

ArcGIS 8.3 release represents the next major step forward for the ArcGIS suite of products. Focused primarily on geodatabase editing and topology, this release will include all of the tools you need to build, manage and maintain your geographic information in geodatabases.

What's new in ArcGIS Desktop 8.3?

Geodatabase Topology and Advanced Editing

A key part of the ArcGIS 8.3 release is the addition of topology for the geodatabase. This includes the ability to choose which feature classes in a feature dataset are to participate in a spatial relationship with other feature classes in that feature dataset or within itself, such as polygons cannot overlap one another, lines cannot have dangling nodes, and points must be completely inside the bounds of a polygon. The number of spatial integrity rules offered for the geodatabase far exceeds those used in the ArcInfo Workstation coverage model, and are much more flexible. In 8.3, users can decide which rules to apply to which feature classes where in the coverage model, users have a much more limited ability to model topological relationships. The editing abilities of ArcMap have been improved to leverage these spatial integrity rules and to help find and fix topological errors easier and faster than ever before. Other tools exist to make the editing of features that share geometry easier and more powerful than ever before.

Additional editing tools such as traverse, fillet, and proportion, for industries such as land records and parcel management have been added to the core editing tools in ArcEditor and ArcInfo.

For more information on editing and working with topology, refer to the "Editing in ArcMap" book of your ArcGIS Desktop Help.

For information on topology in the geodatabase, refer to the "Topology" book in the "Geodatabases" section of your ArcGIS Desktop Help.

Is it true that at ArcGIS 8.3 ESRI will discontinue support for direct editing of coverages in ArcMap?

That is correct. The best tool for performing coverage editing is through ArcInfo Workstation and ArcEdit. With the introduction of topology in a geodatabase and new advanced editing tools in ArcMap at ArcGIS 8.3, it is easier to migrate. The ArcMap editing environment will essentially replicate the ArcEdit coverage editing capability, and we recommend you migrate your coverages into the geodatabase environment if you haven't already done so. For more information on this, read the "What is ArcGIS?" book that shipped in your software package.

A comprehensive overview of topology in ArcGIS 8.3 is included in the Summer 2002 issue of ArcNews and can be [viewed](#) on-line at www.esri.com/arcnews.

For information on migrating from a coverage-based environment to the geodatabase, refer to the "Migrating from ArcInfo Workstation to ArcGIS" book in your ArcGIS Desktop Help.

Disconnected Editing

The ArcGIS 8.3 release introduces the ability to perform disconnected editing for multi-user geodatabases. This ability enables the checkout of features from a multi-user

geodatabase for use in the field or simply disconnected from the network environment. Upon check-in of the checked-out data, only the updates, deletes, and inserts are merged with the parent version making this process fast and efficient. Network connectivity is also rebuilt on the fly if necessary. Another feature of the disconnected editing technology is the ability to create an extract database for distributed use or sharing of a master database for other agencies, sites or individual users.

For more information on Disconnected Editing, refer to the “Disconnected Editing” book found in the “Geodatabase” section of your ArcGIS Desktop Help.

ArcPad Integration to ArcGIS

With the integration of GPS, small lightweight mobile computing, and software such as ArcPad, we are seeing more field data collection, and editing applications for field inventories and surveys, as well as field updating of features. This is particularly interesting as these mobile devices become wireless, thereby giving direct and immediate measurement signals back to online GIS databases that are updated as the data is captured. While the mobile "client" technology is advancing rapidly, it is valuable to see these devices as part of a system with a server based data management capability for managing data transactions carried out with these field devices. Therefore the ArcGIS 8.3 release also introduces tools for the ArcGIS desktop to get data for use in ArcPad 6.0 and higher. When viewing or connected to a geodatabase, these tools convert the selected feature classes into “geodatabase aware” shapefiles that can then be edited in ArcPad. Upon checking these shapefiles back into the geodatabase, the edits are integrated back into the parent geodatabase.

