Introduction

In Volume One of this set, the introduction provided a brief, and perhaps even somewhat accurate, history of reporting. Although I admit to substantial bias in my view of that history, the core thesis — that users of databases must be responsible for their own reports — is a sound one.

To that end, Volume One introduced many database reporting concepts and showed readers how they might apply them to designing and building reports using R&R. Those people who purchased the book — and there are already quite a few as I write this — may have been surprised to find that there is significant coverage of material not exclusively applicable to R&R. I don't apologize for straying from direct instruction in the use of R&R's many and robust features. After all, better reports begin with a better report *designer*. It has always been my philosophy that the person sitting at the keyboard was the most important computer. Hence, I created the term "Liveware".

Note: <u>Report and Report: Your Guide to Reporting With R&R</u> (Volume One) was released in fall of 1996.

Baby, You Can Drive My Car

I recall my mother telling me the story of some ancient relative who sold cars when they were new; i.e., 1910 or something. She relayed stories she was told of having to both sell the car and teach the person how to drive it.

When I first starting using R&R for database reporting, I guess I was in a similar position. Having worked for many years with database

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> ### *Was Ist Das "Liveware"*
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> *As indicated on the title page, along with the other legal gibberish, Liveware is a registered trademark of Liveware Inc. and Daniel Levin. I coined the term in early 1984, having never heard it before (I think) and have used it ever since.*
>
> *In 1995, with the help of my brother Nate — a patent attorney in New York (fortuitously for me) — I received the trademark registration following a lengthy process. While the term appeared in a Doonesbury comic strip in 1986, note that I claim the term prior to that. Ultimately, the Patent and Trademark Board of Appeals agreed. Since I own the word, I get to define it: "Liveware" is the human component of computing.*

Note: While much has been written on SQL, little of it is of practical value since SQL's design misses several key fundamental for reporting from tables. SQL does not allow the user to *completely* control the link between tables, so that many reporting needs have to be generated via a complex series of SQL commands. Since everything outlined in this volume could also be performed with standard programming languages, SQL is only a shorthand form of progamming. Applying database reporting principles outlined in this and the first volume, NO programming is required. In effect, that makes the study of database reporting a separate science from SQL.

systems and report building tools, I quickly discovered that R&R offered me much more horsepower than anything I had used before. R&R was not just an excellent software program. I found I could make a major difference in the effectiveness of my clients' database applications. And their databases were the most important applications they had in running their affairs. (See Introduction of Volume One for more history.) Ergo, I could make significant contributions to my clients' activities. I have been able to develop wonderful — and mutually profitable — relationships with my clients.

Yet, when I encountered a new problem whose resolution lay within the information held in the clients' tables, I could not turn to any reference material to help me solve it. There were *no* manuals, textbooks or guides to teach me how to turn information in tables into answers. NONE. With hundreds of books on database development, strategies, operations, there was, and still is, no writing devoted to database *reporting*. Why not? I don't know. At best one may find a few pages in a large resource book on databases devoted to reporting. Alas, most of what it will tell you is either useless or wrong. Should anyone reading this know of some writings please call.

This volume, and the first in the series, attempt to fill that void, at least for R&R users.

The First Law of Reporting Dynamics

What makes a report work? In Volume One I focused on the report's "purpose" as the key to designing an effective report. I will do so in this volume as well but in a different way. My goal is to prove — in

the mathematical sense — that database reporting problems can be solved by the application of some fundamental principles. We apply the principles in different ways depending upon the type of problems we wish to solve. These rules encompass a general theory of reporting that I use every day to design reports.

The method we will use to learn reporting principles is by example. In Chapter 9 of Volume One, I offered a parallel between reporting and cooking. Employing several quippy headlines, I described the steps in designing and building reports as they might relate to preparing a meal. This volume will greatly extend that metaphor — as the book's title hints — in hopes that the example "recipes" will help you in your kitchen. As with the exercises in a math textbook ("A man boards a train leaving Phoenix at 2:00pm ..."), the examples will never actually pertain to you; but the lessons learned will.

Still The One

Although all report writing software must adhere to reporting principles, R&R remains my choice in reporting tools. Whether by plan or just dumb luck, the software designers at Concentric Data Systems — now a division of Wall Data — have produced a software program that very effectively anticipates the report development procedures for most reporting needs; i.e., reporting *purposes*. R&R also does so with a minimum of overhead and a balanced user-interface — not too busy and not too thin.

Note: In September of 1999 my firm, Liveware Publishing, Inc., acquired the publishing right to R&R and Arpeggio from Wall Data Inc. At that time this volume was completely written and nearly ready for publication.

This evaluation applies to both the MS-DOS and Windows versions of R&R. While both versions leave room for enhancements, versions 6.0 and later — for either environment — provide a complete tool kit for report design in the two areas that matter most: composite database manipulation and report band presentation. These areas, and how R&R addresses them, will be highlighted throughout this volume.

