ArcGIS™ Desktop: Integrating Data from the Web

An ESRI® White Paper • December 2001

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ArcGIS Desktop: Integrating Data from the Web

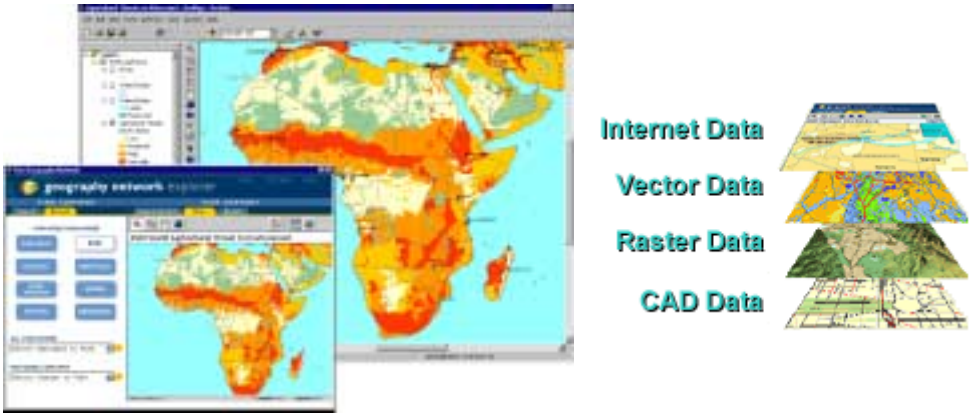
Web Data Integration into ArcGIS Desktop

With the immense amount of geographical data now available on the Web, global communication of spatial data is already a reality. Anyone can download geospatial data from around the world and use it in conjunction with their own analysis. This data can be retrieved from the Geography Network℠, other ArcIMS® servers, and geographic data clearinghouses. ArcGIS™ Desktop allows the user to interact with this data in a fast and efficient way through ArcMap™ and ArcCatalog™ software.

Geography Network

The Geography Network is a global community of data providers committed to making geographic content available. Published from sites around the world, the Geography Network gives you immediate access to the latest maps, data, and related services over the Internet. Use the Geography Network to search for and explore maps and other geographic content. When the user finds the data of interest, it can be instantly integrated with other data sets in ArcMap, the primary application included with ArcGIS Desktop (ArcInfo™, ArcEditor™, ArcView®).

The Geography Network is built on ArcIMS technology, allowing member organizations to serve their data over the Internet. ArcIMS software is the foundation for distributing geographic information system (GIS) data and applications on the Internet. Thus the data you add to your maps is accessed directly from the organization providing the data. While the Geography Network provides a centralized location for accessing data, any organization can publish their data using ArcIMS and serve it over the Internet.



Data from the Geography Network can be instantly integrated into ArcMap for analysis with a multitude of other data types.

"With the Geography Network I can access a variety of geospatial data and integrate this data into ArcMap. I can then analyze my local data along with the data provided from

the Geography Network. ArcMap also allows me to integrate data from any ArcIMS server for geospatial analysis with my local data. With the advent of the Geography Network, I now have a centralized location to search, explore, and access data from around the world on many different geographical subjects."

Terry Lehman
Orbital Imaging Corporation
Senior Principal Engineer

Integrating Data Services from the Geography Network with ArcMap

ArcIMS, an Internet solution software that powers the Geography Network and many other Internet mapping sights, provides *image map* and *feature map* services for the user. Either type of data service can be integrated into ArcMap by simply pressing the Add Data button on the standard toolbar and connecting to the Geography Network server.

The Geography Network allows you to search by data provider, data type, and geographic extent. Once you find the data, you can read a description of it, view it over the Internet, and add it to your map in ArcMap.

The image map service allows users to incorporate a background map to their existing data. An image map service works by taking a snapshot of a map on a server and delivering it to ArcMap as an image. The snapshot is sent as a compressed JPEG, PNG, or GIF file. A new updated map image is generated each time the client requests new information. The image map service can also deliver compressed raster data to clients. With an image map service, the user can obtain information about individual features and pan and zoom throughout the entire map.

