the list of layers.
3. Choose the name field as well as the variable you want to rank. Click Next. ►

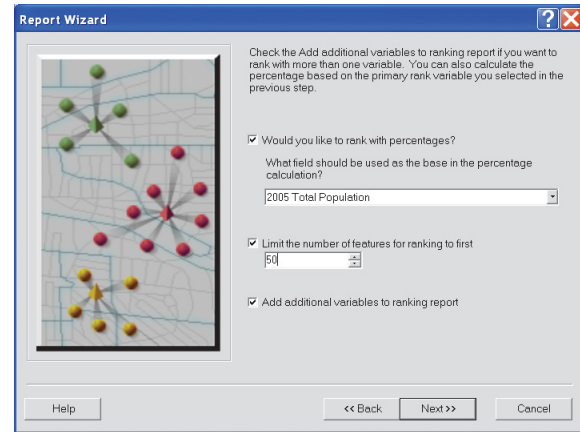


4. You are given the option to create a percentage based on a variable. You can also limit the results to the top X number of boundaries as well as add variables to the ranking reports.

The following steps are optional.

5. If you choose to add variables, click the desired field, then click Next.

**Note:** This is limited to 10 additional fields. ►



The 'Report Wizard' dialog box is shown with a map preview on the left. The map displays a network of green and red nodes connected by lines, overlaid on a grid. The right side of the dialog contains the following text and controls:

Check the Add additional variables to ranking report if you want to rank with more than one variable. You can also calculate the percentage based on the primary rank variable you selected in the previous step.

☒ Would you like to rank with percentages?

What field should be used as the base in the percentage calculation?

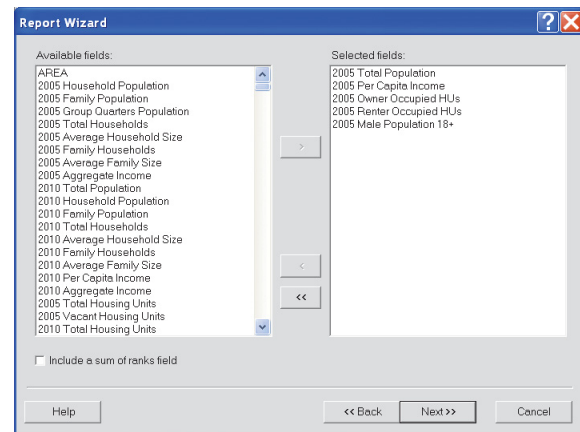
2005 Total Population

☒ Limit the number of features for ranking to first

50

☒ Add additional variables to ranking report

Buttons: Help, << Back, Next >>, Cancel



The 'Report Wizard' dialog box is shown with two lists of fields. The left list is 'Available fields' and the right list is 'Selected fields'. The 'Available fields' list includes:

- AREA
- 2005 Household Population
- 2005 Family Population
- 2005 Group Quarters Population
- 2005 Total Households
- 2005 Average Household Size
- 2005 Family Households
- 2005 Average Family Size
- 2005 Aggregate Income
- 2010 Total Population
- 2010 Household Population
- 2010 Family Population
- 2010 Total Households
- 2010 Average Household Size
- 2010 Family Households
- 2010 Average Family Size
- 2010 Per Capita Income
- 2010 Aggregate Income
- 2005 Total Housing Units
- 2005 Vacant Housing Units
- 2010 Total Housing Units

The 'Selected fields' list includes:

- 2005 Total Population
- 2005 Per Capita Income
- 2005 Owner Occupied HUs
- 2005 Renter Occupied HUs
- 2005 Male Population 18+

Buttons: Help, << Back, Next >>, Cancel

6. You will get an interactive table that displays your market ranking data by the desired boundaries. You can sort any of the fields by clicking the table header. You can also select one of the items and zoom to the location on the map.
7. Once satisfied with the table, click Next. This screen will allow you to generate the report as well as create an analysis layer. Click Finish.

Report Wizard

Name	2005 Female Population 18+	Percentage	2005 Per C...	2005 Total Population	2001
3.031	1914	240.8568	19991	4610	
32.011	1777	180.9229	22869	3215	
31.031	1762	274.0636	8452	4829	
13.001	1518	251.5810	20406	3819	
37.004	1459	163.6737	31856	2388	
07.002	1416	211.3701	16155	2993	
31.021	1372	253.9359	19515	3484	
25.001	1340	304.8507	13763	4085	
30.012	1284	244.3146	21051	3137	
17.001	1265	237.5494	56070	3005	
26.002	1213	194.3941	123034	2358	
30.011	1186	248.9164	22877	2989	
36.001	1153	256.2879	17420	2955	
76.012	1152	341.8403	19898	3938	
78.003	1148	268.5540	30251	3083	
30.032	1145	244.1921	24238	2796	
30.031	1145	244.6268	22503	2801	
23.001	1140	268.4211	32585	3060	
34.001	1138	249.0334	33388	2834	

Help << Back Next >> Cancel

Report Wizard

Report Options

☒ Generate Report

Report name:  
Market Ranking

☐ Optionally specify report title

☒ View report

☐ Export report

☐ Print report

Options...

Analysis Options

☒ Analysis

What do you want to name new Analysis?  
Market Ranking

Comments:

Help << Back Finish Cancel

# Running a Wind Rose report

The Wind Rose report allows you to see where your customers are coming from by sectors. You can also see where most of your sales are coming from by creating customer-based geographic sectors radiating away from your store location.

1. Choose to run the Wind Rose report and click Next.
2. Choose your store layer and store layer ID field and click Next. ►

Report Wizard

Select the type of ranking or point report you would like to create:

☐ Locator Report

☐ Market Ranking

☒ Wind Rose

☐ Geographic Customer Summary

This report offers a visual representation of the frequency and direction of customer locations. The chart is based on a tool used by meteorologists to measure wind direction, but is a useful tool for examining customer distributions.

Help << Back Next >> Cancel

Report Wizard

Which layer contains your stores?

st\_stores

Which field contains the store ID?

STORE\_ID

How many stores do you want to use?

☒ All stores

☐ Selected stores

☐ Single store

☒ By ID 1

☐ By name Store 1

Help << Back Next >> Cancel

3. Choose your customer layer and choose a Store Assignment option.
4. Optionally, you can choose a volumetric field.
5. Choose the number of sectors and click Next. ►

Report Wizard

Which layer contains your customers?  
Customers

☐ Use selected customers only

Store Assignment  
☒ Choose an existing field:  
STORE\_ID  
☐ By closest store location  
☐ By trade area

☐ Exclude outlying customers  
Set cutoff distance: 1  
Distance units: Miles

Help << Back Next >> Cancel

Report Wizard

The Wind Rose report is a chart that illustrates the direction from which your customers travel to visit your stores.

☒ Use weight field  
Weight field:  
SALES

How many sectors do you want to divide the chart?  
Number of sectors:  
16

Help << Back Next >> Cancel

6. Give the report a name and a title and click Finish.

**Note:** You can also set this up to run at a later date with the batch option.

Report Wizard

Enter Report Name:  
Wind Rose

Enter Report Title:  
Wind Rose

☒ View Report  
☐ Export Report  
☐ Print Report

Advanced Options...

Batch Tasks  
☐ Defer this task to the Batch Queue  
What do you want to name the new Task?