For more information on working with the ArcPad tools inside of ArcMap, refer to the “Working with ArcPad” book found in the “ArcMap” section of your ArcGIS Desktop Help.

Linear Referencing

ArcGIS 8.3 offers new and exiting improvements in linear referencing (commonly known as dynamic segmentation). Previous releases of ArcGIS enabled events to be positioned along existing routes. ArcGIS 8.3 upgrades this functionality to satisfy the equivalent of what ArcInfo Workstation Dynamic Segmentation users have been familiar with for several years.

New for 8.3, users can interactively or automatically create routes, as well as edit, update and maintain the reference system values known as measures on the routes. Tools to display route errors allow users to improve the quality of their reference systems as new route editing tools make calibration and calculation of measurements easier than ever before. Geoprocessing of event data is also in ArcGIS 8.3 to enable such analysis as point on route, or polygon on route overlay, as well as route on route analysis and the transformation of measurements between different routes.

Groups such a DOT's, Geophysicists, and Utilities are among groups who will be very pleased with the improvements and advancements made in Linear Referencing.

For more information on what you can do with linear referencing in ArcGIS 8.3, refer to the “Linear Referencing” book of your ArcGIS Desktop Help. You will find the following topics:

- Getting started with Linear Referencing
- Linear Referencing – an overview of the technology
- Creating route data
- Editing routes
- Displaying and editing event data

Licensing

Single Use ArcEditor

Newly available with ArcGIS 8.3 release is **ArcEditor Single Use**. This product is functionally equivalent to the Concurrent Use (floating) version of ArcEditor. If installed along with a concurrent license such as ArcEditor or ArcInfo, you can use your Desktop Administrator and select any of the three desktop products, ArcView, ArcEditor, or ArcInfo.

If you have previously installed ArcInfo, ArcEditor or ArcView (floating), all of the ArcView (Single Use) and ArcEditor (Single Use) software components will have been installed. The additional step required to use ArcView (Single Use) or ArcEditor (Single Use) is to register and authorize it.

Note: You can only install one Single Use product on one machine at a time. You can run either ArcView Single Use, or ArcEditor Single use, not together on the same machine. Both of these seats however can be installed on a machine that also has ArcInfo, ArcEditor, or ArcView Concurrent (floating) Use already installed. There is no conflict between the Single Use and Concurrent Use licenses.

File version updates

Map Documents (.MXD)

Due to updates made in the 8.3 release, map documents (.MXD files) made with ArcGIS 8.3 will not be able to be opened with ArcGIS 8.2. However ArcGIS 8.3 can open map documents made using ArcGIS 8.2.

Scene Documents (.SXD)

Due to updates made in the 8.3 release, ArcScene documents (.SXD files) made with ArcGIS 8.3 will not be able to be opened with ArcGIS 8.2. However, ArcGIS 8.3 can open scene documents made using ArcGIS 8.2.

ArcReader Published Map Files (.PMF)

Due to updates made in the 8.3 release, published map files made with ArcGIS Publisher 8.3 cannot be opened or viewed using ArcReader 8.2. Only ArcReader 8.3 can view .PMF files published using ArcGIS 8.3. However, ArcReader 8.3 can view any .PMF files made using ArcGIS 8.2.

ArcMap Server

ArcGIS 8.3 map documents cannot be served using ArcMap Server 4.0. The ArcIMS 4.0.1 release will enable ArcGIS 8.3 documents to be served to the Internet.

Geodatabases

Due to updates made in the 8.3 release, geodatabases, personal or multi-user, created with 8.3 cannot be connected to via ArcGIS 8.2. However, ArcGIS 8.3 can connect to geodatabases created with ArcGIS 8.2.

ArcInfo Workstation

If you're running ArcInfo Workstation 8.2, you will need to uninstall it and install ArcInfo Workstation 8.3 in order for it to work properly with ArcGIS Desktop 8.3.