The feature map service streams compressed vector features directly to ArcMap. Feature streaming enables more advanced clientside tasks such as feature labeling, feature symbolization, map tip creation, and spatial selection of features. This allows anyone using ArcMap on the client side the functionality to change the appearance of the map. You can change the drawing order and symbology, perform analyses, and add attribute data to the existing databases. Similar to an image map service, you can also obtain feature information and pan and zoom throughout the entire map.

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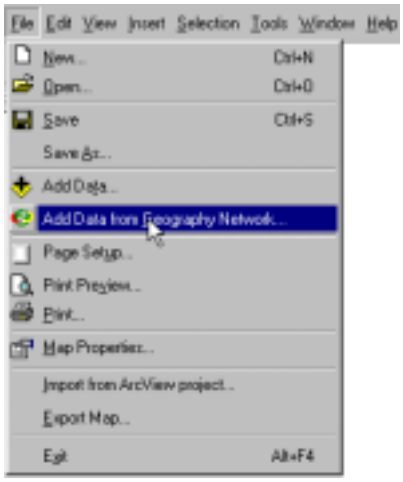

This command launches the Geography Network browser for instant data retrieval.

Browse the Geography Network for the data you are interested in and click the Add to ArcMap button.

Browsing the Geography Network

There are several ways to browse for geographic data from the Geography Network. The friendly browser interface allows you to search by geographic location, data provider, or data type. This gives users the power to locate geospatial data related to their analysis in a friendly and convenient manner.

Browse by geographic region.

Browse by data provider.

Browse by data type.

Continual Updates

On top of giving you the ability to instantly access geospatial data from around the globe, many of the data sets provided, such as weather data, are updated frequently to keep your spatial analysis at the cutting edge. For example, the DTN Weather Services, LLC, data service provider updates the cloud cover data set for the United States every 30 minutes. By simply pressing the Refresh button or panning/zooming in ArcMap, the map will automatically reflect the ever-changing cloud densities.

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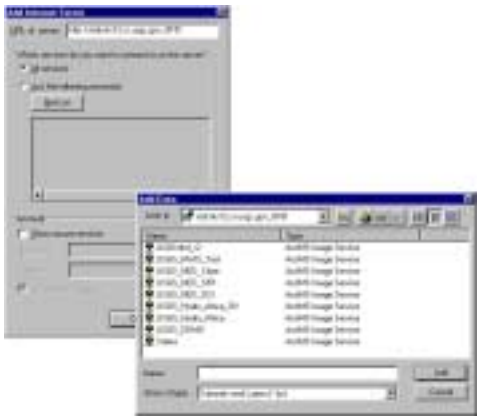
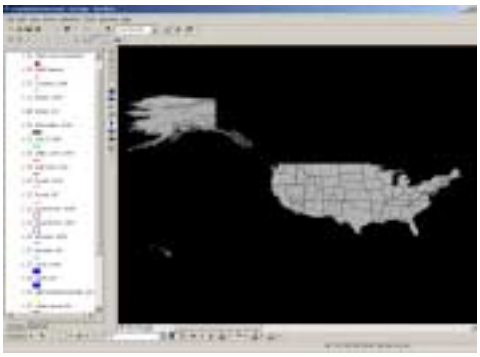
Adding Data Through Other Internet Servers in ArcMap

Adding data through any Internet server is a simple process with ArcMap. Click on the Add Data button on the standard toolbar. Navigate to the Internet Servers folder and double-click on Add Internet Server. Then simply type in the address of the server with the data you want to access. Click the Details button to see which image map services and which feature map services are available. Double-click the data you would like to add or click Add. ArcMap instantly creates a new layer from the designated server.

