

# Development System

**& DATABASE**

Application Solution **APPGEN**

## 4th Generation Programming for Professionals

The name '**APPGEN**' is a mnemonic for APPLication GENerator. The Appgen Development System is a fourth-generation programming environment used by professional programmers and developers, all over the world, to create data-intensive client/server business applications in the quickest most efficient manner.

Employing concepts of rapid prototyping, RAD (Rapid Application Development), CASE (Computer Aided Software Engineering), and OOD (Object Oriented Design), the Appgen 4GL provides a complete environment for building applications from a cursory design spec through documentation, final deployment, and implementation. Software system implementation is not just the initial phase of computer use, but rather is an ongoing process as users needs grow and change continuously. Appgen provides developers and support personnel with the tools required for high-quality application maintenance and perpetual modification and enhancement.



Many fourth-generation development tools are actually code generators. Based on the programmer's specified criteria, these tools generate generic source code modules which must then be modified to meet the needs of the expected application. This code must then be compiled. Appgen is a set of already compiled, quality-assured programs (Run Time) that perform all the basic operations of any business application. Rather than modifying any massive code module, Appgen developers define and build parameter files that determine the exact behavior of the Run Time programs, thus creating the unique processes of the applications.

Using a menu-based design, Appgen leads programmers through the steps of application design and development. The visual interface make it easy to build menus, file maintenance screens, data entry screens, and selection screens for reports and other batch processes. The visual interface of the Appgen Report Painter allows you to build your reports directly on your screen, regardless of the size of the printout.

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## The Appgen Design Philosophy

Developing an application with Appgen is simple and straightforward. After a cursory analysis, you begin prototyping. From there, you just keep building on top of the prototype until the project is completed, regardless of any discoveries involving changes in data structures. This is possible because of the variable-length database which is tightly integrated into development work done with Appgen. There is never any need to predetermine and structure any Appgen database with regards to the number of tables, rows, or columns.

## The Appgen Run Time

At the core of Appgen is a Run Time engine that handles all the basic functions of a business application: menus, file maintenance and data entry screens, reports, batch updates, and their corresponding selection screens. These programs are already compiled and only require developer defined parameters to be complete and unique for each task of a specific application. The compiled programs ensure the best performance. The parameters that determine the exact actions to be taken by the engine are organized into files which are referred to as the application programs. These parameter files are reusable objects that can easily be connected in a myriad of ways to form truly user-friendly low-maintenance applications.

## Parameter Driven

The majority of the coding is a matter of filling in blanks which become the parameters of the program. Even the coding of high level 4 GL functions and macros is just the filling in of parameters that are accessed at the different points of the program's execution. Once the parameters are complete, the programs may run - there is no compiling of programs. The Development System is the application that guides you through the building of the parameter files.

## Visual Development

Most of the development and ongoing maintenance of an Appgen application is accomplished with Appgen's 'visual interface'. This not only allows the programmer to address the application from the same perspective as the end-user, it also provides higher productivity as the program code is organized and accessed with a natural visual interface rather than the traditional linear program format.

## Server Centric Applications Centralized Control

All Appgen development work is implemented on the application server, providing centralized control for system administrators and application programmers. Applications developed with the Appgen 4GL automatically incorporate the more efficient server-centric, thin client, model of client/server computing. Client specific activities are also programmed into the applications on the server side. Whether the program needs concern the graphical look of the application (e.g., colors, 3D windows, message and text boxes, etc.) or the interface to Windows-based applications, high level 4GL functions of the Appgen Windows API's are supplied to determine the way the application looks on the PC, and to perform DDE calls to manipulate client-side programs. High level functions also allow the display of images and the playing of sound and video files on the client PC, for fully-functional multimedia extensions in the application



## On-line Help And Documentation

Proper on-line help and user reference manuals are the bane of many development projects as the technical personnel involved rarely have the time, patience, and desire to create this necessary element of any finished software system. The Appgen Development System accomplishes this task by catering to the way programmers work. As each data field and process is created, the programmer is prompted to enter some relevant help text. At any point afterwards, language-skilled personnel can edit this text in a straightforward manner with little need to consult the programmers. This help becomes immediately available to users, on-line, at the touch of a function key, or the click of an icon. For the final touch, the Development System provides a batch process that takes all the help messages, and screen images, and formats them in order, into a professional product reference manual.

## ODBC, Export/Import and the Appgen Database

Transferring data from and to an Appgen database is possible in several different ways. The easiest and most popular method utilizes ODBC (Open Database Connectivity). With Appgen, you may define any views of the application data to allow your users to easily transfer data between their Appgen applications and current versions of almost all popular desktop productivity products available today, such as: Microsoft Office, Crystal Reports, etc. The Development System also includes utilities that will provide you the means to import ASCII data into any Appgen database. An export utility allows you to create ASCII output of any combinations of data in Appgen files.

## The Database

The Appgen database is an integral part of the Appgen Run Time and the development process. It is a variable-length relational database that allows unlimited records, unlimited record size, unlimited fields, unlimited field sizes, and one-to-many relationships within data records. This powerful database structure is supported by the Appgen ODBC Driver that makes data trading with other applications easy in a standard manner.

## Tightly Integrated, Variable-Length & Relational Structure:

The Appgen Database is a fully ODBC compliant hash-keyed variable-length relational database. The variable length feature provides for higher productivity in software development, enhancement, and maintenance by freeing the programmer from concerns about the number of fields a file may contain, the size of any field, the size of any record, or the size of any file. All these constraints are handled automatically by the database management system, whether changes are made to data structures during pure development stages, or during enhancements to live systems.

The Appgen database also includes a powerful feature not found in most of today's popular databases. This feature, called the 'multi-valued attribute', allows any data field to contain an indefinite number of elements, or values. For example, a single sales order data record may contain any number of line items. This simplifies data structures and eliminates a tremendous amount of programming time.

### FOR EXAMPLE:

In a typical database, information for a single sales order is divided into many records because of the database's fixed-length record attribute:

The programmer must maintain pointers to all the records in the main header record to tie all the related information together. Sometimes, to simplify the process, the programmer utilizes separate files for the three different types of records.



An Appgen program, which utilizes the Appgen database and its variable-length feature, stores all the information for a single sales order in a single contiguous record. The database management routines transparently handle all aspects of dynamic record and field sizes. A virtually unlimited number of line items can be added to the sales order record described above, without the programmer having to anticipate it.

ODBC (Open Database Connectivity) In spite of its powerful features that are not found in the standard relational database model, the Appgen ODBC Driver makes the Appgen database look like any other SQL database. With Appgen ODBC, Windows-based applications can access data in any Appgen data file - and even write data to any Appgen data file - using established and standard methods. Appgen ODBC makes the Appgen database truly 'open' to the desktop computing world without forsaking any of its unique and inherent power.

## **Integrated**

The Appgen database management system is an integral part of the Appgen Run Time and Development System, and is not purchased separately.

## **Crash-proof Transaction and Batch Update Process**

The batch-update (posting) engine ensures that you can design your applications for professional operators trained in rapid and voluminous data entry. The batch entry and update once process eliminates the need for time-consuming transaction reversals as operators make errors in entry. The built-in audit trail of the posting process is transparent to both the user and the developer. If the computer system should fail during a posting process, the operator needs only to start the posting over again, once the system is operational again. The Appgen posting processes knows exactly where it left off, and automatically begins at that point with no duplication of postings. From the programmer's perspective, there is no coding necessary to deploy this mechanism. From the user's perspective, there is no need to do additional backups before posting, and no need to restore, roll back, or anything else to continue their process.