Since Volume One of this series went to press, Concentric Data Systems, now a subsidiary of Wall Data, has released several new versions of R&R (including 7.0 & 8.0), and added a new program, Arpeggio, to its roster. R&R Version 7.x and subsequent releases are 32-bit applications, which simply means they were designed for, and require, Windows 95 or Windows NT operating environments. The only primary functional difference is the method that these versions use for storing saved report formats. Whereas prior versions utilized report libraries, to allow report format names of 30 characters, R&R V.7.x and later, under Windows 95/98 and Windows NT, do not limit

Note: R&R V8.1, published by Liveware Publishing, Inc., was released in April 2000.

file names to just eight characters. Hence, libraries are not needed, though reports in existing libraries may be retrieved and used.

Arpeggio extends the capabilities of R&R, but not as dramatically as one might expect. Nearly all of the new features in Arpeggio existed in one form or another in R&R Versions 5 and later. Arpeggio does place a extensive, and attractive, user interface on more esoteric features such as creating a data dictionary, using the runtime module, distributing report formats, and customizing the user's configuration.

The key difference of Arpeggio over its R&R predecessor — R&R Version 6.5 for SQL — is that it allows users to read and report from mainframe databases!! This opens a new set of possibilities for users (and commercially for Wall Data!) in managing their reporting needs. As I described in Volume One's Introduction, as table-based information moved to the desktop, responsibility for reporting on those tables migrated to the end-user. It now seems that even large databases, with hundreds of thousands — or even millions — of records, may now be analyzed and reported from the desktop.

Note: R&R SQL V8.1, published by Liveware Publishing, Inc., was released in July 2000. It supercedes Arpeggio Version 2.0.

Don't Stop Thinking About Tomorrow

In Volume One I described the history of reporting. In this essay I want to discuss the future. Although still in its infancy, database reporting will very likely become as common, or more so, than spreadsheet programs. This will place report writers below just word processing and e-mail on the list of programs most vital to the success and productivity of most business computer users.

While the Internet and World Wide Web offer libraries of information, how often did we go to a library before the Internet? Our own activities — sales, operations, marketing, finance, personnel — determine our day-to-day priorities. These activities are recorded in databases. The better we use these databases, the more effective our activities become. We can increase sales, streamline operations to trim costs, understand our customers better. We can manage our money more diligently and assist others in our organization, and ourselves, to succeed.

This upbeat assessment of reporting tools is not boosterism. I can and will relay story after story of my clients whose firms have been recast via the effective application of R&R. Once they start using R&R's reports, it becomes one of the most important products for managing their activities. Productivity increases in many areas finally meet the

expectations promised by automation. Sometimes they are even exceeded.

This is why I believe R&R, Arpeggio, and even competitive programs such as Crystal Reports have such a dynamic future. While reporting tools are complex, as I have always held, the average user can learn the underlying concepts as quickly as he or she learned to use a spreadsheet program.

Report writers have many advantages over spreadsheets, and many data management activities currently performed on spreadsheet programs will migrate to reporting tools. A spreadsheet is much like a large sheet of paper, except that sheet is divided into thousands of rows and hundreds of columns. It becomes unwieldy to hold so much data on a large sheet. Data tables with report writers do a much better job.

Throwing Down the Gauntlet

There is no peer review process for database reporting theory. I'm not aware of one, anyhow. The three fundamental principles to which I subscribe are not published anywhere else, to my knowledge, nor are they generally accepted industry standards. There are, or should say, were no standards in place — until now.

I invite database programmers, information professionals, and even casual report users to challenge the principles I describe. If they are sound, they will withstand the scrutiny and may, I hope, become the primary tenets of database reporting.

Switching from spreadsheets to tables demands a leap in imagination. This is where the complexity of report writing arises. R&R and all other reporting tools require the user to *visualize* the tables, not see them as they can in a spreadsheet. Of course, printing a spreadsheet is a nightmare while R&R produces page-formatted output as part of its regular function.

What Are We Waiting For? Let's Eat!!

In Chapter 9 of Volume One, I suggested that reporting is much like cooking. I believe even more strongly now that this is true. This

volume is entitled "The R&R Cookbook" because it focuses on the three fundamental principles necessary to understand reporting. Whether the type of food (read: reports) you want is country or gourmet, fast food or slow roasting, casserole or BBQ, these principles apply. If reporting *was* cooking, these three principles would be expressed as follows:

1) Defining the dish's recipe.

2) Preparing the dish.

3) Serving the dish.

Of course, cooking looks easy when watching professional chefs prepare meals on TV. They always look and taste (we assume) terrific. Throughout this volume we will refer to the cooking analogy to drive points home. But more so, we will seek to comprehend the reporting *process* in the same way we might learn to cook.

Since one can't expect to become a gourmet chef after reading one cookbook, I don't expect readers to become professional database reporting experts. I wouldn't turn down an invitation to dinner, nevertheless.

Bon Appetite.