PROGRESS®

FAST TRACK TUTORIAL

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Preface

This tutorial introduces you to PROGRESS FAST TRACK. FAST TRACK is a versatile, menu driven application generator for the PROGRESS environment.

In this book, the term PROGRESS refers to the PROGRESS 4GL/RDBMS (formerly Full PROGRESS). The PROGRESS Application Development System consists of the PROGRESS 4GL/RDBMS and the PROGRESS FAST TRACK Application Builder.

AUDIENCE

FAST TRACK is a product that can be used by several types of users. PROGRESS developers can use FAST TRACK to quickly design and develop applications. They can also use it as a tool to prototype applications. However, developers won't always use FAST TRACK to do full-scale application development. Users with little or no programming experience can use FAST TRACK to expand existing applications. FAST TRACK supplies a friendly interface to perform a variety of database operations and display results immediately. This makes FAST TRACK a useful tool for the end-user.

This tutorial addresses the needs of all of these audiences. It provides an introduction to the concepts and capabilities of FAST TRACK and the Report Writer module of PROGRESS Query/Report. It is a guide through the FAST TRACK interface. If you are using FAST TRACK to do full-scale application development, acquaint yourself with the basic PROGRESS concepts introduced in the *PROGRESS Language Tutorial* before reading this manual.

ORGANIZATION OF THIS BOOK

The organization of this book is important to understand. Before attempting to do the exercises in this book, read the first two chapters. These chapters explain how to start FAST TRACK, provide an overview of the FAST TRACK modules, and introduce the basics of the FAST TRACK interface. The remaining chapters supply exercises that introduce you to various features of FAST TRACK. This book is organized as follows:

Chapter 1 — Introduction to PROGRESS FAST TRACK

Provides an overview of FAST TRACK, details the use of the `prodb` and `proft` commands to start up FAST TRACK, and summarizes the options on the FAST TRACK Main Menu.

Chapter 2 — FAST TRACK Fundamentals

Describes function keys, menus, windows, and how to get help in FAST TRACK, and directs you to the appropriate tutorial chapter.

Chapter 3 — Menu Editor Tutorial

Describes how to create menus and generate menu code for use in PROGRESS applications.

Chapter 4 — Screen Painter Tutorial

Describes how to create, design, and modify forms and generate code for use in PROGRESS applications.

Chapter 5 — Report Writer Tutorial

Shows how to create simple and complex reports from information in a database and generate code to create reports in PROGRESS applications.

Chapter 6 — QBF Generator Tutorial

Shows you how to perform simple "query-by-form" (QBF) operations that selectively display, add, edit, or delete records in database files, and how to generate code that can be used to perform these operations in PROGRESS applications.

Appendix A — The Demonstration Database

Describes the file structure of the demonstration database used throughout this tutorial.

TYPOGRAPHICAL CONVENTIONS

This document uses the following typographical conventions:

- **Bold typeface** indicates commands and characters you type. It also emphasizes important points.
- *Italic typeface* indicates a parameter or argument you supply. It also introduces new terms and manual titles.
- `Typewriter typeface` indicates system output and PROGRESS procedures. It also highlights file names, field names, command names, and menu options in text.

The following typographical conventions are used to represent keystrokes.

- A box labeled with the name of the key represents a single keystroke:

  CTRL ↓ O HELP GO END

- When you must hold down one key while pressing another to issue a command, the two keys are connected by a hyphen (-). For example:

  CTRL-O

- When you must press two keys separately in sequence, they appear in the order in which you enter them.

  ESC C

- In some cases, such as GO, OPTIONS, HELP or CHOICES, the name of the key does not match the label on the key cap. In these cases, the label used on most terminals is placed in parentheses after the key name. For example:

  GO (F1) OPTIONS (CTRL-O) CHOICES (ESC C)

  Key names are used instead of labels because labels may differ from terminal to terminal.

- Menu choices appear in capital letters. When one choice displays another menu from which a choice must be made, the menu choices are separated by a right arrow (→) to represent the movement from one menu to another. For example:

  `OTHER→MAIN-MENU` `INSERT→FIELD`

NOTE: If you are running FAST TRACK on a DOS system, press the ALT key wherever this book refers to the ESC key. Also, when using the ALT key, you must hold it down while pressing an accompanying key to use a command.

OTHER USEFUL PUBLICATIONS

The following is a list of other publications from Progress Software Corporation which you may find useful:

PROGRESS FAST TRACK User's Guide

Provides extensive descriptions and examples for the commands and screens in the FAST TRACK application.

PROGRESS Installation Notes

Contains step-by-step instructions for installing PROGRESS. Describes the prerequisites and procedures to get PROGRESS and FAST TRACK up and running on your machine.

PROGRESS Test Drive

Introduces new users to PROGRESS through a sporting goods distributor's inventory and order processing application.

PROGRESS Language Tutorial

Provides a "how-to" guide to PROGRESS fundamentals, designed for both novice and experienced programmers.

Programming Handbook

Details advanced PROGRESS programming techniques. Provides more detailed information about application development with PROGRESS.

PROGRESS Language Reference

A detailed library of information on a number of PROGRESS topics. Provides descriptions and examples for each statement, function, phrase, and operator in the PROGRESS language.

System Administration I: Environments

Explains the DOS, UNIX, VMS, and BTOS/CTOS concepts required to run PROGRESS and provides information about running PROGRESS on networks.

System Administration II: General

Describes PROGRESS limits, disk and memory requirements, startup and shutdown procedures, backing up and restoring databases, and PROGRESS utilities. It also provides

information about security administration, using multi-volume databases, and Roll Forward Recovery.

Pocket PROGRESS

Lets you quickly look up information about the PROGRESS language or programming environment.

Developer's Toolkit Manual

Explains how to use the PROGRESS Developer's Toolkit, a set of tools used to prepare PROGRESS applications for distribution.

Database Gateways Guide

Provides information about the how to use the PROGRESS 4th generation programming language on different relational database management systems other than PROGRESS RDBMS.

3GL Interface Guide

Supplies information about the PROGRESS Host Language Call (HLC), embedded SQL, and the Host Language Reference (HLI). This manual also contains information on how to use the PROBUILD utility.

Chapter 1
Introduction to PROGRESS FAST TRACK

This chapter provides an introduction to programming with PROGRESS FAST TRACK. This chapter provides the following information:

- An introduction to FAST TRACK.
- Instructions for creating a database and starting FAST TRACK.
- A quick look at FAST TRACK.
- A summary of how to develop applications with FAST TRACK.

1.1 INTRODUCTION TO FAST TRACK

FAST TRACK is a tool for building PROGRESS applications. Because it is based on this fourth-generation computer language (4GL), applications built with FAST TRACK are powerful relational database systems using advanced database management technology.

There are three FAST TRACK environments:

- **PROGRESS FAST TRACK** – The FAST TRACK application development environment contains tools to generate menus, reports, forms, and QBF procedures. It also contains utilities that allow you to distribute, compile, run, manipulate, and maintain applications developed with FAST TRACK.
- **PROGRESS Query/Report** – The Query/Report product consists of the FAST TRACK Report Writer and PROGRESS Query/Run-time. It also contains utilities that allow you to compile, run, and maintain the database of applications developed with FAST TRACK.
- **PROGRESS FAST TRACK Run-time** – The FAST TRACK Run-time product is a collection of FAST TRACK utilities that allow you to compile, run, and maintain the database of applications developed with FAST TRACK. The PROGRESS FAST TRACK Run-time utilities are part of all PROGRESS database products.

This tutorial is a guide to the full FAST TRACK interface and to the Report Writer module of the Query/Report product. For more information about the capabilities of FAST TRACK Run-time and the Query/Report product, see Chapter 1 in the *PROGRESS FAST TRACK User's Guide.*

If you are an experienced PROGRESS developer, you can use FAST TRACK to quickly design and develop applications. FAST TRACK can also be used to prototype applications. It lets you quickly design and develop the forms and reports and integrate them into the menu structure of an application.

If you are a new user with little or no programming experience, you can use FAST TRACK to expand existing PROGRESS applications. For example, you can define special reports, on demand, without the help of an application developer.

FAST TRACK is fully integrated into the PROGRESS environment. This means that you can incorporate PROGRESS procedures into the applications you build with FAST TRACK. Conversely, you can incorporate the menus, forms, reports, and procedures produced by FAST TRACK into your PROGRESS applications and edit them in the PROGRESS editor.

Applications generated and compiled by FAST TRACK can be run on the PROGRESS Run-time, PROGRESS Query/Report, and PROGRESS 4GL/RDBMS products. To run FAST TRACK, however, you must have either PROGRESS Query/Report or PROGRESS 4GL/RDBMS installed on your machine. There are a number of reasons why:

- You need PROGRESS to define new files and fields in the database using the PROGRESS Data Dictionary (PROGRESS 4GL/RDBMS only).
- You may also want to use PROGRESS to write special-purpose procedures.
- FAST TRACK creates and compiles PROGRESS procedures.
- FAST TRACK itself is a PROGRESS application and you need PROGRESS to run it.

It is important to note that due to the inherent limitations of PROGRESS Query/Run-time (i.e. certain PROGRESS statements are not available), the full functionality of FAST TRACK cannot be accessed. The functionality limitations of FAST TRACK with PROGRESS Query/Run-time are discussed at the appropriate points in this tutorial.

1.2 CREATING A DATABASE AND STARTING FAST TRACK

You must log in to your system before you can create a FAST TRACK database. If you are using DOS, you probably just need to turn on your computer. If you are using UNIX or VMS, type your userid and password, if necessary. Whether you are running UNIX, DOS, or VMS, be sure you are in the directory from which you want to run FAST TRACK. This directory must be a directory other than the one in which the FAST TRACK software is installed.

Once you are in the proper directory, you can create a database. In this tutorial, you will use a copy of the PROGRESS demo database. To follow along with this tutorial, you must first make a copy of the demo database and call it mycopy. Then, start up FAST TRACK using the mycopy database.

Table 1-1 lists the commands that allow you to make a copy of the PROGRESS demo database and to start up FAST TRACK using the mycopy database on several different operating systems.

Table 1-1: Database Copy Command

Operating System	To Create A Copy Of The Demonstration Database
UNIX	`prodb mycopy /usr/dlc/demo`
DOS	`prodb mycopy \dlc\demo`
VMS	`PROGRESS/CREATE mycopy [dlc]demoft`

BTOS/CTOS	`PROGRESS Create Database`
	`  New Database Name  mycopy`
	`  Copy From Database Name  demo`

See Appendix A for information about the files and schema of the demonstration database. To startup FAST TRACK, use the following command:

Table 1-2: : FAST TRACK Startup Command

Operating System	FAST TRACK Startup Command
UNIX	`proft mycopy`
DOS	`proft mycopy`
VMS	`@PROFT mycopy`
BTOS/CTOS	`FAST TRACK 4GL` `  [Options] -1 mycopy`

For information about how to create an empty FAST TRACK database and start up FAST TRACK, see the *PROGRESS Installation Notes*. To convert a PROGRESS database for use with FAST TRACK, see the `convft` utility in Chapter 1 of the *PROGRESS FAST TRACK User's Guide*.

Create a copy of the database and start up FAST TRACK. When you start up FAST TRACK, you start up PROGRESS and you can access all the power and functionality that PROGRESS offers. After you start up FAST TRACK on the mycopy database, the FAST TRACK Main Menu appears, as shown in the following figure:

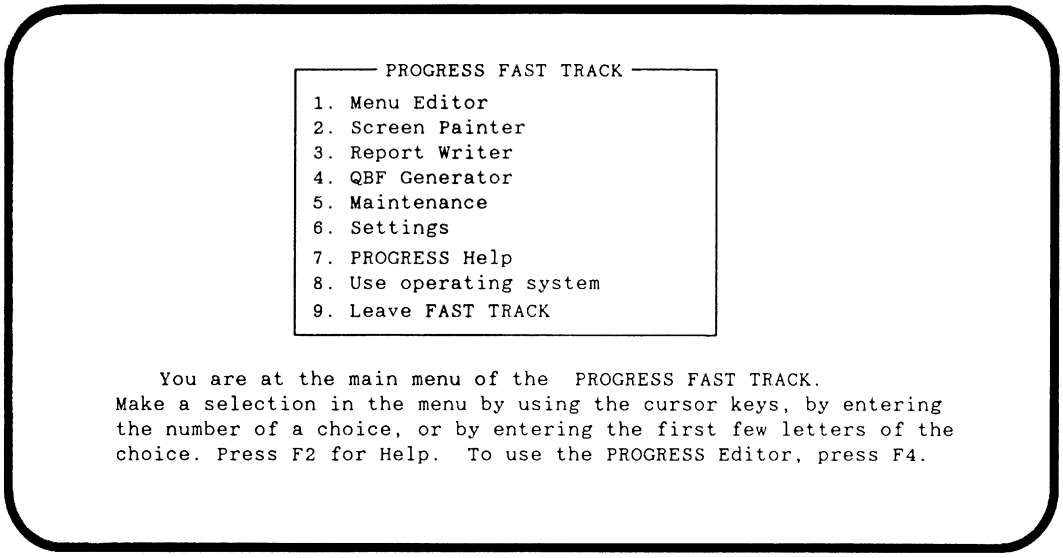


Figure 1–1: FAST TRACK Main Menu

1.3 A QUICK LOOK AT FAST TRACK

FAST TRACK consists of a number of editors that you can access from the FAST TRACK Main Menu:

- The Menu Editor creates menus which tie your application together.
- The Screen Painter creates forms for entering or displaying data.
- The Report Writer creates reports to summarize the data stored in the database.

Other utilities let you quickly generate procedures or tailor your FAST TRACK editing environment:

- The QBF (Query-By-Form) Generator creates procedures to access records through forms that you create with the Screen Painter or through system-generated forms.
- You can display key settings for FAST TRACK commands, access PROGRESS Help, and escape to your operating system from the FAST TRACK Main Menu.

The options on the FAST TRACK Main Menu are described in greater detail in the following sections.

1.3.1 The Menu Editor

The applications that you build with FAST TRACK are called "menu-driven" because users choose what they want to do from menus. A *menu* is a list of options that you can use to perform an action or access another list of options. Typically, every application you create has one main menu, which can call other menus, or run reports, QBF procedures, or PROGRESS procedures.

The Menu Editor lets you build menus and create the overall structure of your application. With the Menu Editor, you can build the application from the top down, starting with the main menu. For each menu, you define the options that appear there. For each option, you define the action to take when the user selects that option.

At any stage of development, the Menu Editor knows the basic menu structure of your application. It can create an outline of your application, showing the relationship between your main menu and all the other menus, reports, and procedures in your application.

When you are satisfied with your menus or when you want to test them, the Menu Editor can generate a PROGRESS procedure to run the application. The Menu Editor is discussed in greater detail in Chapter 3 of this book.

1.3.2 The Screen Painter

You can create forms with the Screen Painter. A *form* is a collection of fields, variables, and text. The Screen Painter lets you place these objects on the screen as you want them to appear to the user. When you are satisfied with the appearance of a form, you can use it to display information for the user from a database and to accept information from the user.

The Screen Painter provides a number of editing functions for creating forms interactively. For example, you can:

- Insert and delete fields, variables, and text.
- Move objects from one place to another within a form.
- Automatically generate a default form containing all the fields in a database file.
- Copy the contents of one form to another.

After you have laid out a form, the Screen Painter allows you to produce a PROGRESS FORM statement to duplicate your form in PROGRESS procedures. The forms that you create with the Screen Painter can also be used in query-by-form (QBF) procedures. A QBF procedure provides a way for the user to look up, add, change, and delete records using the form to lay out the information on the screen. See Chapter 6 of this book for more information about QBF procedures. For more information about the Screen Painter, see Chapter 4 of this book.

1.3.3 The Report Writer

The Report Writer lets you easily create and design reports using the fields in your database files. You can use one or many database files in a report and choose the fields that will appear in the report. The Report Writer supplies a number of editing functions that allow you to design your report any way you like. For example, you can:

- Insert and delete fields, aggregates, and text.
- Move objects from one place to another within the report.
- Insert sections into a report to create hierarchical reports.
- Sort reports and sections of a report.
- Insert break-groups in a report or report section.

You can use the Report Writer to generate a procedure that allows you to incorporate your report into any PROGRESS application. For more information about the Report Writer, see Chapter 5 of this book.