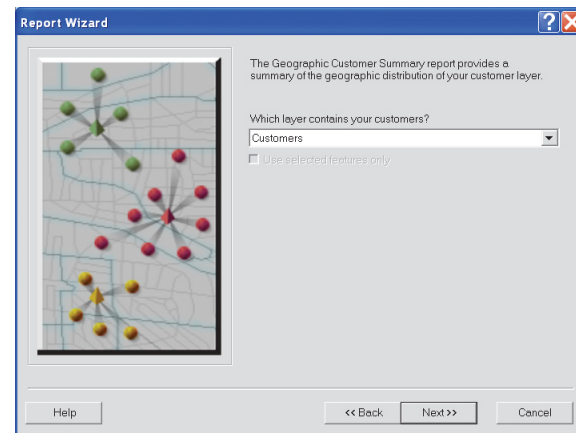
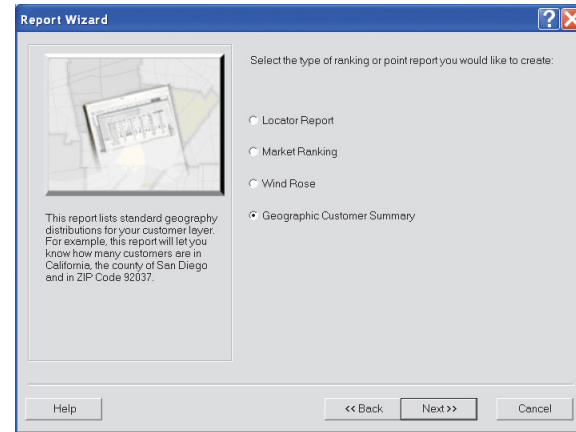
Help << Back Finish Cancel

# Running a Geographic Customer Summary report

The Geographic Customer Summary report allows you to quickly get an idea of what your customers look like demographically.

This report only works on point layers.

1. Choose to run a Geographic Customer Summary report and click Next.
2. Choose a customer layer and click Next. ►



3. Give the report a name and a title and click Finish.

Report Wizard

Enter Report Name:  
Geographic Customer Summary

Enter Report Title:  
Geographic Customer Summary

☒ View Report  
☐ Export Report  
☐ Print Report

Advanced Options...

Batch Tasks  
☐ Defer this task to the Batch Queue  
What do you want to name the new Task?

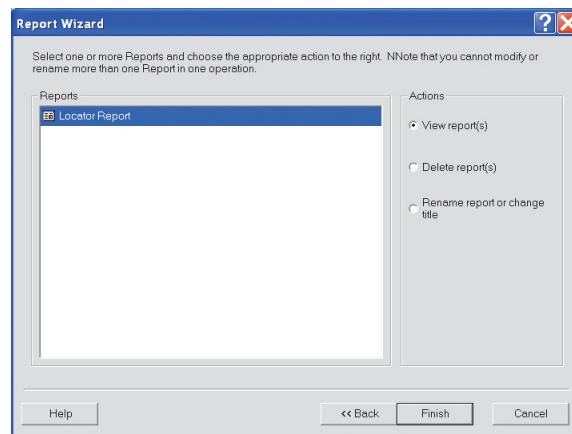
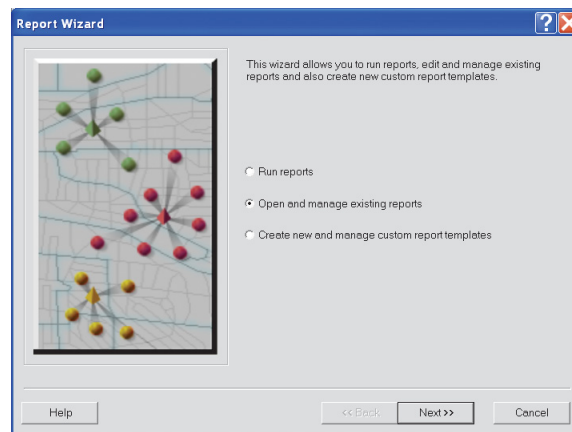
Help << Back Finish Cancel



## Managing existing reports

Business Analyst gives you the opportunity to manage any of the reports you have run in the past. You can view the reports, delete a report from your project files, and rename a report and/or title.

1. Choose to Open and manage existing reports and click Next.
2. Choose to view, delete, or rename a report.

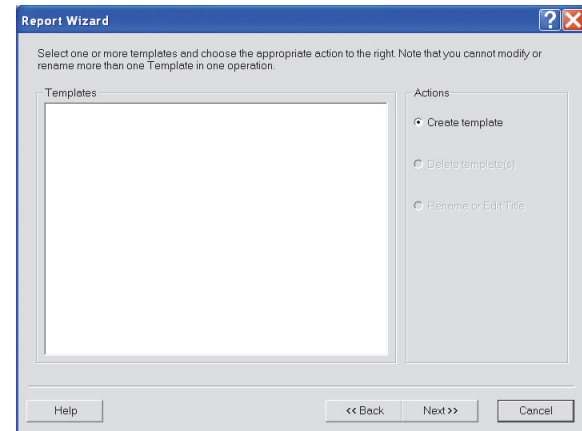
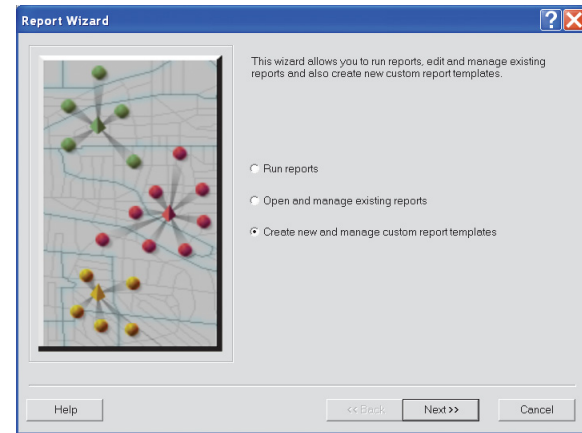


## Creating custom report templates

Business Analyst gives you the opportunity to create custom report templates to run using your custom data or Business Analyst data. The template can be saved and used just like any other template.

You can also manage your own custom report template by creating, deleting, renaming, or editing it with the Create Custom Report Templates tool.

1. Choose to create and manage a custom report template and click Next.
2. Choose to create a template and click Next. ►

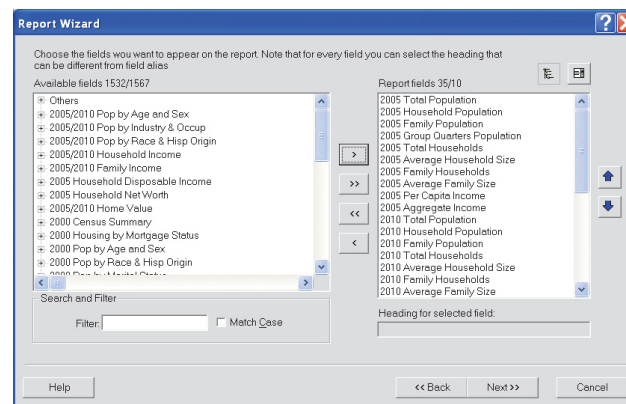
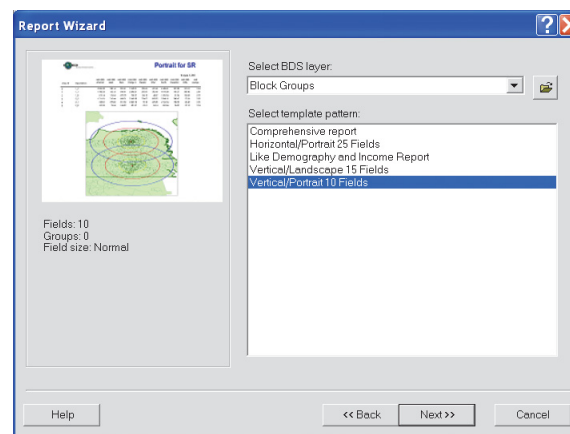


