

## ArcInfo 8 Review – part 2 –

# Using ArcInfo 8

*Last month Bob Barr covered the philosophy behind the new release of ArcInfo and looked at the extensive documentation and installation. In this, the second part of his review, he deals with the four main components of the new release, a release that provides not only a completely new look and feel but also a new way of organising one's own geoprocessing work, or the geoprocessing work of an entire organisation.*

As discussed last month, the new release of ArcInfo provides a standard Microsoft Windows-based set of desktop applications in addition to the command line-driven set of tools that users have been familiar with up to release 7 (and which are referred to as

envisage that the future lies with Windows NT-based workstations as the user environment of choice. UNIX machines will be relegated to (or, as UNIX aficionados may say, devoted to) heavy-duty geoprocessing tasks.

ArcInfo 8 can be run either

applications that have the necessary facilities to ensure that data integrity is maintained for projects where data is being created, updated or processed by many users at once.

ArcInfo 8 has the feel of a large limousine, or even a heavy truck, built by a quality manufacturer. While there is an enormous amount of power available to transmit to the road, or haul the load, the cabin is luxurious and the controls are light and easy to use with great precision, appearing to be no more difficult to operate than a family saloon. Inevitably there comes a point where the ease of use becomes illusory and some real expertise is required to get the best out of the environment, much as one might find when one has been lulled into a sense of security while driving a 40-ton truck. The air-conditioned cab, the finger-tip controls, the attenuated noise levels all lead you to believe that you are driving something no bigger than a family saloon – until

you come to make the three point turn and life is no longer so simple.

ArcInfo 8 is going to prove to be both a blessing, and sometimes a headache, for GIS or data processing managers. Until now, life has been easy – novice users used a 'lite' application such as ArcView (or, quite frequently, MapInfo for those who were not part of the broad church of ESRI). Heavy-duty 'expert' GIS staff grappled with ArcInfo, which, after a steep learning curve, offered an enormous amount of functionality.

ArcInfo 8 changes all that. The environment, or environments, can be configured to meet many needs. It can be packaged to provide simple automated applications for users with minimal training (using conventional Visual Basic for Applications as the customisation language, bringing it into line with Microsoft applications such as the various parts of the Office suite and hundreds of other software suppliers). ArcCatalog and ArcMap provide a competitive combination to the 'lite' applications, but one that has a much greater depth of functionality if one digs a little. The multi-user geoprocessing and database management tools, or components of the Workstation suite, provide the power user or systems integrator with a true 'enterprise' level degree of functionality. However, the designers have appreciated

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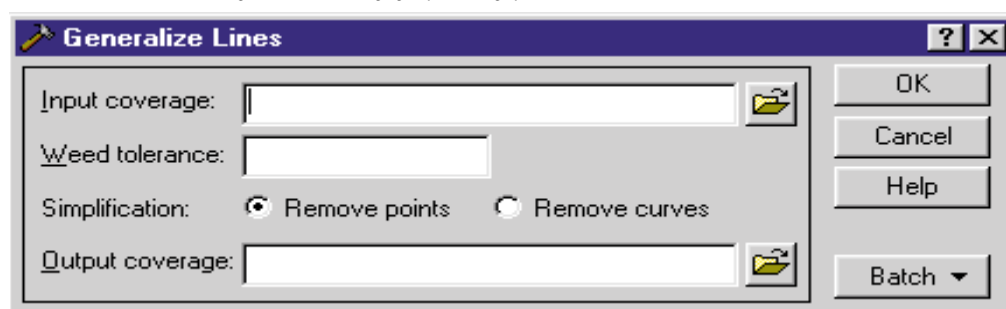
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the Workstation environment in the ESRI documentation). ArcInfo Workstation is available for both UNIX and NT platforms, but users of the former cannot take advantage of ArcToolbox, ArcCatalog and ArcMap. ESRI clearly

on a single machine or in a distributed environment, where database management and geoprocessing can be located on separate servers. Both the database (SDE) and the Workstation geoprocessing environment are full multi-user

Forms and wizards in ArcToolbox guide the user through geo-processing operations



# software review

the fact that users moving on from the 'lite' applications may not want, or need to learn, the whole Workstation environment. They are assisted

will depend on the amount of preparatory work that is required to set a project up.

