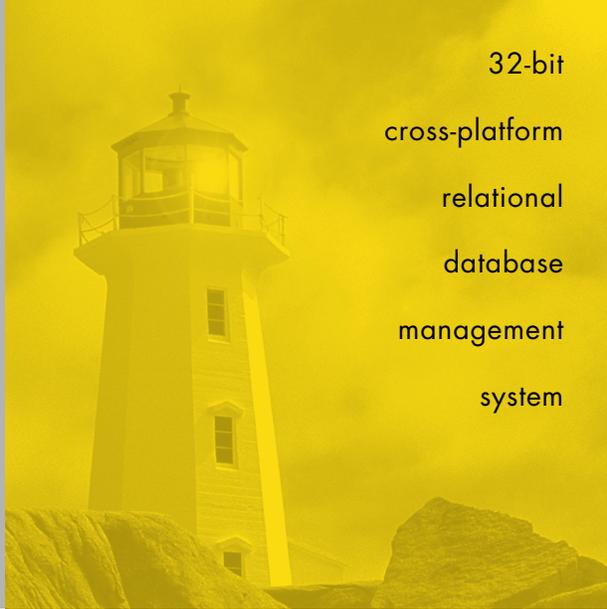32-bit

cross-platform

relational

database

management

system

4D

ACI 4th Dimension

4TH DIMENSION (4D) is the foundation of the complete 4D Product Line. Scalable, powerful, and easy-to-use, 4D is a 32-bit, graphical, multi-threaded relational database designed for end users and expert developers. As the most evolved database on the market, 4D combines an intuitive interface with a powerful programming language.

The 4D product line meets a wide variety of needs, equally serving power users wanting to create personal applications, vertical-market application developers, corporate programmers, and system integrators.
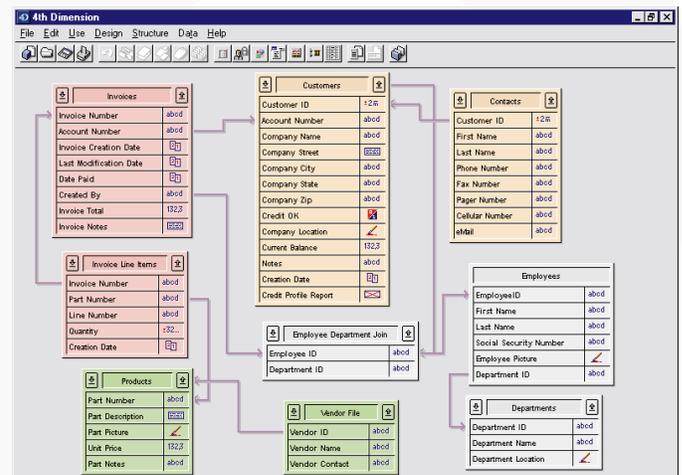
Economical and flexible, 4D enables:

▶ Applications created for one platform to be deployed immediately on another. 4D provides native support for Windows 95, Windows NT, Macintosh, and Power Macintosh.

▶ Single-user applications to scale easily to workgroup client/server solutions using 4D Server. 4D requires no redesigning as platform and number of users change.

▶ Applications to interface smoothly with existing enterprise databases using 4D Connectivity Plug-ins such as 4D ODBC, 4D for ORACLE, and 4D SQL Server.

A NEW DIMENSION OF RAPID APPLICATION DEVELOPMENT (RAD)