1.3.4 The QBF Generator

QBF stands for "Query-By-Form." In a QBF, the user is able to access information in the database through forms rather than through a query language such as PROGRESS. You can use the Screen Painter to create forms for a QBF. If a form does not exist, the QBF Generator can create a default form for the QBF.

Given a form, the QBF Generator creates a procedure to access the database. A QBF procedure can perform the following actions:

- Look at individual records in the database files, move forward and backward through the database one record at a time, or go directly to a specific record.
- Find and view related records from several different files.
- Search for a subset of records in the database by defining search criteria that a record must pass in order to be included in the subset.
- Perform database file maintenance operations on the records in the form. These operations include adding, deleting, updating, and printing records. If you have PROGRESS Query/Run-time, you will not be able to generate a QBF procedure that adds, deletes, or modifies records in the database with the QBF Generator.

For more information about the QBF Generator, see Chapter 6 in this book.

1.3.5 Maintenance

The `Maintenance` option on the FAST TRACK Main Menu allows you to access the Maintenance menu. From the Maintenance menu, you can delete menus, forms, reports, and QBF procedures from your database, dump and load data files, compile applications, edit output devices, and access application deployment utilities. For more information about FAST TRACK maintenance, see Chapter 7 in the *PROGRESS FAST TRACK User's Guide*.

1.3.6 Key Settings

The `Settings` option on the FAST TRACK Main Menu displays the control key and function key sequences used to perform commands in the Menu Editor, Screen Painter, Report Writer, and QBF Generator. For more information about how to change these key sequences, see Appendix E in the *PROGRESS FAST TRACK User's Guide*.

1.3.7 PROGRESS Help

The `PROGRESS Help` option on the FAST TRACK Main Menu allows you to access the PROGRESS Help system from FAST TRACK. Once in the PROGRESS Help system, you can get help information on PROGRESS statements, functions, operators, keywords, and much more.

Using the `PROGRESS Help` option, you can also access the PROGRESS Data Dictionary, access the operating system, list the filenames in the current directory, or run a PROGRESS program. To return to the FAST TRACK Main Menu, press the END (F4) key. For more information on PROGRESS Help, refer to the *PROGRESS Language Tutorial*. FAST TRACK also has a help system which is explained in the following chapter.

1.3.8 Accessing Your Operating System

The `Use Operating System` option on the FAST TRACK Main Menu allows you to access your operating system, without actually leaving FAST TRACK. From the prompt of your operating system, you can enter any operating system command. To return to the FAST TRACK Main Menu, use one of the following commands:

On UNIX: CTRL-D

On DOS: `exit`

On VMS: `logout`

On BTOS: `PROGRESS EXIT`

When you enter the appropriate command, the FAST TRACK Main Menu reappears.

1.3.9 Leaving FAST TRACK

To end a FAST TRACK session and return to your operating system, select the `Leave FAST TRACK` option from the FAST TRACK Main Menu. To re-enter FAST TRACK after selecting this option, use the `proft` command with the name of an existing FAST TRACK database.

1.4 DEVELOPING APPLICATIONS WITH FAST TRACK

An *application* is a collection of data definitions, menus, forms, reports, and procedures that a user needs in order to perform a set of tasks. *Data definitions* determine the kinds of information that the application uses. *Menus* organize the tasks into a logical structure. *Forms* lay out the data according to different users' needs or the requirements of a specific task. *Reports* organize and summarize the data. *Procedures* define the steps taken to perform the individual tasks.

Not all of these objects can be created with FAST TRACK. You must use the PROGRESS Data Dictionary to define the schema of a FAST TRACK database. To write special-purpose PROGRESS procedures, you must use the PROGRESS editor. However, FAST TRACK can make it simpler to create the menus, forms, reports, and QBF procedures that the application requires.

Figure 1-2 summarizes the PROGRESS and FAST TRACK features that you commonly use in the development of applications.

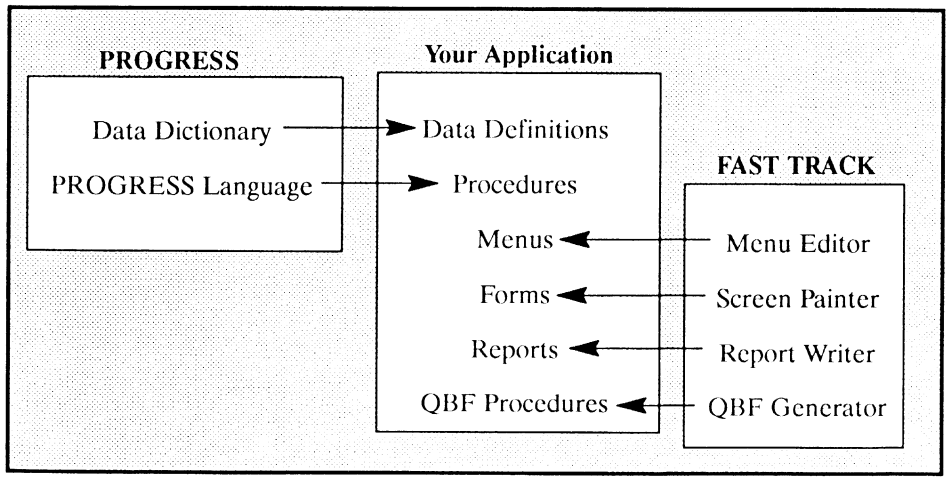


Figure 1-2: How an Application is Built with PROGRESS and FAST TRACK

Developing an application with PROGRESS and FAST TRACK can, therefore, be broken down into the following series of steps:

- Create a new FAST TRACK database for the application. This can be either an "empty" database or a copy of an existing database. See the previous section, "Creating a Database and Starting FAST TRACK" for more information about this step.
- PROGRESS:
  - With the PROGRESS Data Dictionary, define the files, fields, and indexes for your application. (Before you modify the schema, you must leave FAST TRACK (press the END (F4) key from the menu) and start the dictionary from Progress HELP (press HELP (F2) and choose option d from the PROGRESS Help menu). After exiting the dictionary, re-enter FAST TRACK by typing **run ft.p** and pressing GO (F1).

  See the *Getting Started* booklet for information about creating a database and Chapter 3 in the *PROGRESS Language Tutorial* for information about using the PROGRESS Data Dictionary.
- FAST TRACK:
  - With the Menu Editor, build the basic menu structure for the application.
  - With the Screen Painter, lay out the forms your application needs.
  - With the Report Writer, lay out the format for your application's reports and specify the information to be included.
  - With the QBF Generator, produce QBF procedures for performing file maintenance and data retrieval with the forms.
- PROGRESS:

  With the PROGRESS editor, create any special procedures that your application needs.
- FAST TRACK:

  With the Menu Editor, tie the reports, QBF procedures, and PROGRESS procedures into your menu structure.

When all the pieces of the application have been created, added to the menu structure, and tested, you can package the application and distribute it to your users. See Chapter 7 in the *PROGRESS FAST TRACK User's Guide* for more information distributing applications developed with FAST TRACK.

Before you use FAST TRACK to develop your own applications, you should learn the fundamentals of FAST TRACK. The next chapter introduces the basic elements of the FAST TRACK interface.

Chapter 2
FAST TRACK Fundamentals

FAST TRACK is an integrated set of editors. Each editor lets you create different kinds of objects for your application: menus, forms, reports, or QBFs. All of these editors share common interface characteristics and conventions for use. This chapter introduces you to the basics of the FAST TRACK interface and covers the following subjects:

- FAST TRACK keystrokes.
- FAST TRACK menus.
- FAST TRACK windows.
- System-wide commands.
- Getting help.
- Moving between FAST TRACK and PROGRESS.
- Where to go next.

2.1 FAST TRACK KEYSTROKES

FAST TRACK has several predefined function keys that allow you to perform useful operations with a single keystroke. Table 2–1 lists these function keys that you can use at various points throughout FAST TRACK.

Table 2–1: FAST TRACK Function Keys

Key	Definition
GO (F1)	Runs the current menu option or accepts an entered field value.
HELP (F2)	Enters the FAST TRACK Help system, which provides help about using FAST TRACK. To exit from the Help system, press (F4).
MODE (F3)	Changes between insert and overstrike modes. In insert mode, each character you type is inserted in the position where the cursor is located. The cursor and the character under it move one space to the right. In overstrike mode, each character you type *replaces* the character at the position of the cursor. Overstrike mode is the PROGRESS default.
END (F4)	Exits from the current menu, window, or operation without saving entries or edits. If you are in the middle of a database operation such as updating a record, then the changes are not made.
RECALL (F7)	Restores the fields within a window to their original default values.
CLEAR (F8)	Cancels the current horizontal menu and moves one level above in the menu structure.
INSERT (F9)	Inserts a blank line above the current line.
DELETE (F10)	Removes the current line.

Table 2–2 lists more key assignments.

Table 2–2: Other Editing Keys

Key	Definition
RETURN	Moves the cursor to the next field. If on the last field, then the cursor moves to the next line.
BACK SPACE	Deletes the character to the left of the cursor and moves the cursor to the position of the deleted character.
↑ and ↓	Move the cursor one line at a time in the direction of the arrow.
→ and ←	Move the cursor one character position at a time in the direction of the arrow.
DEL	Deletes the character that is under the cursor and moves the characters to the right of the cursor one position to the left.
TAB	Moves the cursor to the next field or label.
BACKTAB	Moves the cursor to the previous field or label.

The default key sequences for these and other FAST TRACK keystrokes are contained in a table accessed through the `Settings` options on the FAST TRACK Main Menu. For information about how to change these key sequences, see Appendix E in the *PROGRESS FAST TRACK User's Guide*.

2.2 FAST TRACK MENUS

There are two types of menus in FAST TRACK: *vertical menus* and *horizontal menus*. These menu types appear in different locations and have different characteristics. The following sections describe each of these menu types in depth.

2.2.1 Choosing from Vertical Menus

The FAST TRACK Main Menu, shown in Figure 2-1, is a vertical menu. The options are lined up one above the other.

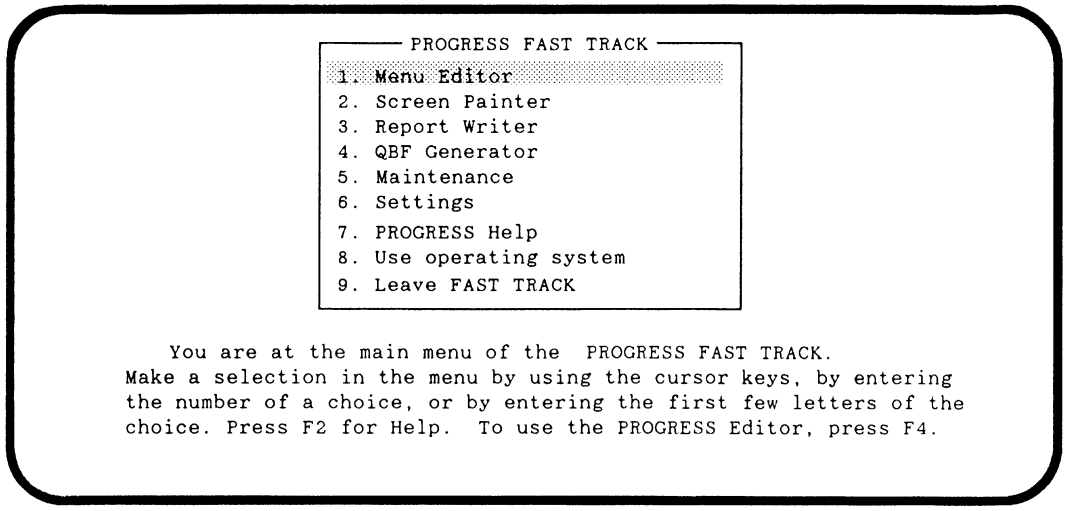


Figure 2–1: FAST TRACK Main Menu

There are three possible methods for selecting options from vertical menu:

- Use the arrow keys to highlight your option and press GO (F1) or RETURN.
- Type the first few letters of a menu selection.
- If a menu option is numbered, enter the number.

The vertical menus you create with the FAST TRACK Menu Editor can be set up in several different ways and not all of the above selection methods may be allowed in certain vertical menus. For example, you may have to press RETURN after entering the first few letters of a menu option, or you may not be allowed to use this selection method at all. See Chapter 3 for information about setting up vertical menus with the Menu Editor.

1. When you first enter FAST TRACK, the `Menu Editor` option is highlighted. Press ↓ twice to highlight the `Report Writer` option. Press GO (F1) to select the highlighted option. The Report Writer initialization window appears as shown in Figure 2-2.

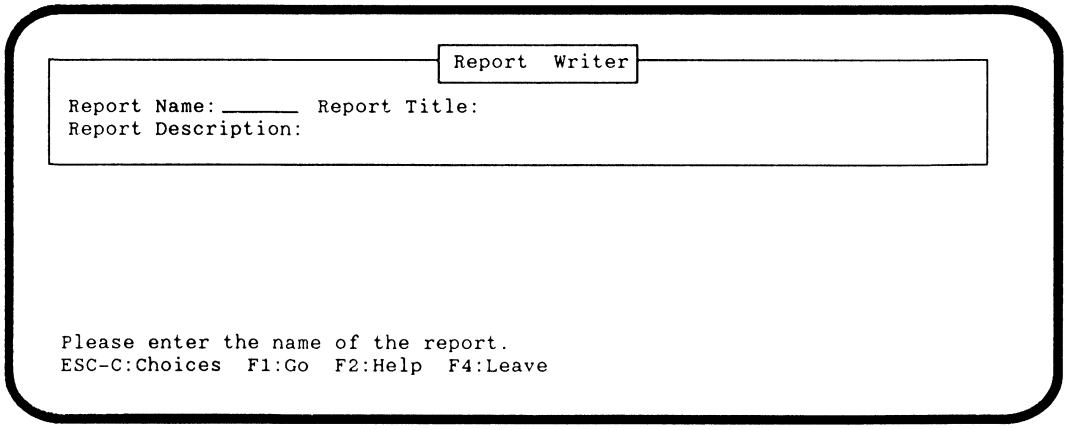


Figure 2-2: The Report Writer Initialization Window

2. Press END (F4). This returns you to the FAST TRACK Main Menu and highlights the `Report Writer` option, the last one you used. (You will learn more about the Report Writer in Chapter 5 of this book.)

   The END (F4) key always leaves the current menu or action and returns to the previous menu or action. You can use this key to back out of nested menus and windows.

3. Now, with the `Report Writer` option highlighted, type **4** to enter the QBF Generator. The QBF Generator displays a list of file choices as shown in the following figure:

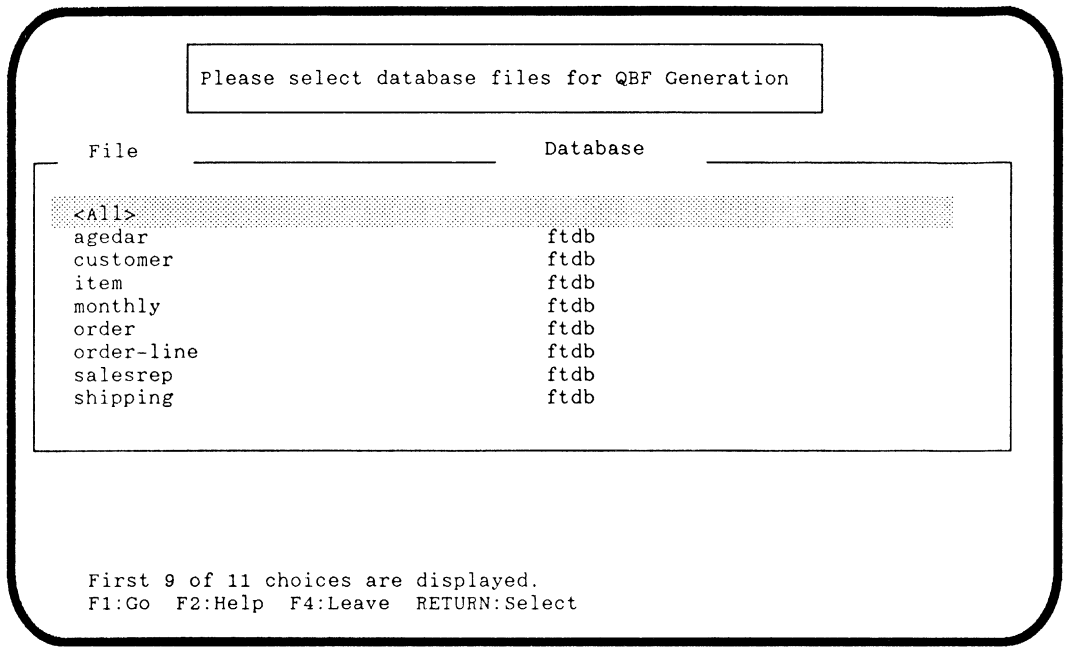


Figure 2–3: The Database QBF Generator Choices Window

4. Press END (F4) again to return to the FAST TRACK Main Menu. (You will learn more about the QBF Generator in Chapter 6 of this book.)

