

# ArcIMS 9

---

## Getting Started With ArcIMS



Copyright © 2004 ESRI  
All Rights Reserved.  
Printed in the United States of America.

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

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

#### **U.S. GOVERNMENT RESTRICTED/LIMITED RIGHTS**

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

ESRI, ArcExplorer, ArcGIS, ArcPad, ArcIMS, ArcMap, ArcSDE, Geography Network, the ArcGIS logo, the ESRI globe logo, www.esri.com, GIS by ESRI, and ArcCatalog are trademarks, registered trademarks, or service marks of ESRI in the United States, the European Community, or certain other jurisdictions.

Microsoft and the Windows logo are registered trademarks and the Microsoft Internet Explorer logo is a trademark of Microsoft Corporation.

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

# Contents

## **1 About ArcIMS and this guide 1**

- About ArcIMS 2
- ArcIMS documentation 14
- Other available documents 18
- About sample data and applications 19
- Getting support 20

## **2 Installation and startup 21**

- Installing ArcIMS 23
- Starting ArcIMS 27

## **3 Quick-start tutorial 33**

- Exercise 1: Creating a map for the Web 34
- Exercise 2: Creating an Image Service 39
- Exercise 3: Designing a Web site 41
- Exercise 4: Viewing your Web site 45

## **4 Quick reference 47**

- Author 48
- Designer 52
- Administrator 53
- Service Administrator 54
- Viewers 55



# About ArcIMS and this guide

# 1

## IN THIS CHAPTER

- **About ArcIMS**
- **ArcIMS documentation**
- **Other available documents**
- **About sample data and applications**
- **Getting support**

Welcome to ArcIMS® 9, ESRI's powerful, scalable, extendable, standards-based software application for distributing maps on the Web. Using the Typical option in the ArcIMS installation and the ArcIMS HTML Viewer, you can quickly and easily create and deploy a Web site, or Internet geographic information system (GIS) application, that provides your maps to anyone with a Web browser, even if you're new to creating Web sites.

This guide, part of a comprehensive ArcIMS documentation set, introduces you to ArcIMS and guides you through the process of getting all the necessary components installed, configured, and running for your particular environment. It is divided into the following chapters:

1. 'About ArcIMS and this guide' gives a brief overview of ArcIMS and provides a description of and tells how to access each piece of the documentation set, other available documentation, and sample data and applications you can use to jump-start your Web site.
2. 'Installation and startup' provides instructions and tips for installing ArcIMS for the first time, upgrading from a previous version, and starting ArcIMS.
3. 'Quick-start tutorial' guides you through the process of creating an ArcIMS Web site from creating a map to testing your site functionality. It includes instructions for both Windows® and UNIX®/Linux® users.
4. 'Quick reference' provides illustrations and descriptions of each of the major components of ArcIMS and their user interface items, such as their toolbars.

# About ArcIMS

## ArcIMS and data sharing

The tremendous growth in Internet use has resulted in an increased demand for the delivery of geographic data, maps, and applications over the Internet. ArcIMS was developed by ESRI to meet this growing demand.

ArcIMS lets you centrally build and deliver maps, data, and tools over the Internet. ArcIMS takes advantage of the Internet technology that makes it possible to share information and data with many users, either locally or around the world.

Using ArcIMS, your organization can author maps and publish them to a Web site of your own creation, complete with map navigation and query tools. Using the ArcIMS security features allows you to regulate access to the services you deliver over the Internet.

Established organizations can leverage their investment in data by using ArcIMS as their Internet delivery system. ArcGIS users can leverage their investment in ArcGIS® by using ArcMap™ as the authoring environment for maps delivered over the Internet. Emergent organizations can use ArcIMS to meet new business challenges. Regardless of the scale or complexity of their needs, all organizations benefit from the flexibility and scalability of ArcIMS.

ArcIMS, rooted in ESRI's proven Internet map publishing technology, is a reflection of ESRI's ongoing commitment to research and development. ArcIMS was developed to address a number of challenges including:

- Ease of use at a variety of skill levels
- Out-of-the-box usability, while providing a highly customizable environment
- Comprehensive suite of administration tools
- Open and scalable architecture
- Tighter integration with other ESRI products including ArcGIS

## Ease of use at a variety of skill levels

ArcIMS has been designed for those new to Web site creation, expert Web developers, and a range of experience levels in between. While the ArcIMS user interface provides beginners with a quick and easy way to set up a basic Web site, the open architecture of ArcIMS allows experienced Web developers to create highly customized and functionally rich Web sites, or Internet GIS applications.

If you're a beginner, you can use the ArcIMS user interface to quickly get your Web site established and to later administer your site. You'll likely choose one of the ArcIMS Viewers—prebuilt Web site templates—instead of building a Web site or client on your own.

If you're an advanced user, you may wish to customize one of these viewers or build a fully customized client. In addition to documents that help you customize ArcIMS Viewers, ArcIMS comes with several application programming interfaces (APIs), including Active Server Pages (ASP), .NET, Java™, and ColdFusion®. These APIs, also known as connectors, expose ArcIMS functions so that you can develop custom clients. They come with sample applications, also known as templates, to help jump-start your custom client development.

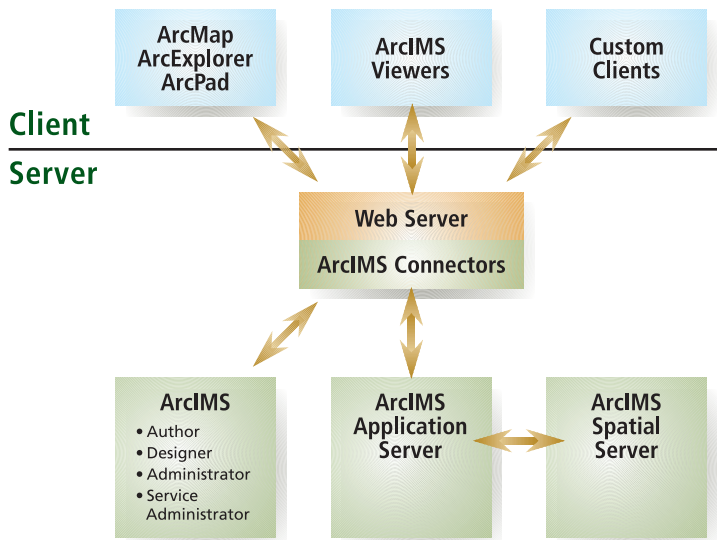
As an advanced user, you can take advantage of additional features not available in the user interface. You do this primarily by manually editing files, such as configuration and property files.

This section describes ArcIMS architecture and components and provides a look at key directories and files in the ArcIMS directory structure.

## ArcIMS architecture and component descriptions

The ArcIMS architecture incorporates a processing model that uses many components working in cooperation to run simultaneously and create map data for delivery by the Web server. Components, communicating using standard protocols, can be distributed anywhere on the network while the components remain synchronized. Each host computer's operating system controls the execution of ArcIMS processes and manages memory.

The ArcIMS Web site you create is composed of many components, even if you are using the Typical installation option and a simple configuration. The following diagram shows the server-side components required in the Typical installation option.



*ArcIMS components, your Web server, and client applications. When your user's Web browser opens your ArcIMS Web site, the browser is opening an ArcIMS Viewer or a custom client application.*

## ArcIMS Application Server

The ArcIMS Application Server provides the following functions to the Internet GIS application:

- Processes site administration requests. Typically these come from Administrator or Service Administrator.
- Distributes requests to the Spatial Server(s) and acts as a broker for these requests. It relies on Virtual Servers for this distribution. For more information on how the Spatial Server, the Application Server, Virtual Servers, and instances work together, see 'Instances and Virtual Servers' in this chapter.
- Tracks which ArcIMS services are running on which ArcIMS Spatial Servers.
- Logs information about the above tasks it performs.

## ArcIMS Spatial Server

The ArcIMS Spatial Server is the core of ArcIMS. It hosts the ArcIMS services, processes requests for maps, retrieves attribute data, geocodes (matches addresses), and performs data extraction. The Spatial Server's primary job is to dynamically render the map images that will be displayed on hypertext markup language (HTML) pages. It also generates site activity information, such as a log of any failed requests, and information about its processing, such as average request processing time, that you can review.

Because the Spatial Server's workload is greater than that of any other ArcIMS component, you may need to place Spatial Servers on more than one machine. You can administer Spatial Servers with Administrator. One of the most important factors to consider when load balancing is the total number of instances in the Spatial Server.

## ArcIMS services

When you publish GIS content over the Internet or Intranet via ArcIMS, you must publish it through one or more ArcIMS services. An ArcIMS service is a process that continuously runs in the background and performs a specified operation at predefined times or in response to certain events.

An ArcIMS service presents spatial data and metadata to your users via a Web server. Items such as the symbology, labeling, and layer draw order for the service are defined in the configuration file. The configuration file is discussed later in this chapter.

### Service types

ArcIMS has several types of services. Each service type corresponds to a Virtual Server type and Spatial Server function type. The service types are:

- **Image Service**—Maps are generated on the server and sent to clients in image formats such as Joint Photographic Experts Group (JPEG), Portable Network Graphics (PNG), and Graphics Interchange Format (GIF). A new map image is generated each time a client requests new information. Image Services have internal access to query, geocode, and extract functions. This internal access is possible through the Query, Geocode, and Extract Private Virtual Servers which are described in detail later. You will find that this service type can satisfy most of your Web site needs.
- **Feature Service**—Vector data is streamed to a Java applet in the requesting client. Feature streaming is a temporary compressed format that remains only as long as the client is open. Requests are sent to the Spatial Server only when additional data is needed. Similar to Image Services, Feature Services have internal access to query and geocode functions

through the Query and Geocode Private Virtual Servers. Use this service type when you want to take advantage of functions in the Java Viewers that require feature streaming such as changing layer symbology or EditNotes.

- **ArcMap Image Service**—This service lets you serve ArcMap and ArcGIS Publisher documents (.mxd files and .pmf files, respectively) over the Internet or Intranet via ArcIMS. When the Spatial Server receives a request, it generates a map and sends it to the client as a JPEG, PNG, or GIF image. A new map image is generated each time a client requests new information. ArcMap Image Services have internal access to query operations, but geocode and extract functions are not available. Use this service when you want to use versioned geodatabase data, you are seeking enhanced cartographic quality, or you already have a .mxd or .pmf file you want to publish.
- **Metadata Service**—This service allows users to search a metadata repository for documents related to mapping, data, and services. Use this service if you've created a metadata system.
- **Route Services** are also available if you've licensed the ArcIMS Route Server extension.

With the exception of restricting access (also known as user authentication), you manage your ArcIMS services using Administrator or its Web-based version, Service Administrator. When you manage services, you create, start, stop, and remove services. You also change service properties, such as the service description and the associated Virtual Server. As the Administrator user interface shows you as you're managing services, different services require different information from you. For example, the Image Service requires an output directory location for the image file.



Saving your site configuration ensures that your services are restored each time you reboot your machine or restart ArcIMS.

### Organizing layers into services

An Internet GIS application can contain more than one Image or Feature Service. This gives you the flexibility to divide data layers into logical groups. Each group constitutes a single service. Dividing data layers into separate services can improve the organization of your site. The following list describes several ways to organize data layers into logical groups.

- **Reusable**—Maps often contain layers that are primarily used for reference. These referential data layers are used over and over again in different applications. You might create a service that includes only referential data layers.
- **Domain specific**—When data is specialized, you should consider assigning it to its own service. Corporate data, data requiring extensive analysis, and data to which you want to restrict access all fall into this category.
- **Application specific**—Some data layers are always used together to support a specialized application—for example, waterlines, valves, and meters—and should be kept together in the same service.
- **Frequently changing**—Data layers that are frequently updated should be kept separate from layers that change infrequently. This prevents frequent updates from affecting data layers that only need infrequent changes.
- **Detailed**—Layers containing detailed information could be grouped together in the same service.

These are just a few examples of how categorizing your data can improve the organization of your application. You will discover many more practical divisions when you begin experimenting with your own applications and data.

### Instances and Virtual Servers

An ArcIMS site must be able to respond quickly to various concurrent client requests. Some sites can do this effectively with the default Spatial Server and Virtual Server configuration. However, ArcIMS enables work to be distributed as needed through the use of Virtual Servers. In Spatial Server terms, work is defined by instances.

An instance, the fundamental processing unit of the Spatial Server, takes a request and generates a response that can be sent back to a client. An instance processes one request at a time.

The Spatial Server, a container for instances, is composed of different functions that handle the instances. Instances are handled via Virtual Servers based on which Spatial Server function they require.

The Spatial Server function types are:

- **Image**—Renders maps on the server-side and sends them to the client as Web-appropriate images. Provides ArcIMS Image Services.
- **Feature**—Streams requested vector data to the client. Provides ArcIMS Feature Services.
- **Metadata**—Lets clients search and browse geographic data about data.
- **Query**—Handles data queries.
- **Geocode**—Provides geocoding support.
- **Extract**—Sends requested data to client as zipped shapefiles.
- **ArcMap Server**—Publishes maps created in ArcMap. You must have installed the optional ArcMap Server component, which comes with ArcIMS.

- **Route Server**—Calculates routes between a set of two or more stops. You must have licensed the optional Route Server extension to ArcIMS.

Virtual Servers help the Spatial Server (or a group of Spatial Servers) balance its workload by providing logical groupings of instances. In this way, an instance exists within a Spatial Server but “belongs to” a Virtual Server. These groupings correspond to the Spatial Server function types and allow for the concurrent processing and load balancing of requests. These groupings, also known as Virtual Server types, are:

- Image Server (public)
- Feature Server (public)
- Metadata Server (public)
- Query Server (private)
- Geocode Server (private)
- Extract Server (private)
- ArcMap Server (public)
- Route Server

When ArcIMS receives a request, a Virtual Server handles it. In addition to a collection of instances, a Virtual Server also has a queue that resides in the Application Server. When a request arrives, it may spend time waiting in the queue until an instance becomes available for that function type. Because each instance in a Virtual Server provides exactly the same service, requests are served in a round-robin fashion. The next available instance services the request.

Each ArcIMS service uses one Virtual Server, but a Virtual Server can be used by more than one ArcIMS service. When you create

an ArcIMS service, the service gets added to each instance within the Virtual Server you associate to that service.

By default, one Spatial Server and six<sup>1</sup> Virtual Servers are installed and each Virtual Server has two instances. You can use Administrator or Service Administrator to add Virtual Servers, Spatial Servers, and instances and adjust their assignments to help ArcIMS best accommodate the load requirements of your site.

Each Virtual Server is either public or private. Public Virtual Servers are used by ArcIMS services directly; private Virtual Servers are not used by ArcIMS services unless redirected by a request.

### **The Web server, Java Runtime Environment, and servlet engine**

A Web server is a program that resides on a machine on the Internet and enables a Web site to run. When a client application, such as a Web browser, makes a request for a file or data, the Web server locates the file or data and sends it back to the client application. A Web server program is not included with ArcIMS but is required for ArcIMS to run.

Many of the ArcIMS components used to build and administer your site are Java 2 components and require that a Java Runtime Environment (JRE) be installed and available for use.

Because ArcIMS requires a JRE, if a JRE does not already exist on the machine on which you installed ArcIMS, ArcIMS can install one for you. A list of supported JRE versions is provided in the ArcIMS system requirements page at <http://support.esri.com>.

ArcIMS also requires a servlet engine. A servlet engine provides support for servlets through a servlet API.

<sup>1</sup> There are eight default Virtual Servers if ArcMap Server and Route Server have been installed. The ArcMap Server’s Virtual Server allows for only one instance and cannot be run with other Virtual Servers.

Some Web servers do not support servlets natively, so if your Web server does not support servlets natively, you must install a servlet engine compatible with your Web server and supported by ArcIMS.

A complete list of Web servers and servlet engines supported for use with ArcIMS is available from the ArcIMS system requirements page at <http://support.esri.com>.

### ArcIMS connectors

Connectors provide a communication pipeline between a Web server or third-party application server and the ArcIMS Application Server. The ArcIMS Servlet Connector is installed as part of a typical installation of ArcIMS.

ArcIMS has five connectors:

- ArcIMS Servlet Connector—This connector is the default connector and is available on all supported platforms. It uses a servlet engine to provide a communication link between the Web server and the ArcIMS Application Server.
- ActiveX® Connector—This connector is a Component Object Model (COM) Dynamic Link Library (DLL) that can be used in a COM application, such as Microsoft® ASP. This connector is available on Windows platforms only.
- ColdFusion Connector—This connector allows you to work with custom ColdFusion tags. It processes requests from the ColdFusion Server before sending the request to the ArcIMS Application Server. This connector is available on all platforms supported by both ArcIMS and ColdFusion Server.
- Java Connector—This connector is a set of JavaBeans that allows you to create client and server applications, custom servlets, and JavaServer Pages (JSP) applications. A JSP tag library is also included for supporting JSP applications. This connector is available on all supported platforms.

