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Paradox 4

the COMPLETE REFERENCE

CAROLE BOGGS MATTHEWS
and PATRICIA SHEPARD

A COMPREHENSIVE DESKTOP RESOURCE – IDEAL FOR EVERY PARADOX USER

Paradox 4: The Complete Reference

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and
Patricia Shepard

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This book is dedicated to Marty Matthews and Dick Shepard for their encouragement and support on those dark days before the dawn.

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Introduction

Paradox 4 is a comprehensive database management system developed by Borland International. It is said to be a paradox in database systems, since it combines full database power with ease of use. This provides you with a tool to increase productivity and make better decisions in your business or profession.

About This Book

If you have purchased Paradox 4 or are contemplating buying it to use in your business, *Paradox 4: The Complete Reference* is for you. As a reference book, it can help you learn how to use the features of Paradox 4 to solve business problems, it can serve as a quick learning tool, or simply as a reminder for how to perform a function. *Paradox 4: The Complete Reference* will help you whether you're a new user of Paradox or a somewhat experienced user who now wants to develop more advanced skills or get some new ideas on how to apply the program. If you are new to Version 4, *Paradox 4: The Complete Reference* can help you get oriented quickly to the new features.

Instructions in the book are generally presented with a step-by-step technique, explaining not only what you should do, but also why, and what the implications of each procedure are. Icons (see "Conventions" below) mark tips, notes, and cautionary tidbits, which are scattered throughout the book to emphasize certain subjects. Shortcut keys and mouse actions, also marked with icons, are identified when appropriate, so that you can learn how to accomplish a task the most convenient or quickest way. As you work with the examples, you will be able to compare the screens on your monitor with reproductions of the screen throughout the book, so that you will always be firmly anchored in the program.

Paradox 4: The Complete Reference supplements Borland's own documentation, by continuing where that documentation leaves off. Whereas the Borland documenta-

tion presents you with several manuals covering each of the major parts of Paradox, *Paradox 4: The Complete Reference* consolidates this information into one comprehensive reference book. *Paradox 4: The Complete Reference* covers Paradox thoroughly and efficiently by presenting what you need to know to use the product effectively in one easy-to-use book.

How This Book Is Organized

The organization of *Paradox 4: The Complete Reference* provides both flexibility and ease of use in learning the program. The book is primarily organized by operation or task, for example, creating a table or printing a report. Then, indexes organized by command name, like Chapter 13 on PAL commands and Appendix D on Paradox commands, supplement this task-oriented organization. You can find what you need by finding either the command name or the operation you want to accomplish.

The book is divided into six parts. Part I, "The Paradox Environment," introduces databases and Paradox 4. If you are new to Paradox, you will want to read these chapters; if you are an experienced user of Paradox, you still will find it worthwhile scanning these chapters since they provide an overview of Paradox's environment, and also a grounding in terminology and concepts that are used in the rest of the book.

Chapter 1, "Introducing Paradox," defines databases and then describes Paradox features, first from a generic viewpoint and then from the viewpoint of the particular capabilities of Paradox 4. It discusses the concepts of relational databases in order to put the product in perspective with other packages. (Relational databases are discussed further in Chapter 3.)

Chapter 1 also describes the basic elements of the Paradox 4 environment. It includes a detailed description of the menus and screens and how Paradox 4 uses the keyboard. Submenus, error messages, and prompts are discussed. Common database terminology, such as columns, rows, fields, and queries, are explained, as are Paradox-specific terms such as tables, forms, images, scripts, and objects.

Chapter 2, "Database Basics," provides a reference for all the housekeeping and basic functions that must be performed in a computer environment. Such activities as using Help, bringing up Paradox and exiting, setting up directories, working with disk files, naming objects, and backing up are discussed. This chapter also covers renaming, copying, and deleting files.

Chapters 3, 4, and 5 comprise Part II, "Creating and Modifying," which describes how a database is created and maintained. Chapter 3, "Creating and Editing a Database," describes how to design and then create a database—that is, one or more tables. Defining columns or fields and field types is covered, as are alternate ways to view the table structure. Then the basics of entering data into the table are discussed. (Chapter 4 also describes how to edit data in a table using the Editor.) Chapter 3 also

covers moving the cursor, adding information to a record, inserting and deleting records, undoing editing changes, and using the field editor to change data.

The Paradox Editor, which has been expanded to include text editing in Version 4, is covered in Chapter 4, "Using the Editor." Using the Editor to enter or change Memo fields (a new addition to Version 4) or any text file is discussed. Primarily, however, the Editor is used to create and edit PAL scripts, which are discussed in Chapter 12.

Chapter 5, "Modifying the Database," discusses how to add a new table or change the table structure (restructure) in a database. Adding or deleting a field to or from an existing table, changing the field type, or renaming a field are described. In addition, the chapter addresses how to sort data in a single field and then in multiple fields. Finally, creating and using secondary indexes is covered here.