## Tip

### Custom Reporting tool

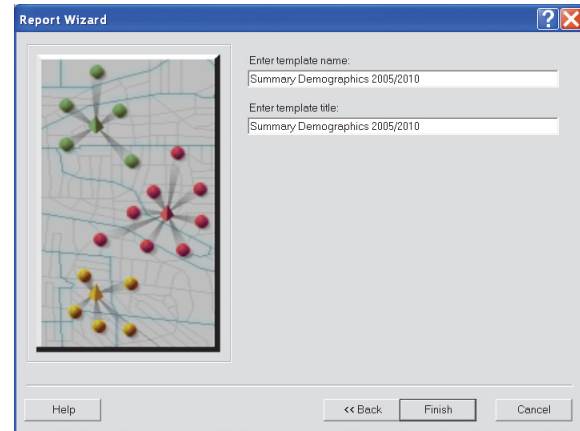
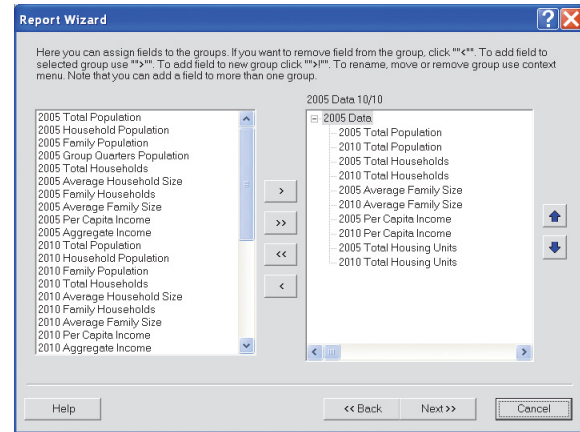
*This is a fun, new way to interact with the Crystal Reports software to create a report that fits your needs. The best way to use this tool is through trial and error. If the first report does not create the desired formatting results, give it another try. You will be surprised how easy it is to create your own templates once you get a handle on this tool.*

3. Choose a template that fits your needs. Notice the field, group, and field size limitations. Click Next.
4. Choose the fields you want to report on. You can use the Filter tool to help you search for variables. Once you have the desired number of variables, click Next. ►



Optionally, you can assign fields to groups. This will help break up the template into meaningful groupings.

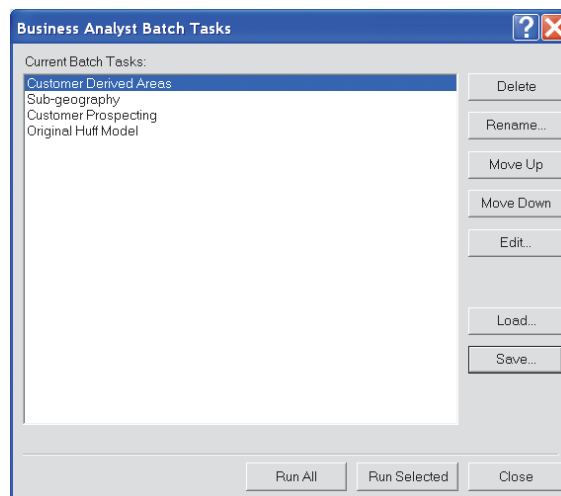
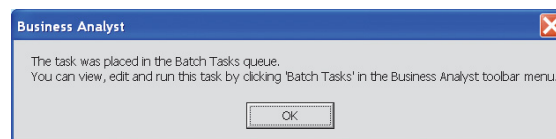
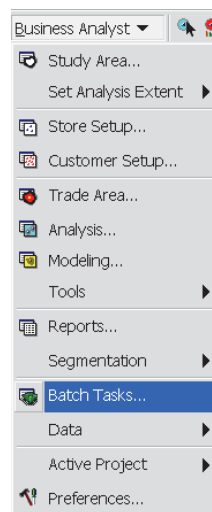
5. Give your report a name and title and click Finish.



## Running and managing batch tasks

Business Analyst allows you to run your entire batch tasks all at once or one at a time. For example, suppose you have to run a large geocoding job as well as create 50 or so report templates and export them to PDF. Set these up as a batch process and run this when you leave for lunch or for the night. You will be able to work on other things during the day and not have your machine tied up processing data.

1. Click the Business Analyst menu and click Batch Tasks.  
Whenever you choose to set up a process to run as a batch task, a pop-up message appears regarding the Batch Tasks queue. Click OK. This is only for your reference.
2. The Business Analyst Batch Tasks dialog box allows you to delete, rename, reorder, and edit your batch tasks. You can also load a batch task from another computer or export a batch task to use in ModelBuilder.
3. You have the option to run one or all batch tasks.



# Setting Business Analyst preferences 17

## IN THIS CHAPTER

- **General tab**
- **Dataset tab**
- **Analyses tab**
- **Spatial Reference tab**
- **Data tab**
- **Drive Time tab**

The Business Analyst Preferences dialog box is accessed from the Business Analyst drop-down menu. It can be used to change a variety of settings that define the general state of working with the software. You can change such things as the terminology used for customers and stores within the context of your own business, the default distance units, and the active datasets. Many other default values are also available for change.

You will find it helpful to look through each of the Preferences tabs to see what is available. You may find that changing items will make your work easier, but if not, you can always find items that increase your knowledge of Business Analyst flexibility and functionality.

## General tab

Use the General tab to view and edit customer and store references, set the output data folder location to place the data you create, define distance units, and determine if you want to show the quick-start tutorial when you open the program.

### Substituting your own terms for customers and stores

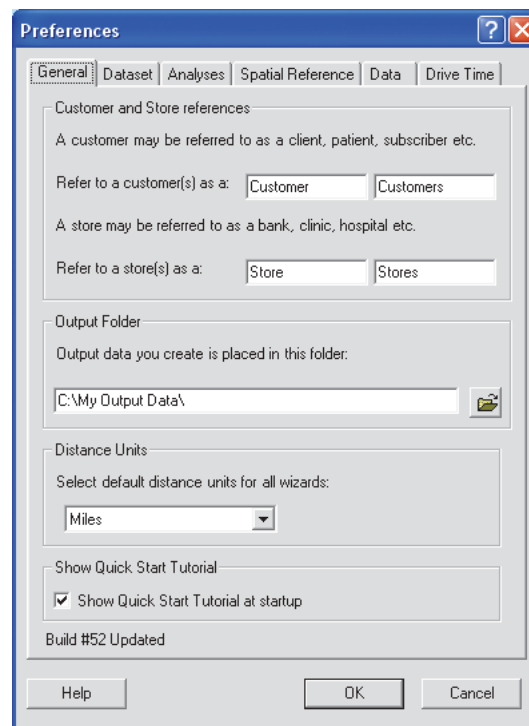
You can substitute other terms for “customers” and “stores” using the Preferences General tab, for example, banks and clients, hospitals and patients, or preschools and children—whatever fits your line of work. The Preferences dialog box customizes Business Analyst for you, using the terms you choose.

#### Tip

*All of your store layers, customer layers, analyses, and so on, are stored and organized in this folder. See the appendix for more details about the My Output Data folder and use of projects to organize your work.*

## Setting Business Analyst preferences on the General tab

1. To set Customer and Store references, type the name you want to use to refer to a customer in the first text box (Customer), then type the plural of the name in the second text box (Customers). In the second set of text boxes, type the name you want to use to refer to a store in the first text box (Store), then type the plural of the name in the second text box (Stores).
2. To change the location of the output data folder, click the Browse icon and browse to the location of the output folder.
3. To set the default Distance Units for all wizards, click the drop-down menu and select a unit from the list.
4. If you want the quick-start tutorial to launch at startup, check the check box.
5. Click OK to save your preferences or click a different tab to set other preferences.