An intermediate or advanced user, setting a project

libraries of routines known as 'My tools'.

The Arc Toolbox provides the facilities required to import, convert, structure and

to a command builder, however. By using the Microsoft 'Wizard' concept the user is walked through many common operations in a user-friendly way that leads to a much less steep learning curve than was previously the case.

The Toolbox is also the home of customised tools. AML scripts, which must now be considered as legacy code, can be run using a 'Run AML Script Tool'. The preferred environment for building new tools is Visual Basic, though other developer languages that can produce EXE or DLL files, such as Delphi, C++ or PowerBuilder, can also be used.

Having adopted the Microsoft 'look and feel', ESRI now support 'drag and drop between environments, so while one is working in Arc Toolbox, data sets can be dragged out of an ArcCatalog window and dropped into the Toolbox. Similar links are possible between other modules.

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by ArcToolbox, which is an effective, and relatively easy to use, front end to many of the heavier duty tools.

## Getting started

The ArcInfo desktop applications ArcToolbox, ArcCatalog and ArcMap offer a co-ordinated set of environments for a wide variety of users. However, the order in which these elements are used

up for the first time, would probably start with the ArcToolbox.

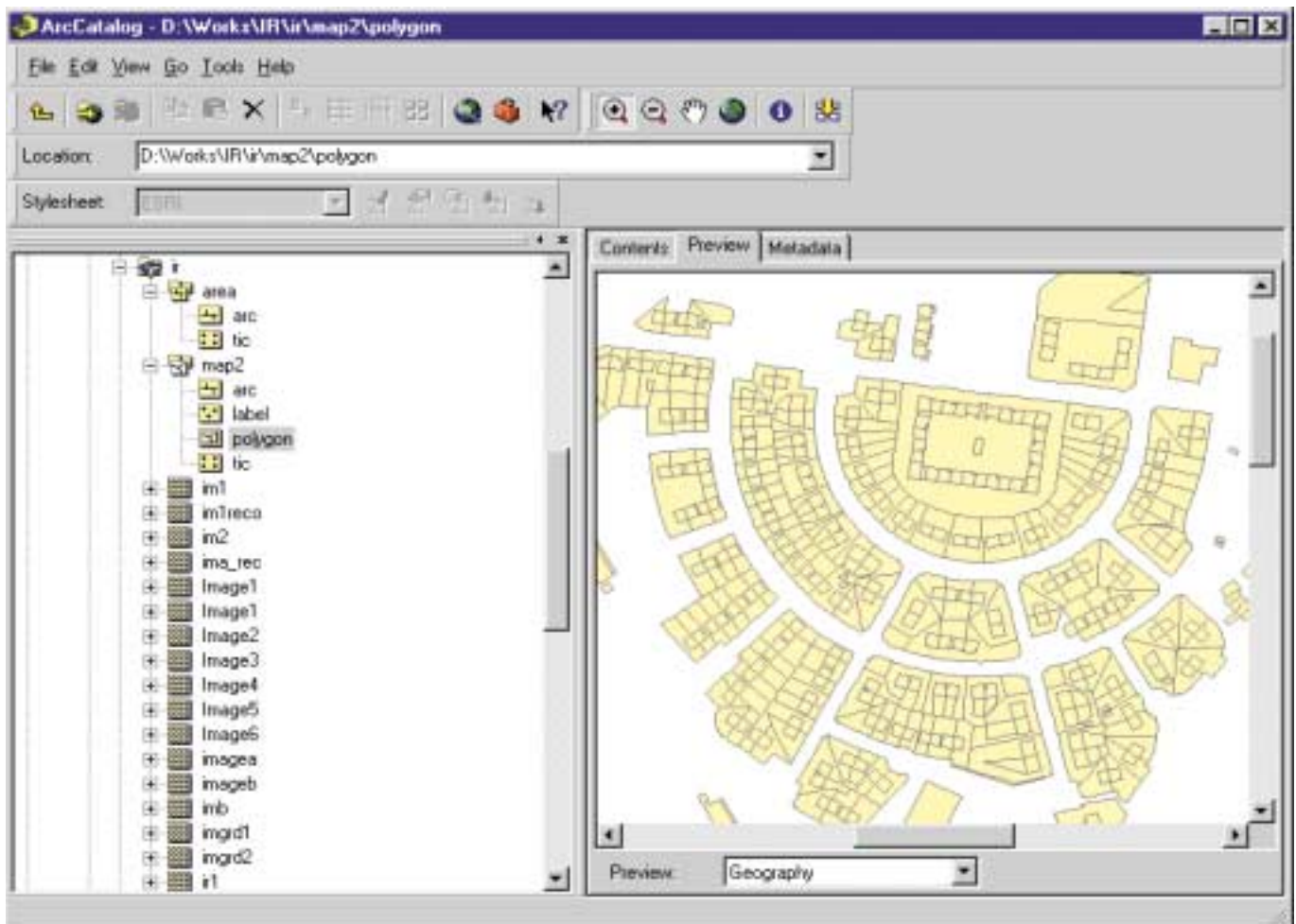
## Arc Toolbox

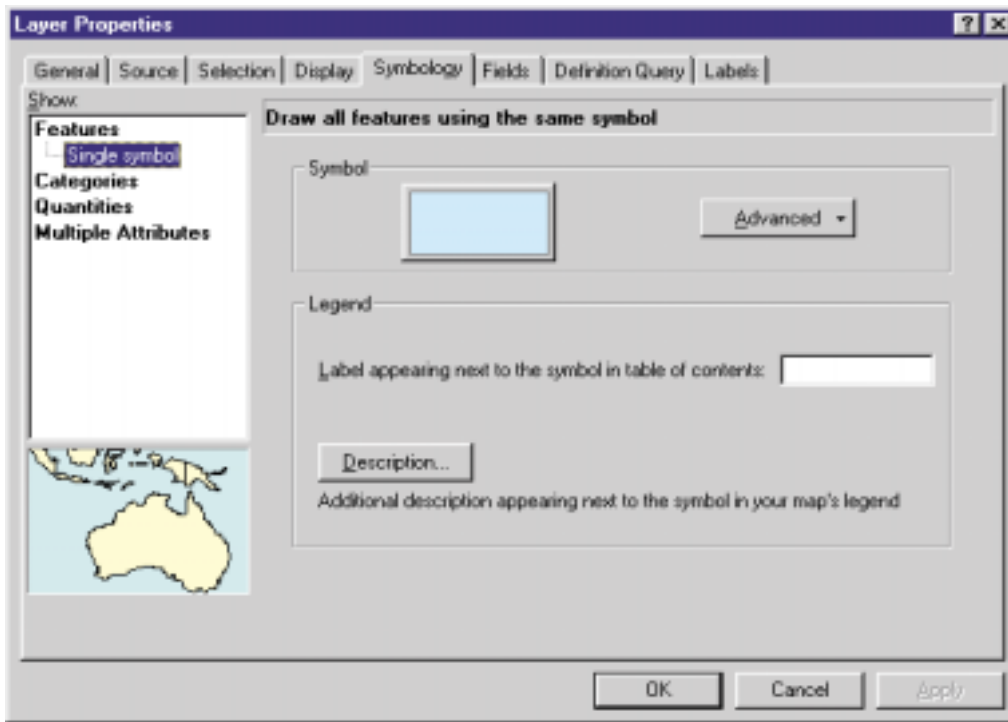
This component has its origins in the ArcTools available in earlier versions of ArcInfo.