- .NET Link—This component is a .NET assembly that provides a native .NET communication library to the ArcIMS Application Server. Two types of communication are available, TCP/IP or HTTP/HTTPS, for local and remote connections, respectively. This component is available on Windows platforms only.

For more information on each connector, see the “Customizing ArcIMS” documents. For information on accessing these documents, see the ‘ArcIMS documentation’ section in this chapter.

### Viewers and clients

When using ArcIMS Designer to design a Web site to serve your map content, you can choose one of three ArcIMS Viewers: HTML, Java Standard, or Java Custom. You can customize these viewers or build custom clients that serve the same purpose as the viewers. Essentially, the viewer or custom client is the Web site, also known as Internet GIS application or Web application, you create to serve your map content.

If you intend to build your own custom client, you can use one of the API specifications that comes with ArcIMS, depending on your development environment and the client functionality you wish to provide. Each API specification comes with sample applications that can serve as your Web site template.

Other ESRI® applications, such as ArcMap, ArcExplorer™, and Metadata Explorer, can serve as clients to your Internet GIS application. Users of these applications can view, query, and even export features from your ArcIMS services. For more information on restricting this type of access, see Knowledge Base article 21280 at <http://support.esri.com>.

Each viewer or client is different and has its own advantages. The viewer or client you choose determines:

- What software your users must have to view the content
- The GIS functionality available to your users
- The viewer customizations you can perform to it
- The type of services you can provide your users
- Where the majority of the processing takes place
- The position of the page elements and graphical look of the site

See the “Choosing a viewer or client” topic in *ArcIMS Help* for a comparison of viewers and clients. See Chapter 4, ‘Quick reference’, for illustrations and descriptions of the viewers and their components and toolbar buttons.

### The configuration file and ArcXML

The configuration file is the input to an ArcIMS service and contains the basic information about the content you want to deliver, such as location of the data, layer symbology, geocoding properties, and stored queries. You can create different configuration files for different uses.

Typically, an ArcIMS configuration file:

- Is created in Author
- Contains data that defines map content
- Is written in ArcXML, ESRI’s extensible markup language (XML) specification for publishing maps, data, and metadata
- Has a file extension of .axl

However, a configuration file can also be a map document created in ArcMap (a .mxd file) or a published map file (a .pmf file) created in ArcGIS Publisher, an extension to ArcMap. It can also be a .axl file used for delivering metadata or route data instead of traditional map content.

The ArcIMS service registers the map content in the configuration file to the ArcIMS Spatial Server for processing. You must refresh the service every time you replace or update a configuration file.

You can manually edit a .axl file by opening it in a text editor or an XML editor, but if your .axl file contains non-English characters, you must use an XML editor that supports UTF-8. When you edit it manually, you can customize it to include elements not available in Author, including additional symbology, query statements, or map projections. Once you make custom edits of this nature, be careful to *not* save the configuration file later in Author or you may lose your edits. Instead, use your text editor to save the edited file.

For instructions and syntax for manually editing .axl configuration files, a complete list of ArcXML elements with their parameters and valid values is provided in the *ArcXML Programmer’s Reference Guide*. This guide is installed automatically with your ArcIMS installation.

The following two pages provide:

- An overview of some common ArcIMS service types as they relate to configuration files and viewers
- A sample of a simple configuration file

Process	Service type			
	Image	Feature	ArcMap Image	Metadata
Map creation product	Author	Author	ArcMap	XML Editor
Configuration file format	ArcXML	ArcXML	Binary ArcMap document	ArcXML
Standard output file extension <sup>1</sup>	.axl	.axl	.mxd or .pmf	.axl
Clients	HTML Viewer Java Viewers ArcMap ArcPad® Custom HTML implementations	Java Viewers ArcExplorer—Java ArcMap	HTML Viewer Java Viewers ArcMap ArcPad Custom HTML	Metadata Viewer ArcCatalog™

<sup>1</sup> Does not include supported image file formats and layout formats that the service can output. For a list of supported image formats, see *ArcIMS Help*.

## Sample .axl configuration file with one feature layer

```
<ARCXML version="1.1">
  <CONFIG>
    <ENVIRONMENT>
      <LOCALE country="US" language="en" variant="" />
      <UIFONT color="0,0,0" name="Arial" size="12" style="regular" />
    </ENVIRONMENT>
    <MAP>
      <PROPERTIES>
        <ENVELOPE minx="-122.679545" miny="37.462184" maxx="-122.135893" maxy="37.871967"
          name="Initial_Extent" />
        <MAPUNITS units="decimal_degrees" />
      </PROPERTIES>
      <WORKSPACES>
        <SHAPEWORKSPACE name="shp_ws-3" directory="C:\TutorialData" />
      </WORKSPACES>
      <LAYER type="featureclass" name="highways" visible="true" id="2">
        <DATASET name="highways" type="line" workspace="shp_ws-3" />
        <SIMPLERENDERER>
          <SIMPLELINESYMBOL transparency="1.0" type="solid" width="1" captype="round"
            jointype="round" color="27,227,127" />
        </SIMPLERENDERER>
      </LAYER>
    </MAP>
  </CONFIG>
</ARCXML>
```

Prologue.

This .axl file uses the United States English locale.

The data is stored in geographic coordinates.

The data can be found in the C:\TutorialData folder.

The file displays a layer named "highways".

This line indicates light green line with width of 1 point.

## **ArcMap Server**

ArcMap Server is a component of ArcIMS that lets you serve map documents (.mxd files) you create in ArcMap. You can also use ArcMap Server to deliver ArcGIS Publisher maps (.pmf files). You serve .mxd and .pmf files through an ArcMap Image Service.

Your users can view ArcMap Image Services using the same viewers as ArcIMS Image and Feature Services, such as the viewers that come as standard options with ArcIMS Designer, custom ArcIMS viewers, ArcMap, ArcExplorer, and ArcPad.

## **ArcExplorer—Java Edition**

ArcExplorer—Java Edition is an easy-to-use Web-based application that lets you explore geographic data. It is an optional ArcIMS component that you can install using the ArcIMS installation wizard. You can also download it from <http://www.esri.com/software/arcexplorer>.

You can use ArcExplorer —Java Edition to view and query geographic data on your computer or from an ArcIMS Web site and combine both sources in a common map.

## **Metadata Explorer**

Metadata Explorer is a Web-based application for searching and viewing metadata. It is an optional ArcIMS component that you can install using the ArcIMS installation wizard.

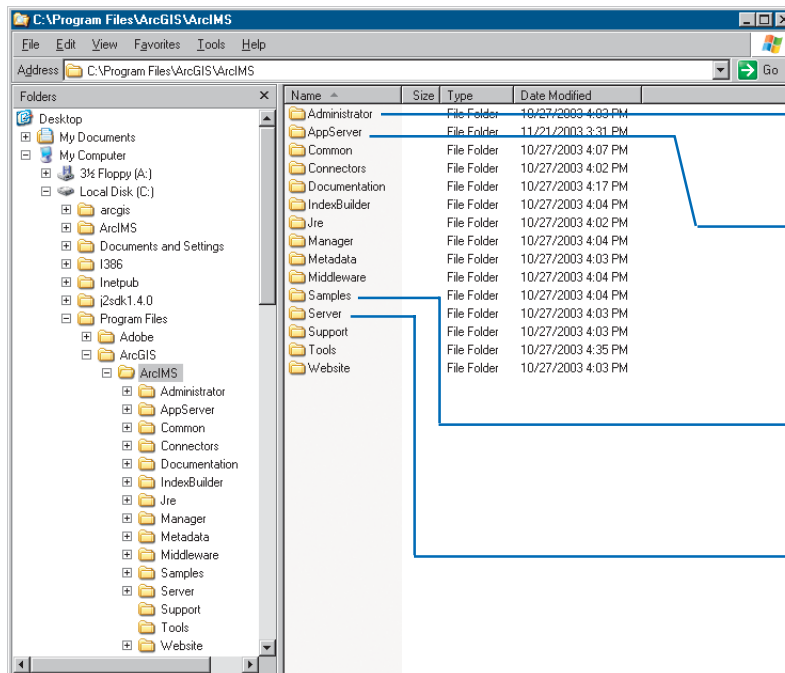
## ArcIMS directories and file locations

The two main directories to which ArcIMS installs files by default (for Windows and UNIX/Linux) are:

- <ArcIMS Installation Directory>/arcims
- The ArcIMS Web site directory. The default installation location and name for this directory is <drive>/arcims.

The following two illustrations show what the top levels of these two directories look like in a Windows environment.

### <ArcIMS Installation Directory>/arcims



Stores the esriadmin.properties file in its esriadmin/WEB-INF subdirectory. You may need to edit this file if you are using Service Administrator.

Stores ArcIMS Application Server files such as AppServerStatus.log, which captures ArcIMS error messages, and AppServer.properties, which stores settings related to performance and response time and Application Server log files used for debugging. It also stores the files for the ArcIMS Tasker.

Stores sample data, configuration files, and applications, including the sample data used in ArcIMS tutorial exercises.

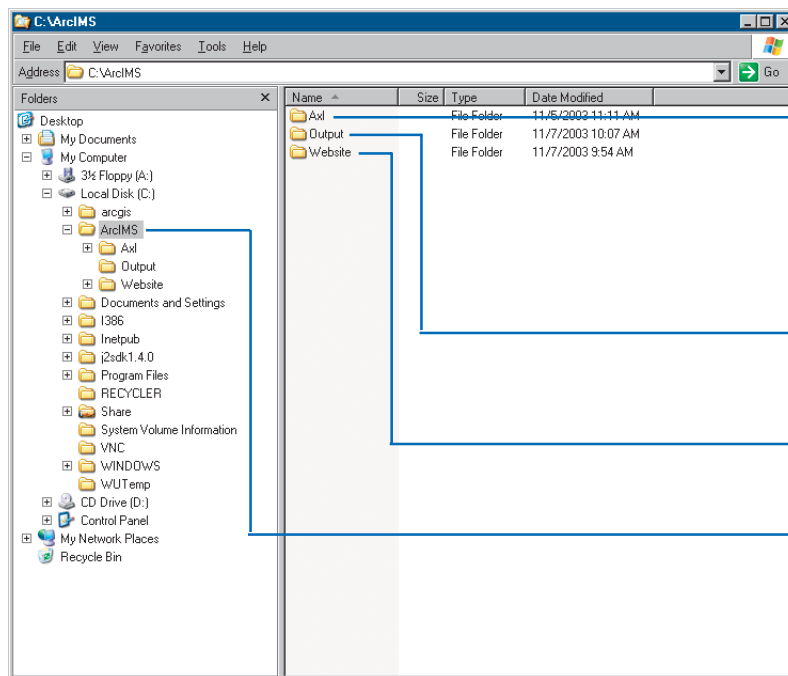
Stores ArcIMS Spatial Server files, such as log files, which capture ArcIMS error and warning messages. It also stores the Spatial Server configuration files, which store settings that primarily affect error messaging, performance, and output limits.



## ArcIMS Web site directory

The ArcIMS Web site directory stores the following folders:

- AXL—The default location for your configuration file or files (.axl, .mxd, and .pmf files).
- output—The default location for the output images and ZIP files generated by the Spatial Server.
- website—The folder to which sample customized HTML and Java Viewers are installed and the default location of the Web sites (viewers) you create in Designer.



Stores the configuration files for your site.

Stores the output images and ZIP files generated by the Spatial Server.

The location of the Web sites (viewers) you create in Designer and sample customized viewers that come with ArcIMS.

The ArcIMS Web site directory. By default, the name you type in the first panel of Designer as your site directory name is created as a subfolder of this directory.

# ArcIMS documentation

The ArcIMS documentation set includes this *Getting Started With ArcIMS* guide, plus all the guides described in this section. Some documents are printed and included in your ArcIMS box, some are installed automatically, and some are provided on the *ESRI Software Documentation Library* CD that comes in your box.

## Printed and included in your box

*Getting Started With ArcIMS*—This book you're currently reading gives an overview of ArcIMS and its documentation and samples as well as provides installation instructions and a tutorial. Also provided in portable document format (PDF).

*Java Connector OMD*—This poster gives a visual overview of the Java Connector object model.

*ActiveX Connector OMD*—This poster gives a visual overview of the ActiveX Connector object model.

*What is ArcGIS?*—This book gives an overview of all the ArcGIS components. Also provided in PDF format.

## Installed with ArcIMS

The following guides are installed with ArcIMS.

*ArcIMS Installation Guide*—This guide provides step-by-step instructions for installing ArcIMS. It also provides preinstallation tips and postinstallation information to ensure all components are communicating correctly. It lists advantages and disadvantages of configuration options. It is installed locally when you install ArcIMS. To access the installed version, click Installing ArcIMS in the welcome page of the ArcIMS online Help. You can also access it by navigating to <ArcIMS Installation Directory>arcims\Documentation\Install.htm. Or you may access

it from the ArcIMS CD before you install ArcIMS by navigating to the top level of the ArcIMS CD and opening the Install.htm file.

*ArcIMS Help*—This guide is an HTML-based help system that documents every task you can perform with the ArcIMS user interface. It also gets you started on manual editing tasks, such as editing a configuration or property file, and advanced tasks such as restricting access to services. Help topics include information on geocoding styles, creating metadata services, supported data and image formats, and delivering ArcMap maps as well as more advanced topics, such as building Structured Query Language (SQL) expressions and administering property files. The help is installed locally when you install ArcIMS and is accessible from the Help menu of each ArcIMS user interface component as well as from the Windows Start bar. You can also navigate to it at <ArcIMS Installation Directory>/arcims/Manager/Help/arcims\_help.htm.

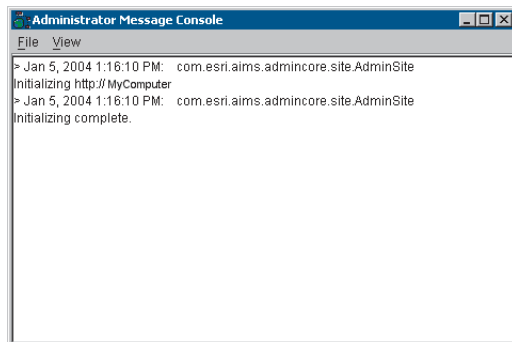
*ArcXML Programmer's Reference* and the ArcXML document type definition (DTD) file—The programmer's reference is an HTML-based help system that describes ArcXML, ESRI's XML specification for publishing maps, data, and metadata. It provides a complete list of ArcXML elements with their parameters and valid values. It is also provided in PDF format, but the PDF version is not installed automatically. To access the HTML-based version, click ArcXML Programmer's Reference in the welcome page of *ArcIMS Help*. You can also access it by navigating to <ArcIMS Installation Directory>/arcims/Documentation/ArcXML\_Guide/ArcXML\_reference.htm. The .dtd file, which can be used to validate configuration files, requests, and responses, is in <ArcIMS Installation Directory>/arcims/Documentation/ArcXML\_Guide/arcxml.dtd.

*Using ArcIMS Service Administrator*—The Administrator.pdf is a PDF version of the *ArcIMS Help* topics that discuss the Service Administrator. It tells how to use ArcIMS Service Administrator, a Web-based application that lets you manage your site from a

remote location. You can access this PDF by clicking Help, a link that is available in most panels of Service Administrator.

**Message console**—This tool provides documentation in the form of informational and error messages generated by Author or Administrator. You can open the message console from within Author or Administrator. In Author, click the Help menu and click Author Message Console. In Administrator, click the Help menu and click Administrator Message Console.

The Message Console window appears.



*The Message Console window when opened from Administrator*

Once the console is open, you can set the message level by clicking the View menu, pointing to Message Level, and clicking one of the choices. You can save the messages in the console to

a text file by clicking File, clicking Save As, and typing a name for the file.

## Provided on CD

The following are provided on the *ESRI Software Documentation Library* CD in the ArcIMS directory.

If you copy them to <ArcIMS Installation Directory>/arcims/Documentation, you can use links to these guides in the *ArcIMS Help*. Most of these guides are provided in PDF format, and you need Acrobat Reader installed to view them. You can download this free viewer at <http://www.adobe.com/products/acrobat/readstep.html>.

## General documentation

*Getting Started With ArcIMS*—A PDF ([Getting\\_Started\\_with\\_ArcIMS.pdf](#)) that gives an overview of ArcIMS and its documentation and sample set, provides installation and upgrading instructions, and provides a tutorial. Also provided in hardcopy format (this guide).