5. The `QBF Generator` option is highlighted. Now type **m**. The Enter Choice window appears with the letter you typed.

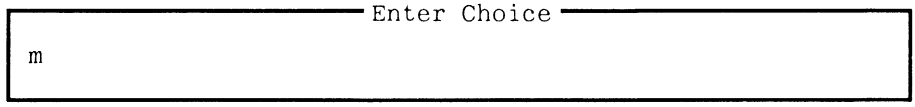


Figure 2–4: Enter Choice Window

There are two options on the FAST TRACK Main Menu that begin with "m": `Menu Editor` and `Maintenance`. Because the system does not know which option you want, it displays the Enter Choice window and waits for you to type additional characters.

6. Type **E** (either uppercase or lowercase). FAST TRACK displays the Menu Editor initialization window.

   FAST TRACK will not run a selection until you type a unique combination of letters that correspond to a menu selection. If no two options begin with the same letter, you only need to type the first letter. If two or more options have the same first letter but different second letters, you must type the first two letters.

7. Press END (F4) to return to the FAST TRACK Main Menu.

2.2.2 Choosing From Horizontal Menus

Each editor has a set of associated editing commands that allow you to define the files with which you work. These commands allow you to insert or delete choices in a menu or fields in a form or report, as well as to perform simple text editing. The commands in each editor differ slightly; however, they all appear in a horizontal menu. A *horizontal menu* is a series of options that appear across the bottom of an editor screen in FAST TRACK.

The following example shows you how to make a selection from a horizontal menu:

1. Choose the `Screen Painter` option from the FAST TRACK Main Menu. The Screen Painter initialization window appears as shown in the following figure:

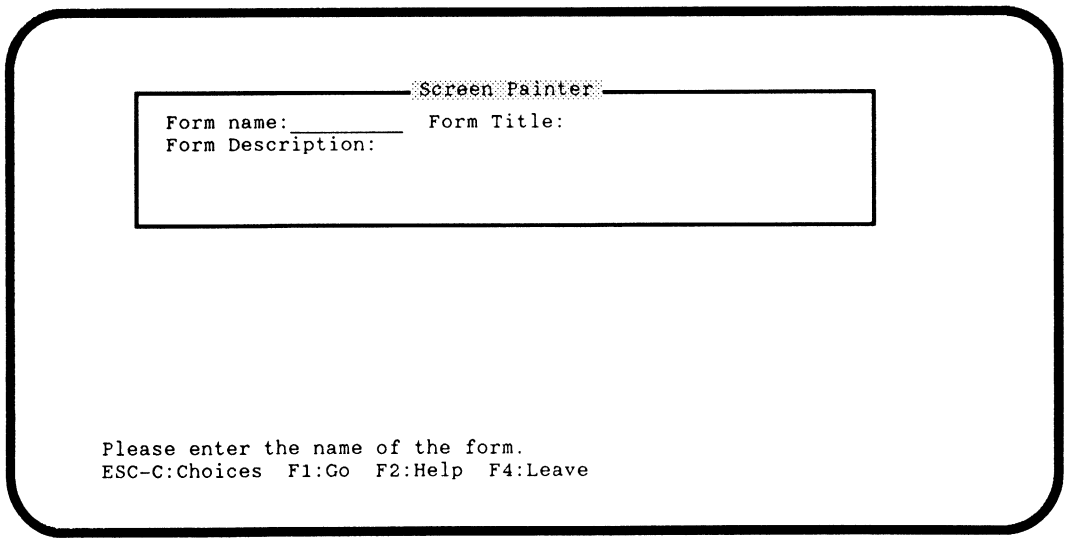


Figure 2–5: The Screen Painter Initialization Window

2. The cursor is in the `Form name` field. Type **form1** and press GO (F1). FAST TRACK moves the cursor to the `Form Title` field.

3. Press GO (F1) to leave the Screen Painter initialization window. Your cursor now appears in the Screen Painter edit screen and the following message appears:

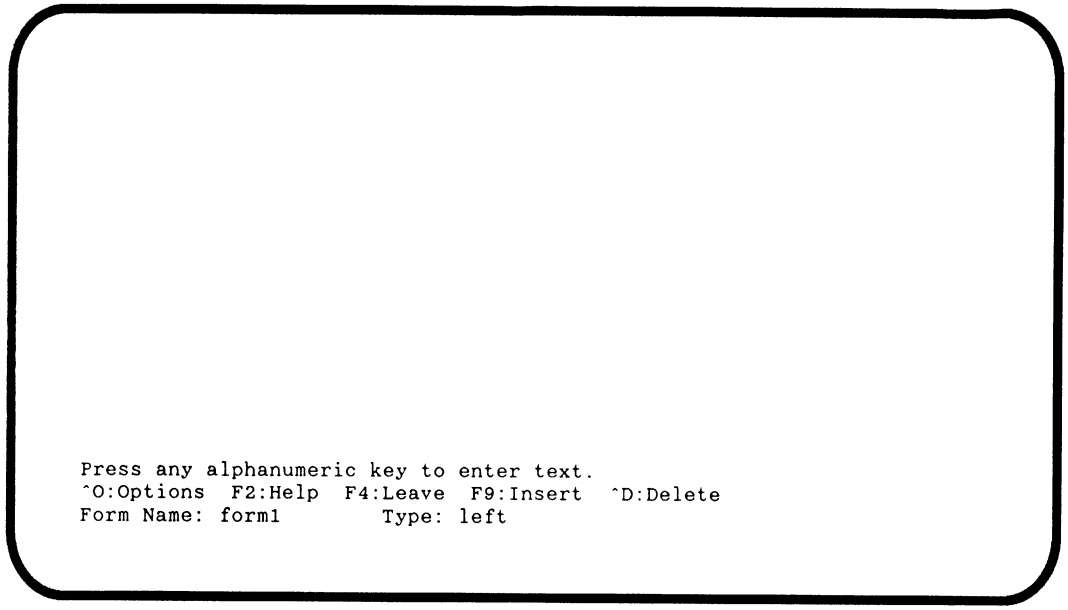


Figure 2–6: Screen Painter Edit Screen

4. Press OPTIONS (CTRL–O). This command accesses the command menu available to the current editor. When you press OPTIONS (CTRL–O) in the Screen Painter, the following items appear in an area called the *command area*, located near the bottom of the screen:

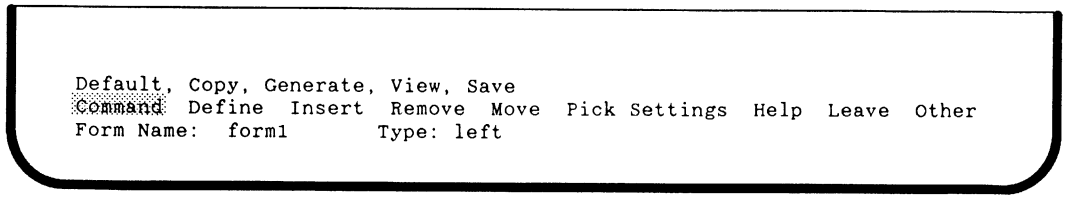


Figure 2–7: Command Area (Screen Painter)

There are three lines in the command area. From top to bottom they are:

- The *information line* gives information about the function of the currently highlighted option. This line currently contains the submenu that you can access when you select the COMMAND option from the Screen Painter command menu.
- The *menu line* shows the commands that execute an action or access another menu. This line currently contains the Screen Painter command menu.
- The *status line* gives you information about the current file. For example, in the Screen Painter you see the following information:
  - The name of the form you are currently editing.
  - Whether you are in insert or overstrike mode. If you are in insert mode, the word "Insert" appears on the status line. Otherwise, you are in overstrike mode by default. Overstrike mode is not indicated on the status line.
  - The type of form you are using.

PROGRESS also reserves three lines below the command area to display error messages and information about the current data field from the PROGRESS Data Dictionary.

The information that each line in the command area contains, varies slightly from editor to editor.

To make a selection from a horizontal menu, use one of the following methods:

- Use the arrow keys, [TAB], or the [SPACEBAR] to highlight your option and press [GO] (F1) or [RETURN].
- Type the first letter of the menu option. Horizontal menu options are designed to have unique first letters.

5. Use the [→] to highlight each of the options in turn. FAST TRACK displays a short description of each option.
6. Highlight an option other than LEAVE, then type **L** to choose the LEAVE option. FAST TRACK displays another horizontal menu.
7. Type **Q** to choose the QUIT option and return to the FAST TRACK Main Menu without saving your form.

To back up a level in the structure of a horizontal menu, use the [CLEAR] (F8) key. To leave the horizontal menu and return to the current editor, press the [END] (F4) key.

Although the various FAST TRACK editors have different horizontal menu options, you invoke them all the same way. Furthermore, FAST TRACK lets you decide how you want to issue a command, depending on your level of experience and your editing style.

When you enter letters to select horizontal menu options, you can type the letters slowly or quickly. If you type slowly, FAST TRACK displays the menus associated with your options. If you type quickly, you don't see the menus. This way, you can type commands slowly at first, using the menus as a reminder of your current options. As you become more experienced, you can type quickly and avoid the menus entirely.

As an alternative to selecting from menus, you can enter most commands using escape sequences or function keys. Using an escape sequence or function key is often faster than selecting the corresponding menu option. To see the default key settings, select the `Settings` option in the FAST TRACK Main Menu. While they are not used in this tutorial, you can learn the key settings little by little on your own to improve your efficiency. If you are uncomfortable with the escape sequences, you can change the key assignments. For information on how to change settings, see Appendix E in the *PROGRESS FAST TRACK User's Guide.*

2.3 FAST TRACK WINDOWS

FAST TRACK uses windows to prompt you for information. You have already seen a few of these windows in the preceding exercises. Windows contain fields with labels. When a field is underlined, it is *active*, which means you can enter or change a value in that field. To enter information into an active field, type a value and press either the RETURN key or the GO (F1) key. If there is more than one active field in a window, the RETURN key enters a value only in the current active field. To edit values while the cursor is still in an active field, use the BACKSPACE or the DEL keys. Use the TAB and the BACKTAB (CTRL-U) keys to move forward and backward between fields in a window.

If you are unsure what to type in a field, you can display a list of valid field entries by pressing CHOICES (ESC C). A window, called the Choices window, appears over whatever you're working on. It contains valid entries for the current field. To select a value from the Choices window, use the following selection methods:

- Use the arrow keys to highlight a selection and press RETURN.
- Type the unique letter combination that corresponds to a selection and press RETURN.

In cases where you can only select one valid field entry, the Choices window disappears after you press RETURN. In cases where you can select more than one valid field entry, an asterisk (*) appears after each selected entry. To unpick a selection, simply highlight the selection and press RETURN again. After you are finished making selections, press the GO (F1) key to enter your selections and exit the Choices window.

When you are at the last active field in a window, the GO (F1) key accepts the values in all of the active fields and exits the window. The END (F4) key exits the current window without saving the information that you entered.

In the following exercise, you learn how to use windows in FAST TRACK.

1. Choose the `Screen Painter` option from the FAST TRACK Main Menu.

   FAST TRACK displays the window shown in Figure 2-8:

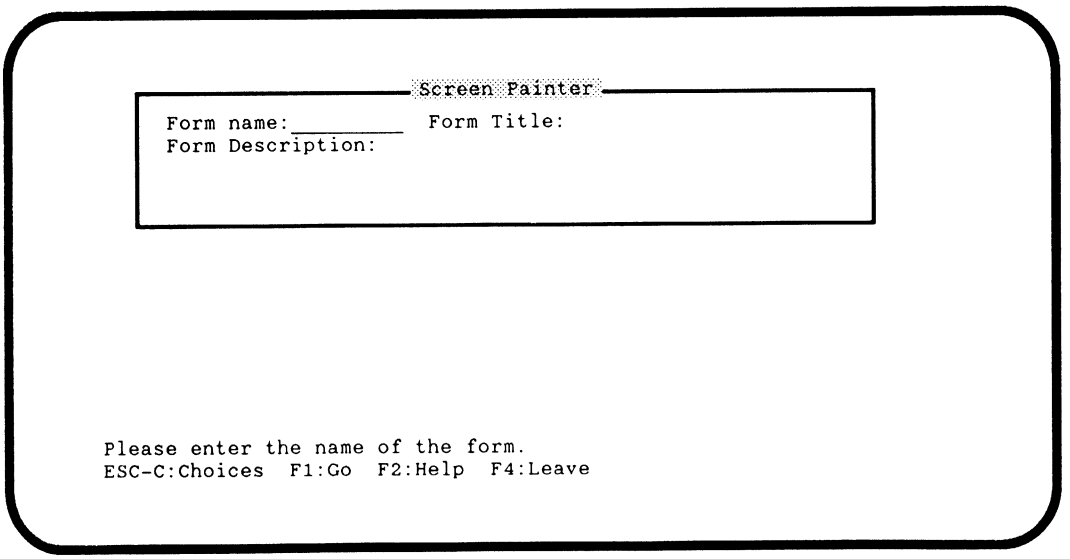


Figure 2-8: Screen Painter Initialization Window

The cursor appears in the `Form name` field. A prompt at the bottom of the screen tells you what FAST TRACK expects you to enter in the current field.

2. Press CHOICES (ESC C) to see a list of choices.

   The demonstration database already contains forms associated with the PROGRESS Test Drive application. The following Choices window appears:

```
┌─ Form Name ──── Database Name ─────────────────────┐
│ fm01                                                │
│ fm02                                                │
│ form1                                               │
│ order            ftdb                               │
│ order-1          ftdb                               │
│ sls                                                 │
└─────────────────────────────────────────────────────┘
```

3. The name of the form is *required* information. FAST TRACK will not let you continue without providing required information.

   Press END (F4) to cancel the Choices window.

4. Type **slsrp** as the name of your form; however, do not press the GO (F1) key.

5. Change from *overstrike* to *insert* mode by pressing MODE (F3). The word "Insert" appears at the bottom of the screen.

   In insert mode, the character you type is inserted in the position where the cursor is located. The cursor and the character under it move one space to the right.

6. Use the ← key to move the cursor to the "p" in `slsrp`. Type **e** to insert an "e" between the "r" and the "p". Then press MODE (F3) to return to overstrike mode.

7. Press RETURN or GO (F1) to enter the form name and move the cursor to the next field, in this case, the `Form Title` field.

8. With the cursor in the `Form Title` field, press GO (F1) again. FAST TRACK immediately displays the Screen Painter edit screen.

   This time you were able to proceed without supplying the field information, because FAST TRACK did not require it. You can ignore fields that hold optional information; however, it is good practice to fill them in to document your actions. You will learn more about the Screen Painter later.

9. Press END (F4) to leave the Screen Painter without saving your form.

In the exercises of the tutorial chapters, you will encounter windows that have multiple input lines. In these windows, you can use the following keys to input information:

INSERT (F9) Insert a new input line before the current input line

↓ or RETURN Insert a new input line after the current input line

DELETE (F10) Delete the current input line.

You will learn more about these keys and FAST TRACK windows as you work through the tutorial chapters.

2.4 SYSTEM-WIDE COMMANDS

This section explains several commands that are available in FAST TRACK. The commands in the following list are common to the top-level horizontal menus in each of FAST TRACK editors.

HELP — Supplies information about selecting an item from a top-level horizontal menu.

OTHER→OPSYS — Allows you to access your operating system prompt from within FAST TRACK. To return to the FAST TRACK application, log off the operating system.

OTHER→DICTIONARY — Lets you enter the PROGRESS Data Dictionary to view the schema of your database.