## Dataset tab

Use the Dataset tab to select the current dataset, view data component locations, and set the geocoding service you want to use.

The Dataset tab is used to set locations for major data components that come with the product—that is, ESRI demographic data, *infoUSA* business listings, Tele Atlas Street data, and so on—as well as your preferences for address locator (geocoder). In most cases, you will be using the Group 1 Centrus geocoder provided with Business Analyst.

## Setting Business Analyst preferences on the Dataset tab

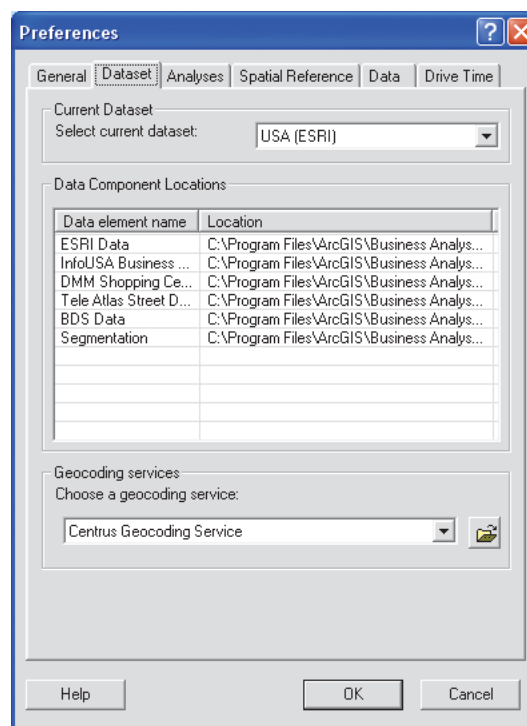
1. Click the Select current dataset drop-down menu to change the current dataset.

The Data Component Locations are listed.

2. Click Choose a geocoding service drop-down menu to select a geocoding service, or click the folder icon and browse to the location of the service.

The Business Analyst Group 1 Centrus geocoding service is located in the \ArcGIS\Business Analyst\Data\Centrus Geocoding Data folder.

3. Click OK to save your preferences or click a different tab to set other preferences.





## Analyses tab

Use the Analyses tab to select the trade area output style and group layer and set the market penetration ratio multiplier and geoprocessing options.

The Analyses tab allows you to set defaults for trade area appearance and specify group layer naming for organization of customer, store, and analysis layers that are added to the map document.

Options are also provided that affect market penetration and geoprocessing.

## Setting Business Analyst preferences on the Analyses tab

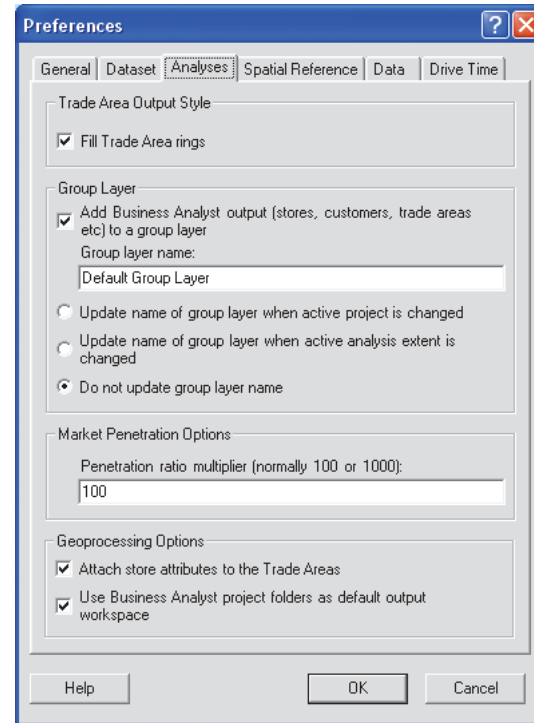
1. In Trade Area Output Style, check the Fill Trade Area rings box.

It contains a Fill Rings box that allows you to turn the color fill inside trade areas on and off. By default, these areas are filled with transparent color. If you don't want any color, uncheck the Fill Analysis rings box. If you want color, check the box. You can change the amount of transparency or make the colors opaque by right-clicking the layer, clicking Properties, and clicking the Display tab. You can vary the transparency from 0 percent (opaque) to 100 percent (invisible).

2. To add Business Analyst output to a group layer, check the check box.

Select whether or not to update the name of the group layer.

3. To set market penetration, type a value in the Penetration ratio multiplier text box.
4. Set the geoprocessing options.
5. Click OK to save your preferences or click a different tab to set other preferences.



## Spatial Reference tab

This tab contains a check box that allows you to turn the automatic Spatial Reference update on and off. This automatically adjusts the map projection so that local maps on the East and West Coasts of the United States maintain the north orientation up, even when you zoom in. If the Spatial Reference update check box is unchecked, the projection that's being used at that time remains, regardless of how far you zoom in or out. This will result in the north direction moving left or right of vertical on your map.

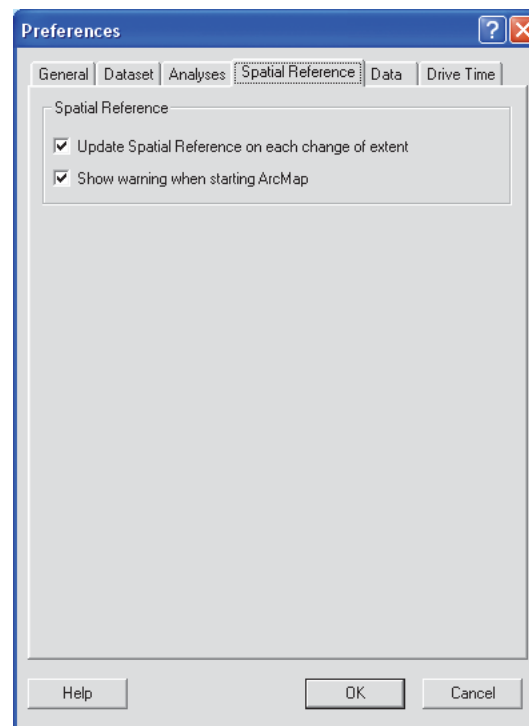
For some other work in ArcMap, you may want to uncheck this box. In general, for Business Analyst work, you will want to leave this on. Otherwise, your rings may look like ellipses. The Warning Dialog Help button contains more detail about how this automatic projection works.

## Setting Business Analyst preferences on the Spatial Reference tab

1. Spatial Reference options include:
  - Update Spatial Reference on each change of extent
  - Show warning when starting ArcMap

To activate these options, check the check boxes.

2. Click OK to save your preferences or click a different tab to set other preferences.

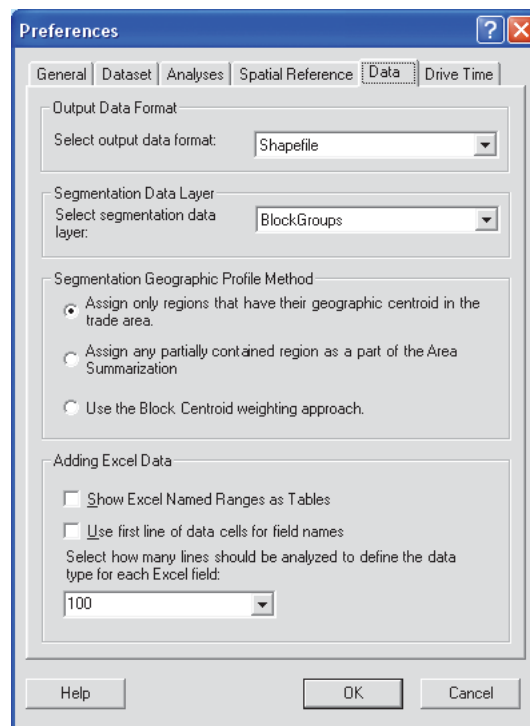


## Data tab

Use the Data tab to select the output data format, the segmentation data layer, and the segmentation geographic profile method, as well as to add Excel data options.

