

# Chapter 1

## Introduction

**Reports are key to a successful software application. It could even be argued that both commercial and custom applications can be judged by how well they generate output. After all, it doesn't matter how efficiently the users can enter data, how much information the system can store, or how many complicated calculations the system can process if there's no way to see the final outcome of all that work.**

All too often, developers look down on the task of creating reports. In some shops, it's even considered a low-end task that's given to junior developers. I passionately disagree with this philosophy for several reasons.

Reports can be very high-profile and very important to the success of a company. The executives of a company rely on the reports created by your application to make decisions. If the reports you create are difficult to understand—or worse, inaccurate—bad decisions could be made. These bad decisions could even lead to the downfall of the company.

Reports can be internal or external to a company. In other words, some reports are only used within the company. However, in many other situations, reports are used outside of the company and highly affect the business and sales. For example, a report can be a sales proposal for an insurance company. Another example is a financial report given to a company's accountants or auditors. And another example is a 50-page report showing the results of an inspection, for which the client charges big bucks. If these reports do not look professional and are not accurate, the sales and repeat business of that company could be greatly impacted. So considering how important these reports are, do you really want to put a junior programmer on something this important?

Here's another reason why you should consider reports a top priority in any application you develop. Many times, the executives don't use your application on a day-to-day basis. They rely on their staff to do that. The only interaction the executives have with your application is the printed reports that are handed to them on a daily, weekly, and monthly basis. Therefore, the executive's opinion about the software is heavily weighed by what he or she sees. I don't know about you, but that's certainly enough to motivate me to provide top-quality reports in all the applications I develop—especially because the executives are the ones signing my check!

### Overview of chapters

Throughout this book you'll see two terms that need a little clarification up front—the Report Designer and the Report Writer. The *Report Designer* is the tool used to create reports from within Visual FoxPro. The *Report Writer* is the Visual FoxPro engine that runs the reports you've created. These two terms are used quite often, so be sure you understand the difference between them.

## Wizards

The next chapter, Chapter 2, “The Report Wizard,” is dedicated to explaining the Report Wizards. By working through the quick and easy wizards, you’ll have a chance to learn about some of the features of Visual FoxPro reports without having to get into the nitty-gritty. It’s a great place to start so you’re not overwhelmed all at once.

The Report Wizard supplied with Visual FoxPro consists of two separate options: a One-to-Many Report Wizard and a Single-Table Report Wizard. In addition to the Report Wizard, there’s also a Label Wizard to assist you in creating labels.

## The Report Designer

Chapters 3-8 are dedicated to teaching you how to create reports with the Visual FoxPro Report Designer. You’ll start with Chapter 3, “Learning the Basics.” This chapter gets you started using the Report Designer. From there, you move on to Chapter 4, “The Data Source,” which explains where the data comes from and all the different options you have in making it available for use in the report.

Next, you move on to Chapter 5, “Report Objects,” which is the *meat and potatoes* of creating a report. This chapter explains how to put things on the report and move them around. The next chapter, Chapter 6, “Adding Pizzazz to the Objects,” explains how to spiff up all the things you put on the report in the previous chapter. This chapter is where you learn how to add finesse to the report.

The next two chapters—Chapter 7, “Data Grouping,” and Chapter 8, “Report Variables”—take you deeper into the Report Designer and teach you how to build the complex reports needed to solve many reporting issues of today’s applications.

## The “after life”

After you’ve learned *how* to create reports, Chapter 9, “Running Reports,” shows you how to run the reports. This chapter also discusses distributing reports with your application and how to give end users the ability to modify reports.

By the time you reach Chapter 10, “Solutions to Real-World Problems,” you’ll know just about everything there is to know about the Report Writer. This chapter shows you how to pull together all the things you’ve learned so you can solve some real-world reporting problems. This is one of those chapters you’ll read and say to yourself, “Aha!”

The next chapter, Chapter 11, “Hacking the FRX,” dives into the inner workings of Visual FoxPro reports. By learning how it works behind the scenes, you gain the advantage of being able to manually manipulate reports into submission with brute force. Sometimes life is not fair and you have to play hardball. By the time you’re done with this chapter, you’ll know how to take the gloves off and rumble.

