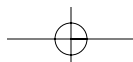


CHAPTER ONE

What's New in Access 2000

- Learning the history of Access changes
- Understanding what's new in Access 2000
- Understanding what's new in Jet 4
- Learning about Microsoft Office Developer



Chances are, if you're reading this book, you've already decided that Microsoft Access 2000 (we'll refer to it hereafter as *Access 2000*) is a worthy platform for your development endeavors. Chances are, you're right. Microsoft has created a serious, full-featured, and powerful development environment for creating database applications on single-user and networked personal computers.

A Brief Access History

Access 1.0 really opened the eyes of many database developers. It was one of the first relational database products available for the Windows 3 platform, and it was certainly the first to fill the needs of many developers, both corporate and independent. Besides its ease of use in getting started, Access 1.0 made it very easy to create simple applications. It did have some limitations when developers got past a certain point in their applications, and it had a severe limitation in that databases couldn't be larger than 128MB. Access 1.1 fixed that limitation, expanding the maximum database size to 1GB, and fixed some other limitations as well. Still, many professional features were lacking. Programmers used to Visual Basic's nearly complete flexibility were stymied by Access' inability to change control and form properties at runtime, for example. On the other hand, there was no simpler way to get data in and out of forms than Access, so developers worked around Access 1.1's limitations.

Access 2 offered great gains for developers. Although it also provided numerous improvements for end users, the greatest leap from 1.1 came in the improvements for the developer community. For the professional programmer, Access 2 added features in almost every area of the product, including:

- A vastly extended object and event model
- Runtime access to most form and report properties
- Event procedures
- Cascading updates and deletes for referential integrity
- Engine-level enforcement of rules
- New query types—union, data definition, and pass-through queries—and support for subqueries

- Rushmore query optimization
- Data access objects (DAO), a consistent object model for the manipulation of Jet engine data
- OLE automation client support
- Programmable security
- Support for 16-bit OLE custom controls

Access 95 was a major undertaking. Both Access and Jet were ported from 16-bit Windows to 32-bit Windows. The Access Basic language and integrated development environment (IDE) were replaced with Visual Basic for Applications (VBA) and its enhanced IDE. Numerous other improvements were added, including:

- Support for multi-instance forms
- The addition of the KeyPreview property for forms
- Support for multiselect list boxes and improved combo box performance
- New, lightweight image control
- The ability to detect and alter the type of a control with the ControlType property
- The addition of a built-in query-by-form feature, Filter by Form
- Support for form class modules with public functions (methods) and Let, Get, and Set property procedures
- The ability, with the NoData event of reports, to choose not to print a report if there were no records
- The addition of the RepeatSection property, which lets you repeat a group header at the top of continuation pages
- Replacement of counter fields with the more flexible AutoNumber data type
- The addition of new With...End With and For Each...Next VBA constructs
- The addition of the line continuation character
- Support for named parameters, optional parameters, and parameter arrays
- Support for new Date, Boolean, and Byte data types

- Improvements to the editor and debugger, including Watch variables and color-coded syntax
- Support for replication
- Several concurrency and performance improvements to the Jet 3 Engine
- OLE automation server support
- The addition of startup properties that let you disable access to the database window and change the application's title bar and icon

Access 97 was a minor release in comparison to Access 95. Still, there were lots of new features and improvements to existing features. These changes included:

- A new Hyperlink data type.
- The Publish to the Web Wizard made it easy to publish static or dynamic data on the Internet or a corporate intranet.
- Lightweight forms loaded faster because they didn't have any code behind them.
- The native tab control made it easy to create a tabbed dialog.
- Menus and toolbars were completely programmable using the CommandBars collection and CommandBar object.
- New RecordsetType, FailOnError, and MaxRecords query properties.
- Support for class modules.
- IntelliSense support made writing code much easier. When typing VBA code, the editor displays a list of objects, methods, and properties from which to choose. The VBA editor also displays a list of parameters for built-in and user-defined procedures.
- Support for drag-and-drop meant you could pick up a snippet of code and move it to a new location with the mouse.
- Several debugging enhancements, including the new Locals pane and Data Tips.
- Support for partial replicas and Internet replication.
- Supports for a new client-server connection mode called ODBCDirect.
- Support for the special MDE format that removes all VBA source code.

Access 2000—the Best Access Ever

Access 2000 is a major release. The number of significant changes is staggering. Of those, the most important changes can be grouped into five major areas:

- VBA
- Forms and reports
- Data access
- Internet/intranet
- Other improvements

In the next few sections, we list the most significant changes, grouped by major area.