OTHER→MAIN-MENU — Returns you to the FAST TRACK Main Menu.

OTHER→REPORTS – Produces development reports providing information about the menus, forms, and reports that you have defined.

OTHER→GOTO — Runs a menu, QBF procedure, report, or PROGRESS procedure to test the various pieces of an application.

The *PROGRESS FAST TRACK User's Guide* provides additional information about these system-wide commands.

2.5 GETTING HELP

FAST TRACK provides a help system that supplies context-sensitive help information when you need it. This means that FAST TRACK displays the most appropriate help screen for what you are trying to do.

The following exercise introduces the FAST TRACK help system:

1. Choose the Screen Painter option from the FAST TRACK Main Menu.

2. The Screen Painter initialization window appears with the cursor in the Form name field. Press HELP (F2). A help screen, like the one shown in the following figure appears:

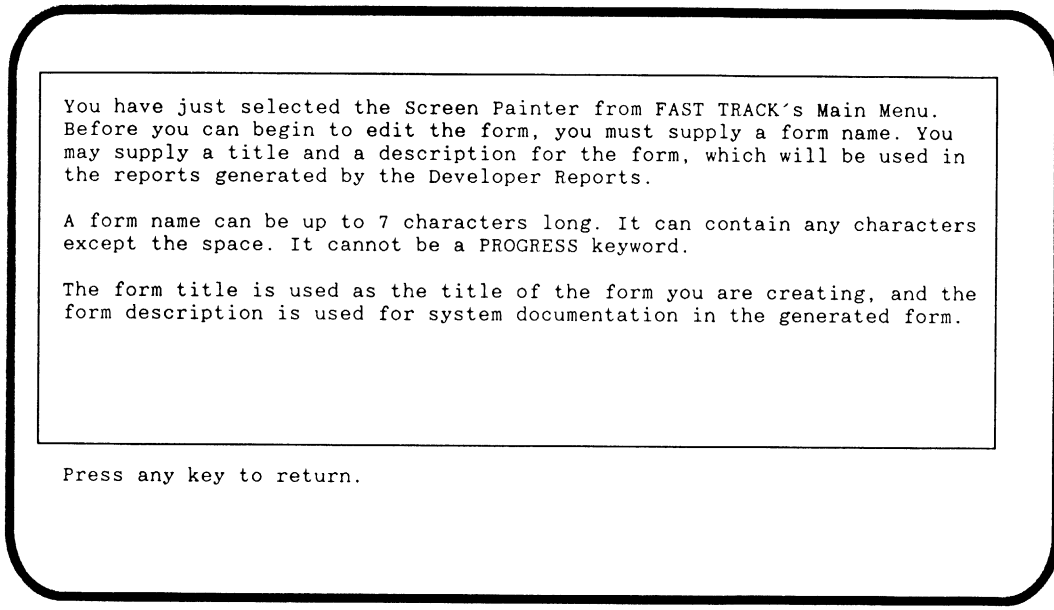


Figure 2-9: A Help Screen

   The help screen tells you where you are and what you should do at your present position within FAST TRACK.

3. Press any key to return to the Screen Painter initialization window.

You can also receive help information by selecting the HELP option from any of the top-level horizontal menus.

4. Enter **form1** as the Form name in the Screen Painter initialization window and press the GO (F1) key twice to enter the Screen Painter edit screen.

5. Press the [OPTIONS] ([CTRL]-[O]) key to access the Screen Painter command menu and select the HELP option. The following screen appears:

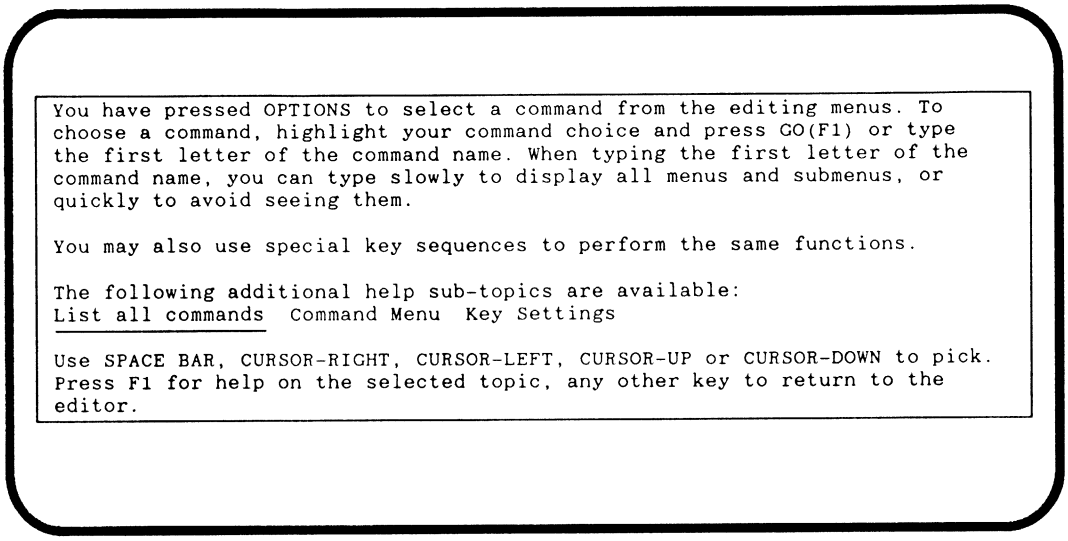


Figure 2-10: Help Window

There are help sub-topics that explain the commands found on the Screen Painter command menu. To receive help on a particular sub-topic, use the [SPACEBAR], [↓], [↑], [←], or [→] keys to underline or highlight the desired sub-topics and then press the [GO] (F1) key. To return to the Screen Painter edit screen, from any help window, press any key other than those listed above. The HELP command works the same way in all of the FAST TRACK horizontal menus.

6. Press [END] (F4) three times to return to the FAST TRACK Main Menu.

As you work, FAST TRACK also supplies help messages at the bottom of each editor screen, giving you information about your current cursor location and operations that you are performing.

2.6 MOVING BETWEEN FAST TRACK AND PROGRESS

There will be times when you will want to access PROGRESS to create complex procedures, run QBF procedures, or view code generated in FAST TRACK. To access the PROGRESS editor from FAST TRACK, press the END (F4) key at the FAST TRACK Main Menu. To return to the FAST TRACK Main Menu from the PROGRESS editor, enter the following procedure:

```
RUN ft.p
```

Press the GO (F1) key and the FAST TRACK Main Menu appears.

2.7 WHERE TO GO FROM HERE

Now that you are familiar with the common features of the FAST TRACK interface, see the following tutorial chapters for more information.

- Chapter 3, "Menu Editor Tutorial" - Describes how to create menus and generate code for use in PROGRESS applications. This chapter shows you how to tie PROGRESS procedures into a menu structure to create an application.

- Chapter 4, "Screen Painter Tutorial" - Shows you how to create, design, and modify forms and how to generate code for use in PROGRESS applications.

- Chapter 5, "Report Writer Tutorial" - Shows you how to create simple and complex reports from information in a database and how to generate code to create reports in PROGRESS applications.

- Chapter 6, "QBF Generator Tutorial" - Describes how to perform simple "Query-By-Form" operations that selectively display, add, edit, or delete records in database files. It also explains how to generate code that can be used to perform these operations in PROGRESS applications.

Each of the these tutorial chapters explains an option from the FAST TRACK Main Menu. You do not have to read the tutorial chapters in order. Skip directly to the tutorial chapter of interest. After completing a tutorial chapter, recopy the FAST TRACK demonstration database using the procedure outlined in Chapter 1, before entering another tutorial chapter. This eliminates extra forms and procedures that may complicate your path through the next tutorial.

Chapter 3
The Menu Editor Tutorial

The applications that you build with FAST TRACK are called "menu-driven" because users perform actions by making selections from menus. A *menu* is a list of options that run application procedures. Typically, every application has one main menu, which ties all the pieces of an application together. A menu option can display another menu, produce a report, answer a query, or exit from the application. The Menu Editor stores information about the menus that you create in a FAST TRACK database, therefore, menus generated by the Menu Editor are dedicated to specific FAST TRACK databases. Therefore, the code produced by the Menu Editor cannot be used as a "standalone" PROGRESS procedure or with any other database.

This chapter shows you how to use the Menu Editor to perform the following tasks:

- Build menus and create the overall structure of your application.
- Define the options that appear on each menu. For each option, you define the action that takes place when a user selects that option.
- Integrate existing procedures into a common user interface.
- Copy menus.
- Generate a menu procedure.

3.1 INTRODUCTION TO THE MENU EDITOR

The menus you create with the Menu Editor are called *vertical menus* because options are lined up vertically on the screen.

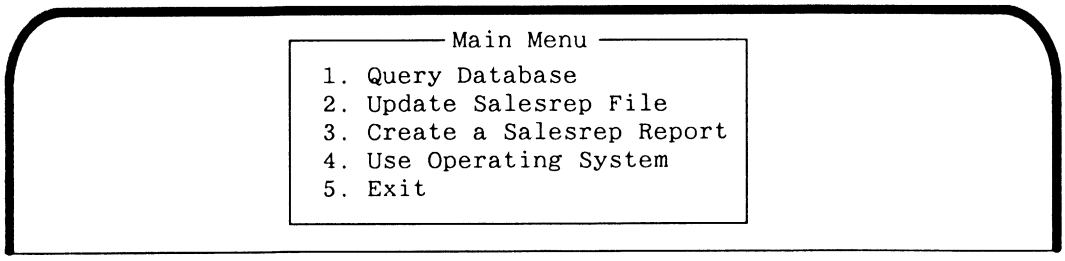


Figure 3–1: Menu Example

When you are satisfied with your menus or when you want to test them, the Menu Editor can generate a PROGRESS procedure to run the application.

Figure 3-2 shows the menu structure of a typical application. It has one main menu, through which the user accesses all other parts of the application, such as the Order Entry menu or the Use Operating System procedure.

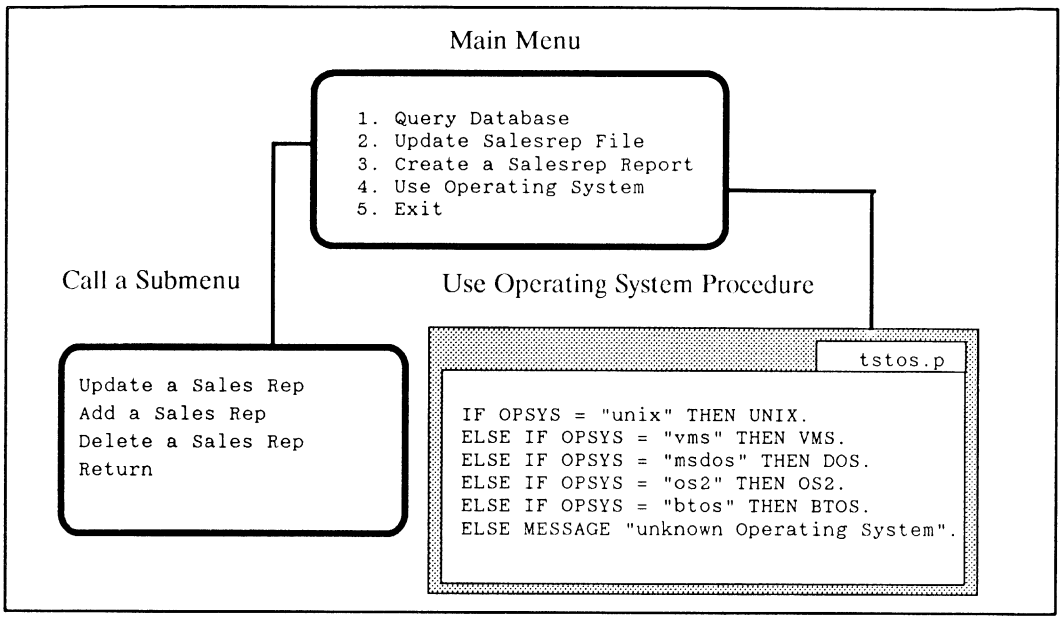


Figure 3–2: An Application's Basic Structure

At any stage of development, the Menu Editor knows the basic menu structure of your application. It can create an outline of your application, showing the relationship between your main menu and all the other menus, reports, and procedures in your application. For example, given the menu structure shown in Figure 3-2, the Menu Editor produces an outline similar to the one shown in Figure 3-3.

```
Menu Titles

Main
-----------------------------------------------
  Query Database
  Update Salesrep File
     Update a Sales Rep
     Add a Sales Rep
     Delete a Sales Rep
     Return
  Create a Salesrep Report
  Use Operating System
  Exit
```

Figure 3–3: Application Outline

The outline above contains all of the menu options and the hierarchy of the menus. Later, this outline will show the actions assigned to each menu option.

When you create a menu, the Menu Editor:

- Adds a record to the FAST TRACK database that stores information such as the menu name, title, and any assigned menu procedures.
- Adds records to the FAST TRACK database that define the menu to which a particular menu option belongs and its position within the menu.

You can see the information stored in these database records by using the OTHER→REPORTS option on the Menu Editor command menu to view the "Menu Information" Development Report. See Chapter 7 in the *PROGRESS FAST TRACK User's Guide* for more information about development reports.

3.2 A TUTORIAL MENU PROJECT

All of the examples in this tutorial chapter use a copy of the FAST TRACK demonstration database called mycopy. See Chapter 1 of this book for information about how to create the mycopy database and start FAST TRACK. Familiarize yourself with the schema of the demonstration database in Appendix A before attempting to do the following exercises.

In this tutorial, you create an application around the main menu shown in Figure 3-4.

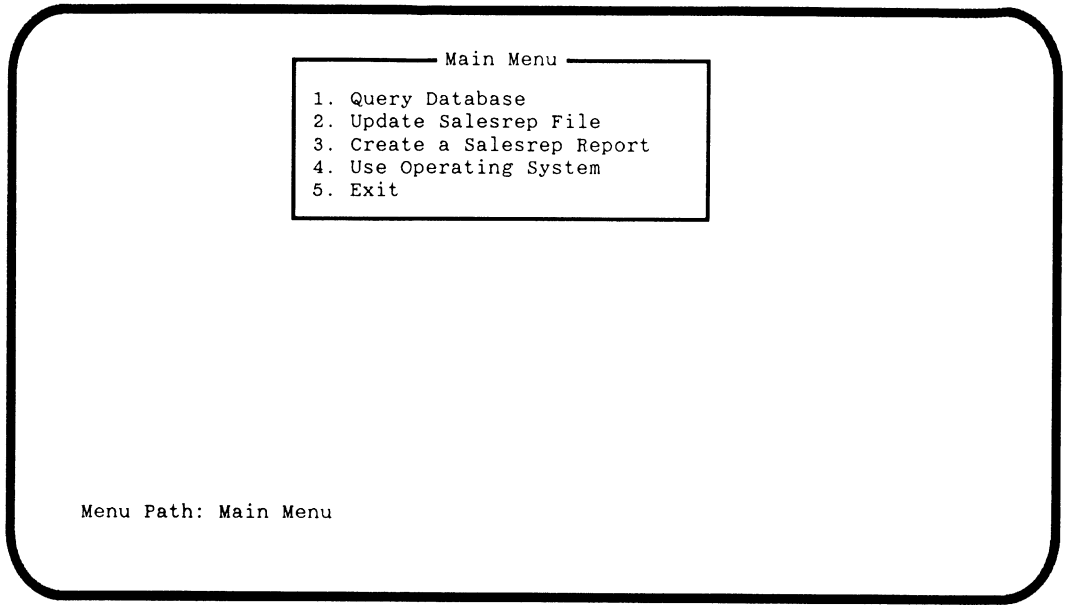


Figure 3–4: The Project Main Menu

This menu offers five options:

- Perform a "Query-By-Form" (QBF) procedure on a database.
- See a submenu of options to update a sales representative file.
- Create a report on the status of sales representatives.
- Leave the application temporarily to use the operating system.
- Leave the application completely.

3.2.1 Creating A Menu

This exercise teaches you how to: start the Menu Editor, create menu options, rearrange the menu options, insert blank lines in a menu, and leave the Menu Editor.