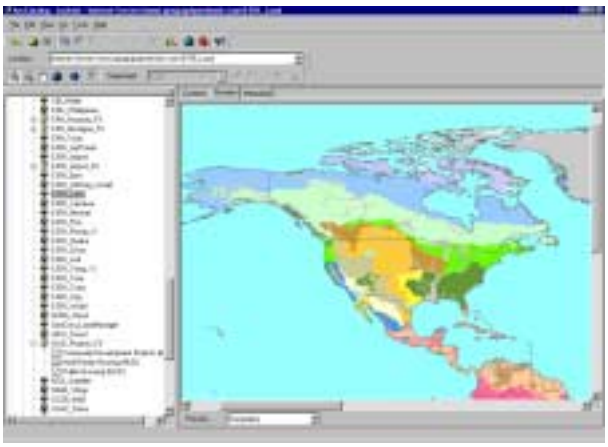




Viewing Data from the Geography Network in ArcCatalog

ArcCatalog, the file manager for ArcGIS Desktop, allows you to instantly access and preview data from a server or local directory. By simply connecting to the Geography Network server, you can preview the available maps and metadata. Double-click on the Add Internet Server button and type in the address http://www.geographynetwork.com and click OK. Click on the data set and then click on the Preview button. Once you find a map that interests you, simply drag and drop the data set into ArcMap for further analysis.

Instantly access data by adding the Geography Network URL.



Preview the various data sets available on the Geography Network.

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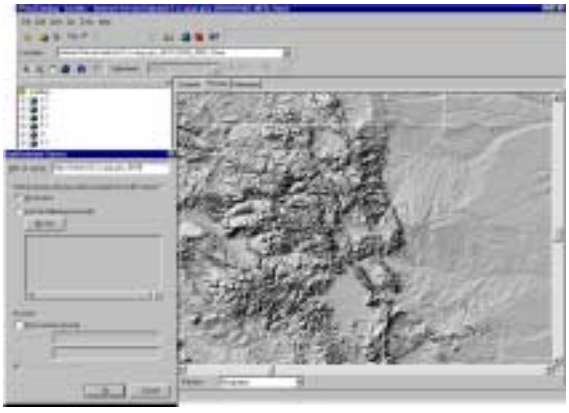
Searching for Specific Data Sets

ArcCatalog also gives the user the ability to do advanced searches for any data type on the Geography Network or any ArcIMS Internet server. For example, by simply highlighting a selected region of the world, ArcCatalog will instantly display a list of all data sources available for this area on the Internet server. The user can also do a search for a specific type of data such as a feature map service. Once the user has found and previewed the map services of interest, the user can instantly integrate this data for analysis with other data sets by simply dragging the files into ArcMap.

Advanced Searching for the Geography Network and Any ArcIMS Internet Server by Region or by Data Type

Adding Data Through Other Internet Servers in ArcCatalog

By simply pressing the Add Internet server button in ArcCatalog, the user can instantly access any Internet server and preview and analyze this data. Once the desired data sets have been acquired, the user can drag and drop them into ArcMap for further analysis with other data sets.



Adding Data from Other Internet Servers into ArcCatalog

Further Analysis with Extensions

ArcGIS Desktop comes with a variety of extensions for advanced geospatial analysis. By accessing the Geography Network or any Internet server, the user can acquire data sets that can aid in more advanced spatial analysis. For example, by adding crop yield sample measurement points from an agricultural Internet server, the user could effectively create a surface and analyze areas of high and low crop yield with ArcGIS Geostatistical Analyst for their specific geographic region.

Clearinghouses

On top of providing up-to-date, easy-to-use geographic data, the Geography Network provides links to many other data clearinghouses, which provide all kinds of geospatial data from around the globe. This data can then be downloaded and added to ArcMap with the Add Data button on the standard toolbar.

Conclusion

With global Internet services such as the Geography Network, the future of geospatial analysis is effectively rising to the next level. By sharing and analyzing data from around the world, organizations can solve problems and identify geographical relationships at a much faster and more professional capacity.

"With GIS on the Internet, I feel like we have just invented the printing press for maps! When maps were first printed in the 16th century, suddenly there was a whole new way to think about the world. Exploration took on a new dimension since maps were open and available for everyone, not just for kings. That is what is going to happen with GIS on the Internet. By widely publishing geographic information for everyone to access, it will lead to a new age of geographic awareness and knowledge."

Jack Dangermond
ESRI
President