There are four main components to the toolbox: data conversion tools, data management tools, analytical routines and customised

analyse datasets for use in ArcInfo. These pre-processing functions are the key to taking different types of data from different sources and making them usable together in a single consistent coverage. In the past a user had to be able to remember an arcane set of commands, often with many parameters, to carry out these tasks. The Toolbox is more than just a cosmetic front-end

ArcCatalog eases the viewing and management of data in the GIS





The Layer Properties dialogue box, one of the many easy-to-use interfaces in ArcMAP

## ArcCatalog

ArcCatalog is an excellent additional environment that acknowledges, perhaps for the first time, that the organisation of the multitude of files, and the folder structures, for a GIS project is far from trivial. ArcCatalog uses a Windows 'Explorer' style interface to allow data to be organised, browsed through and pre-viewed. Map data appears either as a set of thumbnails, or as full window maps. Tabular data appears as browsable and sortable tables.

Given the complicated file structures and large number of files generated in ArcInfo, the Catalog goes a long way towards making the large amounts of data generated manageable. However, it also encourages good practice by providing both a repository, and good tools, for collecting metadata. There is little excuse for not documenting one's data sets now that such a good environment for handling metadata is available. This is yet another example of ESRI's pedagogic approach, which has an emphasis on teaching users both some of the theory of what they are dealing with and best practice. Hopefully these facilities will be used, though we know that however much

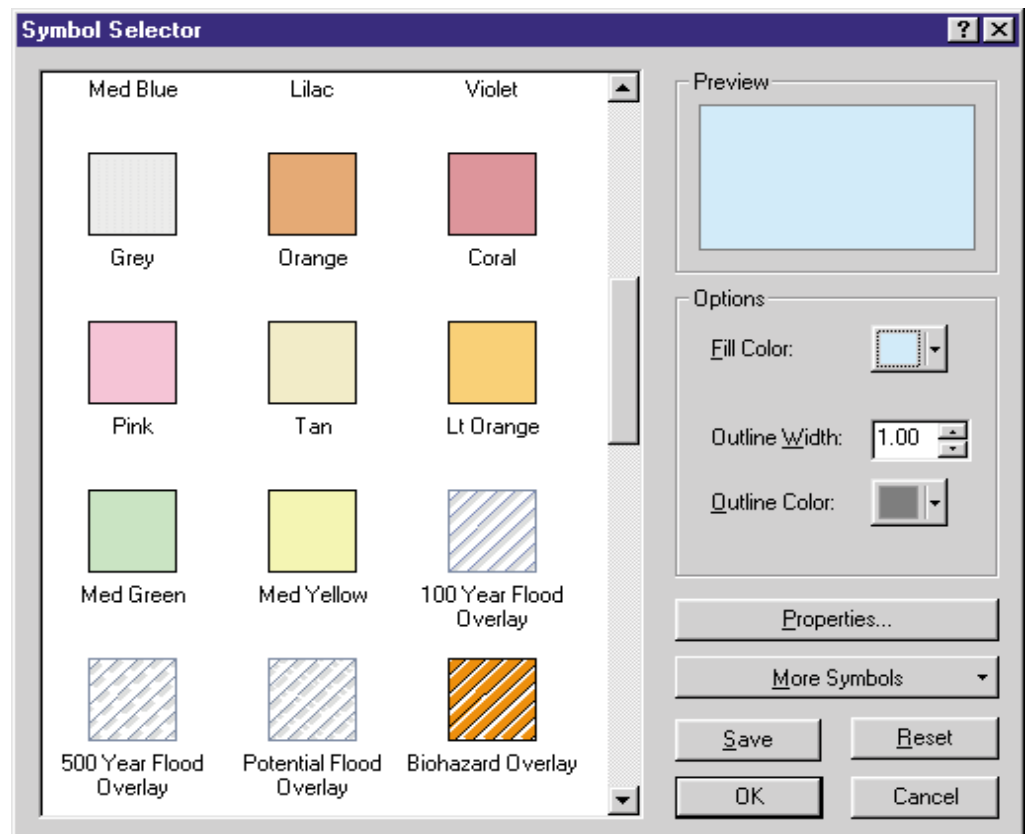
the standards authorities and academics try to persuade users to generate metadata, it always seems to be the lowest priority in any project. Yet the absence of metadata leads to wasteful duplication of efforts or the inappropriate use of data sets, both of which are far