1. From the FAST TRACK Main Menu, choose the `Menu Editor` option. FAST TRACK displays the Menu Editor initialization window shown in the next figure:

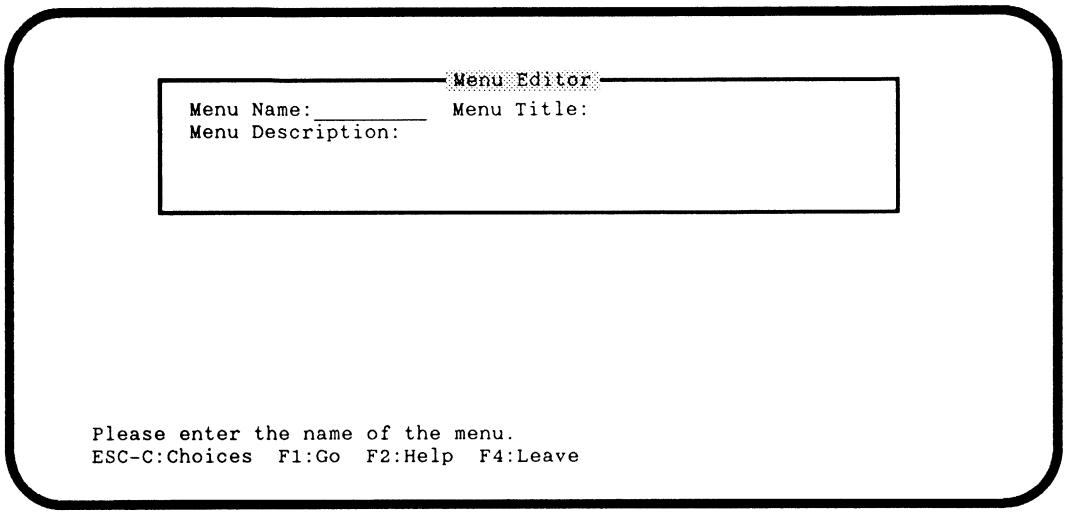


Figure 3-5: The Menu Editor Initialization Window

This window prompts you to provide the following information:

`Menu Name` — Every menu *must* have a name. The menu name can be no more than 12 characters long. It can contain letters, numbers, and underscores, but no spaces.

`Menu Title` — This field is optional. If you specify a menu title, it appears centered in the top border of the frame in which the menu is displayed. The only restriction on the menu title is that it cannot exceed 40 characters in length. If you do not enter a menu title, the menu name is used as the menu title.

`Menu Description` — This field is also optional. The menu description field allows you to provide information about the purpose of the menu. This serves as an aid to anyone who may want to change it in the future. Note that the menu description cannot exceed 210 characters in length.

2. The cursor is in the Menu Name field. Since you are creating a new menu, enter the menu name **Main**. To edit an existing menu, press the CHOICES (ESC C) key to display a list of existing menus and select one.

   If you make a typing error, use the ← and → to move the cursor to the left or right on the line, then use:

   - The BACKSPACE key to delete characters to the left of the cursor.
   - The DEL key to delete the character under the cursor.

   After you enter the menu name, press GO (F1) twice to enter the Menu Editor edit screen. Your screen should appear as shown in Figure 3-6.

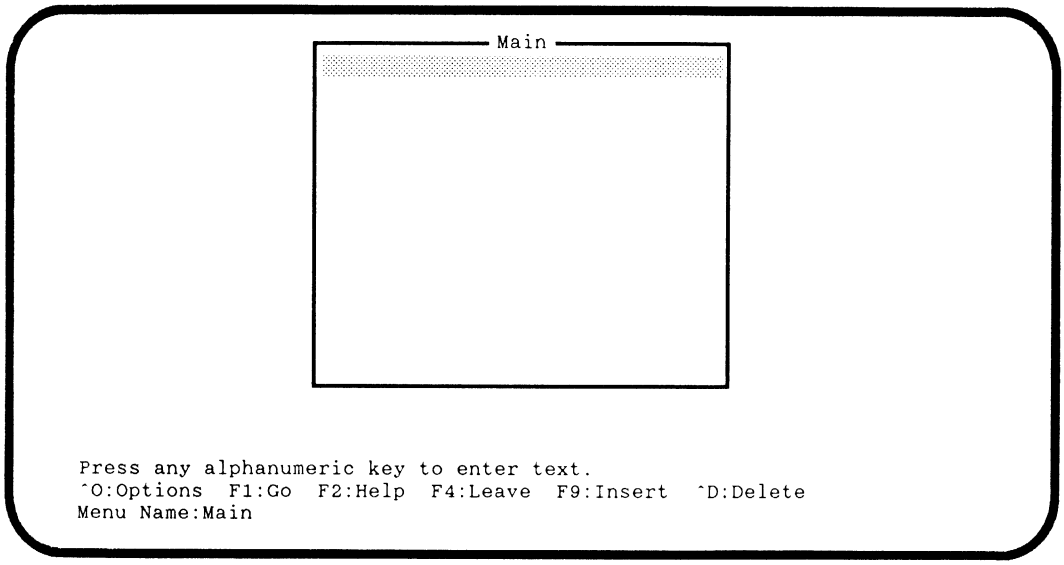


Figure 3-6: The Menu Editor Edit Screen

The top of this screen holds the menu you are developing. The menu name appears in the border.

You can begin to create a menu by defining the menu options. Menu options can perform actions or they can access other menus. With the Menu Editor, you can edit the *text* (label) of the menu options. You can also modify the menu *structure* by adding or deleting options.

3. To enter the text of a menu option, you simply begin typing. Type **Query Database** and press [RETURN].

   The menu option is automatically numbered by the Menu Editor. (Later you will see how to create a menu of options that are not numbered.) The item is deselected, and a new highlighted row is inserted.

   When you are entering text, you can change between insert and overstrike modes by pressing [MODE] (F3) or by selecting the SETTINGS→INSERT/OVERSTRIKE option from the Menu Editor command menu. To access the Menu Editor command menu, press [OPTIONS] ([CTRL]-[O]). The command menu appears as follows:

```
Commands: Copy, List, Generate, View
Command Insert Remove Move Settings Help Leave Other
Menu Name: Main
```

Figure 3-7: Menu Editor Command Menu

   You cannot enter menu options onto the Menu Editor edit screen while the command menu is displayed. To cancel the command menu, press [END] (F4).

4. To create a second menu option, type **Escape to Operating System** and press [RETURN].

   The menu of options you have entered so far are different from your initial "design spec" in Figure 3-4. The option to `Update Salesrep File` is supposed to be the second option.

5. Press the [↑] key to highlight the `Escape to Operating System` option. Use the [INSERT] (F9) key to insert a blank line for the second menu option.

6. Now type **Update Salesrep File** and press [↓]. FAST TRACK numbers the menu option and moves the cursor to the next line.

   Also the `Escape To Operating System` option should be `Use Operating System`.

7. With the `Escape To Operating System` option highlighted, use the [DEL] key to delete the words "Escape to". The [DEL] key deletes from the beginning of the menu option. Press the [MODE] (F3) key to enter the insert mode and type the word **Use**. Press the [RETURN] key to enter the modification.

8. Use the [↑] key to highlight `Use Operating System` once again, then press [INSERT] (F9) to insert a line after the `Update Salesrep File` option. Type **Create a Salesrep Report**.

9. Use the [↓] key to move the cursor down to `Use Operating System` and press [RETURN]. Type **Exit** and press [RETURN].

   You have now entered all of the options on your main menu. To leave the Menu Editor, use one of the following methods:

   - Press [OPTIONS] ([CTRL]-[O]) and select `LEAVE`.
   - Press [END] (F4) from your application's main menu. If a submenu is on the screen, [CLEAR] (F8) backs you out of the application one menu level at a time.
   - From anywhere in the application's menu structure, press [OPTIONS] ([CTRL]-[O]) and choose `OTHER→MAIN-MENU`.

   Any one of these methods returns you to the FAST TRACK Main Menu. FAST TRACK automatically saves your menu for you.

10. Press [OPTIONS] ([CTRL]-[O]) and choose `OTHER→MAIN-MENU` to leave the menu editor and return to the FAST TRACK Main Menu.

When you finish entering your menu options, you can assign an action to each menu option. The next section explains how to assign actions to your menu choices.

3.2.2 Assigning Actions to Menu Options

Now that you have created the text of your main menu, you need to put it to work.

This exercise teaches you how to: assign an action to a menu option, name the assigned action, select from the Choice Settings window, and leave the Menu Editor.

1. Choose the `Menu Editor` option from the FAST TRACK Main Menu. Enter **Main** as the menu name and press [GO] (F1) twice.

   FAST TRACK displays your main menu, highlighting the first option.

2. Use the the [↓] to highlight the `Exit` option.

   To assign an action to a menu option, use the Menu Choice Settings window. There are two ways to display this window:

   - Highlight the option and press [OPTIONS] ([CTRL] [O]). Choose `SETTINGS→CHOICE`.
   - Highlight the option and press [GO] (F1). This selection method searches for a defined procedure to run for this menu option. If there is no defined procedure for the highlighted menu option, the Menu Choice Settings window appears.

   You can also use these selection methods to edit the actions assigned to a menu option while in the menu editor.

3. Press [GO] (F1) to display the Menu Choice Settings window.

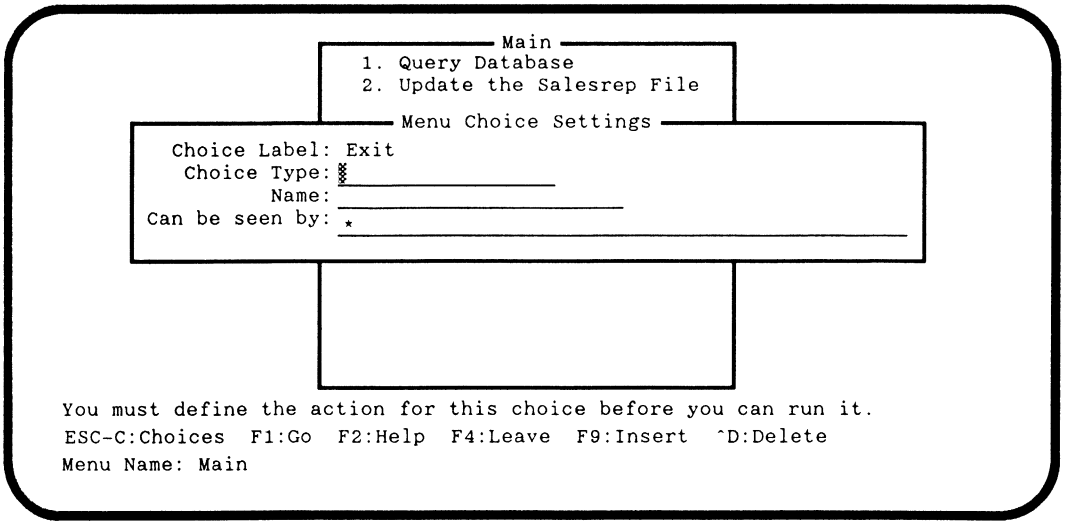


Figure 3-8: Menu Choice Settings

Since there is no defined action, the Menu Choice Settings window appears along with a prompt requesting that you define an action for the option. The Menu Choice Settings window has the following fields:

`Choice Label`. This is the text of the menu option. You can change this entry from within the Menu Choice Settings window. You can also use the previously described text editing procedures to change it on the menu.

`Choice Type`. This item names the kind of action that you want to perform when this menu option is selected. The valid action types are: `Menu`, `QBF`, `Quit`, `Procedure`, `Report`, `Return`, `Text`.

`Name`. Shows the name of this action. You must supply a name for every action except `Quit`, `Return`, and `Text`.

`Can be seen by`. Lists the users who can view the current option. By default, the option is available to all users. This is indicated by an asterisk (*). (See Chapter 3 in the *PROGRESS FAST TRACK User's Guide* and the "CAN-DO Function" in the *PROGRESS Language Reference* for more information about user authorization.)

4. The cursor is in the `Choice Label` field. Press RETURN to move the cursor to the `Choice Type` field.

5. The cursor is in the `Choice Type` field. Press the CHOICES (ESC C) key. FAST TRACK displays the Choices window shown in Figure 3-9.

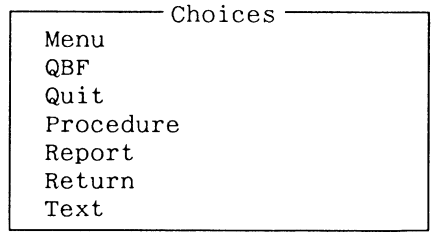


Figure 3–9: Window of Choice Types

The valid choice types are:

`Menu`. Display another menu. The `Update Salesrep File` option on your main menu will be of this type.

`QBF`. Run a query-by-form. The `Query Database` option on your main menu will be of this type.

`Quit` Exit from the application and return to the operating system. This is a predefined PROGRESS procedure supplied with the Menu Editor. The `Exit` option on your menu will be of this type.

`Procedure`. Run a PROGRESS procedure. The `Use Operating System` option on your main menu is of this type.

`Report`. Generate a report. For more information about this choice type, see Chapter 5, "Report Writer Tutorial".

`Return`. Return to the menu that called this menu. This is a predefined PROGRESS procedure supplied with the Menu Editor. If you assign `Return` to an option on your main menu, it is the same as `Quit`.

`Text`. Display text on the menu. This may be blank.

You are currently assigning an action to the `Exit` menu option. The `Quit` option type is a PROGRESS procedure that allows you to exit from a menu.

6. To choose the `Quit` option, use the [▼] to highlight the option and then press [RETURN].

   You do not have to supply a name for the predefined PROGRESS procedures, `Return` and `Quit`. FAST TRACK assigns the `Quit` choice type and moves the cursor to the `Can be seen by` field.

7. Press the [GO] (F1) key to exit the window.

8. Press [SPACEBAR]. Then press [OPTIONS] ([CTRL]-[O]) and select OTHER→MAIN-MENU to return to the FAST TRACK Main Menu.

Now that you know how to assign an action to a menu option, let's see how to create submenus and assign them to a menu option.

3.3 SUBMENUS AND MENU SETTINGS

A menu option does not always perform an action. Sometimes, it accesses another submenu of commands. The FAST TRACK Menu Editor allows you to create several levels of menus. You can also define certain characteristics of the menu, as shown in Figure 3-10.

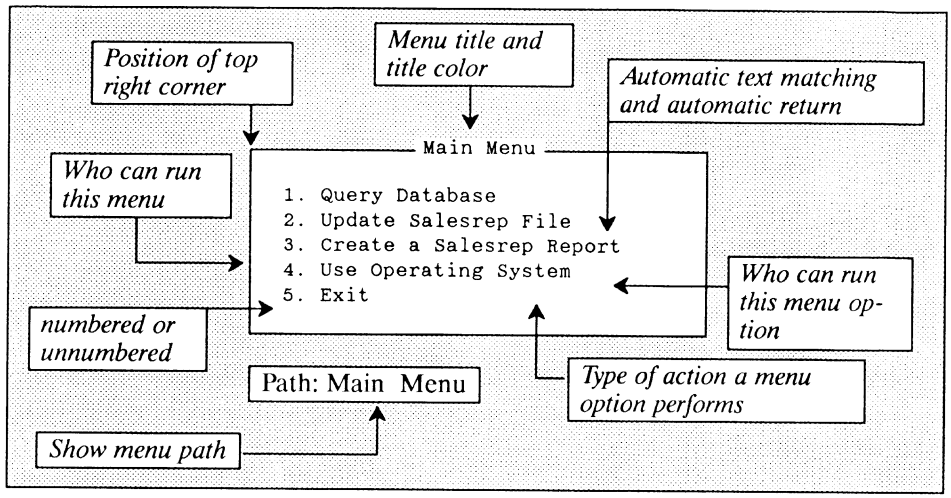


Figure 3-10: Characteristics of a Menu

The following exercise teaches you how to: create a submenu, call the submenu, reformat and rename the submenu through the SETTINGS→MENU *option, and displays an outline of your menu.*

In this application, you want the `Update Salesrep File` menu option to display a submenu. You define this submenu as follows:

1. Select the `Menu Editor` option. Enter the name of your main menu procedure, `Main` and press GO (F1) twice.

2. With `Update Salesrep File` highlighted, press OPTIONS (CTRL-O) and choose SETTINGS→CHOICE to see the Menu Choice Settings window.