## The Label Designer

Labels are nothing more than reports—on tiny paper. All you have to do is tell Visual FoxPro what size the label is, and from there, it’s practically the same as designing a report. Chapter 12, “Labels,” walks you through creating labels and points out the few differences between reports and labels.

## The “other world”

The final chapter, Chapter 13, “Beyond the VFP Report Writer,” is dedicated to exposing you to several different third-party tools and utilities. Some of them work with the Visual FoxPro Report Writer, and some of them are used in place of the Visual FoxPro Report Writer. The idea behind this chapter is to make you aware of other options so you can make the best decision possible for all your reporting needs.

## Parts of a report

Visual FoxPro reports are *driven* by a single table or cursor. For each record in the table or cursor, one Detail band is generated on the report. You must have at least one record in the table or cursor for the report to print. If no records exist in the table or cursor, no report is printed.



Reports consist of several different parts, called *bands*. Some reports only contain a few bands, and other, more complex reports contain all the possible bands. **Figure 1** and **Figure 2** show a sample report with all the possible bands of a Visual FoxPro report. This report, BANDS.FRX, is included in the source code available with this book. The following list explains what those bands are and when they’re printed.

- **Title band:** The Title band is printed once, and only once, at the beginning of the report. It can appear on its own page, or other bands may immediately follow the Title band. The Title band is an optional band you can add to a report.
- **Page Header band:** The Page Header band appears at the top of each and every page. This band is mandatory; however, you don’t have to put anything in it, and you can define it with a zero height.
- **Column Header band:** The Column Header band appears at the top of each and every column set. A *column set* may consist of several columns of data for an individual record, and some reports may have *multiple column sets*, such as 2-up mailing labels. This band is automatically added to a report when the report is defined as having multiple column sets. For reports with a single column set, this band does not appear.
- **Group Header band:** The Group Header band is added to a report whenever you define a Data Grouping. It prints once at the beginning of a new Data Grouping, and optionally, can be defined to repeat when the Data Group overflows to another page. In an overflow situation, the Page Header band prints first, followed by the Column Header band (if applicable), and then the Group Header band is printed. For each Data Group defined on a report, one Group Header band is created. Therefore, it’s possible to have multiple Group Header bands.
- **Detail band:** The Detail band is printed once for each record in the table that drives the report. You can, however, run a report with the summary option, which suppresses the Detail band altogether.
- **Group Footer band:** The Group Footer band is added to a report whenever you define a Data Grouping. It prints once following the last Detail band of a particular

Data Grouping. For each Data Group defined on a report, one Group Footer band is created. Therefore, it's possible to have multiple Group Footer bands.

- **Column Footer band:** The Column Footer band appears at the bottom of each and every column set. This band is automatically added to a report when the report is defined as having multiple column sets. For reports having a single column set, this band does not appear.
- **Page Footer band:** The Page Footer band appears at the bottom of each and every page. This band is mandatory; however, you don't have to put anything in it, and you can define it with a zero height.
- **Summary band:** The Summary band prints only once after the final Detail band and after any final Group Footer bands. Notice that the Summary band prints before the Column Footer and Page Footer bands. You can also indicate that you'd rather have the Summary band print on its own page after all other bands, in which case no Page Header or Page Footer band prints with the Summary band.

## General information

This book is based on Visual FoxPro 7.0, prior to the release of Service Pack 1. However, the Report Writer hasn't changed much over the years. In fact, there's really not a whole lot of difference between today's Report Writer and the legacy FoxPro 2.x Report Writer. Much of what you'll learn in this book can be applied to older versions of the Report Writer.

Throughout this book, you'll see the following icons used to point out special notes, tips, and bug alerts.



*This icon is used to point out information specific to FoxPro 2.x. It may be a simple note telling you a feature didn't exist in FoxPro 2.x, or it may be a tip on how to simulate a missing feature. I also use this icon to point out any major differences between the 2.x version and the current version that might trip you up when following along.*



*This icon is used to bring special information to your attention. Sometimes it's a tip to help you do something special. Other times it's used to point out a gotcha so you can avoid it.*