*ArcXML Programmer's Reference*—A PDF ([ArcXML\\_Programmers\\_Ref\\_Gd.pdf](#)) that describes ArcXML, ESRI's XML specification for publishing maps, data, and metadata. It provides a complete list of ArcXML elements with their parameters and valid values. It is also provided in HTML-based format.

*Using ArcExplorer—Java Edition*—A PDF ([Using\\_ArcExplorer\\_Java.pdf](#)) that describes ArcExplorer—Java Edition, a Web-based application that lets you explore geographic data. It provides procedures for how to install and use the application to view and query geographic data stored on your computer or on the Web.

## Connectors

### ActiveX

#### *Customizing ArcIMS—Using the ActiveX Connector*

A PDF ([Using\\_ActiveX\\_Connector.pdf](#)) that tells how to develop a custom ArcIMS Web-based application using Visual Basic or ASP. It includes installation and setup instructions, a tutorial, and a complete reference for the ActiveX Connector, a COMDLL.

#### *The ActiveX Connector OMD*

The PDF ([ActiveX\\_Connector\\_OMD.pdf](#)) version of the hardcopy poster that gives a visual overview of the ActiveX Connector's object model for developing custom clients using ASP.

### ColdFusion

#### *Customizing ArcIMS—Using the ColdFusion Connector*

A PDF ([Using\\_ColdFusion\\_Connector.pdf](#)) that explains the foundation for customizing a ColdFusion client and provides a reference to the ArcXML element specification designed to work with ColdFusion. It describes reasons for customizing the ColdFusion Connector, contains the ColdFusion samples provided with ArcIMS, and provides information on how different mapping functionality is implemented with ColdFusion.

### Java

#### *Customizing ArcIMS—Using the Java Connector*

A PDF ([Using\\_Java\\_Connector.pdf](#)) that gives an overview of using the Java Connector to build a custom ArcIMS Web-based application using Java or JSP. It provides an overview of the Java API programmer's reference and provides a complete reference to the Java Connector Tag Library.

#### *The Java Connector OMD*

The PDF ([Java\\_Connector\\_OMD.pdf](#)) version of the hardcopy poster that gives a visual overview of the Java Connector's object model.

#### *The Java Connector OMD—Javadoc*

A javadoc-generated HTML reference ([API\\_reference.htm](#)) for the Java Connector's object model.

### .NET Link

*Customizing ArcIMS—Using .NET Link*—This guide, a set of two files, describes the ArcIMS .NET Link component, a .NET assembly that provides a native .NET communication library to the ArcIMS Application Server. [Using\\_NetLink.html](#) helps get you started with .NET Link and [NetLink.chm](#) provides a programmer's reference. If you have Visual Studio® .NET and ArcIMS .NET Link installed, you will have .NET Link help integrated into Visual Studio .NET. If you do not have Visual Studio .NET installed, you must have installed Internet Explorer 4.0 or higher to view [NetLink.chm](#), a compiled Microsoft HTML Help file.

## Viewers

#### *Customizing the HTML Viewer*

A PDF ([Customizing\\_the\\_HTML\\_Viewer.pdf](#)) that explains the foundation for customizing the ArcIMS HTML Viewer, one of the prebuilt Web-based applications that automatically gets installed with ArcIMS. It describes the viewer's file structure and frame layout and provides a complete reference to the viewer's function library. To customize the HTML Viewer you primarily work with its [ArcIMSParam.js](#) parameter file and a set of JavaScript functions.

#### *Customizing the Java Viewer*

A PDF ([Customizing\\_the\\_Java\\_Viewer.pdf](#)) that explains the foundation for customizing the Java Viewer, one of the prebuilt

Web-based applications that automatically gets installed with ArcIMS. It also provides reasons for customizing the viewer, the viewer's file structure and frame layout, a complete reference to the viewer's object model, and the relationship between key HTML and JavaScript files with the viewer.

## Metadata

### *Creating and Using Metadata Services*

This document was not available at the time of publication. Check the documentation download area on the ESRI support site for this document. Go to <http://support.esri.com>, click Knowledge Base, click Product Documentation, then click ArcIMS. This document is a PDF ([Creating\\_Metadata\\_Services.pdf](#)) that tells how to use ArcIMS, with ArcGIS Desktop and ArcSDE®, to create a catalog of your GIS holdings that you can make available to users over the Internet. It also details how to use Metadata Explorer, a Web application that comes with ArcIMS, for searching and viewing metadata.

### *Customizing the Metadata Explorer*

A PDF ([Customizing\\_the\\_Metadata\\_Exp.pdf](#)) that explains the foundation for customizing Metadata Explorer, a Web-based application that comes with ArcIMS for searching and viewing metadata. It gives procedures for basic customizations, describes the directory structure and files used by the application, and gives detailed descriptions on the advanced functionality provided in the sample customized Metadata Explorer that comes with ArcIMS.

## Conventions used in ArcIMS documentation

- Text inside angle brackets <> indicates a variable, typically, a directory name that you've specified. A common usage of this convention is <ArcIMS Installation Directory>, which indicates the directory to which you installed ArcIMS.
- Illustrations of ArcIMS windows and dialog boxes typically have been captured in the Windows environment, so colors and fonts may be different on UNIX platforms.
- Unless stated otherwise, instructions for UNIX include Linux, Solaris, HP-UX, and AIX.
- Code samples and text you type is in the Courier New font.

## Other available documents

### Updated documentation

Check the ESRI support site at <http://support.esri.com> for the latest updates and additions to the ArcIMS documentation set. Go to <http://support.esri.com>, click Knowledge Base, click Product Documentation, then click ArcIMS. Your ESRI global account password gives you access to documentation postings listed by date of update.

### ArcIMS system requirements

Go to <http://support.esri.com>, click Knowledge Base, then click System Requirements. Next, select the environment options that match your environment, then click Go. This site lists all supported configurations and their known limitations.

### ArcIMS error message documentation

While many error messages are documented in *ArcIMS Help*, the ESRI Support Center at <http://support.esri.com> provides supplemental error descriptions and troubleshooting information.

### Making a Direct Connection

A PDF that describes how to set up your relational database and clients so that client applications such as ArcIMS can make a direct connection to the database. A direct connection moves the processing from the server to the client. ArcIMS can connect directly to an DB2<sup>®</sup>, Informix<sup>®</sup>, Oracle<sup>®</sup>, or SQL Server<sup>™</sup> database. This document, [Making\\_a\\_direct\\_connection.pdf](#), is available on the *ESRI Software Documentation Library* CD in the `Managing_data_with_ArcGIS` subdirectory.

### ArcIMS extensions

For information on ArcIMS extensions, see <http://www.esri.com/software/arcims/extensions.html>.

### Understanding ArcSDE

A PDF that gives an overview of ArcSDE and its architecture and describes how it manages spatial data stored in a relational database. This document, [Understanding\\_ArcSDE.pdf](#), is available on the *ESRI Software Documentation Library* CD in the `Managing_data_with_ArcGIS` subdirectory.

### Understanding Map Projections

A PDF that gives information on geographic coordinate systems, projected coordinate systems, and geographic transformations. This document, [Understanding\\_Map\\_Projections.pdf](#), is available on the *ESRI Software Documentation Library* CD in the `Managing_data_with_ArcGIS` subdirectory.

### For links to all available ArcIMS white papers and other resources

For a list of links to all available white papers, see the ESRI support site at <http://support.esri.com>. Click Software, ArcIMS, then White Papers.

The support site provides additional resources, such as technical articles, error message descriptions, and downloads for samples and applications.

# About sample data and applications

Sample data and sample applications are provided with ArcIMS to help you get started.

Many samples are installed at <ArcIMS Installation Directory>/arcims/Samples.

Some sample applications and sample data are further described in:

- Readme files in the folder that corresponds to the application type. For example, the readme file for the ActiveX Connector samples is `readme_samples.html` and is in <ArcIMS Installation Directory>/arcims/Samples/ActiveX.
- PDF documents on the *ESRI Software Documentation Library* CD that correspond to the code base of the custom application. For example, the PDF file for the ActiveX Connector samples is `Using_ActiveX_Connector.pdf` and is in the ArcIMS/Customizing\_ArcIMS directory of the *ESRI Software Documentation Library* CD.

In addition, sample applications and utilities are provided on the ESRI support site at <http://support.esri.com>.

## Sample data attribution

The San Francisco map image is provided courtesy of Chalk Butte, Inc.

## Getting support

In addition to the ArcIMS documentation set, you can view the Knowledge Base, a discussion forum, and other documents for ArcIMS at ESRI's support site at <http://support.esri.com>.

The Knowledge Base contains technical articles and ArcIMS documentation updated or produced after the release.

The support site also:

- Provides a page that lets you search across multiple items, such as white papers, forums, and technical articles, for a particular topic:  
<http://support.esri.com/index.cfm?fa=search.gateway>
- Provides downloads for additional applications, utilities, and documentation
- Lets you report problems you have or suggestions for improvement
- Provides ESRI's Technical Support phone number
- Provides information about the types of technical support, including ESRI's Developer Support Group (DSG)

The site also provides information on ArcIMS online training courses and instructor-led training courses.



# Installation and startup

# 2

## IN THIS CHAPTER

- Installing ArcIMS
- Starting ArcIMS

When you install and set up ArcIMS using the Typical installation option, you add the ArcIMS software application to a machine and configure it to work inside the environment you are using to provide GIS content to your users. The ArcIMS software you install is composed of components—such as Author, Designer, and the Spatial Server—that let you create and maintain your ArcIMS Web site. The number of possible environments on which you can install ArcIMS is high because ArcIMS supports a wide range of operating systems, Web servers, and servlet engines.

ArcIMS also supports several configurations, from a simplistic setup to a high-availability, failover configuration.

Because of the high number of possible environments and configurations, ArcIMS requires you to perform a number of steps to install it and set it up to appropriately meet your specific needs.

The Typical installation option of ArcIMS is a simple configuration and the best option to use if you're new to ArcIMS because ArcIMS components are on one machine. Use the Typical option in a test environment to become familiar with ArcIMS basics—its components and processes. As you become familiar with your test installation of ArcIMS, you can assess your site needs and install ArcIMS as a distributed system if required. See the *ArcIMS Installation Guide*, the ESRI Knowledge Base at <http://support.esri.com>, and *ArcIMS Help* for configuration information.

This chapter walks you through a typical ArcIMS installation and gives tips on where to go for more information in the event you're installing to your production environment or are using a more complex configuration.

# Installing ArcIMS

1. If you are upgrading from a previous version of ArcIMS, review upgrading instructions for your version in the *ArcIMS Installation Guide*. Steps 6 and 7 tell how to open this guide. Otherwise, continue to step 3.
2. Collect the following information for the environment in which you intend to install ArcIMS. For this step, do not concern yourself with the environments your users will use to view your Web site. If you are installing ArcIMS on more than one machine (if you're not using the Typical installation option), you must collect this information for each machine and apply the steps in this procedure to each machine.

Operating system (OS): \_\_\_\_\_ (for example, Windows 2000, SP 4)

Web server<sup>1</sup>: \_\_\_\_\_

Servlet engine<sup>2</sup>: \_\_\_\_\_

RAM: \_\_\_\_\_

Available disk space: \_\_\_\_\_

ArcIMS registration number(s): \_\_\_\_\_

(Your ArcIMS packaging includes a registration card with one or more registration numbers.)

3. Go to <http://support.esri.com>, click Knowledge Base, then click System Requirements. Next, select the environment options that match your environment, then click Go. In the resulting page, review all the information to ensure that your machine meets the system requirements for all of the ArcIMS components that you are installing and that you're familiar

with any limitations or any procedures you must perform that are specific to your environment.

If you are upgrading your ArcIMS version, skip to step 6.

If you are not setting up your production (live) site or if you are using the Typical installation option, proceed to step 4.

If you are setting up your production site or if you are *not* using the Typical installation option, there are design decisions to make, limitations to be aware of, and load balancing information to consider before proceeding to step 4. For more information on these issues, see the *ArcIMS Installation Guide*. Steps 6 and 7 tell how to open this guide. Additional information can be found in the Knowledge Base, at <http://support.esri.com>, and in the *ArcIMS Help*, available after you install ArcIMS.

4. If you haven't already, install a Web server supported by ArcIMS and, if needed, a servlet engine. For more information on installing your Web server for use with ArcIMS, go to <http://support.esri.com> and open Knowledge Base article 25867, then click the link that corresponds to your environment.
5. Configure your Web server and servlet engine so that they work together. If you haven't already, open Knowledge Base article 25867 per step 4 for configuration instructions.

A Knowledge Base topic with instructions specific to your environment appears. Follow the instructions step-by-step until you get to the step that tells you to install ArcIMS.

<sup>1</sup> ArcIMS, like all software used to deploy Web applications, requires a Web server. If you do not have one, you can download one of the free Web servers available on the Internet, such as Apache's at <http://www.apache.com>. For a complete list of Web servers supported by ArcIMS, review system requirements as described in step 3.

<sup>2</sup> Servlet engines are required only for Web servers, such as Apache and IIS, that do not support servlets natively. An evaluation copy of New Atlanta's ServletExec servlet engine is provided on the ArcIMS CD. Some servlet engines, such as Jakarta's Tomcat (<http://jakarta.apache.org/tomcat>), are available for free on the Internet. You can review system requirements as described in step 3 to see if your Web server requires a servlet engine and, if so, which ones it supports.

Make sure you follow the instruction that tells you how to test that your Web server and servlet engine are communicating.

Print this Knowledge Base topic for reference, then close this article by closing your Web browser.

6. Insert the ArcIMS installation CD into your CD-ROM drive.

**Microsoft Windows:** Make sure you have administrator privileges for the machine on which you are installing. If your machine has CD autorun capabilities, it automatically launches the ArcIMS installation wizard. If it doesn't, manually start the wizard:

From the Start menu, select Run. Type:

```
<drive>:/setup
```

where <drive> is the letter of your CD drive.

**UNIX:** For security reasons, do not install ArcIMS as a super user<sup>1</sup>. Run the `SetupArcIMS` script on the ArcIMS CD.

The first panel of the ArcIMS installation wizard appears.



<sup>1</sup> Super user refers to a level of permissions associated with user login credentials. The super user level grants the highest degree of access available to user groups.

7. In the panel, click Install Guide.

*The ArcIMS Installation Guide* opens. View all of the topic titles in the table of contents by opening the booklets in the left pane. Print all of the installation and configuration topics that pertain to your environment and desired configuration, then close the guide by closing your Web browser. You will not need postinstallation instructions or viewer installation instructions at this time.

8. Follow the instructions in the installation wizard panels. As you click Next through the panels, when you need more information for your specific configuration, consult the installation instructions you opened in step 7.

When you come to the Select Features panel, you can choose which ArcIMS components you wish to install and what your ArcIMS installation directory will be. You can remove and add components at any time after this installation without uninstalling ArcIMS.

9. In the last installation panel, which tells you that ArcIMS has successfully been installed, click OK to close the wizard.

The ArcIMS postinstallation wizard appears. You can choose to perform the postinstallation now or at a later time. In either case, before you perform the postinstallation, you must first register ArcIMS. You can register the product at a later time too.

10. If you haven't already, go to <http://service.esri.com> and register your ArcIMS product. You must register it in order to activate a mechanism that authorizes your use of the product and allows you to use the product. You will be given additional instructions for completing the authorization process when you register your product.

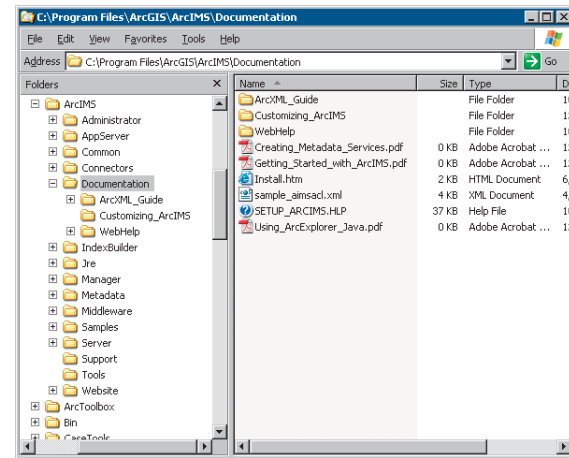
11. Use the ArcIMS postinstallation wizard to configure ArcIMS for your environment, including configuring communication among the Web server, servlet engine, and ArcIMS. This wizard opens after you have successfully completed the installation wizard, but you can close it and perform the configuration at a later time. To access this postinstallation wizard later, in Windows, from the Start bar menu click Start | ArcGIS | ArcIMS | Post Installation. In UNIX/Linux, run the SetupArcIMS\_PostInstall script located in <ArcIMS Installation Directory>/arcims/tools.