### Setting Business Analyst preferences on the Data tab

1. Click the drop-down menu to select the output data format.
2. Click the drop-down menu to select the segmentation data layer. In most cases, this will be Block Groups.
3. Click the Segmentation Geographic Profile Method you want to use.
4. Set the Adding Excel Data options.
5. Click OK to save your preferences or click a different tab to set other preferences.



## Drive Time tab

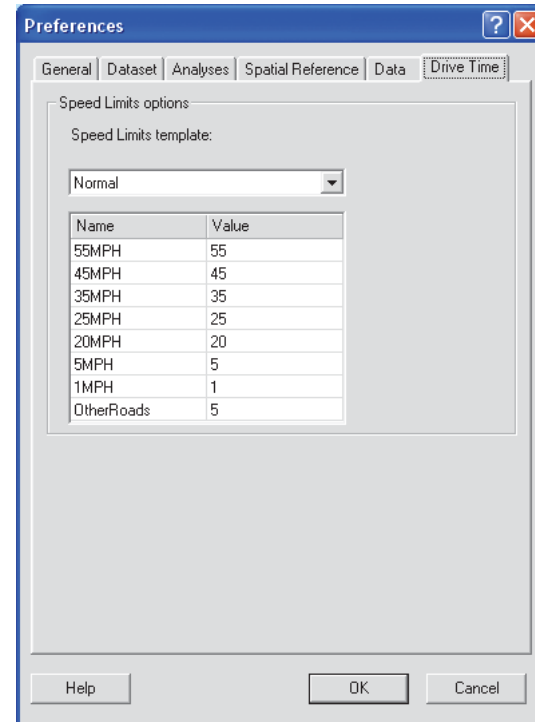
Use the Drive Time tab to select the speed limits template.

You have choices for using traffic volume templates for light traffic, normal traffic, or rush hour. You can also modify speeds in any template and the template name will change to a custom template.

The Name field displays normal posted speed limits to help in comparison with streets, roads, and major highways in your area.

## Setting Business Analyst preferences on the Drive Time tab

1. To set the speed limit options, click the drop-down menu to select the speed limits template.
2. Click OK to save your preferences or click a different tab to set other preferences.





# The ArcGIS 9.1 Business Analyst Importer 18

## IN THIS CHAPTER

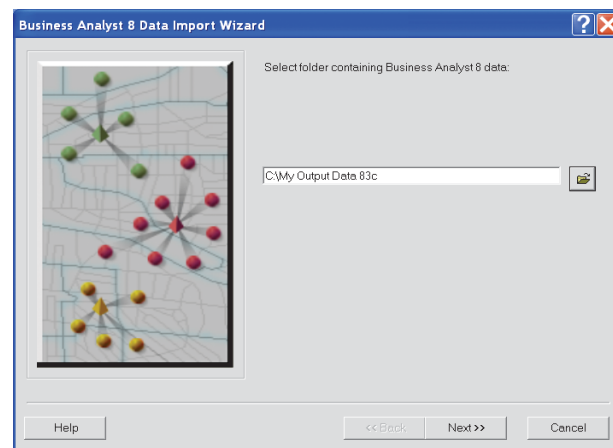
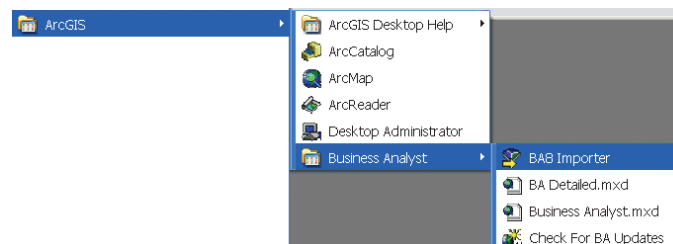
- Importing your study areas

The ArcGIS 9.1 Business Analyst Importer is a stand-alone application that allows you to import study areas created using ArcGIS Business Analyst 8.3, 8.3c, or 9.0 into the ArcGIS 9.1 Business Analyst environment. This chapter shows you how to perform tasks using the importer.

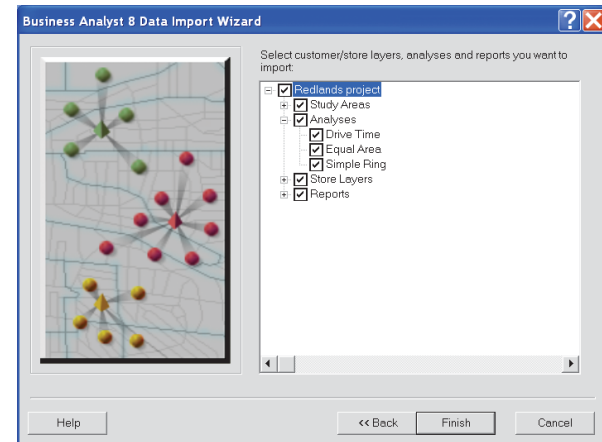
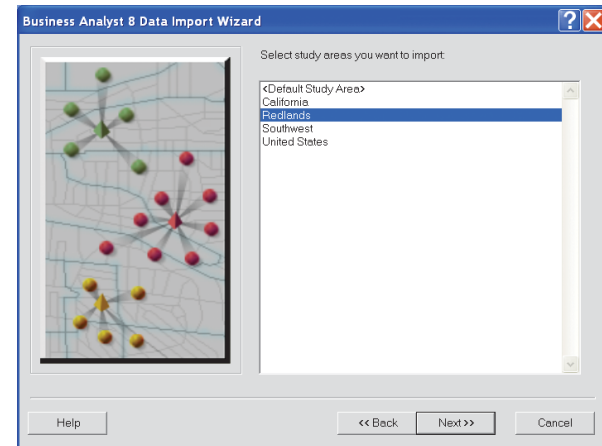
## Importing your study areas

With ArcGIS 9.1 Business Analyst, the output data folder (for instance, C:/My Output Data) organization and structure has changed. Instead of being organized by study areas, the output data folder is now organized by Business Analyst projects. So if you still have your old output data folder saved, you can use the Business Analyst 8 Importer to copy any or all of this data into the new output data folder structure. Using the importer, you can import all the study areas and their components (stores, customers, analyses, and reports) at once. You can also individually select which study areas you want to import as well as select specific components within each study area.

1. Click Start, point to ArcGIS, point to Business Analyst, and click BA8 Importer.
2. Click the Browse button and navigate to the old output data folder. Click Next to continue. ►



3. Select the study areas you want to import, then click Next. To select more than one study area at a time, hold down the Shift or Ctrl key while selecting.
4. For each project listed, check the project box to import all the components, and click the plus sign (+) next to the project box to expand the list of components. Check only the components you want to import. Click Finish to start the import process.







# Appendix

## IN THIS CHAPTER

- **My Output Data folder structure**
- **Report templates**
- **Use of Projects in ArcGIS 9.1 Business Analyst**

This appendix contains the structure of the My Output Data folder. It also shows you the various report templates you can use with Business Analyst and provides frequently asked questions about using Projects in Business Analyst.