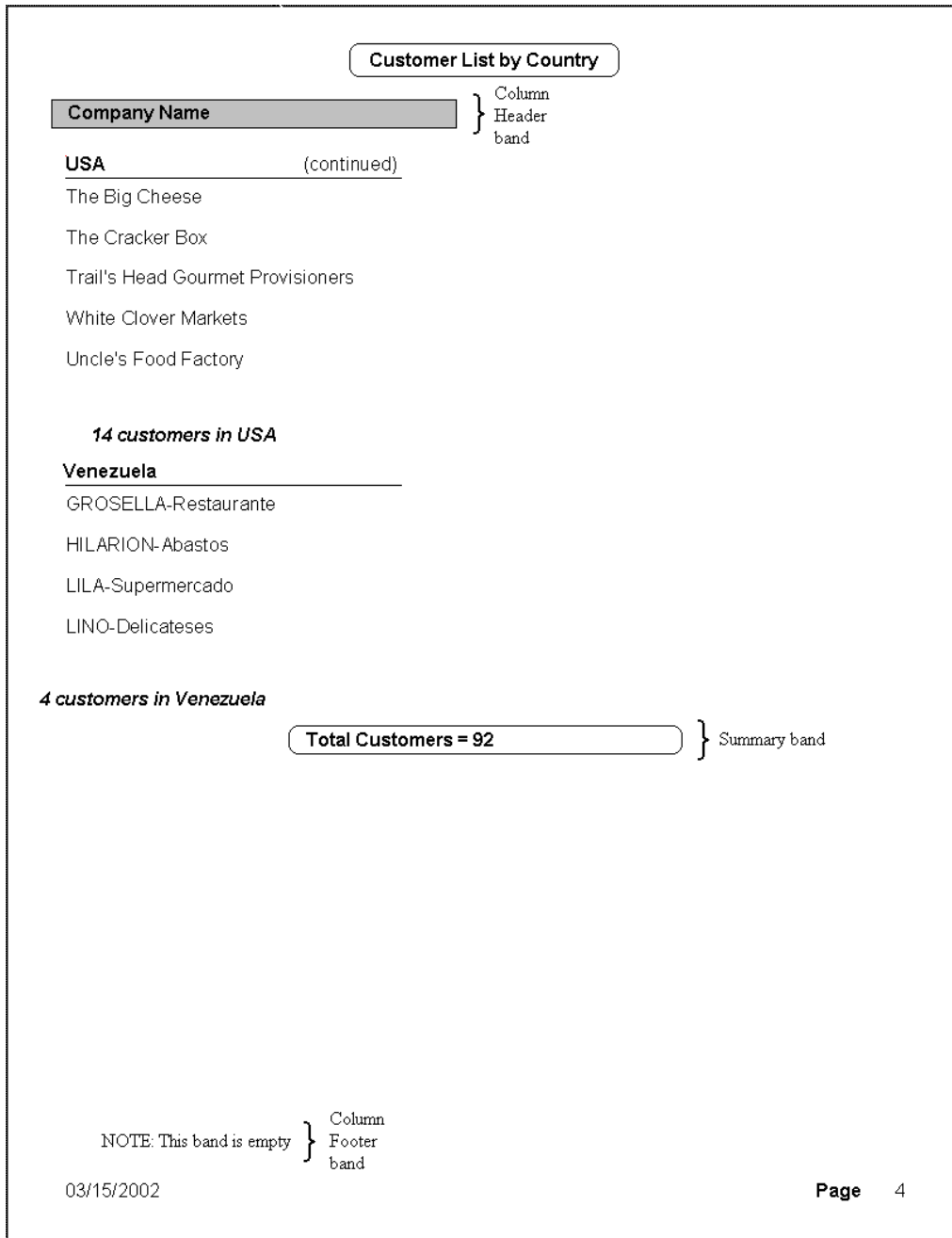


**Bug Alert!**

*This icon is used to point out bugs that exist in the Visual FoxPro Report Writer so you can work around them.*

