ArcIMS® 3.1 Features and Functions

An ESRI® White Paper • August 2001

ESRI 380 New York St., Redlands, CA 92373-8100, USA • TEL 909-793-2853 • FAX 909-793-5953 • E-MAIL info@esri.com • WEB www.esri.com

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ArcIMS 3.1 Features and Functions

ESRI® ArcIMS® software offers the ability to establish a common platform for exchange of Web-enabled geographic information system (GIS) data and services. ArcIMS is more than just an Internet mapping solution—it is a framework for distributing GIS capabilities via the Internet.

Data Integration from Multiple Sources

ArcIMS offers unique and powerful data integration capabilities, making it possible for users to access data, then quickly and simply integrate it with data from many other Internet and local sources. ArcIMS accepts data in a wide range of formats including shapefiles, ArcSDE™ layers and ArcSDE raster data, and a variety of image formats (such as JPEG, TIF, GIF, BMP, MrSID™, and many others).

GIS Capabilities

ArcIMS lets you incorporate a variety of GIS capabilities into your Web site. Key GIS capabilities available with ArcIMS include

Image rendering. Image rendering takes a snapshot of the data and delivers it to the client in JPEG, PNG, or GIF format. This capability can also be used to serve raster data sets to your users.

Feature streaming. Feature streaming involves streaming vector features to clients, enabling a number of clientside tasks (feature labeling, Map Tip creation, spatial selection, and more). Feature streaming is only available through ArcExplorer™–Java™ edition, ArcMap™, and the ArcIMS Java viewers. Streamed features from one ArcIMS site can be integrated with streamed features from other ArcIMS sites, as well as with local data, and used together in analysis.

Querying data. You can build new queries or run predefined queries to derive specific information about the data.

Data extraction. You can request real geographic data from the server. The server responds to a request for data by sending zipped shapefiles to the client. The user who receives the data is then able to extract the zipped shapefiles to a local hard drive.

Address matching. Address matching functionality allows you to submit an address. The server returns the address location on a map.

ArcIMS also works seamlessly with ArcGIS™, ESRI's comprehensive, integrated GIS solution. ArcGIS Desktop products, which include ArcView®, ArcEditor™, and ArcInfo™, can connect to ArcIMS and use ArcIMS services as a data source. Once the data is accessed, the user can combine it with data from other sources and apply the advanced GIS capabilities offered with ArcGIS.

Standards-Based Communication

ArcIMS clients and servers communicate using ArcXML, which is a GIS extension to standard Extensible Markup Language (XML). ArcXML offers an easy, yet powerful, way to customize ArcIMS applications.

ArcXML provides the structure for

- Map configuration files. These files describe how a map should be rendered including the list of layers that are used and how each layer should be symbolized.
- Requests. Requests set a filter on an existing map configuration file that specifies which part of a map and associated data will be used.
- Responses. Responses send the information back to the client.

For more information on ArcXML, see the *ArcXML Programmer's Reference Guide*. This is available from ArcOnline at www.esri.com/arconline.

Scalable Architecture

Specifically designed to grow with an organization, ArcIMS is a completely scalable solution for publishing GIS data, maps, and applications. ArcIMS can easily be scaled to handle the demands of everything from the smallest Intranet to a high-volume Internet site. With ArcIMS you can expand your server over time to accommodate growth in demand.

ArcIMS integrates with a variety of Web technologies and supports Windows® as well as UNIX® platforms.

Support for a Wide Range of Clients

ArcIMS allows you to select the client that best suits your needs, from wireless appliances, such as cellular phones and personal digital assistants (PDAs), to lightweight browser-based clients to a full-featured GIS desktop client (such as ArcInfo, ArcView, or ArcEditor). ArcIMS comes with an HTML viewer, a standard Java viewer, and a custom Java viewer.

The ArcIMS viewers determine the functionality and graphical look of the site. Users can customize templates to add logos, graphics, colors, and functions. This is the map view that will be displayed in the end user's Web browser.

Using the ArcIMS viewers, you can

- Pan and zoom the map extent.
- Query spatial and attribute data.
- Create a buffer around features.
- Measure distances on your map.
- Locate an address.

HTML Viewer

The HTML viewer is best used in situations when there is a high volume of traffic to the site, when a lightweight viewer is called for, or when all data processing is to be done on the server side. The HTML viewer uses a single Image MapService. It does not require a Java plug-in.

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Java Viewer

The Java viewer is the preferred viewer when data can be streamed (allowing more clientside interaction with fewer requests to the server), when users will be adding local data, and when they will be adding layers from multiple ArcIMS sites.

Java Standard Viewer. This viewer is useful when you want a predesigned template or if your users' browsers do not support the Java custom viewer.

Java Custom Viewer. This viewer allows you to choose tools and functions.

ArcIMS Viewer Comparison Chart

Feature	HTML Viewer	Java Custom Viewer	Java Standard Viewer
Pan and zoom the map.	x	x	x
Identify and find features.	x	x	x
Search for features.	x	x	x
Query data.	x	x	x
Display Map Tips.		x	x
Select and buffer features.	x	x	x
Work with measuring distances and scale bar units.	x	x	x
Add Map Notes.		x	x
Use Edit Notes.*		x	x
Locate an address.	x	x	x
Open layer properties.*		x	x
Change layer properties.	x	x	x
Add data.		x	x
Use feature streaming.		x	x
Connect to the Geography Network℠.	x	x	x
Select a group of features.	x	x	x
Display attribute information.	x	x	x

* Not available with maps generated on the server.