The postinstallation automates the configuration tasks for a few of the more common Web server–servlet engine combinations. If your combination is not one of these, refer to the Knowledge Base topic you opened in step 5 of this procedure and the *ArcIMS Installation Guide* and perform the steps for your combination. The instructions in this Knowledge Base topic walk you through a test to ensure your manual postinstallation configuration was successful.

12. After you’ve installed, configured, and tested your ArcIMS installation, remove the ArcIMS CD from your CD–ROM drive and replace it with the *ESRI Software Documentation Library* CD.

If you are using Windows, an installation wizard may appear. Close this wizard.

Copy the contents of the ArcIMS directory to your <ArcIMS installation directory>arcims/Documentation directory. Be careful not to change the directory structure of the files as you copy them. When you are finished, your <ArcIMS installation directory>/arcims/Documentation directory should have *Getting\_Started\_with\_ArcIMS.pdf* at its top level and should resemble the following graphic.



This step ensures that cross-document links work so you can easily and quickly access all documentation.

Now you are ready to start up and use ArcIMS. Before you start ArcIMS, if you haven’t already, review Chapter 1, ‘About ArcIMS and this guide’ to become familiar with ArcIMS directory structure and file locations.

### Installation tips

- If you want more than one Spatial Server in your site configuration and you want one to reside on a second CPU, you need an additional registration number. To install the second Spatial Server on the second CPU, run the installation wizard choosing only the Spatial Server component, then run the postinstallation wizard, supplying the second registration number as prompted. Then, in Administrator, add the Spatial Server to a Virtual Server.
- ArcIMS Manager and Java Viewers require a system registered Java 2 Platform Standard Edition Java (J2SE) JRE version 1.3.1 or higher with a few exceptions. At the time of

publication, ArcIMS does not support J2SE JRE versions 1.3.1\_03, 1.3.1\_04, 1.4.0\_01, and 1.4.0\_03. A J2SE JRE does not have to be installed on your machine prior to installing ArcIMS. The postinstallation wizard lets you install and configure a system registered J2SE JRE version 1.4.2. Or you can configure ArcIMS to use an existing Java Virtual Machine (the JRE includes the Java Virtual Machine) as long as the version of the Java Virtual Machine is supported by ArcIMS. A list of supported JRE versions is provided in the ArcIMS system requirements page at <http://support.esri.com>.

You can have more than one Java Virtual Machine per machine. You can download a Java Virtual Machine for free from the Sun Web site, <http://java.sun.com>. A Java Virtual Machine is included in both the JRE and the Java Developer Kit (JDK) available on the Sun Web site.

- You can view help for common Windows tasks when installing ArcIMS by viewing Knowledge Base article 23714.
- Record in a safe place any username and password you're asked to specify during the postinstallation. Usernames and passwords cannot contain spaces or vertical bars. For tips on creating safe passwords and instructions on changing passwords used in ArcIMS, see *ArcIMS Help*.
- You can administer ArcSDE instances with ArcIMS Service Administrator by installing the ArcSDE Services Monitor on the ArcSDE Server machine. The ArcSDE Services Monitor is a component you can select in the ArcIMS installation wizard.
- If you want to have more than one ArcMap Server in your site configuration and you want one to reside on a second CPU, you need an additional registration number. To install it on the second CPU, run the installation wizard, choosing the ArcMap Server component, then run the postinstallation wizard, supplying the second registration number as prompted. Then, in Administrator, add the ArcMap Server to a Virtual Server. See the *ArcIMS Installation Guide* and *ArcIMS Help* for more information.
- If you wish to install ArcMap Server or the ActiveX Connector and they are not listed in the Select Features panel, verify you've met the system requirements for those features.

# Starting ArcIMS

When you start up ArcIMS, you start one of its five<sup>1</sup> user interface components based on which task you'd like to perform, according to the following overview table:

Task	Start up
To add map content (create a configuration file)	Author
To design a Web site	Designer
To manage services, servers, and folders	Administrator
To manage an ArcIMS Web site remotely	Service Administrator
To view and test your site	Viewer, client, or custom client

For example, if it is your first time starting up ArcIMS, you'll likely want to get started on creating your ArcIMS Web site, so your first step would be to start up Author, add map content, then save your work as a configuration file (.axl file). Next, you'd start Administrator or Service Administrator to create and start an ArcIMS service for the configuration file. Your final step would be to start up Designer and design a Web site.

If you want to serve .mxd or .pmf files via ArcIMS, you use the .mxd or .pmf file as your configuration file instead of creating an .axl file in Author. So your first step in this case would be to create the .mxd or .pmf file in ArcMap or ArcGIS Publisher, respectively. Next you'd create an ArcIMS service for it—an ArcMap Image Service. Then you'd create the Internet GIS application in Designer just like you would for other services. For other issues to consider when serving .mxd or .pmf files, see the ArcMap Server topics in *ArcIMS Help*.

<sup>1</sup>Six major components make up the ArcIMS user interface including Manager. Manager has been deprecated and may not be available after 9.0.

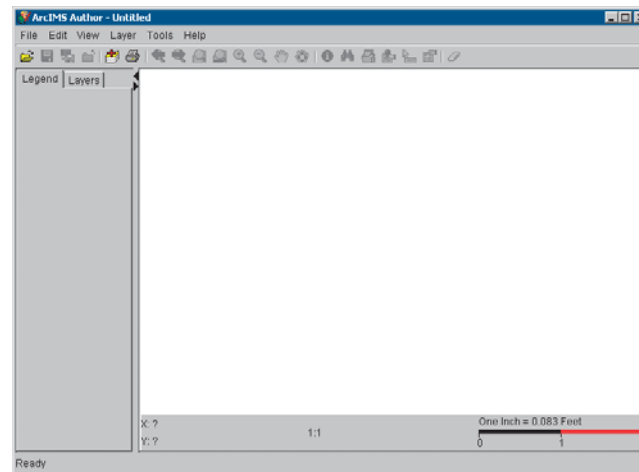
## Starting Author


1. To Start Author:

**Windows:** Click Start | Programs | ArcGIS | ArcIMS | Author.

**UNIX:** Type `aimsauthor` at the UNIX prompt.

The Author window appears.



You are ready to begin adding content to the map. You'll likely want to start by clicking the Add Layers button  to add your first layer. This button opens a Catalog window to let you navigate folders to select the data you want.

To open *ArcIMS Help* in Author, press Ctrl + F1 or from the Author main menu, click Help | Help Contents.

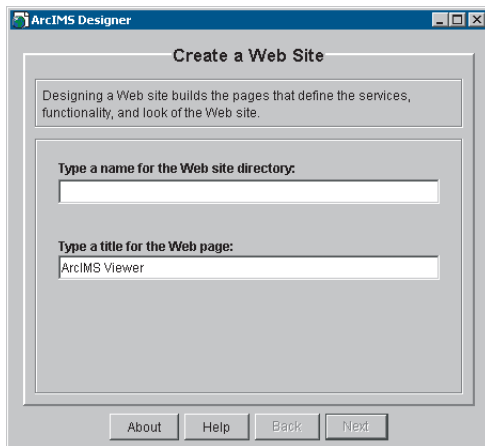
## Starting Designer

1. If you haven't already, start the service(s) you plan to include in the Web site/viewer you are about to create in Designer. You can start services in Administrator.
2. To start Designer:

**Windows:** Click Start | Programs | ArcGIS | ArcIMS | Designer.

**UNIX:** Type `aimsdesigner` at the UNIX prompt.

The Designer wizard appears, displaying its first panel, the Create a Web Site panel.



By default, the name you type in the first text box in this panel is the name of a folder that ArcIMS creates in the ArcIMS Web site directory when you complete the Designer wizard.

The title you give in the second text box is the title that your users will see. It appears in the title bar of the Web browser when your Web site is accessed.

3. To design your site, follow the instructions given in the Designer wizard panels.

To open *ArcIMS Help* in Designer, click the Help button. The Help button appears on every Designer panel.

### Designer tips

- In the Web Site Location panel of the wizard, the name you give in the Web site directory text box corresponds to the directory where the files that make up your viewer(s) are stored. By default, it is a subdirectory of the Website directory created during ArcIMS installation. This name you give is also the directory to point to when you want to access your Web site. For example, if the name you gave was SanFrancisco, the name you gave your computer was MyComputer, and the name you gave in the bullet above was Website, then your site is accessible by typing `http://MyComputer/Website/SanFrancisco` as the Web address.



## Starting Administrator

1. To start Administrator:

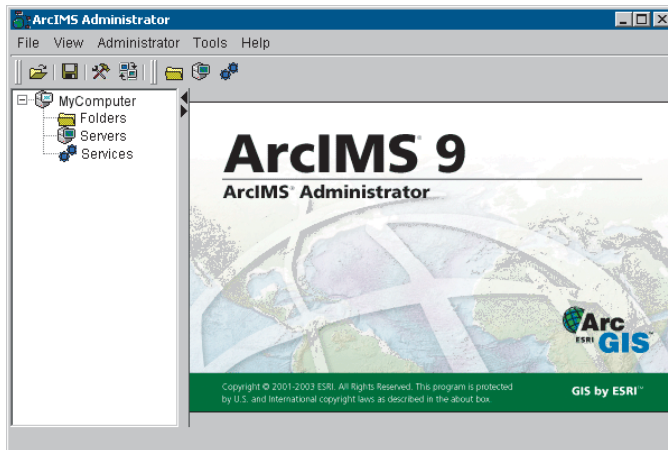
**Windows:** Click Start | Programs | ArcGIS | ArcIMS | Administrator.

**UNIX:** Type `aimsadmin` at the UNIX prompt.

2. If this is the first time you are starting Administrator or Service Administrator, you are prompted to provide a username and password and to confirm the password. Type these credentials in the text boxes. Be sure to record these credentials, because you will be asked for them each time you start a new session in either Administrator or Service Administrator. Click OK.

If this is not your first time, you are prompted for your password. Type your password and click OK.

Administrator starts up, displaying the ArcIMS Administrator window.



You are ready to use Administrator to manage your site or create your first service for a site you are creating.

To open *ArcIMS Help* in Administrator, from the Administrator main menu, click Help | Help Contents.

If you forget your password, you can reset it. See the *ArcIMS Help* topic 'Changing your password' for more information. To open *ArcIMS Help* without having Administrator open:

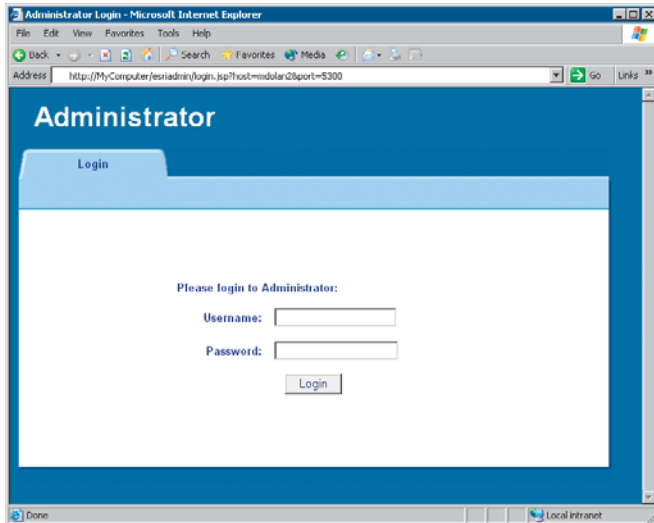
**Windows:** Click Start | Programs | ArcGIS | ArcIMS | ArcIMS Help.

**UNIX:** Open a Web browser and use its file open menu option to navigate to the `arcims_help.htm` file at `<ArcIMS Installation Directory>/arcims/Manager/Help`.

## Starting Service Administrator

1. Open a Web browser.
2. In the address text box, type the URL `http://<MyComputer>/esriadmin`.

Service Administrator starts up, displaying its Login window.

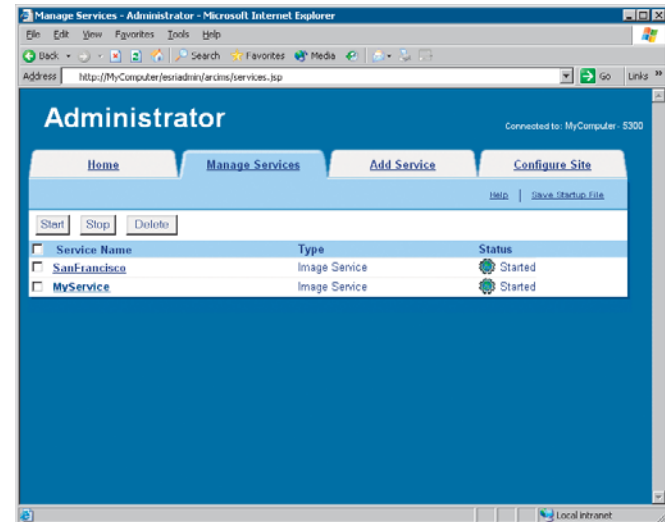


3. If this is the first time you are starting Administrator or Service Administrator, you are prompted to provide a username and password and to confirm them. Type these credentials in the text boxes. Be sure to record these credentials, because you will be asked for them each time you start a new session in either Administrator or Service Administrator. Click Login.

If this is not your first time, you are prompted for your username and password. Type your username and password and click Login.

4. If you have only ArcIMS installed, skip this step. If you have both ArcIMS and ArcSDE installed, a panel appears prompting you to choose the type of services to manage. Click ArcIMS, then click OK.

The main Service Administrator page appears.



You are ready to administer your site.

To open the *Using ArcIMS Service Administrator* guide in Service Administrator, click Help.

If you forget your password, you can reset it. See *Using ArcIMS Service Administrator* for more information.

## Viewing your site

1. Open a Web browser.
2. In the address text box, type the URL for your site according to the syntax below:

`http://<MyComputer>/<Web site directory>/<Web site name>`

### Sample URL

The following is a sample URL that uses the default ArcIMS Web site directory, `website`. It opens a site named `htmlviewer`, which is a site installed by default with ArcIMS.

`http://MyComputer/website/htmlviewer`



# Quick-start tutorial

# 3

## IN THIS CHAPTER

- **Exercise 1: Creating a map for the Web**
- **Exercise 2: Creating an Image Service**
- **Exercise 3: Designing a Web site**
- **Exercise 4: Viewing your Web site**

Welcome to the quick-start tutorial, your introduction to Internet GIS application development using ArcIMS. This tutorial guides you through the three main steps required to publish map content on the Internet using ArcIMS—creating a map for the Web, publishing your map as a service, and creating (designing) a Web site.

In this tutorial you'll be creating a Web site for sales representatives who want to evaluate their business in the San Francisco area. You'll create a map by adding base geographic and business data, then setting layer properties. The map will show store and customer locations for two stores, ZIP Code boundaries, and the trade area within which 80 percent of the customers live. Next, you'll create an Image Service for your map. Last, you'll design your Web site by choosing a viewer, specifying which page elements to include, and defining the GIS functionality of the Web site. To show the results of your work—that is, the viewer you create—this tutorial uses the Internet Explorer and a Windows operating system.

If you haven't installed the tutorial sample data, run the ArcIMS installation wizard again to install it. For more information, see Chapter 2, 'Installation and startup'.

# Exercise 1: Creating a map for the Web

This exercise introduces you to creating a map using ArcIMS Author. Creating a map involves adding data layers, setting layer properties, and setting map properties.

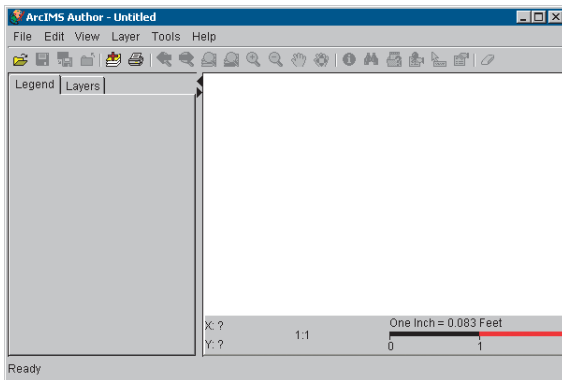
## Starting Author

1. To start ArcIMS Author:

**Windows:** Click Start | Programs | ArcGIS | ArcIMS | Author.

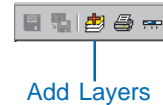
**UNIX:** Type `aimsauthor` at the UNIX prompt, then press Enter.

ArcIMS Author opens.