4D is the most elaborate RAD solution on the market. With its graphical engine, 4D combines RAD efficiency with the power of modeling, dramatically reducing development time. The visual 4D interface enables quick understanding of database structure components and relations.
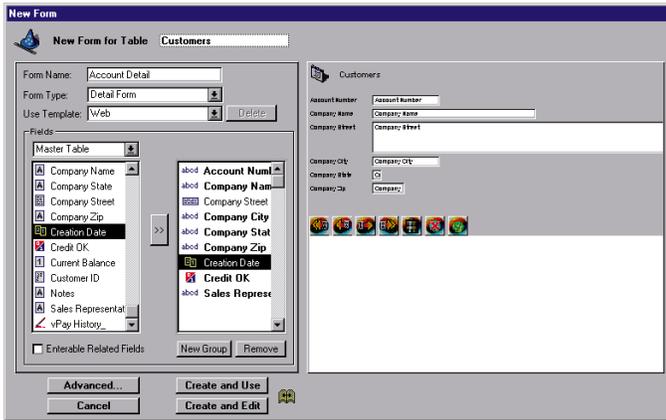
Once a database structure is created, the application can run immediately because 4D generates a variety of default forms. The advanced mode of 4D Form Wizard automates creation and reuse of form templates. Benefits of 4D Form Wizard include:

Database design is intuitive with the visual 4D Structure Editor

- ▶ Form and object style sheets allowing global interface changes

- ▶ Multiple and master pages

- ▶ Point-and-click, drag-and-drop control of each object in a form

- ▶ Object-event mechanism for granular control of data entry

- ▶ Control of form size and automatic adjustment of forms to target windows or monitors
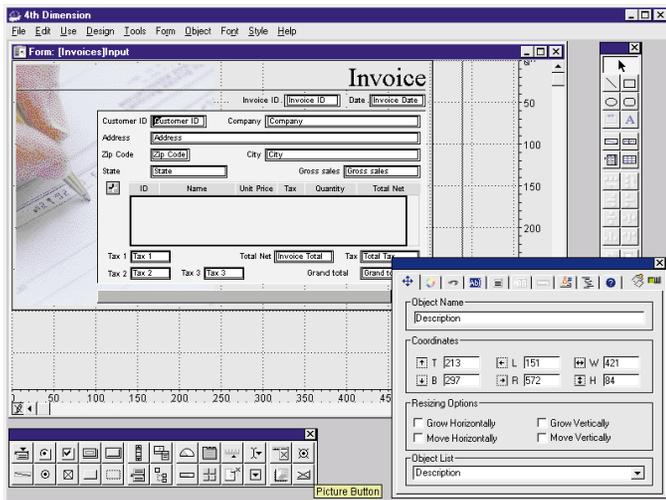
4D Form Wizard interactively automates form design

GRAPHICAL DESIGN ENVIRONMENT

Enhanced 4D graphical design and navigation features allow developers to spend more time creating solutions than managing database tables. Benefits include:

- ▶ Visual manipulations of tables and columns, providing a color-coded entity relationship diagram (ERD)

- ▶ Independent colors assigned to tables, fields, and relations, providing a clear image of your business model

- ▶ Straightforward display of tables, fields, field data types, and relations, easing structure viewing and modification

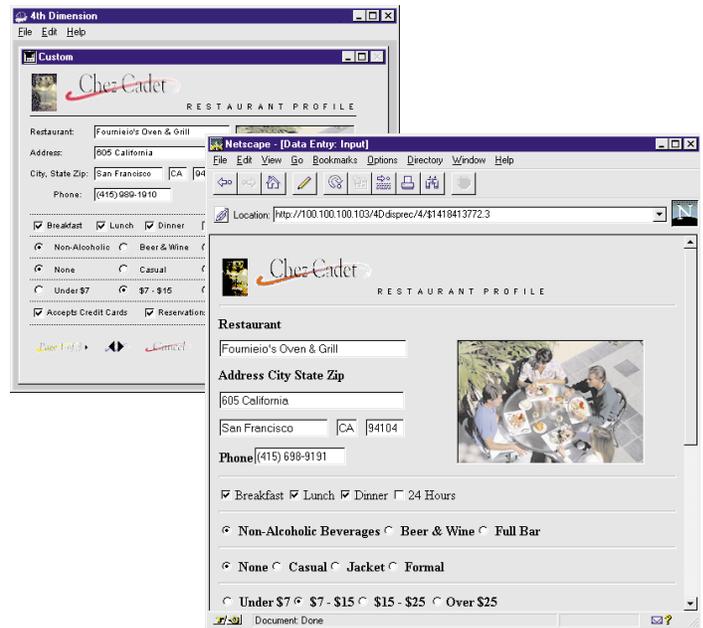*The full-featured 4D Form Editor spares programming effort*

INTEGRATED DATABASE AND WEB SERVER

As the industry leader in Web server technology, 4D integrates a database and Web server to deliver these unique advantages:

- ▶ No CGI or additional software is required for Internet data publishing. 4D views any Web browser as a 4D client.