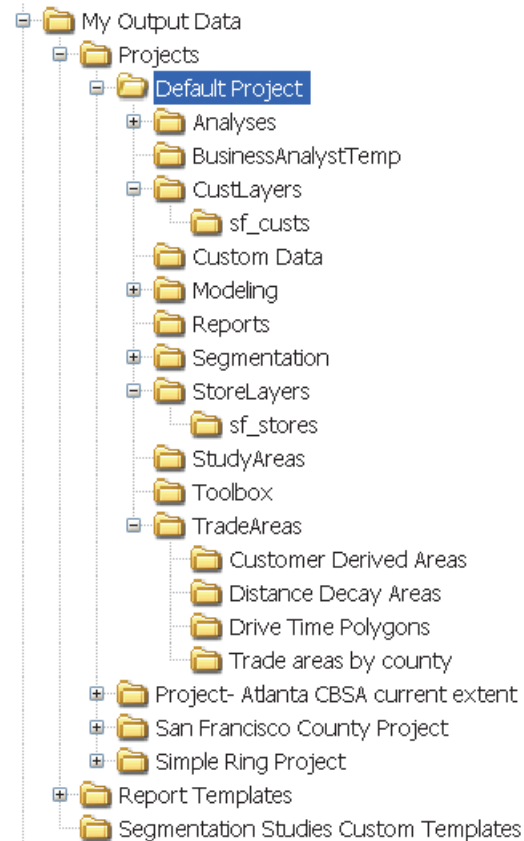
# My Output Data folder structure

The default location of the My Output Data folder is the same drive where Business Analyst is installed. However, if you want the My Output Data folder somewhere else, you can change the location using the Preferences dialog box. For more information about changing the location of the My Output Data folder, see the section in Chapter 4, ‘Creating a My Output Data folder on a different drive’.

The structure of the My Output Data folder is organized with folders for Projects, Report Templates, and Segmentation Studies Custom Template—if you have the optional segmentation module. Any Projects you create will have their own folder. All Projects contain the folders shown at the right.

- **Analyses:** Contains information about the analyses you have done. Included in each folder are .shp, .lyr, .dbf, and .shx files.
- **BusinessAnalystTemp:** Contains all the temporary .dbf, .shp, .lyr, and .shx files.
- **CustLayers:** Contains all the geocoded customer files.
- **Custom Data:** Contains any of your own layers set up with the Analysis Layer Setup wizard.
- **Modeling:** Contains any model calibration data and model calculation results.
- **Reports:** Contains any Crystal Reports reports you’ve run.
- **Segmentation:** Contains all segmentation profiles, analyses, studies, and target groups you’ve created.
- **StoreLayers:** Contains all the geocoded store files.
- **StudyAreas:** Contains the .dbf, .lyr, .prj, .sbn, .sbx, .shp, .shp.xml, and .shx files that comprise your study areas.

- **Toolbox:** Contains files for any models created using geoprocessing tools.
- **TradeAreas:** Contains the .dbf, .lyr, .prj, .sbn, .sbx, .shp, .shp.xml, and .shx files that comprise your trade areas.



*My Output Data folder structure*

# Report templates

This section examines the various templates associated with the report writing option within the Business Analyst extension. All templates use geography data; therefore, all levels of geography can be used in any of the predefined reports. Report templates are stored in \ArcGIS\Business Analyst\Datasets\ReportTemplates in the directory where ArcGIS was installed. If you create custom reports and want them available for future use, you must save them to the following directory: \ArcGIS\Business Analyst\Datasets\Report Templates\Custom.

The level of geography depends on the scale of the coverage used for the report. For example, choosing a coverage at the block group level will allow you to create a report at the block group level. Similarly, you can create a report based on the shape of the study area or a selected group of objects on the map. In this example, the block groups within the selected coverage are combined to create the totals in the report.

All reports summarize geography based on your input. A study area is defined by the geography level selected during the completion of the Create Study Area Wizard steps.

Business Analyst includes the following report templates that are preset to make use of the demographic data provided. You can use these templates as they are or revise them using the Crystal Reports designer, which can be activated at the end of every report wizard.

## What is Tapestry?

The Community Tapestry segmentation system provides an accurate, detailed description of America's neighborhoods. U.S. residential areas are divided into 65 segments based on demographic variables such as age, income, home value,

occupation, household type, education, and other consumer behavior characteristics. To increase the data's versatility and analytical value, the Tapestry segments are organized into 12 LifeMode summary groups with similar demographics and consumer patterns and 11 Urbanization summary groups with similar levels of density.

## Report descriptions

### Tapestry Segmentation Area Profile

This report compares the Tapestry segmentation data groups selected within the study area to the same groups on a national level. The sum of the number of households, index, and Geographic ID are also included in this report.

### Comprehensive report

This report shows the totals of each demographic variable in the study area. The variables are grouped into logical listings. For example, the grouping Population by age is composed of four-year increments from age 0 to 85 and over. Both current-year totals and five-year projections are shown for more than 600 variables in this report.

### Comprehensive Trend report

This report lists the most common demographic variables for the study area and compares the current-year totals and five-year projections. For example, in the Population grouping, the estimated sum of the population for the current year is compared to the projected sum of the population in the study area for the five-year projection.

## **Custom report**

This report allows you to define which variables are relevant to a study area. Any number of variables can be selected from the complete list of demographic attributes and only those selected will be included in the report. Selecting all variables will produce the same result as the Comprehensive report.

## **Custom Trend report**

The Custom Trend report allows you to define which variables are relevant to a study area. Any number of variables can be selected from the complete list of demographic attributes and only those selected will be included in the report. This report lists the selected demographic variables and compares the current-year estimate totals to the five-year projected totals. Selecting all variables will produce the same result as the Comprehensive Trend report.

## **General report**

This report groups the basic demographic variables into a one-page list. The listed variables in each group are represented as percentages of the total for that group. The list is composed of two major groups: Population and Household totals. The Population group is subdivided into age and race; the Household group contains household income information.

## **Population report**

This report lists the sum of the current year and five-year projections of total population. It also includes a projected growth rate percentage between the current-year totals and five-year projections.

## **Income report**

This report displays the total annual household income as a percentage of the study area. These values are grouped into \$15,000; \$20,000; \$25,000; and \$50,000 increments. This report also contains the total number of households and the average income in the study area.

## **Age report**

This report displays incremental age groups as a percentage of the total population in the study area. These values are grouped into common increments such as 0–4, 5–14, 55–64, and 65 and over. This report also contains the total population and the average age for the study area.

## **Race report**

This report classifies the total population as a percentage based on race. The groups are White, Black, Asian/Pacific, Native American, Some Other Race, Two or More Races, and Hispanic Origin. The current-year total population is also included in this report.

## **Household report**

This report classifies by percentage the households that are either owned or rented in the study area. It also includes the current-year household total, five-year projection, and the projected growth rate between the current-year total and five-year projection.

### **Multiarea report**

This report displays a current-year snapshot of a general variable assortment: Households by Income, Population by Age, and Population by Race for multiple trade areas. This could be for a three-ring study, drive times, or other trade areas that present multiple areas around a point. Other reports can also be used for multiple trade areas.

### **Age by Sex Profile report**

The Age by Sex Profile measures the number of people in a geographic area according to their age and gender. The report includes Census 2000 data, current-year estimates, and five-year forecasts.

### **Demographic and Income Profile report**

This profile compares essential characteristics of the Census 2000 data, current-year estimates, and five-year forecasts such as income, age, and race.

### **Market Profile report**

The Market Profile report is a comprehensive report that contains current-year updates; five-year projections; and Census 2000 data for population, households, housing units, income, age, race, and labor force.