3. Press RETURN to move the cursor to the `Choice Type` field. Enter **Menu** in the Choice Type field and **slsrep** in the Name field. The Choice Type entry can be up to eleven characters in length. The Name entry can be up to forty characters in length. Press GO (F1) twice — once to return to your main menu and a second time to run the `Update Salesrep File` menu option. A blank menu is displayed. Now you can create the new menu.

4. Enter the menu options for the `slsrep` submenu shown in the following figure. Remember to use the INSERT (F9) key to insert new lines. If you are in insert mode, you can also press the RETURN key once to end the line and a second time to insert a new line.

```
┌──────── slsrep ────────┐
│1. Update a Sales Rep   │
│2. Add a Sales Rep      │
│3. Delete a Sales Rep   │
│4. Return               │
└────────────────────────┘
```

Figure 3–11: slsrep Submenu

Notice that the name entered in the Name field of the Menu Choice Settings window is used as the title for the new submenu. Often, you will want to change this default title. In the next few steps, you will learn how to change this title and other menu settings.

5. When you have finished entering the `slsrep` menu options, press OPTIONS (CTRL-O) and select SETTINGS→MENU. The Menu Settings window appears as shown in the following figure.

```
──────────────────── Menu Settings ────────────────────
Menu name: slsrep
Number each menu choice: Yes Number of the first choice: 1
Allow text matching of menu choices: Yes
Automatic return of a unique choice: No
Menu title: slsrep
Menu title color: NORMAL
Row position: 1   Column position: 20
Show the menu path selections at runtime: Yes
Procedure to run before running the menu:
Run the above procedure every time (or only initially): Yes
Procedure to run after running the menu:
Sub-directory name for gen. procedures:
Can be run by: *
The following affect the top menu only:
Keylabel of the key to return to the PROGRESS editor:?
Keylabel of the key to quit the application:?

Settings Menu
Menu Name:  slsrep
```

Figure 3–12: Menu Settings

The title of the menu, `slsrep`, appears in the Menu name field. By default, the menu title is the same as the menu name.

6. To change the menu title, press TAB until the cursor is in the Menu `title` field. Change the menu title to `Sales Reps Menu`. A menu name can only be seven characters long. Therefore, if you want a menu title that is longer than seven characters, you must create it in the Menu Settings window.

7. Press the BACKTAB (CTRL-U) key several times to move the cursor back to the Number each menu choice field and type **no**. This cancels the automatic numbering of the options in your menu.

8. Press TAB to move the cursor to the Row position field. Type **10** for this value. This setting determines the row number where the upper left corner of your menu will appear on the screen.

9. Press TAB to move the cursor to the Column position field and type **5**. This value determines the column in which your menu will appear.

10. Now press GO (F1) to return to the Sales Rep Menu and save the menu settings.

    The Sales Rep Menu appears with unnumbered options and a new title. However, you will not see the menu in the new row/column position until you actually run it. For a complete explanation of the Menu Settings window, see Chapter 3 in the *PROGRESS FAST TRACK User's Guide*.

11. Press END (F4) to return to your main menu.

12. To produce an outline of your application, press OPTIONS (CTRL-O) and choose COMMAND→LIST. The following menu structure outline appears:

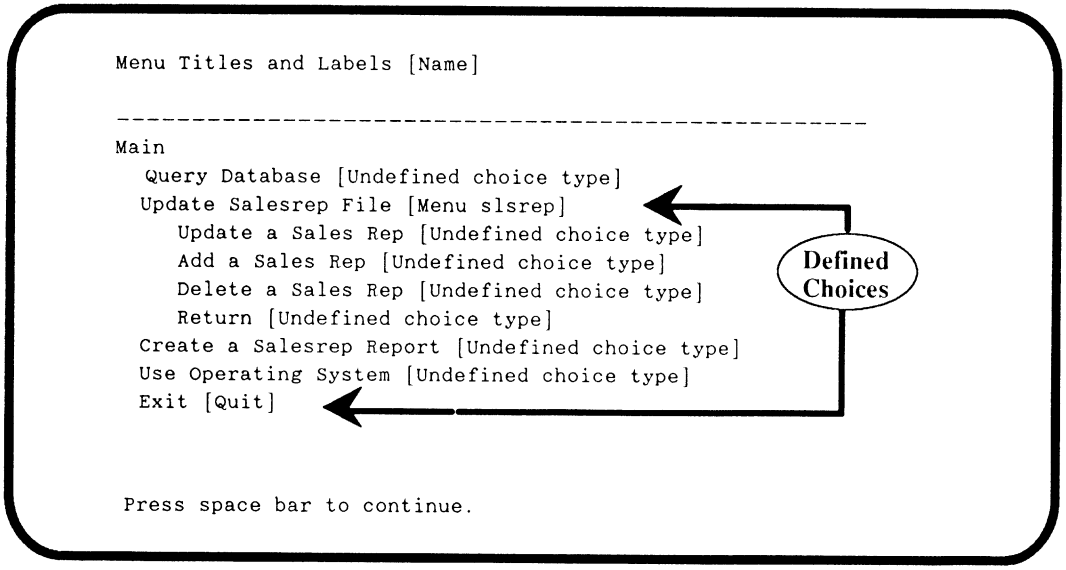


Figure 3–13: Outline of Main Menu

This outline shows the hierarchy of the menus that have been defined up to now. Submenus are indented. FAST TRACK annotates any assigned actions, as in the case of the Update Salesrep File and Exit options. All other actions remain undefined.

13. Press [SPACEBAR] to return to your main menu.

14. Press [OPTIONS] ([CTRL]-[O]) and select OTHER→MAIN-MENU to return to the FAST TRACK Main Menu.

3.3.1 Copying a Menu

The COMMAND→COPY option of the Menu Editor command menu copies one menu into another. Copying a menu is an easy way to:

- Use an existing menu as a template for another menu.
- Include a menu from one application as a sub-menu in another.

This exercise teaches you how to copy one menu into another menu.

First you must create a new menu.

1. Choose the Menu Editor option from the FAST TRACK Main Menu.
2. Type **Query** as the new menu name and press the [GO] (F1) key twice.
3. Use the editor to create the menu shown in the following figure.

```
Query
1. Customer File
2. Salesrep File
3. State File
4. Return
```

Figure 3-14: The Query Menu

4. Press [OPTIONS] ([CTRL]-[O]) and select LEAVE to return to the FAST TRACK Main Menu.

   Now that you have created a new menu, let's copy it into your main menu.

5. Select the Menu Editor option from the FAST TRACK Main Menu. Enter **Main** as the menu name and press the [GO] (F1) key twice. This is the menu into which you are going to copy the new submenu.
6. The Query Database option is highlighted. Press [GO] (F1). When the Menu Choice Settings window appears, press [RETURN] to place the cursor in the Choice Type field. Enter **Menu** for a choice type and **query_2** as the name.
7. Press [GO] (F1). Now, a new Menu Editor edit screen opens with the title query_2. At this point, you can either start entering a menu or copy an existing menu into the Menu Editor edit screen.

8. Press [OPTIONS] ([CTRL]-[O]) and select COMMAND→COPY. The Menu Editor prompts for the name of an existing menu. If you cannot remember the name of the menu, you can press [CHOICES] ([ESC] [C]) to see a list of menus, as shown in the following figure.

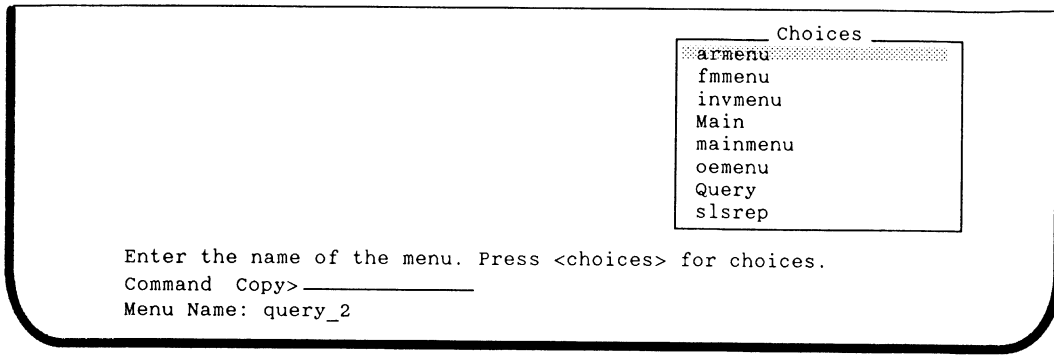


Figure 3-15: Copying a Menu

NOTE: If you have defined options for the menu you are editing, they are replaced by the options from the menu that you copy. Therefore, be sure that you are currently working in an empty Menu Editor edit screen or one that you want to replace entirely.

9. Use the [↓] to highlight the `Query` option and press [GO] (F1). The `Query` menu is copied into the `query_2` submenu.

10. Press [END] (F4) to return to your `Main` menu.

11. To produce an outline of your application, press OPTIONS (CTRL-O) and choose COMMAND→LIST. The following outline appears:

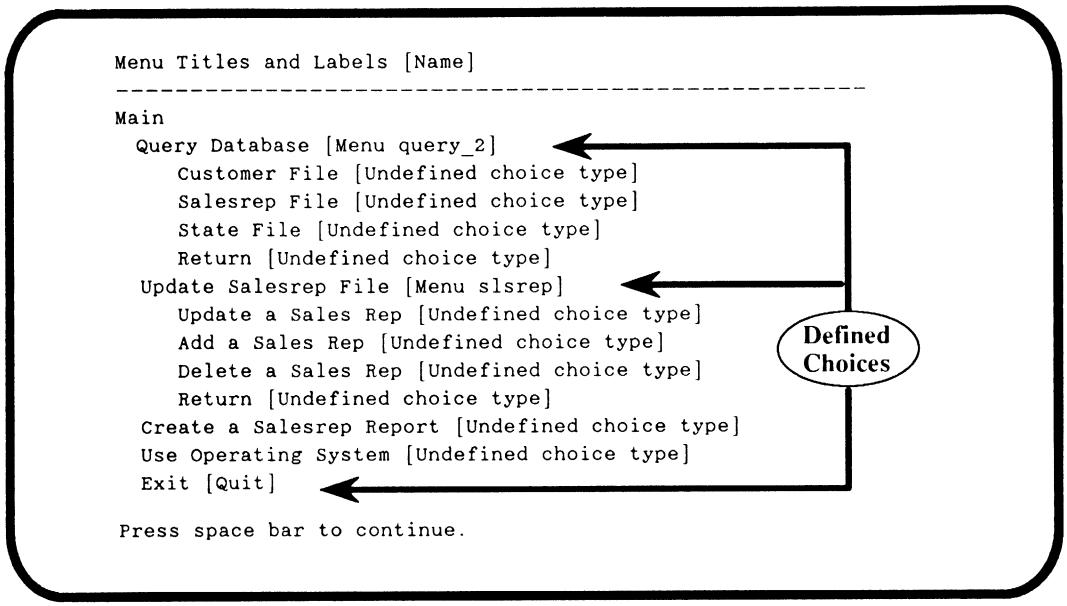


Figure 3–16: Outline of Main Menu

This outline shows the hierarchy of the complete group of menus that have been defined up to now. Submenus are indented. FAST TRACK annotates any assigned actions, as in the case of the `Query Database`, `Update Salesrep File`, and `Exit` options. All other actions remain undefined.

12. Press SPACEBAR to return to your main menu.

13. Press OPTIONS (CTRL-O) and select LEAVE to return to the FAST TRACK Main Menu.

3.3.2 Deleting Menus

When you leave the FAST TRACK Menu Editor, the Menu Editor automatically saves your menu as an object in your current FAST TRACK database. As an object in your database, a menu can be edited. You can also use a menu object as a template in another menu, using the COMMAND→COPY option. There is also a way to delete a menu object from your current FAST TRACK database.

This exercise teaches you how to delete a menu.

1. Select the `Maintenance` option from the FAST TRACK Main Menu.

2. Choose the `Delete FT Objects` option from the FAST TRACK Maintenance menu.

   FAST TRACK displays a warning that the files associated with the items you select will also be deleted. If you want to copy and save the files you must press **F4** to exit and copy the files into a safe place. In this exercise you will delete them.

   Press the [SPACEBAR]. FAST TRACK displays a list of object types.

3. Highlight the `Menu` object type and press [GO] (F1).

   Now FAST TRACK displays a list of menu choices.

4. Highlight the `Query` menu and mark it by pressing [RETURN]. You can select several menus to delete. Press [GO] (F1) to delete the menu.

5. Press the [SPACEBAR] and then the [END] (F4) key twice to return to the FAST TRACK Main Menu.

For more information on how to delete objects from your database, see the chapter on maintenance in the *PROGRESS FAST TRACK User's Guide*.

3.4 CALLING A QBF PROCEDURE FROM A MENU OPTION

QBF stands for "Query-By-Form." In a QBF operation, you can access information in the database through forms rather than through a query language such as PROGRESS. The form determines what information is entered into or retrieved from a file and how that information is organized on the screen. You can use the Menu Editor to create QBF operations and tie them to corresponding menu options. This allows a great deal of control over the QBF procedures in your application. For more information about QBF procedures, see Chapter 6 "The QBF Generator Tutorial".

This exercise teaches you how to associate a menu option with a QBF procedure.

1. Choose the `Menu Editor` option from the FAST TRACK Main Menu.

2. Type **Main** as the menu name and press GO (F1) twice.

3. With the `Query Database` menu option highlighted, press the GO (F1) key to access the `Query` submenu.

4. Highlight the `Customer File` option on the `Query` submenu and press the GO (F1) key. The Menu Choice Settings window appears. Press RETURN to place the cursor in the Choice Type field. Enter **QBF** for the choice type and **cust** for the name. Press the GO (F1) key.

   If there is an existing QBF procedure called `cust` on your system, the procedure runs when you press the GO (F1) key. However, if a `cust` QBF procedure does not exist, the following window appears to allow you to create a QBF procedure.

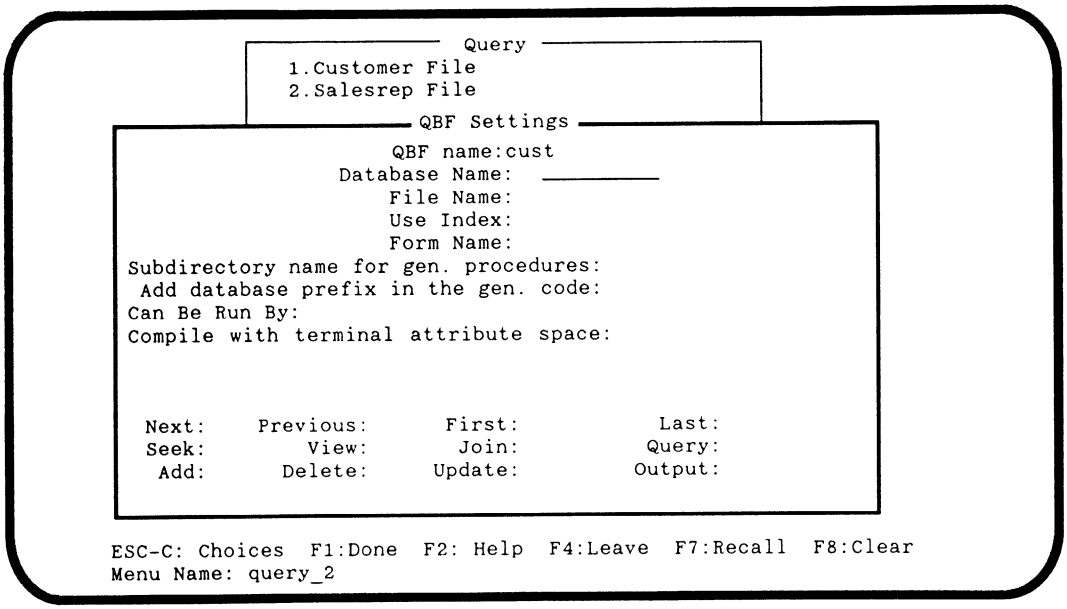


Figure 3-17: The QBF Settings Window

This window allows you to specify a variety of information about the QBF:

`QBF Name.` The QBF name is the name you entered in the Menu Choice Settings window. You cannot change this name.

`Database Name.` This is the name of the database that contains the file indicated in the File Name field.