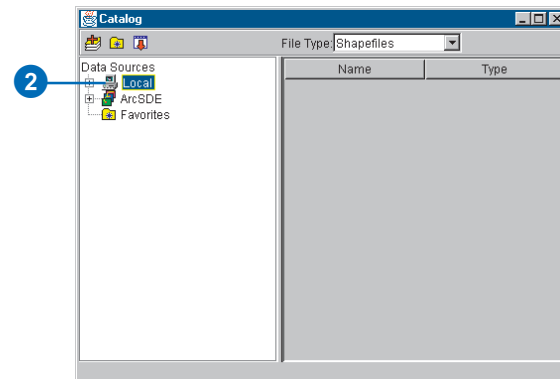


## Creating a new map

1. Click the Add Layers button on the Author toolbar to open Catalog.



Catalog opens. The left panel lists the available data source directories.

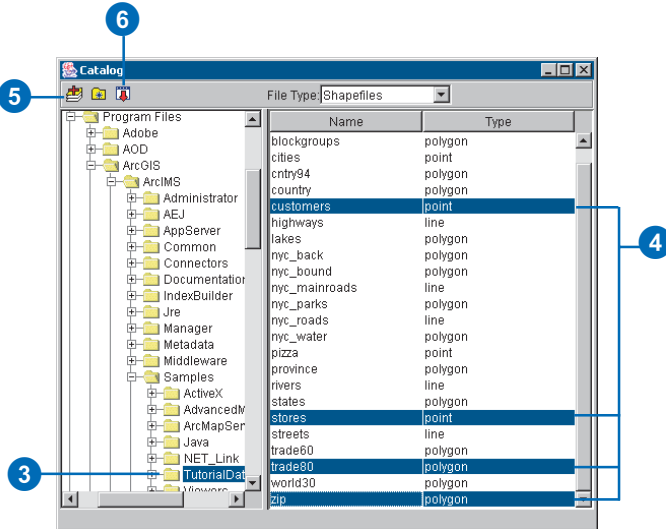


2. Under Data Sources, double-click Local.
3. Navigate to the ArcIMS installation directory. Click ArcIMS, click Samples, then click TutorialData.

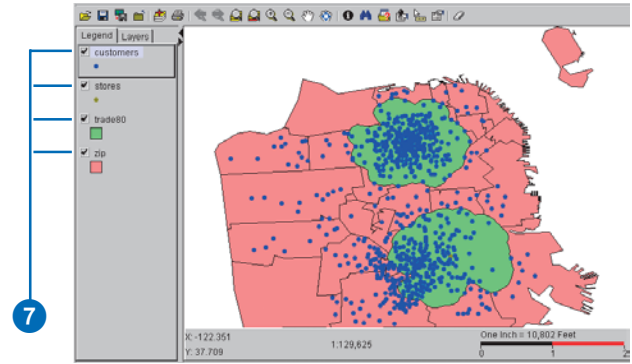
The default path to the tutorial data folder is `<ArcIMS Installation Directory>/arcims/Samples/TutorialData`.

In the File Type dropdown box, Shapefiles is selected. Shapefiles belonging to the TutorialData folder are listed in the right panel. The type of shapefile—point, line, or polygon—is also shown.

4. Click customers in the shapefiles list and, holding down the Ctrl key, click stores, trade80, and zip.
5. Click the Add Layers button.
6. Click the Close button.



Catalog closes, and the shapefiles you just added appear in the legend.



7. Check each layer in the legend to draw it on the map.
8. Click the Save button on the Author toolbar.



9. In the Save dialog box, navigate to the directory where you want to save the configuration file, generally the working directory you specified when installing ArcIMS. The default directory is <Drive>/arcims/AXL.
10. Type `SFBusiness` as the name for the configuration file in the File name text box.
11. Click Save.

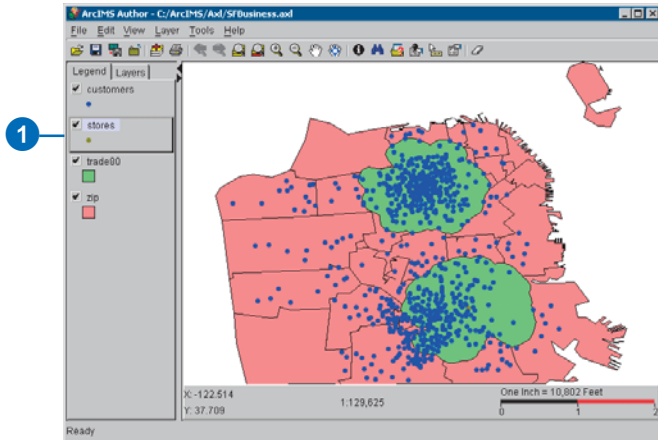
The Save dialog box closes, and your map is saved as the configuration file `SFBusiness.axl`.

### Changing the layer drawing order

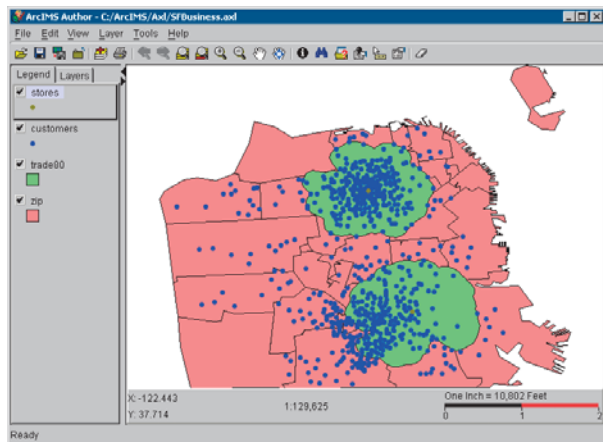
Layers draw in the order that they are listed in the legend. Layers at the top of the legend draw on top of those listed below. To create a readable map with no hidden features, you must reorder the layers.

Establish the following order from top to bottom: stores, customers, trade80, and zip.

1. Click the stores layer in the legend to make it active. A black outline indicates that stores is the active layer.



2. Click the stores layer again; drag it to the top of the legend.
3. Release the mouse button, dropping the layer into its new position.



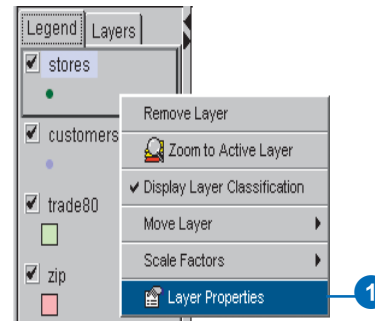
Stores appears at the top of the list of layers. It is followed by customers, trade80, and zip. If for some reason the order of your layers is different, continue to drag and drop until you have established the desired order.

## Setting layer properties

All properties of a layer are controlled through the Layer Properties dialog box. The Layer Properties dialog box can be accessed in four ways, two of which are demonstrated in the following steps.

To make it easier to see stores and customers on your map, you will need to change their symbology.

1. Right-click the stores layer and click Layer Properties.

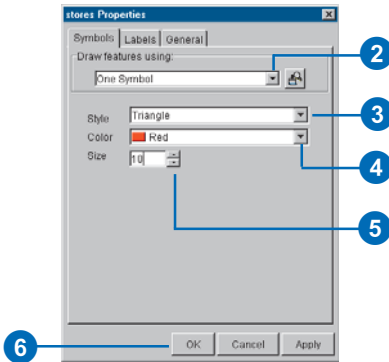


The Layer Properties dialog box appears.

2. Click the Draw features using dropdown arrow and click One Symbol.
3. Click the Style dropdown arrow and click Triangle.
4. Click the Color dropdown arrow and click Red.
5. Use the up and down arrows to change the size to 10 or type 10 in the Size text box.



6. Click OK.

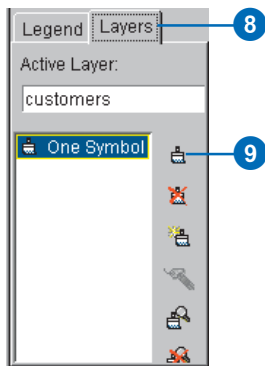


7. Click customers in the legend to make it active.

A black outline indicates that customers is the active layer.

8. Click the Layers tab.

9. Click the Edit Selected Renderer button.



The layer properties dialog box appears.

10. Click the Draw features using dropdown arrow and click Graduated Symbols.

11. Click the Field dropdown arrow and click SALES.

12. Type 3 in the Classes text box or change the number of fields to 3 using the up and down arrows.

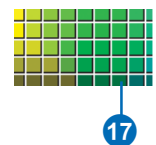
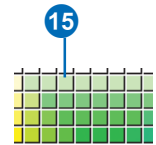
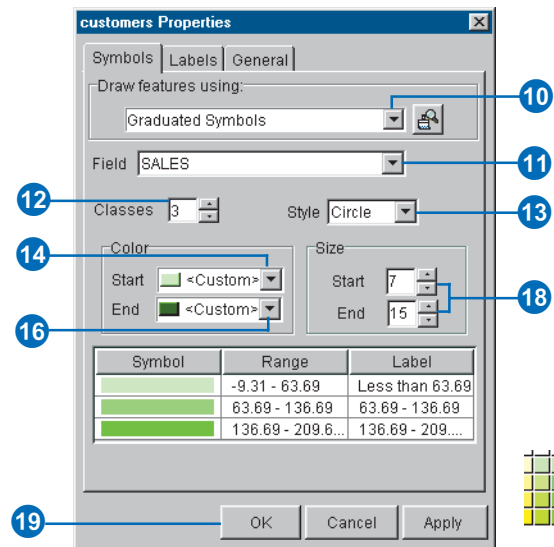
13. Click the Style dropdown arrow and click Circle.

14. In the Color panel, click the Start dropdown arrow and click Custom.

The Color Chooser dialog box appears.

15. Click a light shade of green and click OK.

16. Click the End dropdown arrow and click Custom.

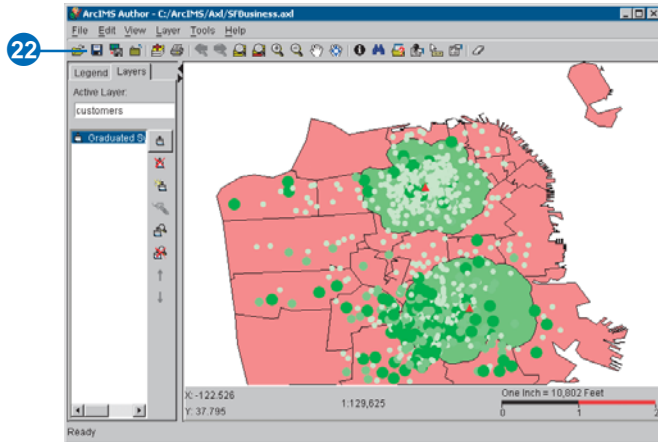


17. Click a dark shade of green and click OK.

18. In the Size panel, type 7 as the start size and 15 as the end size.

19. Click OK.

20. Click the Legend tab.
21. Review the final map display. If there is not enough contrast in the map, use the layer properties dialog box to continue changing layer symbology.



22. Click Save.  
Your changes to the map are saved to the SFBusiness.axl map configuration file.
23. Click the File menu and click Exit to close ArcIMS Author.  
You have successfully authored a map. You can continue with Exercise 2 now or return to it later.

## Exercise 2: Creating an Image Service

Before you can incorporate your map in a Web site you must create an ArcIMS service. You can use ArcIMS Administrator to create a service.

### Starting Administrator

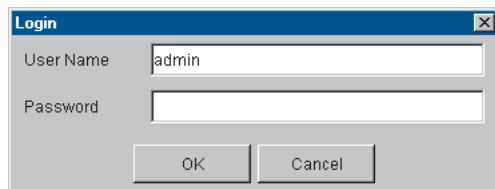
1. To start ArcIMS Administrator:

**Windows:** Click Start | Programs | ArcGIS | ArcIMS | Administrator.

**UNIX:** Type `aimsadmin` at the UNIX prompt.

2. If this is the first time you are starting Administrator or Service Administrator, you are prompted to provide a username and password and to confirm them. Type these credentials in the text boxes. Be sure to record these credentials, because you will be asked for them each time you start a new session in either Administrator or Service Administrator. Click OK.

If this is not your first time, you are prompted for your password. The site in this tutorial uses `admin` as the username.



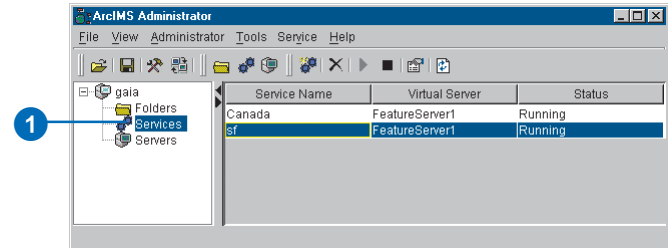
Field	Value
User Name	admin
Password	

Type your password and click OK.

Administrator starts up, displaying the ArcIMS Administrator window.

### Creating the Image Service

1. In the ArcIMS Administrator window, click Services in the left panel.

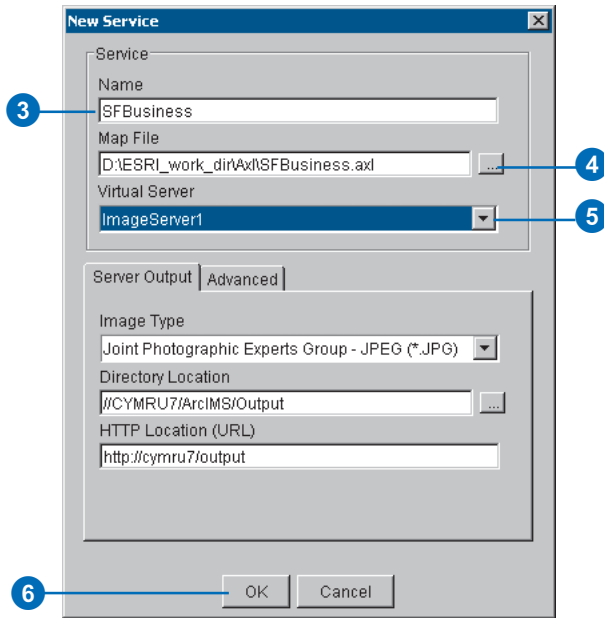


2. Click the New Service button on the Administrator toolbar.



The New Service dialog box appears.

3. For the Name, type `SFBusiness`. (Remember that the name is case sensitive.)
4. Click the Browse button beside the Map File text box and navigate to `SFBusiness.axl`.
5. Click the Virtual Server dropdown arrow and click `ImageServer1`.



6. Click OK to create the Image Service and to close the New Service dialog box.

The new service is listed.

7. Click the File menu and click Save Configuration to save your changes.
8. Click the File menu and click Exit to close ArcIMS Administrator.

You have successfully created a map and started an Image Service. You can continue with Exercise 3 now or return to it later.

## Exercise 3: Designing a Web site

You are ready to design a Web site featuring the Image Service you created in Exercise 2. You will use ArcIMS Designer to choose a viewer, design the look of your Web site, and specify the functionality to include.

### Starting Designer and adding the service to a new Web site

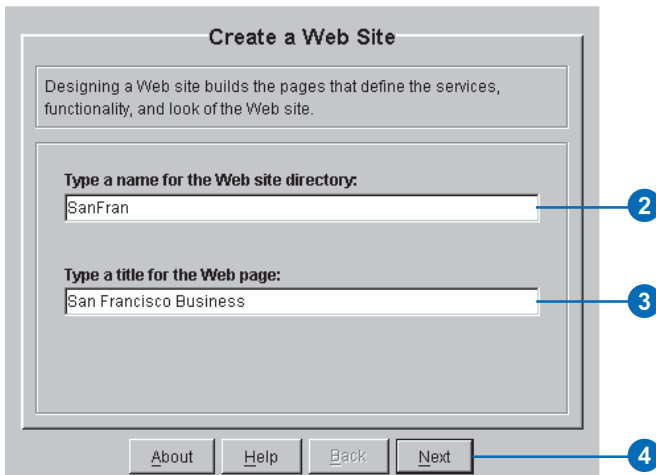
1. To start Designer:

**Windows:** Click Start | Programs | ArcGIS | ArcIMS | Designer.

**UNIX:** Type `aimsdesigner` at the prompt, then press Enter.

The Create a Web Site panel displays.