### **Retail Expenditure report**

This report includes the total dollar amount spent; average amount spent per household; and the Spending Potential Index, which measures the amount spent for a product or service in one area compared to the U.S. average. This report also contains totals for Census 2000 data; current-year estimates; and five-year projections for population, households, and average household size.

# Use of Projects in ArcGIS 9.1 Business Analyst

## **What are Projects in ArcGIS 9.1 Business Analyst?**

Projects are a new way of organizing your work in ArcGIS Business Analyst that make it much easier for you to manage, back up, and share your analysis results.

## **How do I create and manage a Project?**

As part of the Business Analyst Study Area Wizard, there is an option to Create a new Project for this study area. It is located on the same panel of the wizard where you name your study area. By default, the option to create a new Project for the given study area will not be selected. Also, you can create and manage your Projects using the Active Project command on the Business Analyst drop-down menu. Most users who want to use Projects to organize their work will create Projects when they use the Study Area Wizard, but Projects can also be created by clicking Active Project, then clicking Create Project.

## **When and why should I create a Project?**

You should create a Project generally when you plan on saving your work and need to be able to retrieve data easily and quickly or if you need the ability to share your Project with another Business Analyst user. Projects are used as an organizational tool in the same way as map documents, except Projects govern where you save your analysis results. More specifically, if you use Projects, all your layers and analyses that are created while a Project is active (store layers, customer layers, study areas, trade areas, analyses, reports, and so on) will be stored in a folder with that project's name on your hard drive under the My Output Data folder.

## **If I do not create a Project for a study area, where will my analysis results be stored?**

Along with all your projects in your My Output Data folder, there is a project named Default Project. This is where your work will be saved if you do not want to save it in a Project. On the Business Analysis drop-down menu, there is an Active Project command that allows you to choose which project will be active from that point until it is changed. Even if there have not been any projects created, there will be one named <default project>.

Note: Business Analyst remembers the last Project that was active. If another saved .mxd file is opened that was previously used with another active Project, you will need to change the active Project if you want to return to the old Project.

## **How do I manage my Projects?**

You can manage your Projects by clicking Active Project on the Business Analyst drop-down menu and clicking Manage Projects. There you can activate, delete, or rename a Project and edit its comments.

## **Is it easy to share my Projects?**

Yes. Each Project folder in the My Output Data folder contains everything that was created in Business Analyst for that respective Project. If you receive a Project folder from a fellow user, you would place it in your My Output Data folder and once you launch Business Analyst, you could activate that Project and begin loading any analysis, study areas, customer/store layers, trade areas, and so on, by clicking the Manage option (for example, Manage Existing Analyses) on any wizard.



**I have accidentally deleted a saved map document. Can I retrieve the Projects that were contained in it?**

Yes. Just open the Business Analyst .mxd and click Active Projects from the Business Analyst drop-down menu, then click the Project that was being used in the previously deleted .mxd. Then you can load all the data created by Business Analyst by clicking Manage on each respective wizard.

**Can I see my Projects in ArcCatalog?**

Yes. You can also manage Projects in ArcCatalog, which looks similar to Windows Explorer because it uses a catalog tree. Your Project can be managed in a number of ways, such as moving/copying/deleting/viewing it in its entirety or only specific layers within it. (For example, a customer layer or a drive-time polygon analysis.)

**Why are my Projects displayed in ArcCatalog?**

Because Business Analyst Projects are in ArcCatalog, it is easy to use the Business Analyst tools in ArcToolbox. For example, if you had already created a store layer in a Project, you could drag and drop it into the Drive Time tool in ArcToolbox.

**Do I have to create a Project?**

No. If you navigate to Active Project, you will see <default project>; this is where you can store anything that does not need a specific Project.

**When I import study areas from ArcGIS 8.3c/9 Business Analyst, will a new Project folder be created?**

Yes. The process of importing your work from ArcGIS 8.3c/9 Business Analyst will create ArcGIS Business Analyst Projects for each of the study areas that you set up in ArcGIS 8.3c/9 Business Analyst.

**Can I access data of more than one Project at a time in a single map document?**

Yes. Changing the active Project will allow you to add data from that Project, and that data will stay in your table of contents even if you switch to a different Project. Any new layers created by Business Analyst will be placed in the currently active Project.

**What happens to the My Output Data folder when I install ArcGIS Business Analyst?**

The installation of ArcGIS Business Analyst transforms any existing ArcGIS 8.3c/9 Business Analyst My Output Data folder into one that is compatible with the new version. All the study areas will become Projects and be organized as such.





# Glossary

## **active data frame**

The data frame with which you're currently working, if your map contains more than one data frame. The active data frame is highlighted on the map, and its name is shown in bold text in the table of contents.

## **amoeba**

An approach for forming a ring boundary by joining extreme points using elliptical arcs. They are often called amoebas because of their shape.

## **attractiveness**

One number that combines all the factors that make a center attractive. For example, the attractiveness of an office building could be a function of how many offices are currently located within it.

## **attribute**

A piece of information describing a map feature. The attributes of a ZIP Code, for example, might include its area, population, and average per-capita income.

## **block group**

A combination of census blocks that is a subdivision of a census tract. A block group is the smallest unit for which the Census Bureau reports a full range of demographic statistics (about 700 residents per block group). See also tract.

## **buffer**

A zone around a map feature measured in units of distance or time—for example, a store's 15-minute drive-time buffer defines the area in which drivers can reach the store in 15 minutes or less.

## **classification**

A scheme for dividing map features into a specified number of classes according to selected attribute values. Sales territories, for example, might be divided into five classes according to the number of accounts they contain. Each class is then assigned a unique symbol to create a thematic map.

## **complex market area**

An area calculated by finding the outermost customers of a store and connecting them. Complex market areas are more accurate than simple because they respond to physical and cultural barriers.

## **Core Based Statistical Area (CBSA)**

An urbanized area as defined by the U.S. Office of Management and Budget, consisting of a core area containing a large population nucleus, together with adjacent communities having a high degree of economic and social integration with that core. Normally, a CBSA includes at least one city of 50,000 or more inhabitants or an urbanized area of at least 50,000 inhabitants with a total metropolitan population of at least 100,000.

## **customer market analysis**

A type of analysis that uses mostly customer data. Simple and Complex Desire Lines, Market Penetration, and New Store are examples of customer market analysis.

## **customer profiling**

A process that establishes a demographic profile for a set of customers by tagging them with demographic values of the geographic area they fall within.

## **customer prospecting**

A type of analysis that locates regions with ideal demographic characteristics for targeting new customers.

## **data-driven ring analysis**

A store market analysis that is primarily used to look at your competition. You can also use it to analyze potential new locations.

## **data frame**

Groups the layers that you want to display together into a separate frame. Layers in the table of contents can be organized into data frames.

## **dBASE file**

A file format native to dBASE database management software. Business Analyst can geocode address files in dBASE format.

## **decimal degrees**

Degrees of latitude and longitude expressed as a decimal rather than in degrees, minutes, and seconds.

## **defined study area**

A study area with a defined boundary, for example, a city.

## **demographics**

The statistical characteristics of a population—for example, income, education, race, and home ownership.

## **desire lines**

A type of analysis that associates a set of geocoded points (usually customers) with a single central point (usually a store). Lines are drawn from the customers to the store. Desire lines can be weighted or unweighted. See also spider diagrams.

## **donut rings**

A method of defining the rings in an analysis so that the values inside the rings are exclusive. For example, if you had an analysis with three donut rings and 10 households in each, the total number of households for each ring would be 10.

**dot density map**

A map in which dots are used to represent the density of an attribute—for instance, population.