ArcIMS Manager

ArcIMS helps you to get up and running quickly with the ArcIMS Manager, a suite of Web pages that provides access to ArcIMS serverside functions and tools. Through the ArcIMS Manager, users can quickly set up and administer Internet services.

The ArcIMS Manager consists of three components to

- Author MapService files.
- Design Web pages.
- Publish MapServices and administer ArcIMS Spatial Servers.

The ArcIMS Manager combines these applications into one wizard-driven framework. Although each of these processes is available as an independent application that runs

outside a Web browser, the ArcIMS Manager provides the transitional steps for additional communication among the components.

Authoring MapService Files

The ArcIMS Author allows users to define map content. Generating a map involves adding and rendering data content.

The ArcIMS Author is a menu-driven applet that steps users through the map content definition process. Internet maps can be created using shapefiles, ArcSDE data sets, and images. The ArcIMS Author allows users to define connections to databases, symbology, and other mapping parameters. Use the ArcIMS Author to

- Compile data sources as layers.
- Render polygons.
- Set scale-dependent rendering.
- Set up query and address matching functions.
- Add text labels to describe map features.

The ArcIMS Author allows users to create a map configuration file, which is written in ArcXML. The map configuration file is the input to a MapService. The ArcXML file specifies how data will look, what labels will be available, and how different types of data are displayed.

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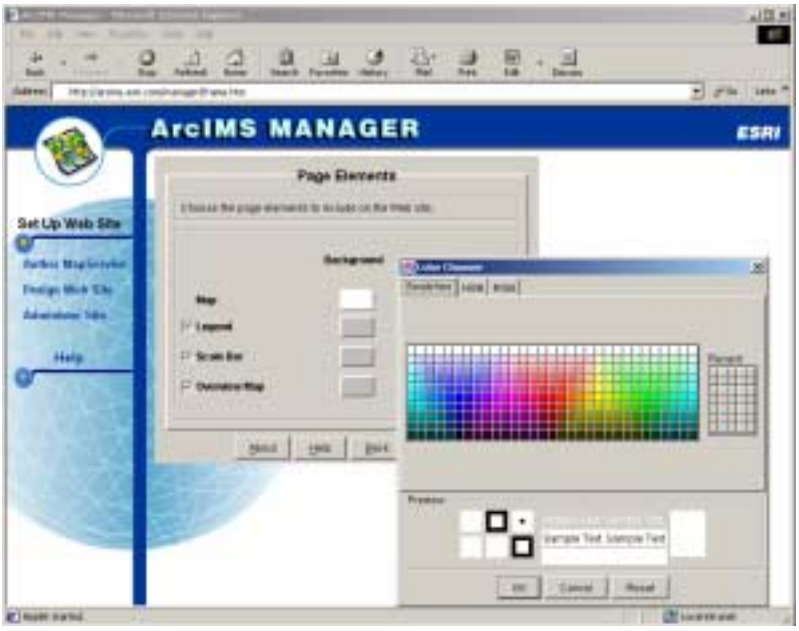
The map configuration file can be edited in a text editor independent of the ArcIMS Author environment.

Designing Web Pages

The role of the ArcIMS Designer is to generate a Web site that end users will view. The ArcIMS Designer lets you define which MapServices to use, as well as toolbar functions, querying capabilities, editing, Map Notes, Edit Notes, data integration functions, page elements, map extent, visible layers, scale bars, and all the other elements that determine the end user experience. The resulting Web pages can be used as is, or they can be customized to meet specific needs.



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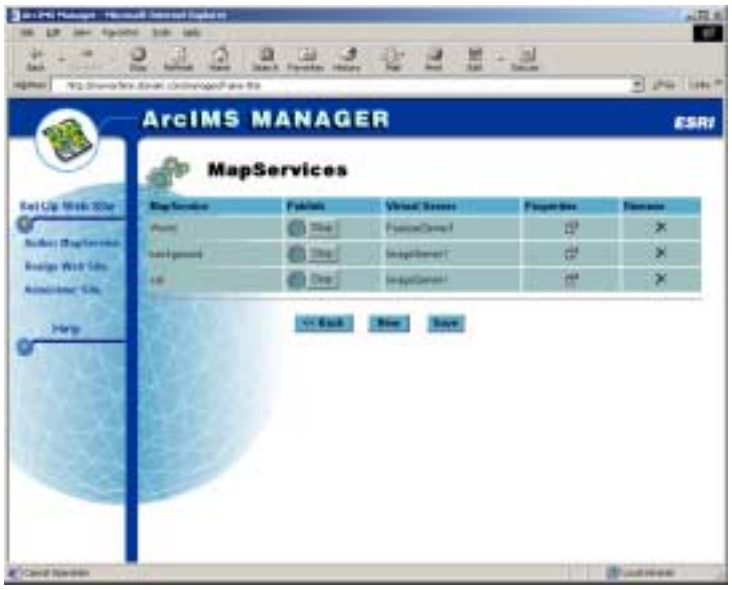
Administering MapServices

The ArcIMS Administrator allows users to manage the ArcIMS site.

The goal of site administration in ArcIMS is to manage these components to create a system that supports the distribution of maps and GIS functionality on the Internet.



ArcIMS is specifically designed so that the site will continue to function while servers and services are added and removed. A site configuration can be saved so that it will automatically restart with the same configuration.