Access 2000 VBA

The Access module editor has been replaced with the VBA 6 editor. If you're a veteran Access developer, you may find the new editing environment a bit disorienting at first, but with time you'll grow to appreciate the benefits of the new VBA editor. In addition, Access' version of the VBA language, VBA 6, which now brings Access' VBA up to par with Visual Basic 6, has several welcome additions. These changes are summarized here:

- The Access 2000 VBA editor is the same VBA editor that is built into the other Microsoft Office applications as well as third-party VBA hosts.
- You can password-protect all of the VBA code in global modules and the modules behind forms and reports with a single password. VBA code is no longer protected by user-level (workgroup) security.
- The VBA editor has a programmable object model and supports COM add-ins. You can download, purchase, or build add-ins to help you write, analyze, or format your VBA code.
- VBA has several new functions, including StrRev, MonthName, Split, Join, and Replace, to name a few.
- You can use Debug.Assert to place assertions in your code.
- Access supports the AddressOf operator, and class modules support the new Implements keyword.

New class module features are discussed in Chapter 3. Other new language features are scattered about the book. Building add-ins is discussed in Chapter 18.

Access 2000 Forms and Reports

Not a whole lot has changed in Access 2000 forms and reports. The few items that have changed are highlighted here:

- Forms and reports support the grouping and ungrouping of controls.
- Controls that display text allow for a user-specified border around the text, allowing you to move text around within the control.
- You can apply conditional formatting rules to the data in text and combo boxes.
- You can set a form's recordset to point to an arbitrary DAO or ADO recordset. That is, you can now open a recordset and assign it to a form's Recordset property. This means you can finally bind a form to something besides a table, query, or SQL string.
- Because you can assign a recordset to a form, you can wrap transactions around form updates.

New form and report features are discussed in Chapters 7, 8, and 9. In addition, Access 2000's new data access pages allow you to create bound data pages for display within a browser, duplicating some of the same functionality of forms and reports. See the section "Access 2000 Internet and Intranet Features" later in this chapter for more details.

Access 2000 Data Access

Data access in Access 2000 has changed in several big ways. Access 2000 comes with a new database engine option, a new data access model, and a new database format. These and other changes are summarized below:

- Although the Jet engine remains the default database engine, Access also works with the Microsoft Data Engine (MSDE), a limited-connection version of SQL Server 7.
- In addition to being able to create standard Access MDB database files, you can now create Access Data Projects (ADP) files. An ADP file is a "dataless"

database in which you can store forms, reports, macros, and modules, linking to data that is stored in a SQL Server or MSDE database. This means that you can use the same familiar Access user interface you know and love as a lean and mean front-end to SQL Server data!

- Access integrates tightly with ActiveX Data Objects (ADO), Microsoft's preferred data access model. Existing DAO code works just fine, but you'll want to start writing data access code using ADO, because it provides greater flexibility and capabilities.
- The Jet engine stores character data in Unicode. This makes changing languages simpler but also means that strings will now take up twice as much space. Because of this, the maximum size of databases has increased from 1GB to 2GB. In addition, Jet 4 optionally compresses text and memo fields.
- Jet supports row-level locking in addition to the older page-level locking! This means that pessimistic locking is now a much more viable option.
- Jet SQL supports a number of new ANSI-92 SQL extensions. You can take advantage of the new SQL-92 extensions when using ADO and the Jet OLE DB provider.
- Jet provides a user list feature that allows you to determine the machine and user name of all users currently logged into a database. You can use Jet's connection control feature to prevent new users from logging in to a database; this might be useful, for example, if you wished to take a database offline for backup.
- Replication has been improved on several fronts. Previously, synchronizations could produce both conflicts and errors. With Jet 4, everything's a conflict, which makes resolution simpler. In addition, conflict resolution now occurs at the column level rather than the table level. Thus, if different users change different fields within the same record, the record is no longer flagged as a conflict. Jet 4 defines three levels of replica "visibility," which now allows you to create replica hierarchies within a replica set. You can also create special replicas where records cannot be deleted. In addition, Jet supports bidirectional replication with SQL Server.
- Microsoft provides two new object models in the ADO family for working with schemas and replication: ADOX and JRO. You use ADOX to investigate and modify the schema of Access and other ADO providers. JRO, on the other hand, is a Jet-specific object model you can use to compact and repair databases and work with Jet 4's replication features.