`File Name.` This is the name of the database file for which you want to generate the QBF. When your cursor is in this field, press the CHOICES (ESC C) key to display a list of the available database files.

`Use Index`. The QBF always uses an index to read records, and the index definition determines the order in which you will see the records. By default, the primary index is used. If the database file has other indexes, one of these can be used instead. You can press the CHOICES (ESC C) key when the cursor is in this field, to see a list of valid indexes for the current file.

`Form Name`. This is the name of the form that will be used to generate the QBF. The default form name is the same as the QBF name. You can name it anything you like.

`Sub-directory name for gen. procedures`. If you want to save the QBF form and procedure in a directory other than your current working directory, you can name it here.

`Add database prefix in the gen. code`. Unless you have a file with the same name in another database, you may answer **no**. If you answer **yes**, the procedure will only run for a database that has the same name as the one specified in the Database Name field.

`Can Be Run By`. This is a list of the user's who can use the QBF. By default, anyone can use the QBF. For more information about valid entries for this field, see Chapter 3 in the *PROGRESS FAST TRACK User's Guide* and Chapter 11 of the *Programming Handbook*.

`Compile with terminal attribute space`. If you have a space taking terminal or plan to move your application to a system that does, you should respond **yes**. The default value is **no**. See Chapter 7 in the *Programming Handbook* for more information about spacetaking and non-spacetaking terminals.

The remaining options in the settings window (`Next`, `Seek`, `Add`, etc.) allow you to specify the operations that you want to allow in the QBF procedure that FAST TRACK generates. If you answer **no** to one of these operations, then you will not be able to perform it with the QBF. By default, FAST TRACK allows all of these operations. For a full explanation of the function of these QBF operations, see Chapter 6 of this tutorial and Chapter 6 in the *PROGRESS FAST TRACK User's Guide*.

5. The cursor is in the `File Name` field. Type **customer** and press RETURN.

6. FAST TRACK moves the cursor to the `Use Index` field and displays `cust-num`, the primary index of the `customer` file. Press RETURN to accept this value.

7. The cursor moves to the `Form Name` field and displays `cust`, the name you assigned to the QBF. Accept this default form name by pressing GO (F1). The cursor moves to the `Sub-directory name for gen. procedures` field and all of the remaining fields are underlined.

8. Press RETURN to move the cursor to the `Add database prefix in the gen. code` field. Leave this set to the default value **yes**.

9. Press [RETURN] a number of times to accept all of the default values except the values for the Join and Update fields. Change their values to **No** and press [GO] (F1) again to accept all of the values in the QBF Settings window.

   FAST TRACK needs a form for the database file for which you want to generate a QBF. In the example, there is no form called cust for the customer file.

   When there is no form, the following prompt appears in the message line at the bottom of the screen:

```
Form doesn't exist. Create it (C), default-screen (D) or leave (F4) ?: C
```

   If you answer C to this prompt, the Menu Editor starts up the FAST TRACK Screen Painter to allow you to generate a customized form for your QBF procedure. Your customized form can contain all or some of the fields in the customer file. If you want to leave the QBF Generator without generating a QBF procedure, press the [END] (F4) key to return to your menu.

   For information about creating forms with the Screen Painter, see Chapter 4, "The Screen Painter Tutorial" of this book.

10. Enter **D** to the prompt above.

    The QBF Generator generates both the cust form and the QBF procedure cust.p and then runs the procedure. The cust form is the default form for the customer file and it contains all of the fields in that file. The first record in the customer file is shown. There is a QBF command menu from which you can choose to move from record to record, or to perform other actions. The options in the QBF command menu correspond to the options listed at the bottom of the QBF Settings window. Notice that there are no JOIN or UPDATE options on the QBF command menu because you disabled them in the QBF Settings window. For more information about QBF procedures, see Chapter 6, "QBF Generator Tutorial".

11. Choose the EXIT option from the command menu to return to your Query menu. Press the [END] (F4) key three times to return to the FAST TRACK Main Menu.

3.5 CALLING A REPORT FROM A MENU OPTION

You can define a menu option that generates a report for output to a printer. The Menu Editor allows you to access the FAST TRACK Report Writer to define a report. The Report Writer lets you design and create reports easily using the data in your database. You can create reports from one or several database files with the Report Writer. For more information about creating reports with the Report Writer, see Chapter 5, "The Report Writer Tutorial" in this book.

In your main menu, the `Create a Salesrep Report` option is designed to generate a report on sales representatives. So let's create a report for this menu option.

The following exercise teaches you how to generate a simple report as a menu option.

1. Choose the `Menu Editor` option from the FAST TRACK Main Menu.
2. Type **Main** as the menu name and press GO (F1) twice.
3. Highlight the `Create a Salesrep Report` option and press the GO (F1) key.
4. When the Menu Choice Settings window appears, press RETURN to move the cursor the the Choice Type field. Enter **Report** as the choice type, and press RETURN.
5. Enter **slsrpt** as the name of the report and press GO (F1).

   FAST TRACK checks to see if a report exists under that name in the current database. If there is no such report, FAST TRACK displays the Report Writer edit screen and allows you to create the report. The Report Writer edit screen displays the default format of your report.

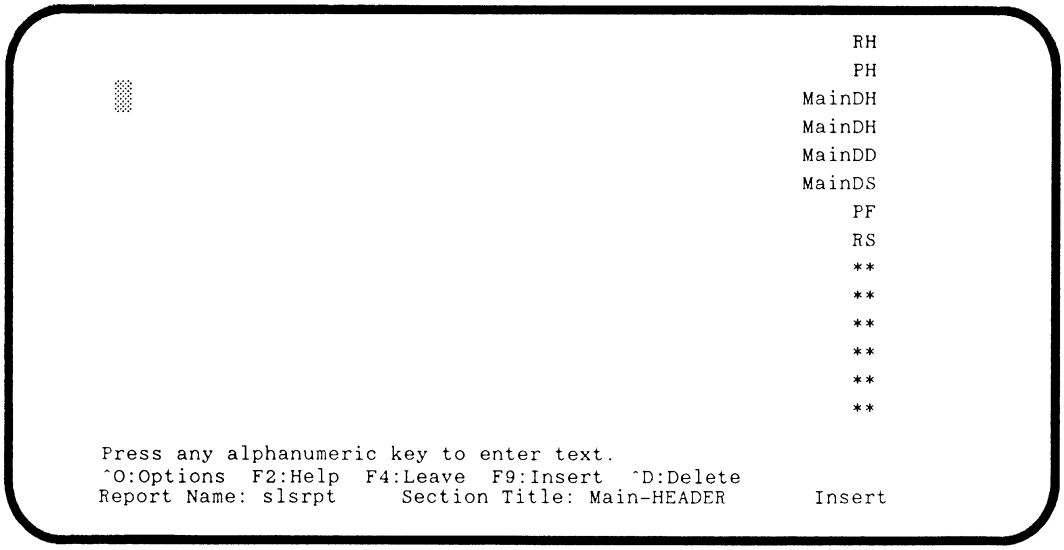


Figure 3-18: The Report Writer Edit Screen

The cursor is presently on the first line labeled MainDH. The group of lines labeled with the word Main is the section of the report where your data will appear. For more information about the Report Writer, see Chapter 5, in this book and Chapter 5, in the *PROGRESS FAST TRACK User's Guide.*

6. To include data in a report, you must define one or more database files for use in a report. Press [OPTIONS] ([CTRL]-[O]) and choose DEFINE→FILES. The Input Files window appears as follows:

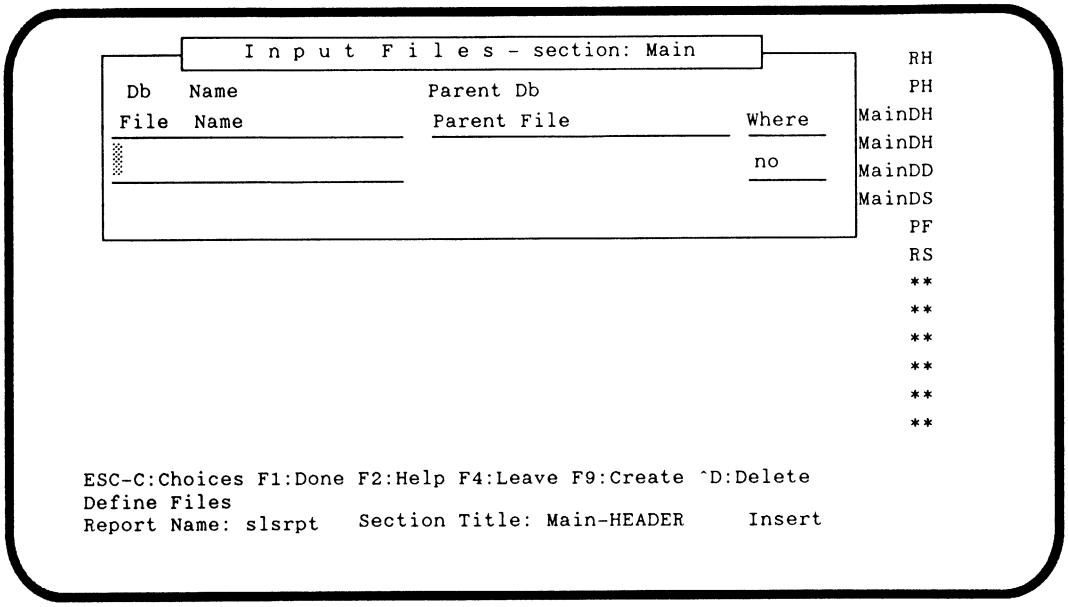


Figure 3–19: Input Files Window

7. Press [RETURN] to move the cursor to the File name field. Press the [CHOICES] ([ESC] [C]) key to receive a listing of available database files. Highlight the salesrep file and press [RETURN]. Now press [GO] (F1) to return to the Report Writer edit screen and accept the input file.

8. Now that you have defined a file for use in your report, you can insert fields from that file into the report. Press [OPTIONS] ([CTRL]-[O]) and select INSERT→FIELD. FAST TRACK inserts the fields into your report in the order in which you select them. Press [→] to move from the files column of the Choices window to the fields column. To select a field, use the arrow keys to highlight the selection and then press [RETURN]. Select the slsname, sales-rep, slsrgn and slsquota fields in that order. When you finish selecting fields, press the [GO] (F1) key.

FAST TRACK displays the following screen:

```
                                                                    RH
                                                                    PH
 Name                    Sales Rep     Region     Yearly Quota     MainDH
                                                                    MainDH
 ----------------------  ---           ------     ----------       MainDD
                                                                    MainDS
                                                                    PF
                                                                    RS
                                                                    **
                                                                    **
                                                                    **
                                                                    **
                                                                    **
                                                                    **
                                                                    **
Press any alphanumeric key to enter text.
^O:Options  F2:Help  F4:Leave  F9:Insert  ^D:Delete
Report Name: slsrpt   Section Title: Main-HEADER      Insert
```

Figure 3–20: slsrpt Report

9. Press OPTIONS (CTRL-O) and select COMMAND→VIEW from the Report Writer command menu. This option generates a temporary report procedure and runs the report. Press the SPACEBAR to scroll through the report and return to the Report Writer edit screen.

10. Press OPTIONS (CTRL-O) and select COMMAND→GENERATE from the Report Writer command menu. FAST TRACK displays the message:.

```
Do you want database prefix on file names?  yes
```

If the filenames are unique to this database, you may type No. If the filenames are used in more that one database, this answer must be Yes.

11. Press RETURN to accept the default value **yes.**

FAST TRACK generates a report procedure `slsrpt.p`. FAST TRACK associates the `slsrpt.p` procedure with the `Create a Salesrep Report` option on your main menu.

12. Press OPTIONS (CTRL-O) and select LEAVE→SAVE to leave the Report Writer and save your report as an object in your current FAST TRACK database. You return to the Menu Editor and your application main menu appears.

13. To leave your application and return to the FAST TRACK Main Menu, press the END (F4) key twice.

3.6 CALLING A PROCEDURE FROM A MENU OPTION

Suppose you want the application to access the operating system when the user chooses the `Use Operating System` option from your menu. To do this, you need to write a PROGRESS procedure that checks to see what operating system the user is running and then invokes the appropriate operating system.

This exercise teaches you how to: access a PROGRESS procedure from a menu option, access FAST TRACK from the PROGRESS editor, and access your operating system and then return to FAST TRACK.

1. Choose the `Menu Editor` option from the FAST TRACK Main Menu.

2. Type **Main** as the menu name and press GO (F1) twice.

3. Highlight the `Use Operating System` option and press the GO (F1) key.

4. Press RETURN to move the cursor to the Choice Type field. Enter **Procedure** as the `Choice Type` and then press RETURN.

   `Procedure` appears in the `Choice Type` field of the Menu Choice Settings window and the cursor moves to the `Name` field.

5. Type the procedure name `tstos.p` and press RETURN.

6. Since you are not currently concerned with system security, you can leave the asterisk in the `Can Be Seen` field and press GO (F1).

   FAST TRACK assigns the procedure to the menu option and attempts to carry out the action. In this case, there is not yet a procedure named `tstos.p`. Accordingly, FAST TRACK returns you to the Menu Editor and displays the message:

   ```
   Procedure tstos.p can not be found.
   ```

   Now you can use the PROGRESS editor to create this procedure.

7. Press SPACEBAR then press OPTIONS (CTRL-O). Select the LEAVE option to return to the FAST TRACK main menu and save your menu.

8. Press END (F4) from the FAST TRACK Main Menu to enter the PROGRESS editor. Type the PROGRESS procedure shown in the following figure. (Note that PROGRESS is not case sensitive. PROGRESS keywords are in uppercase for emphasis only. For more information on how to use the PROGRESS editor, see Chapter 2 of the *PROGRESS Language Tutorial*.)

tstos.p

```
IF OPSYS = "unix" THEN UNIX.
ELSE IF OPSYS = "vms" THEN VMS.
ELSE IF OPSYS = "msdos" THEN DOS.
ELSE IF OPSYS = "btos" THEN BTOS.
ELSE IF OPSYS = "os2" THEN OS2.
ELSE MESSAGE "unknown Operating System".
```

9. Press SAVE (F6). FAST TRACK will prompt you to type the name of the file. Enter **tstos.p** and press RETURN to save the procedure in that file.

10. Press CLEAR (F8) to clear the PROGRESS editor. To return to FAST TRACK, type the command and procedure name as shown in the following figure and press GO (F1).

```
RUN ft.p.
```

11. Select the `Menu Editor` option from the FAST TRACK Main Menu.

12. Enter the name of your main menu procedure, **Main**, and press GO (F1) twice. Your main menu appears.

13. Use the ↓ key to highlight `Use Operating System` on your main menu. Press GO (F1).

    FAST TRACK finds the `tstos.p` procedure that you defined previously as the action associated with the `Use Operating System` option. Your operating system prompt appears.

14. Return to your main menu by typing **exit** from DOS, by pressing CTRL-D from UNIX, by running **PROGRESS Exit** from BTOS/CTOS, or by typing **logout** from VMS.

Remember that if a procedure is tied to a menu option, it can be accessed from the Menu Editor by simply highlighting the option and pressing GO (F1).

3.7 USING THE GOTO OPTION

You can also run a procedure by using the OTHER→GOTO option.

This exercise teaches you how to: call a procedure using the OTHER→GOTO *option, fill in prompts through the Choices window, run a procedure, and return to FAST TRACK.*

1. Select the Menu Editor option from the FAST TRACK Main Menu and enter **Main** as the menu name. Press [GO] (F1) twice.

2. Press [OPTIONS] ([CTRL]-[O]) and select OTHER→GOTO. The GoTo window appears as shown in the following figure:

```
                    GoTo
Type of object to run: Menu
Name of object to run:
```

   FAST TRACK prompts you for the type of object that you want to run and the name of that object. The cursor appears in the Type of object to run field. The default object type is Menu.

3. Press [CHOICES] ([ESC] [C]) to see a list of available object types. The Choices window displays four types of objects that you can run with OTHER→GOTO:

```
        Choices
Menu
QBF
Procedure
Report
```

4. Use the [↓] to highlight the Procedure option, and press [RETURN] or [GO] (F1). FAST TRACK automatically enters the object type in the GoTo window and moves the cursor to the Name of object to run field.