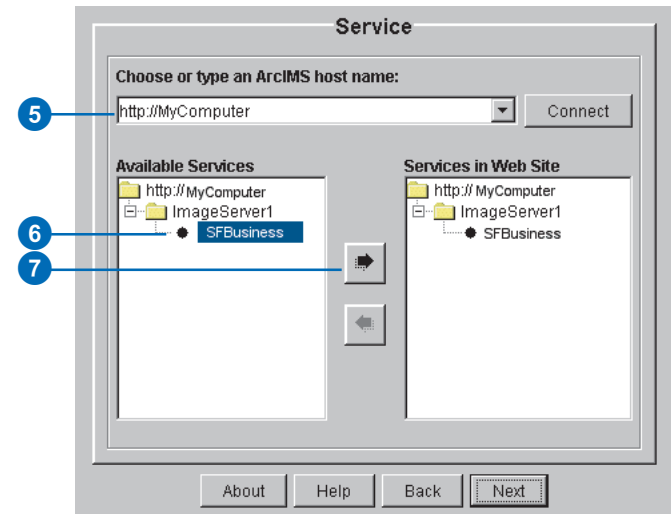
2. Type `SanFran` as the name of the Web site directory.



3. Type `San Francisco Business` as the title.
4. Click Next.

The Service panel appears, allowing you to choose the services to include in your Web site.

5. Verify that the ArcIMS host name listed in the dropdown box matches your computer's name and that `SFBusiness` appears in the Available Services list box.  
If `SFBusiness` is not listed, select your computer in the ArcIMS host name dropdown box and click Connect.
6. Click `SFBusiness` in the Available Services list box.
7. Click the Add Services button to add the `SFBusiness` service to your Web site.



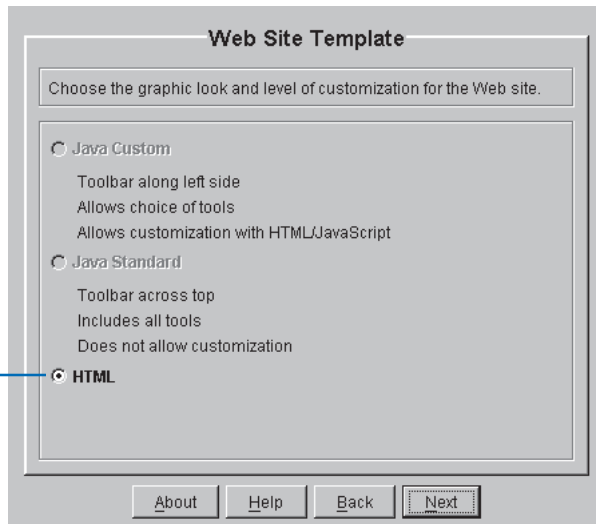
SFBusiness appears in the list of services to be included in your Web site.

8. Click Next.

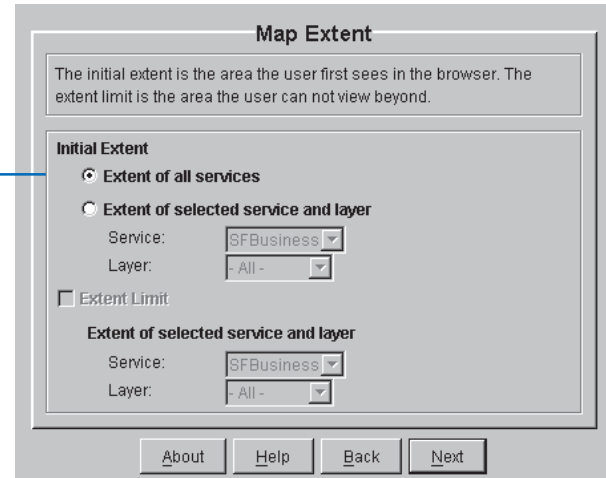
### Choosing a viewer and its settings

Since your Web site includes only one Image Service, you can choose either the HTML Viewer or one of the Java Viewers. If you want your site to have more than one service or use a service type other than Image Service, you cannot use the HTML Viewer. In this case you're using only one service so you'll choose the HTML Viewer.

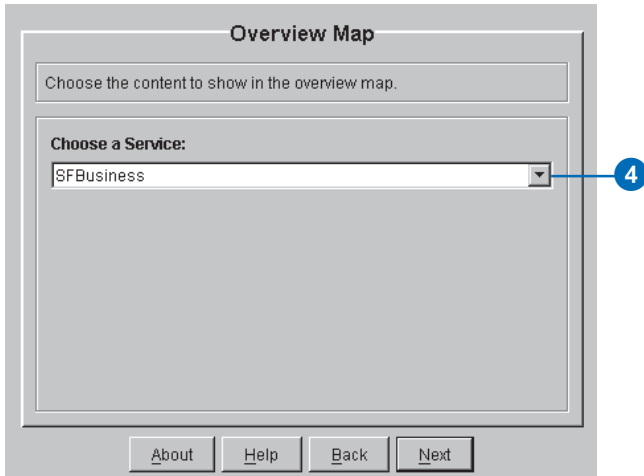
1. In the Java or HTML Viewer panel, click HTML Viewer, then click Next.
2. In the Web Site Template panel, click HTML, then click Next.



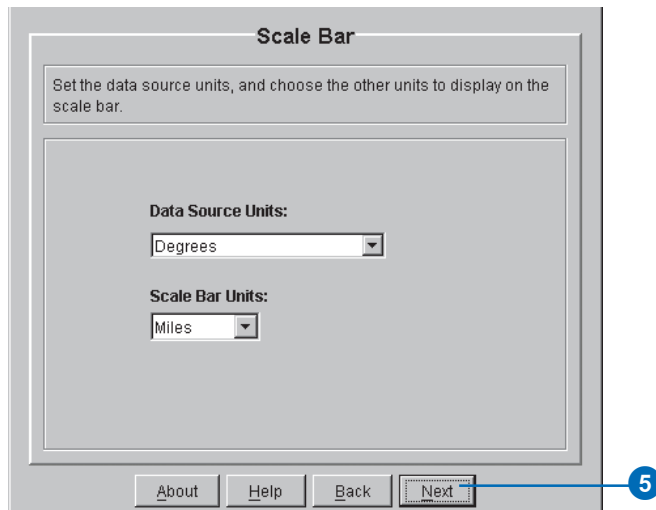
3. In the Map Extent panel, set the initial extent, which is the map extent users see when they first access your Web site, by clicking Extent of all services, then clicking Next.



4. In the Overview Map panel, add an overview map by clicking the Choose a Service dropdown arrow and clicking SFBusiness, then clicking Next.



5. In the Scale Bar panel, accept the default settings for scalebar and data source units by clicking Next.



## Defining toolbar functionality

When you define toolbar functionality, you select toolbar buttons and toolbars for your viewer.

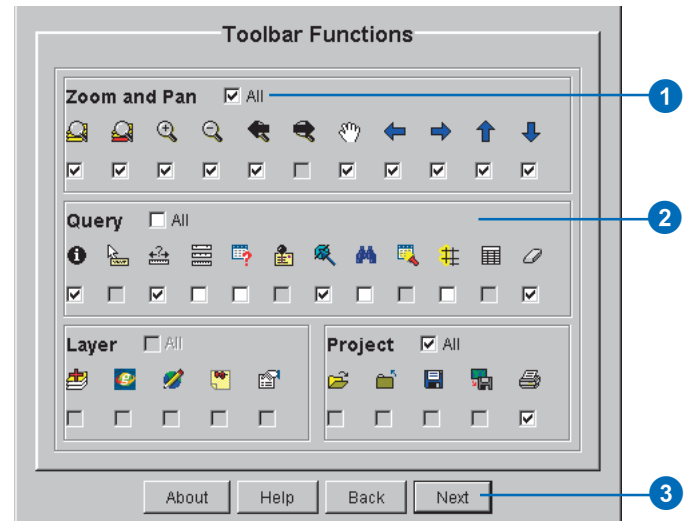
1. In the Toolbar Functions panel, check All in the Zoom and Pan area.

To see a brief description of a button, you can hover the mouse pointer over it.

2. In the Query area, uncheck All and check Identify, Measure, Graphic Selection, and Clear All Selection.

Tools not supported by the viewer you selected are inactive (have gray check boxes) so you cannot select them by mistake.

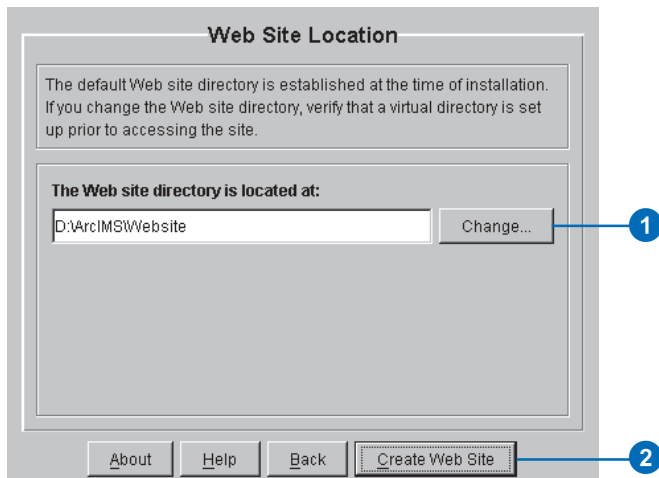
3. Click Next.



## Reviewing the Web site location and summary panels

The location of the default Web site directory created during ArcIMS installation is shown on the Web Site Location panel.

1. In the Web Site Location panel, accept the default Web site directory or click Change to navigate to a different directory.



2. Click Create Web Site.
3. Review the information on the Web Site Summary panel that appears, then click Design.
4. In the confirmation message box that appears, click Yes to close Designer.

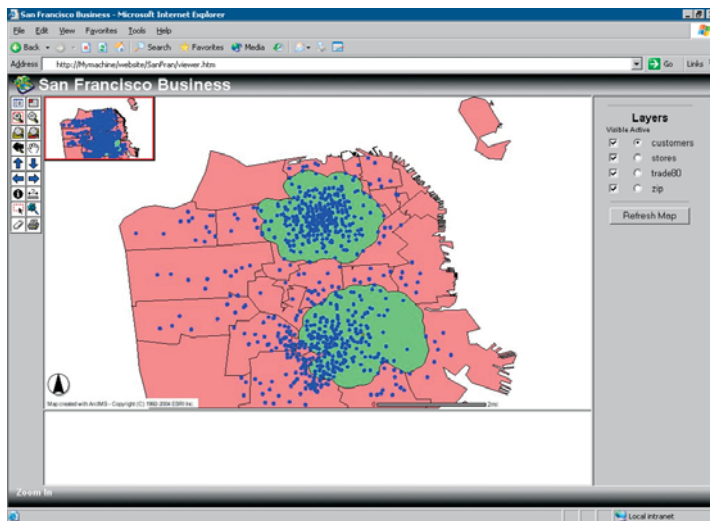


## Exercise 4: Viewing your Web site

You are ready to access the Web site you just created. This lets you see what your users will see when they access your site.

1. Open a Web browser.
2. Access your Web site by typing its URL in the Address or Location text box as the following syntax shows, then pressing Enter.

The URL must contain `http://<your machine name>/<Website directory>/<Web site name>`.



*The finished Web site, or Internet GIS application, that results from performing the exercises in this tutorial. This HTML Viewer-based site is being viewed in an Internet Explorer browser on a Windows platform.*

3. Verify that your Web site has the look and functionality that you specified by completing the following tasks.
  - Compare the tools on the toolbar to the tools you chose when you designed your Web site.
  - Use the Pan and Zoom tools to navigate around the map.
  - Ensure that the following Graphic Selection tools appear on the toolbar: Select by Rectangle, Select by Line/Polygon. Test each tool by clicking it and using it to graphically select features on the map.
  - Click the Identify tool, then click an active layer in the layers list. Next, select a feature from that layer on the map. Verify that the information shown matches the fields you selected for the Identify tool.
  - Verify that you have an overview map. Toggle the overview map on and off using the Toggle Overview Map button.
  - Toggle between the layer list and legend. By default, the layer list is displayed.
  - Check to see that the scalebar is expressed in the units you specified.
  - Open Windows Explorer, navigate to the Web site directory, and look at the files created.

Congratulations! You have completed the quick-start tutorial. You are now ready to begin creating Web sites of your own.



# Quick reference

# 4

## IN THIS CHAPTER

- Author
- Designer
- Administrator
- Service Administrator
- Viewers

This chapter provides illustrations and descriptions of each of the major components of ArcIMS and their user interface components, such as toolbars. It also provides illustrations and descriptions of MapNotes and EditNotes.

# Author

You use ArcIMS Author to create a map for your Web site by performing such tasks as adding data layers, setting layer symbology, and creating stored queries. Author always saves your map content in a configuration file with the .axl file extension.

You can edit this file later using Author, or you can edit it manually. If you change or replace the configuration file, be sure to refresh the service you associated with it. For more information on editing the configuration file, see Chapter 1, 'About ArcIMS and this guide' and the *ArcIMS Help*.

The purpose of the toolbar buttons and elements in Author are to help you, the ArcIMS Web site creator. They help you navigate the map you are creating and help you develop your map content. Be careful not to confuse them with those available in Designer and in the viewers. While some Author toolbar buttons and elements are similar to those available in Designer and the viewers, those in Author have no effect on or relationship to those your users will get in their viewer. You select user buttons and elements in Designer. For example, although Author has a Save .axl button, the HTML Viewer does not.

The screenshot shows the ArcIMS Author application window. The title bar reads "ArcIMS Author - C:/ArcIMS/Axl/SFBusiness.axl". The menu bar includes "File", "Edit", "View", "Layer", "Tools", and "Help". The main toolbar contains icons for file operations, navigation, and editing. On the left, there is a "Legend" and "Layers" panel. The "Layers" panel shows "Active Layer: customers0" and "Graduated Symbols (SAL)". The map display area shows a map of a region with yellow and red areas and green dots. The status bar at the bottom displays "X: -122.467", "Y: 37.679", "1:180,966", and "One Inch = 15,080 Feet". A scale bar is visible at the bottom right.

Name of .axl file you are editing.

Author's main toolbar.

Author's Layers toolbar.

The pointer's x and y coordinates; updates with every move of the pointer on the map display area.

Status bar. Indicates the task being performed. Ready indicates Author is ready to perform the next command.

The map display area.

Map scale. For this map, any unit of measurement on the screen equals 180,966 of the same units on the earth's surface.

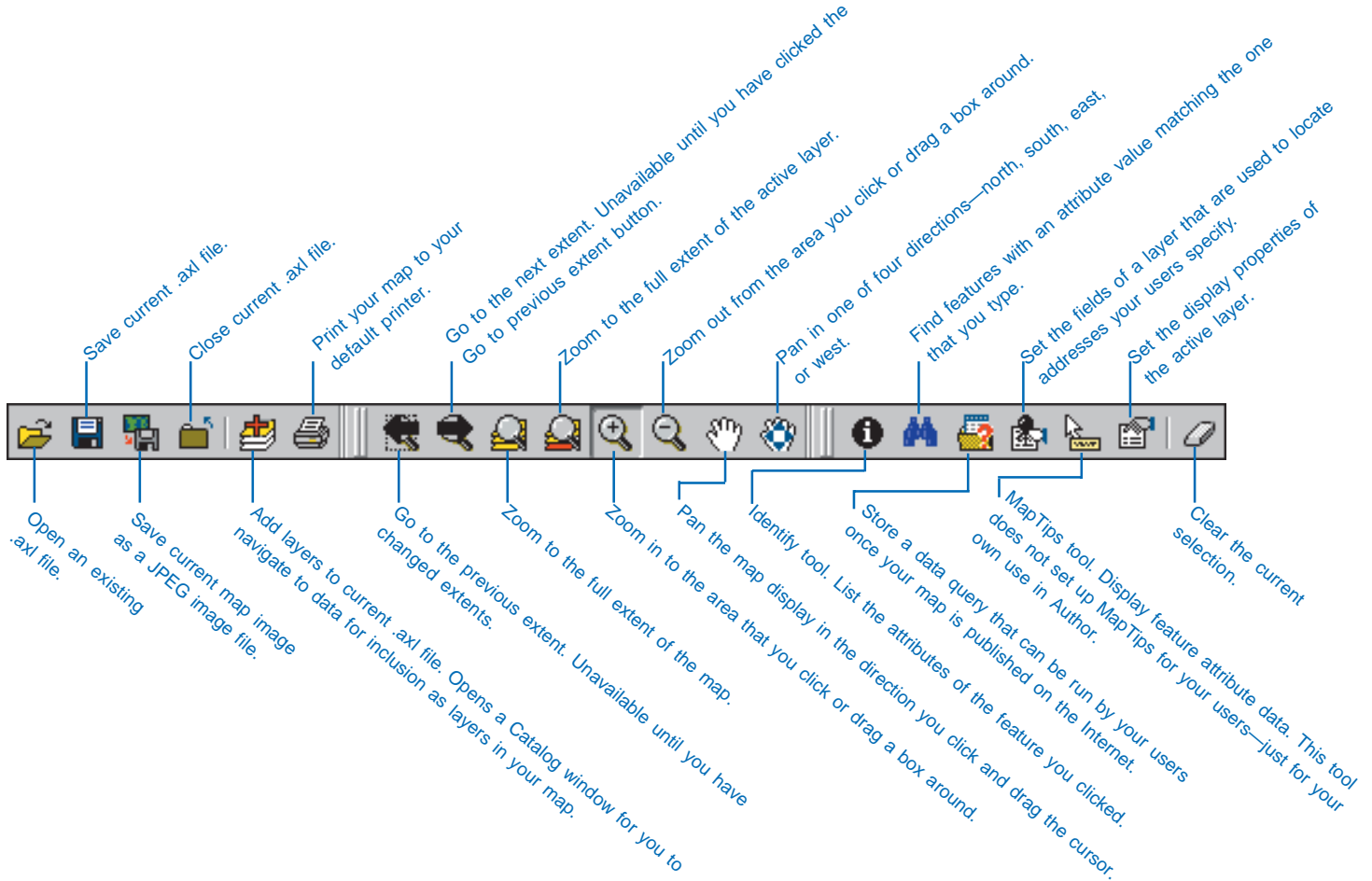
Screen units are inches.