ADO and ADOX are discussed in Chapter 6. The new ANSI-92 SQL extensions are discussed in Chapter 5. Multiuser, client-server, and replication features are discussed in *Access 2000 Developer's Handbook, Volume II*.

Access 2000 Internet and Intranet Features

This version of Access replaces the Publish to the Web Wizard with data access pages. A data access page is a Web page that you can use to view or edit data from an Access, MSDE, or SQL Server database using Internet Explorer 5 (or greater). Some facts about data access pages:

- Data access pages take advantage of the client-side data binding capabilities built into IE 5.
- The data in a data access page is embedded in the HTML page using eXtensible Markup Language (XML).
- You can use data access pages from within an MDB database, an ADP project, or IE5.
- Access includes a data access page designer that you can use to design pages.
- You can attach scripting code, written in either VBScript or JavaScript, to your pages. Microsoft has added the Microsoft Script Editor (MSE), a feature-rich script editor based on the Visual InterDev page editor, to Access.
- Data access pages can be created from scratch or can be based on existing Web pages. Access also includes a Wizard that makes it easy to create a page in a hurry.
- You can include the Office Web Components within your pages. The Office Web components are ActiveX controls that componentize features from Microsoft Excel. There are spreadsheet, pivot table, and chart components.
- While you can use data access pages for browsing and editing records, you can also use them for reporting, thanks to built-in grouping features.

Data access pages and Office Web Components are discussed in detail in *Access 2000 Developer's Handbook, Volume II*.

Other Access 2000 Improvements

Additional changes have been made to the product that don't fit neatly into any of the above categories, including the following:

- Object name changes have always been troubling to Access users and developers. That is, until now. Access 2000's Name AutoCorrect feature automatically fixes up object name changes in dependent forms, reports, and queries. There are certain limitations—for example, Name AutoCorrect doesn't correct VBA code references, nor does it work in ADP files or replicated databases—but it can save you a lot of time when you rename objects.
- In the past, you could download an add-in for Access 97 that printed relationships. The print relationships feature is now built into Access 2000.
- The find and replace dialogs are now nonmodal dialogs.
- Access was never big on backward compatibility. Access 2000, however, bucks this trend: select Tools > Database Utilities > Convert Database > To Prior Access Database Versions to save an Access 2000 database to the older Access 97 format.
- Access 2000 lets you compact and repair a database in one step. Plus, there's an option to automatically compact databases when you close them.

Many of these miscellaneous changes are discussed throughout the book.

Microsoft Office Developer Features

Many professional Access developers will want to purchase Microsoft Office Developer (MOD). This version of Microsoft Office includes a copy of Microsoft Office 2000 Premium (the version that comes with everything in Office Professional plus FrontPage, Publisher, and PhotoDraw), plus the following developer tools:

- A runtime distribution license for applications created with Access and either the Jet engine or MSDE
- The COM Add-In designer, a VBA tool for creating add-ins that work across Office 2000

- A licensed copy of the Visual Source Safe (VSS) 6 source code control utility, not just the hooks into VSS that came with Office 97's ODE
- The Package and Deployment Wizard, Office 2000's successor to the Access Setup Wizard
- A number of ActiveX controls, including the ADO Data control, the Flex-Grid control, and the Data Repeater control
- Several useful add-ins, including the VBA Code Librarian, the VBA String Editor, the VBA Error Handler, and the VBA Code Commenter
- The Windows API Viewer, a utility for viewing and cutting and pasting Windows API Declare statements, constants, and types
- Microsoft Replication Manager, an updated version of Microsoft's replication administration tool
- Printed copies of the *Microsoft Office 2000 Visual Basic Programmer's Guide* and the *Microsoft Office 2000 Object Model Guide*
- An HTML help authoring tool called the HTML Help Workshop
- The Microsoft Agent Software Development Kit

TIP

If you've already purchased a copy of Microsoft Office, you can get the developer tools that come with MOD by purchasing the Microsoft Office 2000 Developer Tools.

Building COM add-ins is discussed in Chapter 18. Programming the Windows API is discussed in Chapter 16. Source code control, Replication Manager, and the Package and Deployment Wizard are discussed in *Access 2000 Developer's Handbook, Volume II*.

Summary

Access is the best-selling desktop database program on the market today. It has the right mix of features for both users and developers. The changes Microsoft has made to the product for this release make this version the best Access ever.