more costly than carrying out the mild chore of documenting one's data (now that this is made so much easier).

## ArcMap

The ArcMap module is probably the jewel in the crown of ArcInfo 8. Perhaps for the first

The comprehensive Symbol Selector interface in ArcMAP



time, facilities for producing high quality cartographically elegant output, as well as carrying out a range of map management tasks, have been incorporated into a heavy-duty GIS system. For years, ArcInfo users struggled to produce high quality cartographic output. ESRI has published the best of their efforts in a glossy annual volume. However, the average ArcInfo user usually settled for plain and simple (and sometimes not very attractive) output. An enormous amount of effort has gone into producing a simple-to-use, but functionally very rich, mapping environment in ArcInfo 8. ArcMap also provides tools for editing and querying maps while building a geodatabase.

## Arc Workstation

Underlying all the gloss of the new Windows tools, the solid functionality of Arc Workstation remains at the core of ArcInfo 8. The presence of this powerful set of tools, which lack the sophisticated ease of use and modern user interface of the Windows modules, provides a great breadth of functionality.

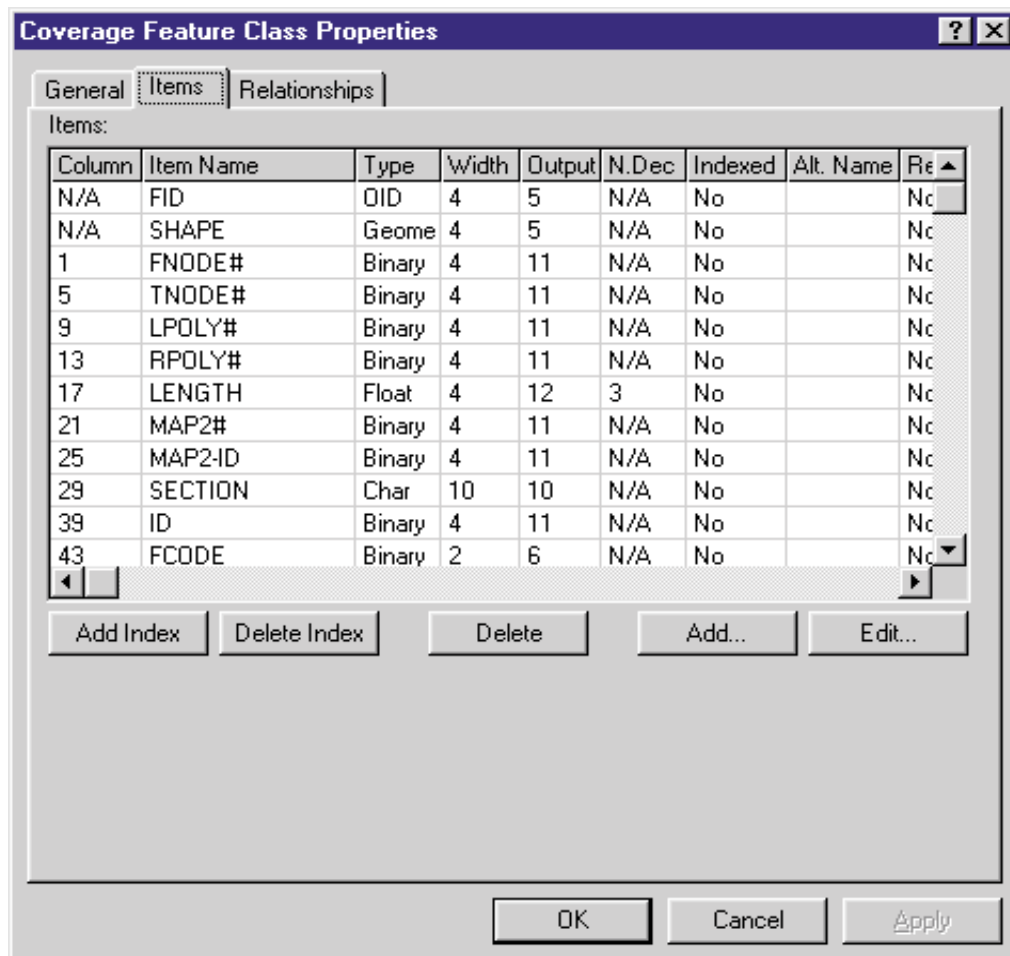
This demonstrates the extent to which this release of ArcInfo is a transitional product. As explained last month, it is not only designed to wean the