Distance units are feet.

Scalebar.

*ArcIMS Author main window with the Layers tab selected. You create your map in Author.*

## Author's main toolbar



## Author's legend

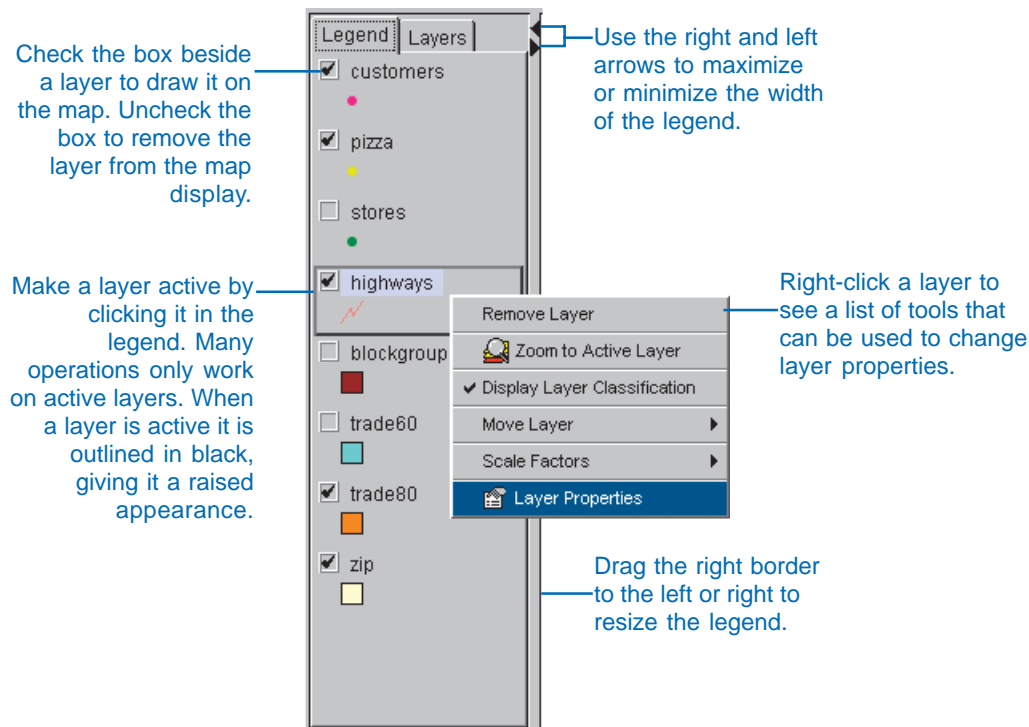
The legend is a list of layers in the map you are creating. It appears to the left of the map in Author. Beneath each layer's name, the legend displays the symbology used to represent that layer's features. The check box to the left of each layer indicates whether or not that layer's features are visible.

The order in which the layers are listed in the legend is important. The layers at the top draw on top of those below. The layers should be rearranged so that layers forming the background of the map are listed at the bottom. To change the drawing order of a layer, click and drag it to a new position in the legend or

right-click it, point to Move Layer, and choose one of the options in the list that appears.

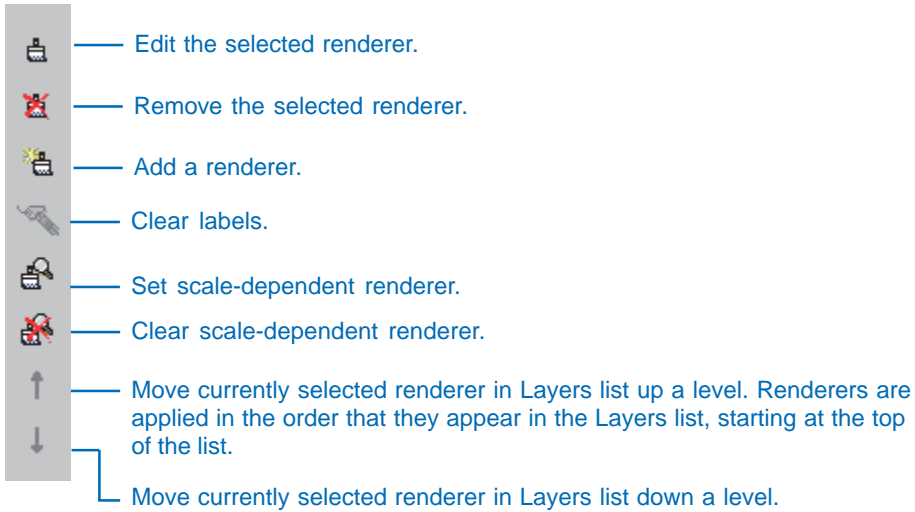
You can change the width of the legend by dragging its right border to the left or to the right. You will want to increase the width of the legend to see longer layer names. Use the left and right arrows in the top right corner to maximize and minimize the legend's width.

Double-click a layer in the legend to open the layer properties dialog box.



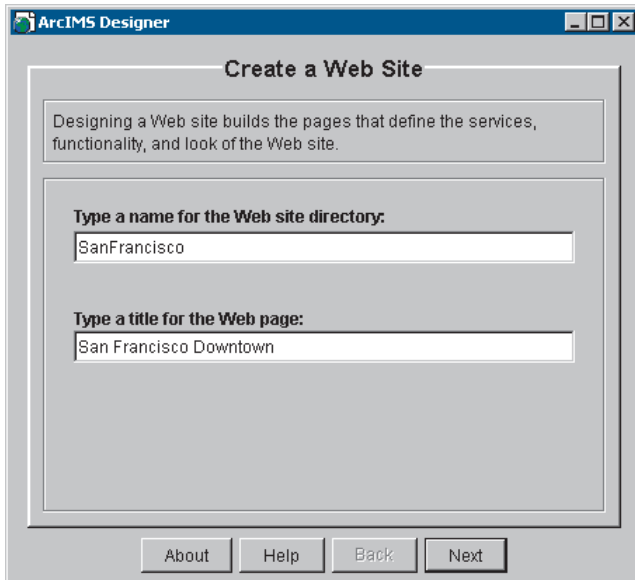
## Author's Layers toolbar

To activate Author's Layers toolbar, select a layer in Author's Legend tab. To view the layer's toolbar, click the Layers tab.



# Designer

ArcIMS Designer is a wizard-driven application that guides you through the viewer design process. The panels you see depend on the choices you make. Some of the wizard panels appear only if you have selected a particular viewer. Others appear only if you have included a Feature Service in your Web site. The Stored Query panel does not appear unless you set up a stored query in Author. Most panels do not appear if you choose the Java Standard Viewer because it does not allow customization.





# Administrator

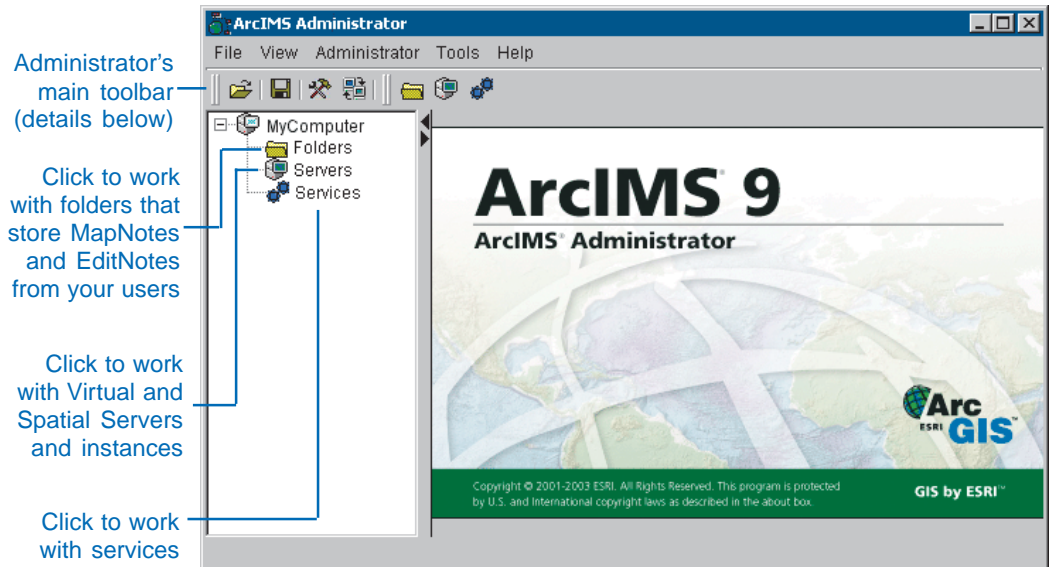
You use the Administrator to create, start, stop, and remove services. You can also set and change service properties, such as the Virtual Server assignment.

Administrator also lets you work with servers and with MapNotes and EditNotes<sup>1</sup> if you set up this functionality.

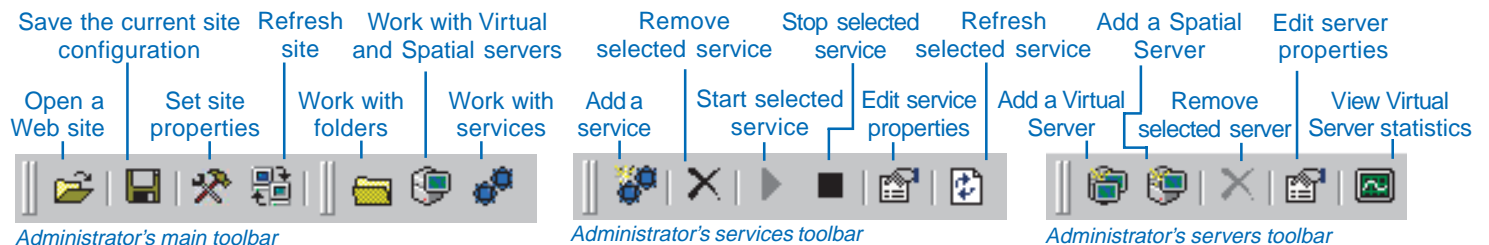
Saving service properties in Administrator ensures that your services are restored each time you reboot your computer.

You can restrict access to and usage of your services.

Different toolbar buttons may be available or unavailable to the right of the main toolbar, depending on which category in the left panel you have selected or what task you are performing.



*Administrator's main window. The left panel lets you select the category of the task you want to perform. After you click the category, the right panel displays details for it.*

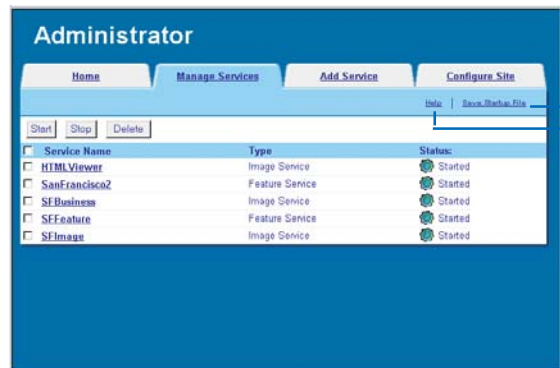
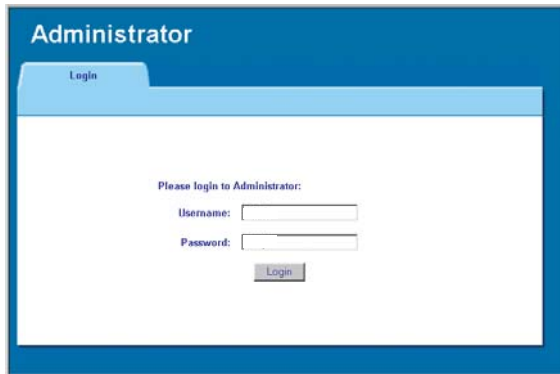


<sup>1</sup> EditNotes and MapNotes are being deprecated at this release. After version 9.0, EditNotes and MapNotes may no longer be available.

# Service Administrator

The Service Administrator is a Web-based version of the Administrator. It lets you administer your site from a remote location. You can perform all the same tasks you can in Administrator, with the exception of managing folders. You can also administer ArcSDE services provided you've installed the ArcSDE administration tool on your ArcSDE application server.

The illustrations below show the first two screens of Service Administrator as they appear inside your Web browser.



After you make changes to ArcIMS services, Spatial Servers, or Virtual Servers, you can click Save Startup File to save the new site configuration through subsequent service restarts. Site configuration information is saved to the ArcIMSSite.sez file in the ArcIMS AppServer directory.

Opens the *Using ArcIMS Service Administrator* document.

# Viewers

A viewer is a Web site or HTML page that you create using Designer. Your users use the viewer to view and work with the maps you serve them via ArcIMS.

You can choose among three ArcIMS Viewers: HTML, Java Standard, or Java Custom.

You can customize ArcIMS Viewers or build custom clients that serve the same purpose as the ArcIMS Viewers. Essentially, the viewer or custom client is the Web site you build to serve your map content.

This section provides illustrations of the viewers and describes viewer components and toolbar buttons.

For more information on viewers, see the component and architecture discussion in Chapter 1, 'About ArcIMS and this guide'.

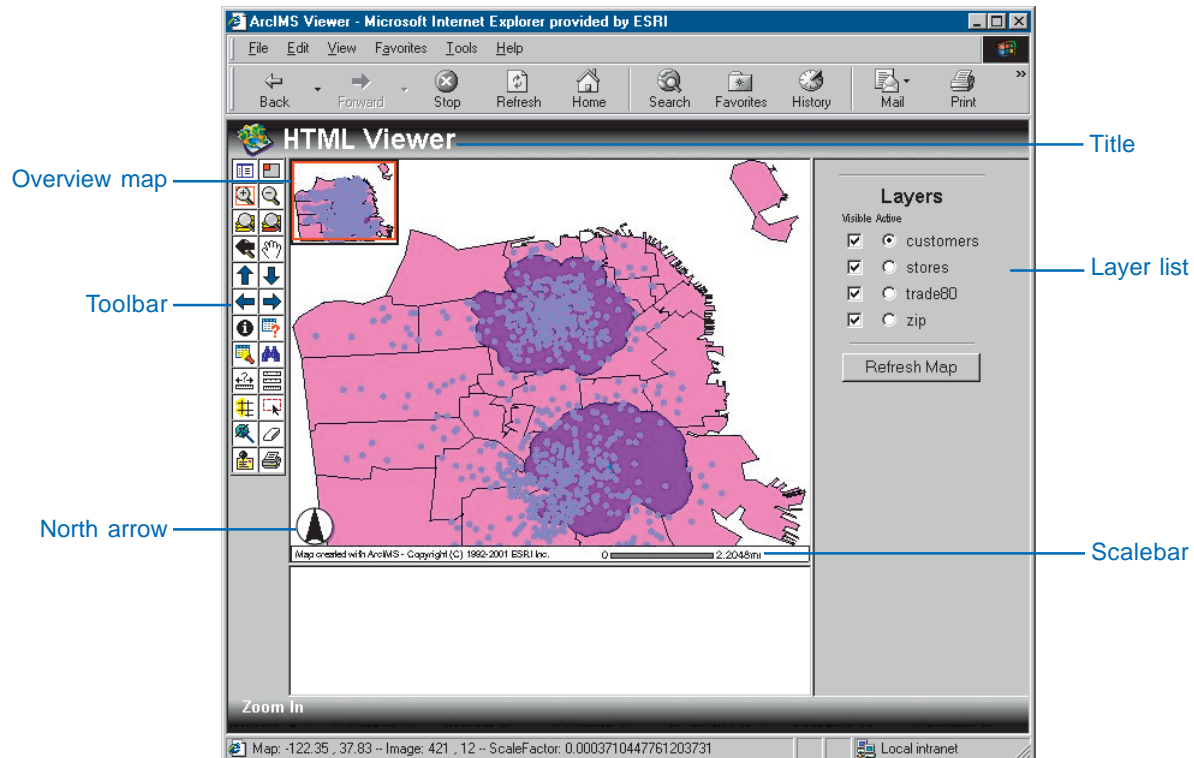
## The HTML Viewer

The HTML Viewer interface consists of a map display area, title, toolbar, layer list, scalebar, North arrow, and overview map.