<b>Tasmanian Traders</b>	
100 Main Street Anytown, MI 99999 (800) 555-1234	
<span style="border: 1px solid black; border-radius: 10px; padding: 2px 10px;">Customer List by Country</span>	
Company Name	Company Name
<b>Argentina</b> Cactus Comidas para llevar Océano Atlántico Ltda. Rancho grande  <b>3 customers in Argentina</b>	<b>Brazil</b> (continued) Ricardo Adocicados Tradição Hipermercados Wellington Importadora  <b>9 customers in Brazil</b>
<b>Austria</b> Ernst Handel Piccolo und mehr  <b>2 customers in Austria</b>	<b>Canada</b> Bottom-Dollar Markets Laughing Bacchus Wine Cellars Mère Paillarde  <b>3 customers in Canada</b>
<b>Belgium</b> Maison Dewey Suprêmes délices  <b>2 customers in Belgium</b>	<b>Denmark</b> Simons bistro Vaffeljernet  <b>2 customers in Denmark</b>
<b>Brazil</b> Comércio Mineiro Família Arquibaldo Gourmet Lanchonetes Hanari Carnes Que Delícia Queen Cozinha	<b>Finland</b> Wartian Herkku Wilman Kala  <b>2 customers in Finland</b>
03/15/2002	Page Footer band
Page 1	

Figure 1. The first page of this report shows all but the Summary band.



**Figure 2.** The last page of this report shows the Summary band. Also notice that no Title band prints on this page.

## Toolbars

Several toolbars are used in the Report Designer. Many of them are specific to a particular chapter and are discussed when appropriate. However, there's one general toolbar, the Report Designer toolbar, which can be used to access many options and other toolbars used within the VFP Report Designer.

You can display the Report Designer toolbar (shown in **Figure 3**) using one of two methods. The first method is to select View | Toolbars... from the main VFP Menu bar. This invokes the Toolbars dialog, from which you can select the Report Designer option and then select the OK button. The second method is to right-click on an unused portion of any *docked* toolbar and then select Report Designer.



**Figure 3.** Use the Report Designer toolbar to access many options and toolbars used within the VFP Report Designer.

The Report Designer toolbar consists of the following five buttons, from left to right.

- **Data Grouping:** This button is used to invoke the same Data Grouping dialog that can also be invoked by selecting Report | Data Grouping... from the main VFP Menu bar. This dialog is discussed in greater detail in Chapter 7, “Data Grouping.”
- **Data Environment:** This button is used to invoke the same Data Environment that can also be invoked by selecting View | Data Environment... from the main VFP Menu bar. The Data Environment is discussed in greater detail in Chapter 4, “The Data Source.”
- **Report Controls Toolbar:** This button is used to toggle the same Report Controls toolbar that can also be toggled by selecting View | Report Controls Toolbar from the main VFP Menu bar. The Report Controls toolbar is discussed in greater detail in Chapter 5, “Report Objects.”
- **Color Palette Toolbar:** This button is used to toggle the same Color Palette toolbar that can also be toggled by selecting View | Color Palette Toolbar from the main VFP Menu bar. The Color Palette toolbar is discussed in greater detail in Chapter 6, “Adding Pizzazz to the Objects.”
- **Layout Toolbar:** This button is used to toggle the same Layout toolbar that can also be toggled by selecting View | Layout Toolbar from the main VFP Menu bar. The Layout toolbar is discussed in greater detail in Chapter 6, “Adding Pizzazz to the Objects.”

## **Enjoy!**

I hope you enjoy this book and learn tons of new things. My goal in writing this book is to teach you how to get the most out of the Visual FoxPro Report Writer so you can create awesome reports for all your applications. I can't stress enough how important reports are to the usefulness and image of a final application.



# Chapter 2

## The Report Wizard

Visual FoxPro provides several different wizards to help you create tables, forms, queries, and so on. The great news for you is that an excellent Report Wizard is also included in the product... at no extra charge! The wizard helps you create reports driven from a single table as well as reports created from a parent-child set of tables. This chapter walks you through the basic steps of using the Report Wizard to create your first few reports.

The Report Wizard supplied with Visual FoxPro consists of two separate options: a One-to-Many Report Wizard and a Single-Table Report Wizard. These tools assist you in creating simple reports inside of VFP. You can use the wizard to create reports that are meant to be run as-is, or you can use the wizard to create a report that you later edit with the VFP Report Designer to add more features or complex options.

### Starting the Report Wizard

The first step in using the Report Wizard is choosing which type of report you want to create. Select Tools | Wizards | Report from the main VFP Menu bar to display the dialog shown in Figure 1.



**Figure 1.** Use the Wizard Selection dialog to choose whether you want to create a one-to-many report or a single-file report.

You can create two different types of reports with the Report Wizard. The first type is a One-To-Many report. This type of report is driven from a parent-child set of tables. For example, a Customer table (the parent) and an Invoice table (the child) are used to create a