- ▶ 4D automatically converts database forms to HTML on the fly.

- ▶ 4D can select, insert, update, and delete data from 4D or third-party SQL databases.

- ▶ 4D transaction management capabilities ensure data integrity.

- ▶ 4D automatically maintains Web client states across multiple connections.

- ▶ 4D allows encapsulation of HTML and JavaScript code into applications and binding of HTML objects to 4D variables.

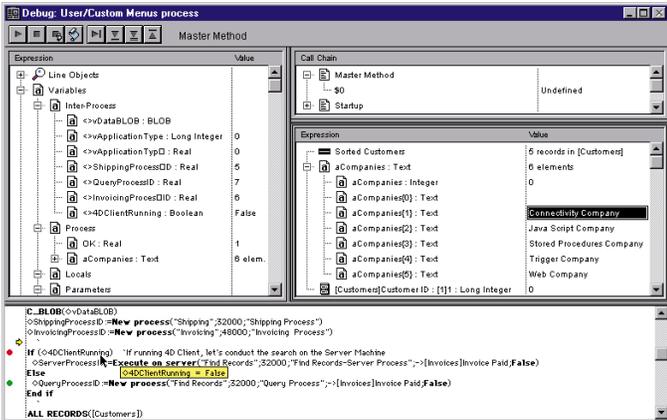*Automatic HTML form generation means effortless Web data publishing*

UNIQUE PROGRAMMING ENVIRONMENT

4D provides outstanding readability when writing and debugging code, delivering:

- ▶ Over 550 high-level, compact, all-inclusive commands

- ▶ Local, process, and interprocess global variables support all data types, true one- and two-dimensional arrays, parameter passing, full recursivity support, and pointers to data objects

- ▶ Five method types: Object, Form, Table, Database, and Project

- ▶ Triggers and stored procedures (same code runs on both client and server)

- ▶ Unlimited extensibility and interoperability: DLL, DDE, OLE, ODBC, and AppleScript support

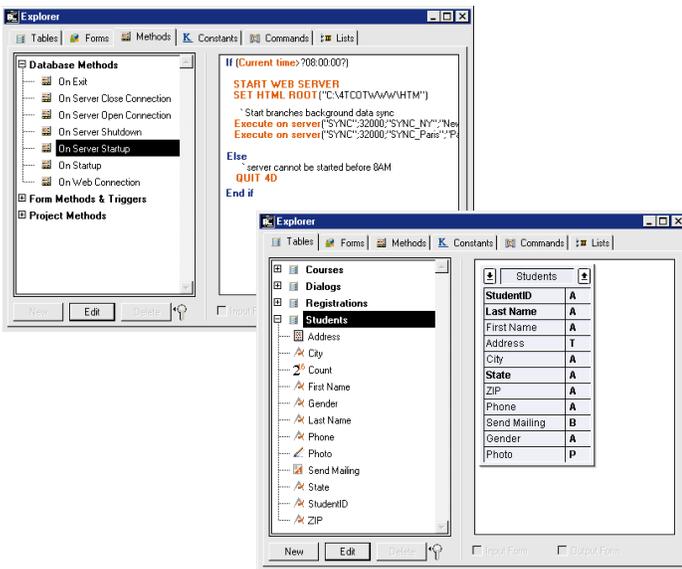*Troubleshooting source code is easy with the efficient 4D Debugger*