**drive-time area**

A zone around a map feature measured in units of time. For example, a store's 10-minute drive-time area defines the area in which drivers can reach the store in 10 minutes or less.

**equal area classification method**

A classification method in which classes are formed so that the total area in each class is approximately the same.

**equal competition area**

A type of analysis that creates trade area boundaries halfway between each store and its neighboring stores. See also Thiessen polygon.

**equal interval classification method**

A classification method in which each class has an equal range of values. Use this if your data is evenly distributed and you want to emphasize the difference in values between the features.

**extension**

An optional ArcGIS module that performs a specialized function. Network Analyst, Spatial Analyst, and Business Analyst are a few of the many ArcGIS software extensions.

**feature**

A map representation of a geographic object. Store sites, customer locations, streets, census tracts, and ZIP Codes are examples of map features. Features are drawn as points, lines, and areas (polygons) in ArcGIS.

**field**

A column in a table, containing the values for a single attribute.

**Find Route wizard**

A wizard in Business Analyst that allows you to find the shortest way to get somewhere or the shortest way to visit several locations, determine the best sequence to visit a set of stops, make a map showing the shortest travel route, and create a list of travel directions to use when driving a route.

**find similar analysis**

An analysis that allows you to seek out and analyze new market areas based on the characteristics for an existing market area.

**geocoding**

The process of converting tabular location data, for instance, a database of customer addresses, into accurately placed features in a map file.

**geographic information system (GIS)**

A configuration of computer hardware and software that stores, displays, and analyzes geographic data.

**global positioning system (GPS)**

A radio-navigation technology that uses satellite signals to calculate the position of objects on the earth's surface, along with their speed and direction.

**graduated color map**

A map that has a series of symbols whose colors change according to the values of a particular attribute.

**graduated symbol map**

A map that has a series of symbols whose size changes according to the values of a particular attribute.

## **group layer**

Several layers that appear and act as a single layer in the table of contents in ArcMap.

## **Huff model**

A sales forecasting tool based on the idea that the probability of a given consumer visiting and purchasing at a given site is some function of the distance to that site, the site's attractiveness, and the distance and attractiveness of competing sites. See also attractiveness.

## **image data**

Data in raster format, produced by an optical or electronic device. Satellite data, scanned data, and photographs are common forms of image data.

## **image file**

In a GIS, a file of image data.

## **index of attractiveness**

The one number describing the factors that make something attractive to customers. See also attractiveness.

## **layer**

A set of features of the same type stored together in a single file in ArcGIS.

## **layout**

In ArcGIS, a presentation document incorporating maps, charts, tables, text, and images.

## **map**

Interactive area that allows you to display, explore, query, and analyze geographic data in ArcGIS.

## **map document**

An ArcGIS file that contains all the maps, tables, charts, layouts, and reports that you use for a particular application or set of related applications. Map document files have a .mxd extension.

## **market area**

A geographic zone containing the people who are likely to purchase a firm's goods or services. Market areas can be determined by the number of customers and by weighted value (any numerical information in the customer database, such as sales or visits). Business Analyst allows you to create one, two, or three rings around your store, known as primary, secondary, or tertiary markets.

## **market penetration**

A type of analysis that determines the percentage of a market area being reached based on the number of customers within an area compared to the total population. Market penetration takes the number of customers in each area and divides it by the total number of people in each area to give you an idea of how well you're penetrating your market.

## **master site**

A known, well-performing site.

## **mean store center analysis**

A type of analysis that locates a new store by calculating the centroid of a group of customers.

## **My Output Data folder**

A folder on your computer that contains all the work done in Business Analyst (study areas, analyses, data—customer, store, extracted). The default location is C:/My Output Data, but you can change it on the Business Analyst Preferences dialog box.

## **natural breaks classification method**

A classification method in which data values that cluster are placed into a single class. Use this method if your data is unevenly distributed.

## **normalization**

The process of dividing one numeric attribute value by another to minimize differences in values based on the size of areas or the number of features in each area.

## **overlapping rings**

A method of defining the rings in an analysis so that the values inside the rings are cumulative. For example, if you had an analysis with three overlapping rings and 10 households in each, the total number of households for ring 1 would be 10, the total for ring 2 would be 20 (ring 1 + ring 2), and the total for ring 3 would be 30 (ring 1 + ring 2 + ring 3).

## **quantile classification method**

A classification method in which each class has roughly the same number of features. Use this method if your data is evenly distributed and you want to emphasize the difference in relative position between features.

## **raster format**

In a GIS, a cell-based representation of map features. Each cell in the structure has a value; a group of cells with the same value represents a feature. Images are stored in raster format.

## **record**

A row in an ArcView table. If the table is a layer table, each record corresponds to a map feature.

## **ring studies**

The most simple and widely used type of market area analysis. A simple ring is generated, then the underlying demographics are extracted. Generally, simple ring studies generate a rough visualization of the market areas around points.

## **route**

In a GIS, a path through a network. (In ArcGIS, a network is an interconnected set of lines representing possible paths from one location to another. A city streets layer is an example of a network.)

## **shapefile**

A file that contains the geographic location of your customers or stores and the attributes behind them. Shapefiles have a .shp extension.

## **simple market area**

An area defined by generalized boundaries drawn around outer customer points.

## **site prospecting**

You can prospect for sites by inputting coordinates, inputting an address, selecting a point on the map, or using a selected point. You can then conduct an analysis of the site you are prospecting.

## **spatial overlay analysis**

A type of analysis that allows you to extract data from one layer—such as block groups—to an overlay layer—such as a trade area.

## **Spatial Overlay wizard**

A wizard in Business Analyst that walks you through the steps necessary to extract underlying data to your overlay layer.

## **spider diagrams**

Another name for desire lines. See desire lines.

## **standard deviation classification method**

A classification method in which class breaks are placed above and below the mean value at intervals of 1, 0.5, or 0.25 standard deviations until all the data values are included in a class.

## **standard industrial classification (SIC) codes**

The federal classification system that is the national standard used to classify, sort, and categorize every industry. It is also used as an identifying system in business directories, publications, and statistical sources.

## **store prospecting**

A type of analysis that assesses the potential of a site by performing simple ring or drive-time analysis.

## **study area**

The geographic area in which analysis takes place.

## **table**

A data structure that stores attributes in rows and columns. Also called an attribute table.

## **tabular data**

Data in the form of a .dbf file, a comma- or tab-delimited .txt file, or a relational database management system (RDBMS). In Business Analyst, you can add both customers and stores as tabular data to your map.

## **thematic map**

A map that symbolizes features according to a particular attribute. Examples are a map displaying businesses as dots of different sizes according to number of employees or a map displaying

census tracts in different colors according to median household income.

## **Thiessen polygon**

A type of analysis that creates trade area boundaries halfway between each store and its neighboring stores. See also equal competition area.

## **threshold ring analysis**

A type of analysis that allows you to create rings around your stores with a given data value inside. This analysis uses data at the block level.

## **tract**

A small, relatively permanent statistical subdivision of a county. Census tract boundaries normally follow visible features but may follow governmental unit boundaries or other nonvisible features. A census tract may contain between 2,500 and 8,000 people.

## **virtual study area**

The current extent of your map document. The virtual study area never has a boundary.

## **wizard**

In a software program, a series of panels that guides you through a task or set of tasks.

## **ZIP+4**

An enhanced ZIP Code that consists of the five-digit ZIP Codes and four additional digits that identify a specific range of delivery addresses.

## **zone improvement plan code (ZIP Code)**

A system of five-digit codes that identifies the individual post office or metropolitan area delivery station associated with an address.

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