Chapters 6, 7, 8, and 9 make up Part III, "Querying and Reporting." Chapter 6, "Querying a Database," describes querying a single table versus querying more than one table, which includes such tasks as selecting fields, specifying a sort order, and entering the query criteria. Key fields used to link data in more than one table are described. Also included are calculating values, querying a group of records, defining and querying a set of records, and applying inclusive links to display all records in linked tables. Chapter 6 also covers saving and retrieving queries.

In Chapter 7, "Creating and Using Forms," you learn how to use a standard or preferred form to enter, edit, or view data, as well as how to use a custom form for one or multiple tables. Designing the custom form, creating it for one or more tables, merging forms for multiple tables, and then using the form to enter, edit, and view information are covered. When dealing with multiple tables, master tables and linked detail tables are discussed.

Using the standard free-form or tabular report format is described in Chapter 8, "Creating and Using Reports." In a discussion of custom reports, you learn how to add page or report headers, insert and delete fields from the report, change the page layout, group and summarize data, and combine multiple tables in a report. Creating form letters and mailing labels are also described.

Chapter 9, "Working with the Image Menu and Graphs," covers how to alter the information displayed on the screen and how to create lines and markers graphs, bar graphs, pie charts, plus seven other types of graphs.

Part IV, "Scripts and Programming," consists of chapters 10 through 13. Chapter 10, "Creating and Using Scripts," addresses how to create scripts (PAL programs or macros) by recording frequently used keystrokes and then saving and using them. The chapter covers how to create a script without knowing PAL. Chapter 10 also includes how to execute a script repeatedly, how to edit a script, and how to save it.

In Chapter 11, "Using the Application Workshop," you learn how to install the Workshop and then how to use it to create an application. This includes selecting tables to be used in the application, creating and editing application menus and submenus, defining menu commands and actions, and changing a menu or action.

Chapter 12, "Using PAL," assumes you have some programming experience in the discussion of the PAL programming language. It describes some of the newer, more complex commands available in Version 4, such as SHOWPULLDOWN and

GETEVENT. The chapter covers how to use such facilities of PAL as the PAL menu and the PAL Debugger. Concepts and basic features of the language are discussed, such as event driven programming, new pull-down menus and dialog box commands, and the PAL layered environment. You also learn how to enter commands and expressions, and how to use variables, arrays, and dynamic arrays.

Each PAL command, its syntax, a short description, an example when needed, and helpful hints about the command are listed in Chapter 13, "Summary of PAL Functions and Commands." Particularly useful is a list of the commands by category, which is at the end of the chapter. If you are not sure which command to use, you can look it up by category, for example, Financial, Input/Output, or Date and Time.

In Part V, "Tools and Networking," Chapter 14, "Using Paradox Tools," describes the comprehensive Tools menu and its options, QuerySpeed, ExportImport, Info, Net, and More. The chapter describes how to enter passwords, establish access with Lock and PreventLock, provide protection of a network, export and import files, plus other features. (The Tools options to rename, copy and delete tables, forms, reports, scripts, and graphs are covered in Chapter 2.)

Chapter 15, "Using Paradox SQL Link," describes how to use the Paradox SQL Link to connect to one or more SQL database servers. It defines SQL (Structured Query Language) and then describes how to install an SQL link, connect to a server, query a remote table, and create and use a remote table. Paradox's unique SQL commands are summarized in the chapter.

Part VI, "Appendixes," includes Appendix A, "Installing Paradox," Appendix B, "Customizing Paradox," Appendix C, "ASCII and Extended ASCII Character Sets," and Appendix D, "Command Index." Particularly useful is the Paradox command index in Appendix D. It is a table of Paradox menu paths with a cross-reference to where the path is discussed in the book.

Finally, you will find a pull-out command card at the back of the book with all of the shortcut keys and key combinations that can be used in each mode in Paradox.

Equipment You Will Need

To run Paradox 4, you must have at least 2MB of RAM. Although more memory is not required, additional extended memory provides benefits in performance.

A hard disk is required, and you need 5MB of disk space to install Paradox 4 without the optional programs, or 5.5MB with the optional software. You also need to maintain free disk space of about three times the size of the largest table you will be using. Paradox uses the space to create several temporary tables when you are working with the program, particularly during queries.

You will need a monitor with an adapter, and to display graphics, you need a CGA, EGA, VGA, 8514, 3270, ATT, TandyT1000, or Hercules monitor with adapter.

You will make best use of Paradox 4 with a mouse. Paradox supports any mouse compatible with Microsoft's or Logitech's bus or serial mice, or IBM's PS/2 mouse.