INTUITIVE DATA ACCESS AND NAVIGATION

Within the 4D environment, selection of records is intuitive. Data displayed in lists is not simply information represented on screen—it is a live object. For instance, double-clicking can display more detailed information or enable data modification in a multi-level drill-down technique. This powerful, user-centered interface facilitates data access, manipulation, and navigation. A few of these features include:
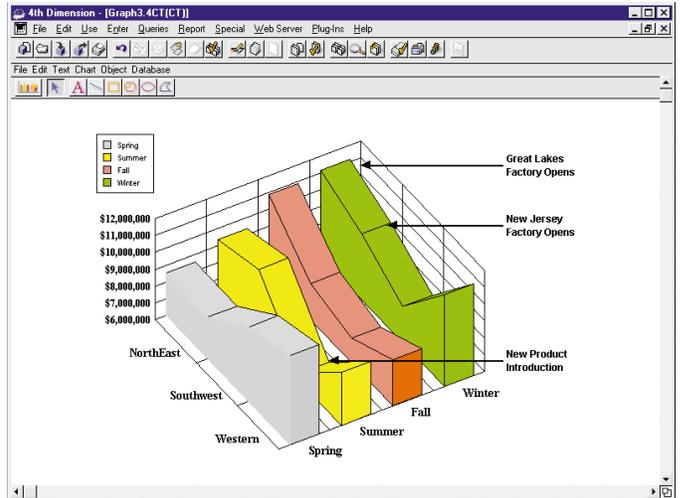
▶ Powerful, transparent management of record selections

▶ Built-in wizards and editors for queries, quick reports, import/export, charts, and labels

The 4D development architecture is composed of closely interacting components accessible through the 4D Explorer. As a research and investigation tool, 4D Explorer provides a preview area for all database objects. As an interactive dashboard, 4D Explorer enables quick navigation though all database objects.
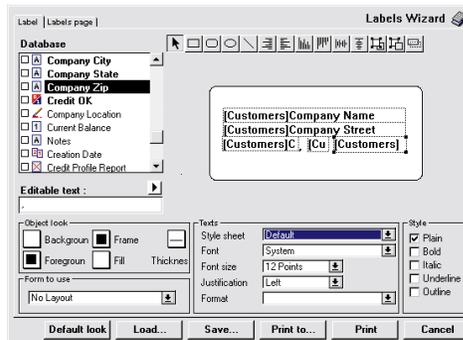
4D Explorer enables quick navigation through all database objects

The built-in 4D Chart Editor generates sophisticated graphs

The flexible 4D Label Editor surpasses dedicated packages

ONE-OF-A-KIND SOLUTIONS TO DATA MANAGEMENT NEEDS

4D is the ultimate database solution, delivering superior tools for the next revolution in data management and Internet/intranet technology:

▶ **4D Server** is ideal for users having outgrown current PC systems based on file sharing technology, but who cannot justify the cost of traditional client/server systems. Easy to install, easy to use, and easy to administer, 4D Server scales any 4D application to a workgroup client/server solution.

▶ **4D Desktop** is the essential set of tools for database application development, integrating three key advantages of the 4D Product Line: 4D, 4D Compiler, and 4D Insider. 4D Compiler is a true cross-platform machine-language compiler. 4D Insider is a point-and-click, drag-and-drop code servicing system for database maintenance and code reuse.

▶ **4D Productivity Plug-ins** are integrated database objects that extend the functionality of 4D applications. They include 4D Calc, a complete spreadsheet program, 4D Write, a word processor, and 4D Draw, a comprehensive drawing package.

- ▸ **4D Connectivity Plug-ins** include 4D ODBC, 4D SQL Server, and 4D for ORACLE. Combined with the 4D relational and multi-threaded database capabilities, 4D Connectivity Plug-ins provide a powerful solution for connecting to SQL databases.

- ▸ **4D Open** is the application program interface (API) for native programmatic connections to 4D.

- ▸ **4D Runtime** allows unlimited single-user application deployment

- ▸ **4D Engine** allows unlimited single-user application deployment and enables creation of double-clickable compiled applications.