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user from an old, clunky command line environment to a standardised modern environment which complies with Microsoft's standards for component architectures, but also moves users towards a sophisticated new object database model.

## Conclusions

ESRI has taken some very brave steps with the release of ArcInfo 8. The company is trying to re-educate its user base and shift it to industry standard platforms – and that means adopting Microsoft's standards. Such a big move cannot be achieved in a single step, however large, and ESRI acknowledge that there is still a lot to be done to create a seamless environment using a new data model for the future.



Exploring and managing data structures of one of the many supported formats

The loyalty and investment (both in equipment but more particularly staff skills) of their large user base must be preserved.

ArcInfo 8 achieves all of these objectives. It now stands, perhaps uniquely, as the best available general geo-processing environment for organisations with diverse needs. There is always a danger that this may be too small a niche market, yet ESRI has demonstrated in the past that this is not the case. It is hard to see how ArcInfo 8, with its

excellent documentation, ease of use and familiarity for non-specialists can do anything other than expand this marketplace.

ESRI acknowledge that positioning different packages of components from ArcInfo 8 at different price points is a challenge. They also acknowledge that the successor to the current line of ArcView products will be a combined 'lite' version of ArcCatalog and ArcMap – and this will create pressures to come up with creative pricing and licensing

policies that will open up the technology to a wider market, while at the same time retaining the revenue from the high-end product. ESRI has met such challenges in the past. This time they are tackling them with what is almost certainly the best all round geo-processing toolkit available. It is in the interests of our whole industry that they should succeed.

GI News

**Bob Barr is director of the Regional Research Laboratory, University of Manchester, and senior vice-chairman of the AGI.**

### Documentation

#### Textbooks

Modeling our World – The ESRI Guide to Geodatabase Design  
The ESRI Guide to GIS Analysis Volume 1: Geographic patterns and Relationships

#### ArcInfo8

Getting Started with ArcInfo  
Using ArcMap  
Using ArcToolbox  
Using ArcCatalog  
Building a Geodatabase  
ArcObjects Developer's Guide

#### ArcSDE

Understanding ArcSDE  
ArcSDE Administration Guide

### Minimum system requirements

#### Processor

Pentium (or higher)

#### Operating System

Operating System Microsoft Windows NT 4.0 with Service Pack 4 or higher, Windows 2000 (plus UNIX for ArcInfo Workstation only)

#### RAM

128 MB

#### Free Disk Space

NTFS approximately 1.5 GB  
Desktop Applications: Approximately 640 MB  
Workstation Applications: Approximately 770 MB  
System drive (where winnt\system32 is located) up to 70MB

#### Recommended

#### Free Disk Space

NTFS Approximately 2.5 GB