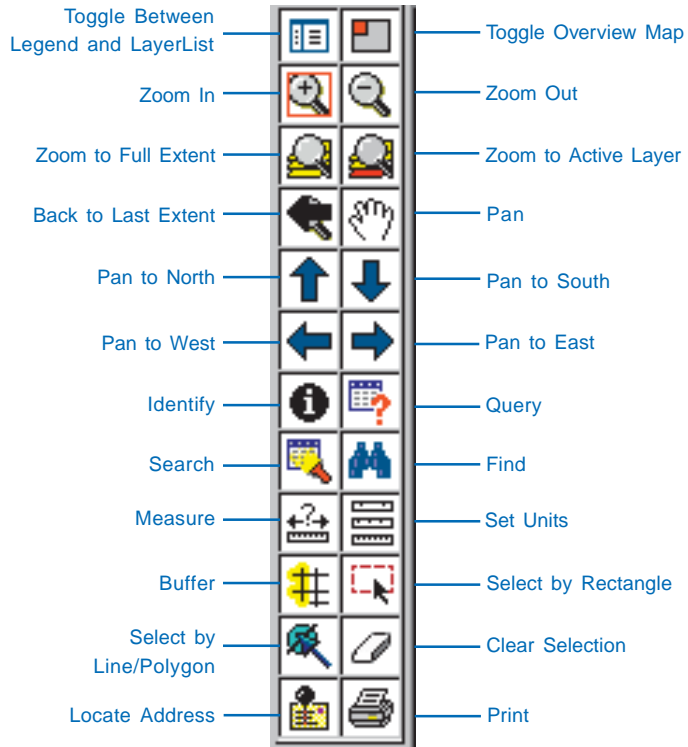
The toolbar appears to the left of the map display area. It includes all the tools you selected when designing your Web site as well as two buttons unique to the HTML Viewer: Toggle Between Legend and LayerList and Toggle Overview Map.

The layer list appears to the right of the map display area. Click Active to make a layer active. The active layer is the layer against which querying, buffering, and so on, will be performed.

Check a layer to make it visible; uncheck it to remove it from the map display. After making changes, you must click the Refresh Map button for your changes to be reflected on the map.



## The toolbar in the HTML Viewer



**Toggle Between Legend and LayerList:** Switches back and forth between a legend with symbology and a layer list with active layer and visibility options.

**Toggle Overview Map:** Adds or removes the overview map from the left top corner of the map display area.

**Zoom In:** Zooms in to the area of the map that you click or drag a box around.

**Zoom Out:** Zooms out from the area of the map that you click or drag a box around.

**Zoom to Full Extent:** Zooms to the full extent of the map.

**Zoom to Active Layer:** Zooms to the full extent of the active layer.

**Back to Last Extent:** Zooms to the previous extent.

**Pan:** Pans the display in the direction that you drag the mouse pointer.

**Pan to North, Pan to South, Pan to East, Pan to West:** Pans the map in one direction—north, south, east, or west.

**Identify:** Displays attribute information for the feature that you clicked.

**Query:** Searches for features based on a query expression.

**Search:** Searches for features based on the information you enter.

**Find:** Finds map features with an attribute value matching a string that you type.

**Measure:** Measures distances on the map.

**Set Units:** Sets the units for the Measure tool.

**Buffer:** Selects the features of one layer that are within the specified buffer distance of selected features of another layer.

**Select by Rectangle:** Selects the group of features contained by or in contact with a rectangle you draw on the map.

**Select by Line/Polygon:** Selects the group of features contained by or in contact with a line or polygon you draw on the map.

**Clear Selection:** Clears the selected set of features.

**Locate Address:** Locates a street address on the map.

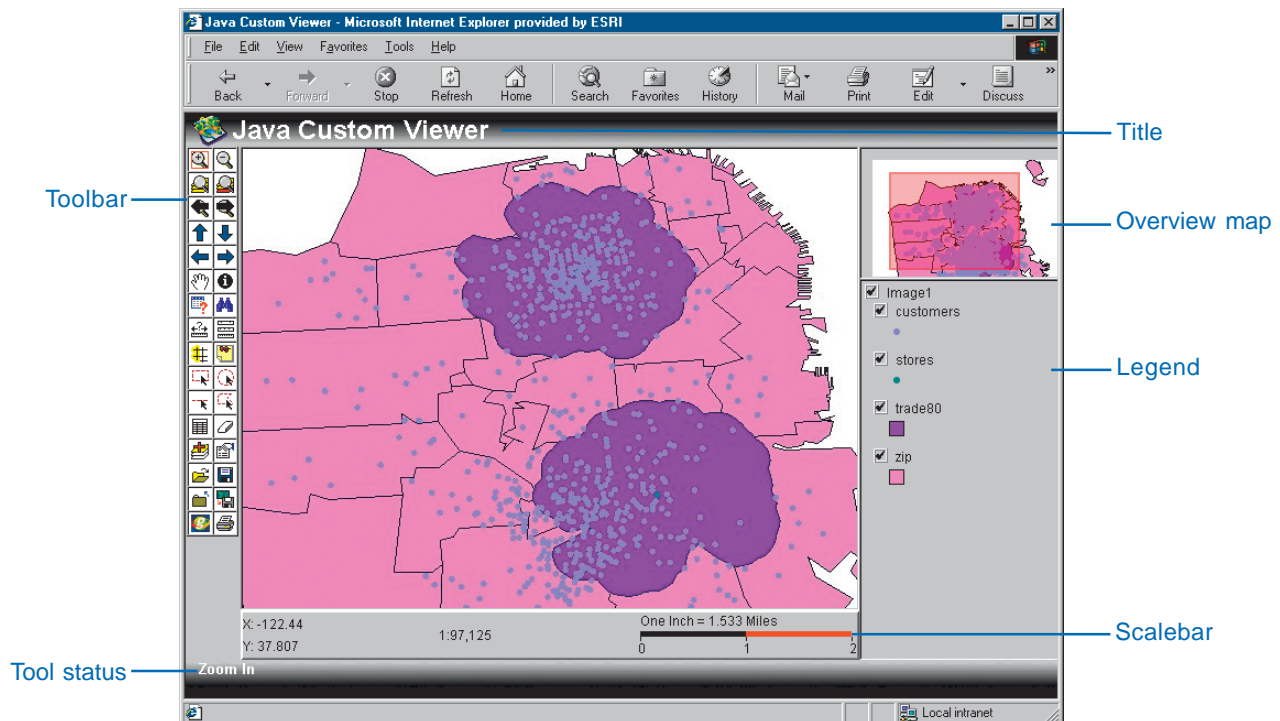
**Print:** Prints the map to your default printer.

## The Java Standard and Custom Viewers

Both the Java Standard Viewer and the Java Custom Viewer have the same elements: a map display area, title, toolbar, legend, scalebar, and overview map. The primary differences are the organization of the elements and the contents of the toolbar. The illustration on this page is the Java Custom Viewer.

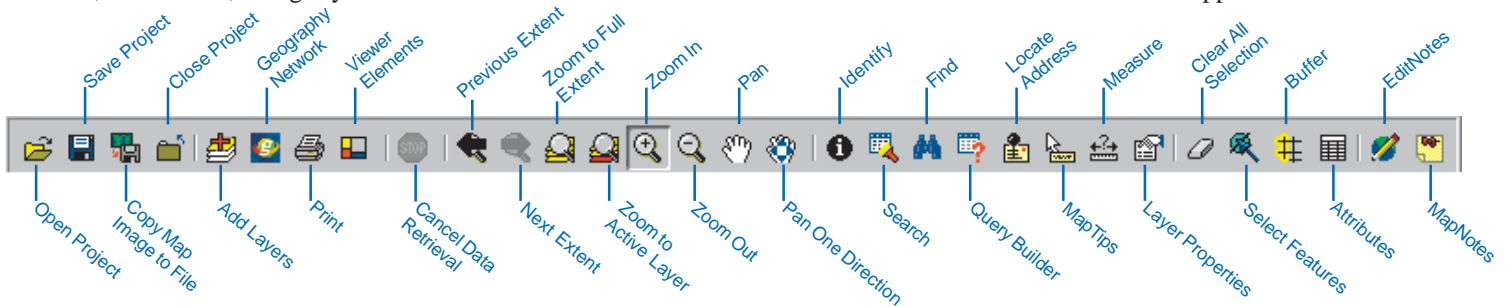
In the Java Standard Viewer, the toolbar is above the map display area, the legend is to the left of the map display area, and the overview map is above the legend.

The toolbar contains only the tools you specified when you designed your Web site. It does not include the Viewer Elements and Cancel Data Retrieval buttons found on the Java Standard Viewer toolbar. Also, instead of a Pan One Direction button, the Java Custom Viewer has four separate buttons for panning north, south, east, and west. Instead of a single Select Features tool, the Java Custom Viewer has four tools: Select by Rectangle, Select by Circle, Select by Line, and Select by Polygon.



## The toolbar in the Java Standard and Custom Viewers

The toolbar is oriented horizontally in the Java Standard Viewer and vertically in the Java Custom Viewer. The Java Standard Viewer toolbar, shown here, is slightly different from the Java Custom Viewer toolbar. Differences are noted below as applicable.



**Open Project:** Opens an existing configuration file.

**Save Project:** Saves the map as a configuration file.

**Copy Map Image to File:** Saves your current view as a JPEG image.

**Close Project:** Closes the current project and leaves the browser window open.

**Add Layers:** Opens a Catalog to navigate to data to add to the map.

**Geography Network:** Opens the Geography Network<sup>SM</sup> Explorer to search for data to add to the map.

**Print:** Prints the map to your default printer.

**Viewer Elements:** Changes the display properties of the scalebar, legend, and overview map (Java Standard toolbar only).

**Cancel Data Retrieval:** Cancels a request sent to the Spatial Server (Java Standard toolbar only).

**Previous Extent:** Zooms to the last extent.

**Next Extent:** Zooms forward from a previous extent. This tool is unavailable until you have clicked the Previous Extent button.

**Zoom to Full Extent:** Zooms to the full extent of the map.

**Zoom to Active Layer:** Zooms to the full extent of the active layer.

**Zoom In:** Zooms in to the area of the map that you click or drag a box around.

**Zoom Out:** Zooms out from the area of the map that you click or drag a box around.

**Pan:** Pans the display in the direction you drag the mouse pointer.

**Pan One Direction:** Pans the map in one direction. Available as four tools on the Java Custom Viewer toolbar.

**Identify:** Displays the attributes of the feature you click.

**Search:** Searches for features based on the information you enter.

**Find:** Finds map features matching the string that you type.

**Query Builder:** Builds query expressions to search for features.

**Locate Address:** Locates a street address on the map.

**MapTips:** Displays information about a feature when the mouse pointer hovers over it.

**Measure:** Measures distances on the map.

**Layer Properties:** Sets the display properties of the active layer.

**Clear All Selection:** Clears the selected set of features from the map.

**Select Features:** Selects features contained within or intersected by a graphic you draw on the map. Available as four tools on the Java Custom Viewer toolbar.

**Buffer:** Finds the features of one layer within a set buffer distance of the selected features of another layer.

**Attributes:** Displays tabular information about selected features.

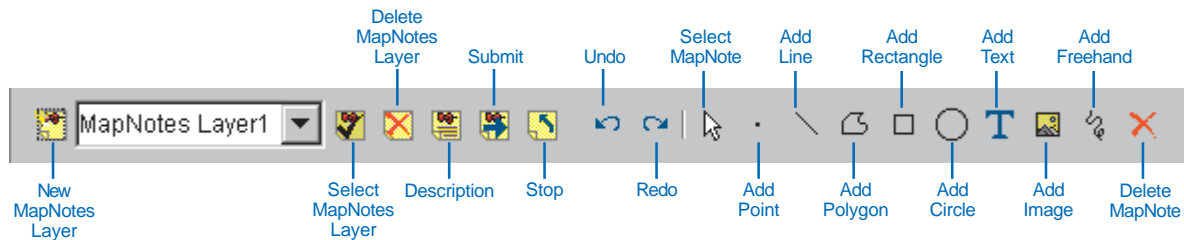
**EditNotes:** Opens the EditNotes toolbar.

**MapNotes:** Opens the MapNotes toolbar.

## MapNotes

The MapNotes tools (for Java Viewers only) bring to life the concept of collaborative GIS—not only the sharing of data but also the sharing of ideas about data over the Internet. Use the MapNotes tools to add text or graphics about a map to a MapNotes layer, then submit your notes to the ArcIMS site administrator. The MapNotes toolbar contains a full suite of tools to add, delete, and change the appearance of the notes that you create.

When you click the MapNotes button, the MapNotes toolbar appears. Existing MapNotes layers created by you or other users are automatically loaded. Use the following tools to create and edit MapNotes layers. When you are done, submit your MapNotes. A MapNotes item will appear in the ArcIMS site administrator's MapNotes folder with a time stamp and description. After you have submitted your layer, others accessing the same Internet GIS application will also be able to see the MapNotes layer you created.



**New MapNotes Layer:** Creates a new MapNotes layer.

**Select MapNotes Layer:** Makes your chosen layer the active layer (the layer to which changes will be made).

**Delete MapNotes Layer:** Deletes the current MapNotes layer from the list of available layers.

**Description:** Opens a dialog box in which you can type a description of the MapNotes layer.

**Submit:** Submits the current MapNotes session to the ArcIMS site administrator.

**Stop:** Stops your MapNotes session and closes the MapNotes toolbar.

**Undo:** Removes the most recently added text or graphic from the layer.

**Redo:** Reintroduces text or graphics that were removed using the Undo button.

**Select MapNote:** Selects the item (text or graphic) that you click.

**Add Point:** Adds a point to the layer.

**Add Line:** Adds a line to the layer.

**Add Polygon:** Adds a polygon to the layer.

**Add Rectangle:** Adds a rectangle to the layer.

**Add Circle:** Adds a circle to the layer.

**Add Text:** Adds text and allows you to change the font style and color.

**Add Image:** Adds an image to the layer.

**Add Freehand:** Adds a freehand line to the layer.

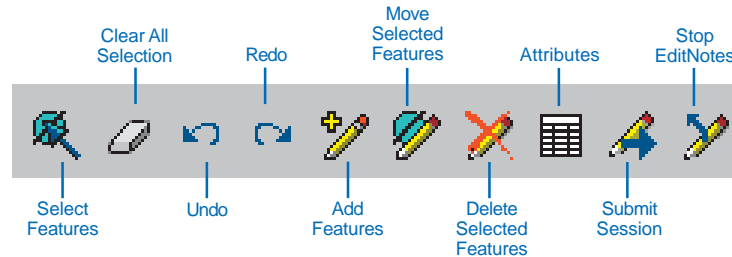
**Delete MapNote:** Deletes the selected item (text or graphic) from the MapNotes layer.



## EditNotes

Like the MapNotes tools, the EditNotes tools (for Java Viewers only) enable the sharing of ideas about data. Use the EditNotes tools to make simple edits to spatial and attribute data, then submit your edits to the ArcIMS site administrator. The EditNotes toolbar contains tools for selecting, adding, moving, and deleting the features of a layer belonging to a Feature Service.

When you click the EditNotes button, the EditNotes toolbar appears. Use the following tools to edit features. When you are finished editing, submit your session. An EditNotes item appears in the ArcIMS site administrator's EditNotes folder with a time stamp and description. The features you added or moved can be converted to shapefile format. All your changes can be converted to XML file format.



**Select Features:** Selects the features contained within or intersecting a graphic you draw on the map. Available as four separate tools in the Java Custom Viewer—Select by Rectangle, Select by Circle, Select by Line, and Select by Polygon.

**Clear All Selection:** Clears all the selected features from the map.

**Undo:** Removes the most recently added text or graphic from the map.

**Redo:** Reintroduces text or graphics that were removed using the Undo button.

**Add Features:** Adds features to the map.

**Move Selected Features:** Moves selected point features or the vertices of selected line and polygon features to new locations on the map.

**Delete Selected Features:** Deletes selected features from the map.

**Attributes:** Displays attribute information for the selected feature.

**Submit Session:** Submits the current EditNotes session to the ArcIMS site administrator.

**Stop EditNotes:** Stops your EditNotes session and closes the EditNotes toolbar.