4D Write integrates seamlessly into any database application

4D Connectivity Plug-ins bridge to enterprise databases

4D—THE ULTIMATE ADVANTAGE

The 4D solution is the most consistent and cost-effective choice on the market. Because 4D can be utilized in many situations, companies using 4D save the time and expense associated with maintaining multiple development environments.

DATA

- ▸ Field Types: Alpha, Text, Real, Long Integer, Integer, Date, Time, Boolean, Picture, Subtable, and BLOB

- ▸ 128-gigabyte data file capacity, segmented across volumes

- ▸ Data recovery tools

QUERYING AND ORDERING

- ▸ Multi-criteria relational querying and ordering; criteria can be saved and later reused

- ▸ Query wizard, query by example, query by formula, query and modify

- ▸ Sets or "bitmaps," and queries for faster results on complex criteria

RELATIONS

- ▸ One-to-many, many-to-one, many-to-many relations

- ▸ Enter data, query, order, and report across tables without programming

INTERFACE

- ▸ Object-based form editor to control shapes, colors, patterns, styles, and platform look inheritance

- ▸ Standard Macintosh and Windows controls with automatic and user-definable actions: buttons, invisible buttons, radio buttons, graphic radio buttons, check boxes, graphic check boxes, rulers, thermometers, dials, tab controls, button grids, combo boxes, drop-down lists, pop-up menus, hierarchical lists, scrollable lists, and hierarchical pop-up menus

- ▸ Platform-dependent appearance and behavior customizable at the object level

LANGUAGE

- ▸ If, Case, For, While, and Repeat control structures; local, global, and interprocess variables; two-dimensional arrays, pointers, parameter passing, functions, and more

- ▸ Over 600 commands for control of interface, data access and security, multiprocessing capabilities, and interprocess communication

- ▸ Extend the 4D language and interface with your own routines in C, C++, and Pascal

ADDITIONAL RESOURCES

For detailed information about the complete 4D Product Line, please request the following white papers from ACI US:

Introducing ACI 4th Dimension Version 6

ACI 4th Dimension: The widest scope of built-in database features

4th Dimension: The new dimension of Internet database access and publishing
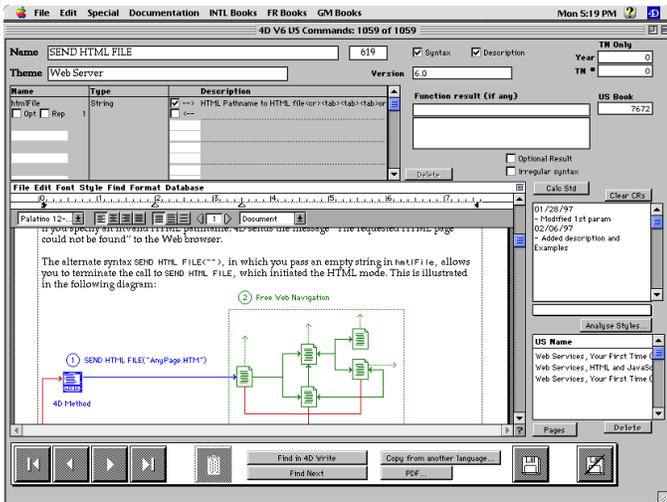
ACI 4D Insider: The new dimension of efficient code management

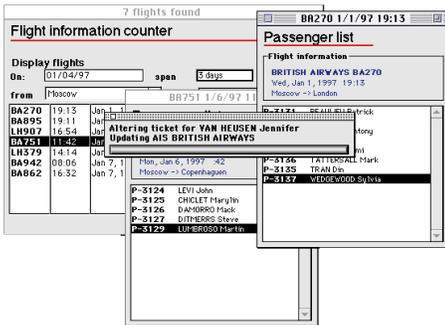*ACI 4D Compiler: The new dimension of fast, cross-platform development*

ACI 4D Productivity Plug-ins: The office system inside 4D and 4D Server