General

Tables and Layers based on a Query

In ArcGIS 8.3, some existing ArcObjects components have been expanded to extend the functionality of earlier releases. Previously, all rows and columns from a table must be added to ArcMap and tables that did not have Object ID columns did not support selections.

These components allow a table or a layer to be created with a sub-set of columns and rows in ArcMap. The components accept simple SQL statements enabling inner joins, sub-selects and most other where clause statements. The tables and layers in ArcMap are similar to DBMS views in that the data they represent is based on a query.

Tables created with these components can have Object ID columns and will therefore support selections. The Object ID values may be derived from an existing primary key field or set of key fields (i.e. composite keys) or appended to the rows as they are processed.

The components are implemented for geodatabase and OLE DB data sources. The tables and feature classes are read only and support the same functionality as other read only data (for example, can be used as XY or Route event tables). SQL statements involving table or columns aliases, group by and order by statements or column summary functions (for example, min, max) are not supported.

In ArcGIS 8.3, there is no user interface provided to work with these components. The functionality is exposed through ArcObjects only. To find out more, search in the index tab of the ArcObjects help for IQueryName2 interface. Developer samples are also provided for creating and working with these components in ArcMap. Look in the Query Tables book under the geodatabase book in the Contents tab of the ArcObjects help for these samples.

Annotation edit tool

The annotation edit tool can be found on the Advanced Editing toolbar inside of ArcMap. This tool enables you to scale, rotate, and curve selected annotation, in addition to other new and useful options that can now be done to annotation features.

XMI update for the CASE tool

Adds support for Visio 2002 (Professional or Enterprise Architect), and the XMI file format. Microsoft has dropped support for the Repository in Visio 2002, however users can download an XMI export utility that enables the export of UML models to XMI files. With the CASE Tools XMI Update, the CASE tools subsystem supports both Microsoft Repository databases created in older versions of Microsoft Visio and XMI files created in Visio.

ArcGIS Desktop Extensions

ArcScan for ArcGIS

ESRI has developed the next generation of raster to vector conversion tools integrated within the ArcGIS 8.3 editing environment. This is a new upgrade for the ArcGIS Desktop products, as ArcScan was only available for use with ArcInfo Workstation. Institutions such as national mapping organizations, conversion vendors, or users who just have a lot of data to convert will benefit from this technology.

ArcScan enables users to create vector features directly from raster images by snapping to raster features and either interactively trace or batch create vector features. As ArcScan is fully integrated within the editing tools in ArcMap, users can create and update geodatabase features automatically based on the raster images.

ArcGIS Survey Analyst

The Survey Analyst extension for ArcGIS is a GIS surveying system developed by Leica Geosystems and ESRI. Survey Analyst is a solution to storing and working with survey observations inside a GIS database. The survey observations may be collected through field notes, survey equipment or data collectors.

Survey Analyst provides the tools and the interface needed to support organizations where surveyors and GIS technicians work together in an integrated system. Surveyors and GIS professionals use Survey Analyst to improve the accuracy of existing GIS features or to locate new unmapped features for addition to the GIS database.

Survey Analyst also provides many new capabilities to allow survey observations and measurements to be managed within a geodatabase. It does not replicate the functionality of ArcInfo COGO, yet it introduces new and valuable concepts. Experienced ArcInfo COGO users will find the database built with Survey Analyst and stored in a geodatabase to be a valuable new addition to their existing information systems.

ArcGIS Tracking Analyst

The ArcGIS Tracking Analyst Extension is a sophisticated visualization and analysis tool that can be utilized for simple or complex applications. It can be used by itself or be combined with other ArcGIS extensions to create powerful applications for transportation, emergency response, military, and a host of other purposes. It provides a means for the visualization and analysis of time-related data by defining "Temporal Events" that consist of the following information: Time - The date and time of the event; Position - The geographic location of the event; and Attributes - Object-specific characteristics and properties.