Conventions

Paradox 4: The Complete Reference uses several conventions designed to make the book easier for you to use. These are as follows:

- **Bold** type is used when you are instructed to type text from the keyboard.
- Keys on the keyboard that are commands are presented in small capital letters; for example, RIGHT ARROW and ENTER.
- When you are expected to enter a command, you will be told to press the key(s). If you are to enter text or date, you will be told to type.
- Menu paths are indicated by menu option names separated by slashes, such as **T**ools/**M**ore/**D**irectory.
- Some Menu options contain a boldface letter, for example, **S**cripts. This indicates that the *S* is a *hot key,* and that pressing it will invoke the menu as if you selected the menu option with the mouse or keyboard.
- Icons mark paragraphs that emphasize tips, notes, cautions, shortcut keys, and mouse actions, for example:

This icon advises you about how to use shortcut keys to accomplish a task without using the system of menus and submenus.

This icon advises you about how to use your mouse to accomplish a task without using the menus and submenus.

This icon advises the reader about a useful tip

This icon advises the reader about notes which emphasizes information or expands on it.

This icon warns the user about potentially harmful actions.

Contents

Part I

The Paradox Environment

Chapter 1

Introducing Paradox

The name "Paradox" is a tribute to the modern trend in database development. Database software has always been thought to be *either* easy to use and limited in capability, *or* comprehensive in capability and therefore hard to use. Paradox is both easy to use and comprehensive in capability–a *paradox* in database software.

Database programs vary greatly in capability and capacity. On the one extreme are mainframe computer databases that require complete staffs to manage and use them; on the other are limited database programs that allow simple uses, such as name and address listings, that one person would use, perhaps for addressing Christmas cards or tracking golf teams. Paradox is much more than a limited, single-use database. It offers many of the features of a larger and more sophisticated database on a mainframe, but without the staff requirements. In many ways the large mainframe and microcomputer databases are approaching each other in capabilities. When you consider the availability of remote database systems to a Paradox user, through the Paradox SQL Link, for instance, the transition from micro to mainframe is really made.

This chapter explains the concepts of databases and some of their more common features, including searching and sorting, editing, and reporting. Then the chapter explains the basic elements of the Paradox environment, such as screens and menus, working with multiple tables, and using the mouse. In addition to common database terminology, specific terms unique to Paradox are covered. Some of the new features in Paradox 4 are described. Finally, the chapter gives a brief overview of each of the Main menu options.

Database Concepts

A database program's job is to help organize lists and files of items. Almost any list or table of data, such as lists of names, inventory items, accounting data, customer or vendor information, and so on, can be entered into a database. Information is placed into a database so that it can be quickly and easily retrieved and arranged. Once you have entered data into a database, you can rearrange and report on it as needed to see or analyze the desired data.

Most database programs offer organizational possibilities that are unavailable with nonautomated files. As Figure 1-1 illustrates, Paradox is centered around a database itself, called a *table* in Paradox. The most basic functions to Paradox, or any database, are data entry and editing–to enter data and then correct or modify it until you can trust it to give you the information you need. The next layer of functions involves retrieving information–the prime reason for having a database in the first place.

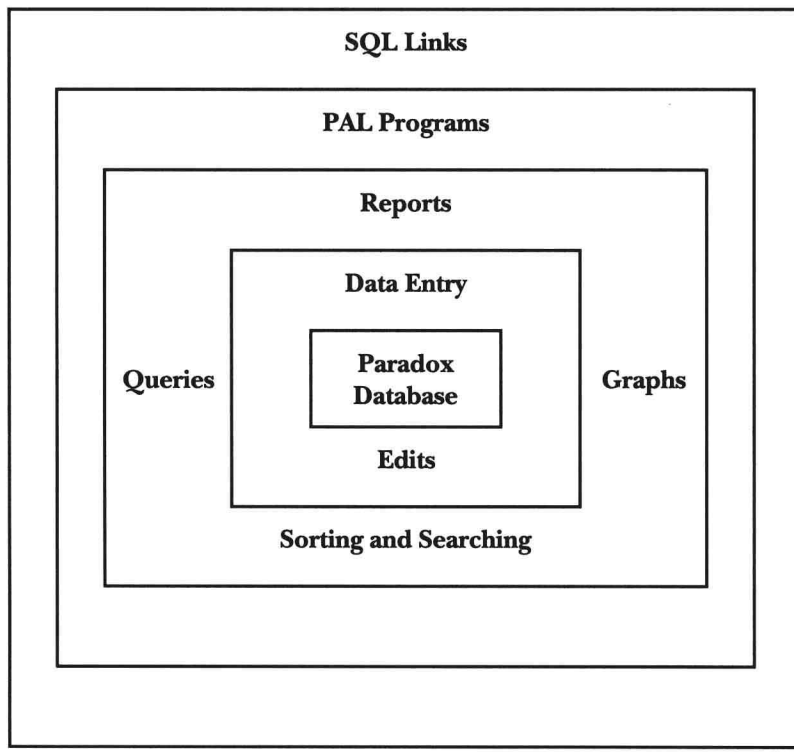

Figure 1-1. *Paradox functions are centered around the core of the system, the database*