5. Since there is only one available procedure and you know its name, just type **tstos.p**. You can also use the Choices Menu here, but sometimes its easier just to type the procedure name rather than picking from a list of choices.

   Press [GO] (F1) and FAST TRACK now runs your PROGRESS procedure just as if you had chosen it from your menu. Your operating system prompt now appears.

6. Return to the FAST TRACK Menu Editor by typing **exit** from DOS, by pressing [CTRL]-[D] from UNIX, or by typing **logout** from VMS.

7. Press [OPTIONS] ([CTRL]-[O]) and choose OTHER→MAIN-MENU to return to the FAST TRACK Main Menu.

3.8 GENERATING A MENU PROCEDURE

The COMMAND→GENERATE option creates a PROGRESS procedure to run your application. The menu you are editing when you select the COMMAND→GENERATE option becomes the main menu for the application procedures you generate. You can use these procedures as you would any other PROGRESS procedure.

This exercise teaches you how to generate a procedure that runs an application.

1. Select the `Menu Editor` option from the FAST TRACK Main Menu and enter **Main** as the menu name. Press GO (F1) twice.

2. Press OPTIONS (CTRL-O) and select COMMAND→GENERATE. FAST TRACK prompts you to enter a name for your progress file as shown in the following figure:

```
Enter a name for the output PROGRESS file
Command Generate > ____________
Menu Name: Main
```

Figure 3–21: Command Generate File Prompt

3. Enter the filename **topmenu.p** and press GO (F1). FAST TRACK generates and saves a PROGRESS procedure that contains the code for your main menu.

4. Press the SPACEBAR once and the END (F4) key twice to return to the FAST TRACK Main Menu.

The .p file that you create with the COMMAND→GENERATE option is the file that you eventually distribute to your users as part of an application. This file is nothing more than a PROGRESS procedure.

3.9 RUNNING YOUR APPLICATION

There are several ways for you to run your application. The COMMAND→VIEW option is the easiest way to run your application. The OTHER→GOTO option also runs an entire application any time during a session in the Menu Editor. You can also run your menu procedure using the PROGRESS editor. All of these methods allow you to run the application exactly as it will run for you or your end-users. You can test menu options of all types and see how the menu appears on the screen.

This exercise teaches you how to run your application.

1. Select the Menu Editor option from the FAST TRACK Main Menu and enter **Main** as the menu name. Press GO (F1) twice.

   Your main menu appears.

2. Press OPTIONS (CTRL-O) and select COMMAND→VIEW to run your application. Press SPACEBAR.

   Your main menu appears exactly as it will appear in the distributed version of your application. You can test any menu option by highlighting the option and pressing RETURN or GO (F1). If you select a option that does not have a defined action, FAST TRACK displays the following message:

   ```
   That choice does not have a defined action, so it can't be run.
   ```

3. When you have finished testing your application, press END (F4) to return to the Menu Editor edit screen.

To use the OTHER→GOTO command to run your application:

1. Press OPTIONS (CTRL-O) and select OTHER→GOTO. The GoTo window appears as shown in the following figure:

```
GoTo
Type of object to run: Menu
Name of object to run:
```

Figure 3–22: The Go To Window

2. To display your main menu, you can enter either procedure or menu as the object type. If you enter **procedure** as the object type, enter **topmenu.p** as the name of the procedure. Remember, you must generate a menu procedure before you can run it using this method. If you enter **menu** as the object type, enter **Main** as the menu name. Press GO (F1).

3. When you have finished testing your application, press END (F4) three times to return to the FAST TRACK Main Menu.

To use the PROGRESS editor to run your application:

1. Press END (F4) to access the PROGRESS editor from the FAST TRACK Main Menu. Type the following procedure into the PROGRESS editor:

```
RUN topmenu.p.
```

2. Press GO (F1) to run your application.

3. After viewing your application, press END (F4) to return to the PROGRESS editor.

4. To return to FAST TRACK, type the following procedure into the PROGRESS editor and press GO (F1).

```
RUN ft.p.
```

This procedure starts FAST TRACK and displays the FAST TRACK Main Menu.

3.10 SUMMARY

If you followed along with the exercises in this chapter, you learned some basic commands that allowed you to:

- Create and edit a menu.
- Integrate procedures, forms, QBF procedures, and reports into a menu structure.
- Copy menus.
- Delete menus.
- Run and test a menu and actions associated with menu options.
- Generate a menu procedure.

With these basic skills, you can now create menus of your own. Read the other chapters of this tutorial to try out about other important FAST TRACK features. If you want more information about the FAST TRACK Menu Editor, see Chapter 3 in the *PROGRESS FAST TRACK User's Guide*.

Chapter 4
The Screen Painter Tutorial

Use the Screen Painter to create and manipulate forms on your screen and see exactly how a form appears to a user in an application. This chapter explains shows you how to use the Screen Painter for performing the following tasks:

- Setting form characteristics.
- Creating a custom form.
- Adding fields from more than one file.
- Creating forms for QBF operations.
- Creating variable fields on forms.

A *form* is a collection of the following objects:

- Fields and their labels from one or more files in the database.
- Variable fields, which do not necessarily correspond to any fields in any database files. You define these fields to hold values that are not contained in the database.
- Text, such as a form title, which is always displayed with the form.

You can use forms in your applications to display information from the database, as well as to receive information from the user. The Screen Painter lets you place these objects on the screen as you want them to appear to the user. This tutorial teaches you how to create and edit different types of forms. It also shows you how to incorporate forms into your PROGRESS applications. When you are satisfied with the appearance of a form, you can use it to accept information from the user and to display information for the user.

The fields that appear in a form come from files in the database. For example, the form in Figure 4-1 take information from a `customer` file.

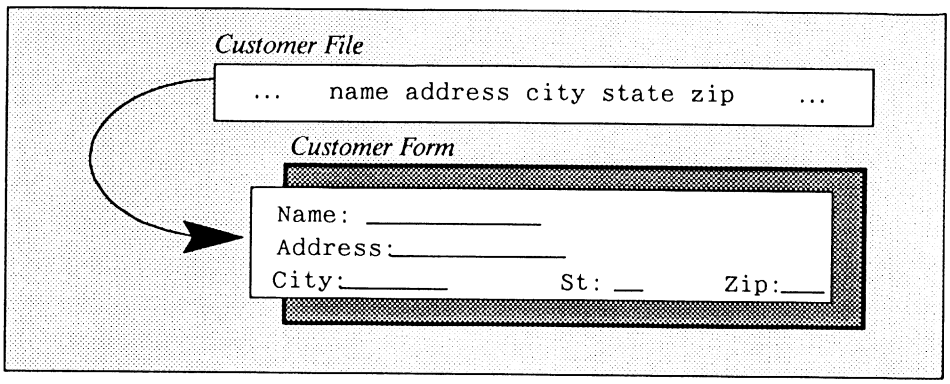


Figure 4–1: A Customer Form

The form above does not contain all fields in the `customer` file, only the customer name and address information. In this way, forms can help to control the fields that users are allowed to access.

Along with the database fields, you can define variables to hold information that is not stored in the database, or you can enter text that you want to appear each time the form is displayed.

The Screen Painter provides a number of editing functions for creating forms interactively. For example, you can:

- Insert and delete fields, variables, and text.
- Move objects from one place to another within a form.
- Automatically generate a default form containing all the fields in a file.
- Copy the contents of one form into another.

After you have designed a form, you can produce a PROGRESS FORM statement to duplicate your form in a PROGRESS procedure. The PROGRESS procedure has the same name as the form in the Screen Painter; however, the procedure also has a `.f` extension.

For example, the Screen Painter translates the customer form shown in Figure 4-1 into a FORM format statement such as the following, and places it in a file:

cstfrm.f

```
/* ------------------------------------------------------------
File Name     : cstfrm.f
Form Name     : cstfrm        Title:
File Name     : customer
Database Name: mydb
------------------------------------------------------------*/
customer.Name
AT 1
SKIP
customer.Address
AT 1
SKIP
customer.City
AT 1
"St:" AT 23
customer.St
AT 27 NO-LABEL
customer.Zip
AT 32
WITH SIDE-LABELS
ROW 1 COLUMN 1 1 DOWN
```

Whenever you need to use this form, you can include the file in a PROGRESS procedure. For example, the following procedure uses the preceding form to display selected information about all the customers in a database:

cstfrm.f

```
FOR EACH customer:
   DISPLAY {cstfrm.f}.
END.
```

The forms that you create with the Screen Painter can also be used in QBF procedures. QBF stands for "Query-By-Form." A QBF procedure provides a way for the user to look up, add, change, and delete records using the form to lay out the information on the screen.

Forms can be up to 255 characters wide and 66 lines long. You can define other form characteristics, as shown in Figure 4–2.

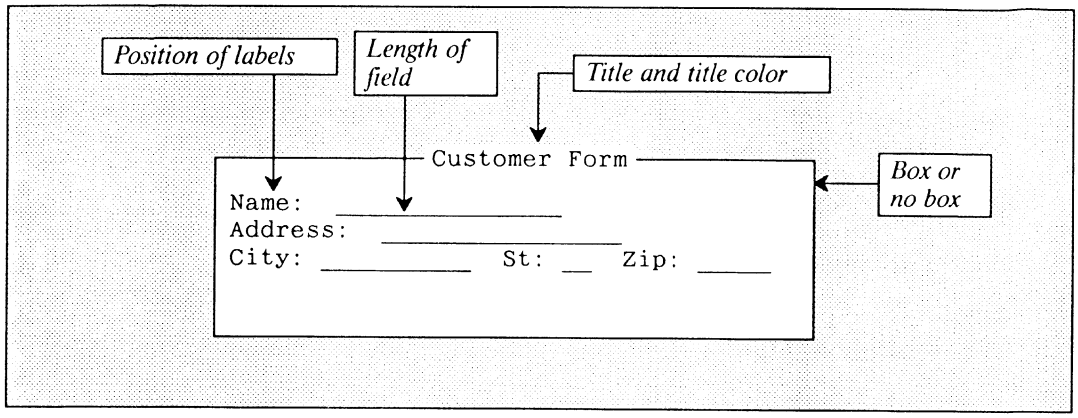


Figure 4–2: Characteristics of a Form

For more information about the PROGRESS FORM statement and include files, consult the *PROGRESS Language Reference* manual.

In the exercises of this tutorial chapter you learn how to use the Screen Painter to do the following:

- Create, edit, and save several types of forms.
- Change the attributes of fields on a form.
- Add fields from more than one file to a form.
- Copy a form.
- Create a QBF procedure for a form.
- Insert variable fields onto a form.

All of the exercises in this tutorial chapter use a copy of the `demoft` demonstration database called `mycopy`. See Chapter 1 of this book for information about how to create the `mycopy` database and start FAST TRACK. Familiarize yourself with the schema of the demonstration database in Appendix A before attempting to do the following exercises.

4.1 USING THE SCREEN PAINTER

This exercise teaches you how to: access the Screen Painter, create a default form, add text to a form, do simple text editing, edit an existing form, and then save your form.

1. Select the `Screen Painter` option from the FAST TRACK Main Menu. The Screen Painter initialization window appears as follows:

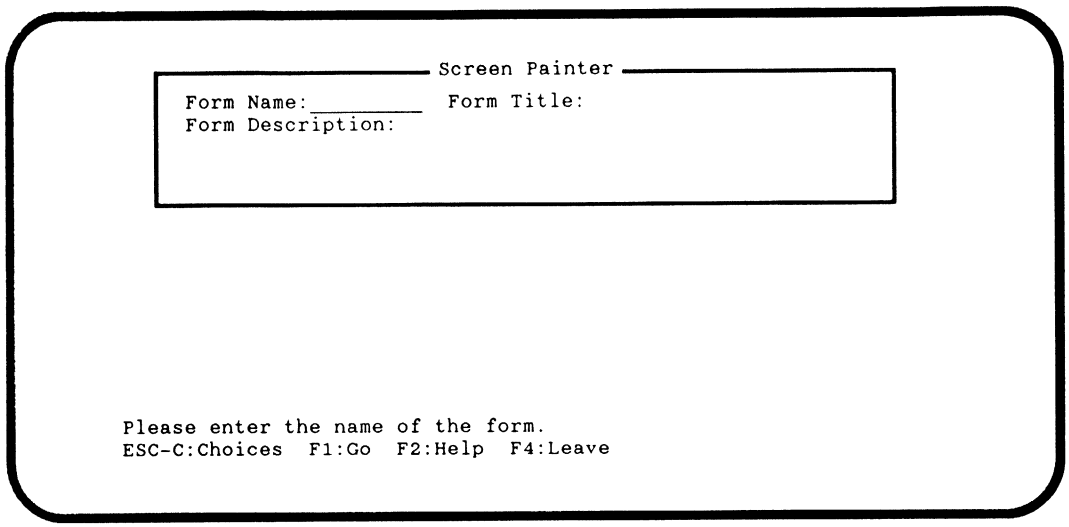


Figure 4–3: The Screen Painter Initialization Window

This window prompts you to provide the following information:

`Form Name.` Every form *must* have a name. The form name can be no more than 7 characters long. It can contain letters, numbers, and symbols, but no spaces.

`Form Title.` An entry into this field is optional. If you specify a form title, it appears centered in the border of the frame in which your form is displayed. The only restriction on the form title is that it cannot exceed 40 characters in length.

`Form Description.` An entry into this field is also optional. The form description field allows you to provide information about the purpose of the form. This serves as an aid to anyone who may want to change it in the future. Note that the form description cannot exceed 210 characters in length.

2. Enter the form name **srpform** and press RETURN. Enter **Salespeople** as the `Form Title` and then press GO (F1) to access the Screen Painter edit screen.

   The cursor appears in the upper left corner of the Screen Painter edit screen.

3. Press OPTIONS (CTRL-O). A command menu of Screen Painter options appears at the bottom of the screen as shown in the following figure.

```
Default, Copy, Generate, View, Save
Command Define Insert Remove Move Pick Settings Help Leave Other
Form Name: srpform      Type: left
```

Figure 4–4: Screen Painter Command Menu

4. Choose the COMMAND→DEFAULT option. The Screen Painter displays the screen shown in the following figure:

```
Enter the database file name. Press ESC-C for choices.
Command Default>
Form Name: srpform     Type: left
```

Figure 4–5: Creating a Default Form

This option allows you to create a default form for a specified file in your current database. FAST TRACK now prompts you to enter a filename. There are two ways to enter a filename:

- If you want to see a menu of available files in the current FAST TRACK database, press CHOICES (ESC C). FAST TRACK displays a list of input files as seen in the following figure:

File	Database
agedar	ftdb
customer	ftdb
item	ftdb
monthly	ftdb
order	ftdb
order-line	ftdb
salesrep	ftdb
shipping	ftdb
state	ftdb

Figure 4–6: The Choices Screen

Highlight the salesrep file in this menu and press GO (F1) or RETURN. FAST TRACK enters the filename for you and creates a default Sales Rep form.

- If you know the name of the file for which you want to create a form, simply type the name **salesrep** into the field and press GO (F1).

5. Use either method to enter the `salesrep` filename and create a default Sales Rep form. FAST TRACK displays the following message at the bottom of the screen:

```
Creating default form for file ftdb salesrep.
```

The Screen Painter creates the default form shown in the following figure:

```
    Sales Rep: ___
         Name: ____________________________
       Region: __________
        Title: ____________________________
Yearly Quota: _______________
  Date hired: __________


Press any alphanumeric key to enter text.
^O:Options  F2:Help  F4:Leave  F9:Insert  ^D:Delete
Form Name: srpform                        Type: left
```

Figure 4–7: The srpform Form

6. Since there is confidential information in the form, let's add a label that says so. Labels can be added anywhere on the form except in fields. Use the [↓] to move the cursor to the `Date hired` field. Then use the [→] to move the cursor 10 spaces past the field and enter **Company Confidential.**

   If you make a mistake you can easily correct it. Use the arrow keys to position the cursor where you made the mistake. Use the [DEL] key to delete the character under the cursor or the [BACKSPACE] to delete the character to the left of the cursor.

7. Now, let's look at the form. Press [OPTIONS] ([CTRL]-[O]) and choose the `COMMAND→VIEW` option from the menu. Your form appears on the screen in a bordered frame. By default, the Screen Painter anchors the upper left corner of your form in the first column of the first row on the screen.

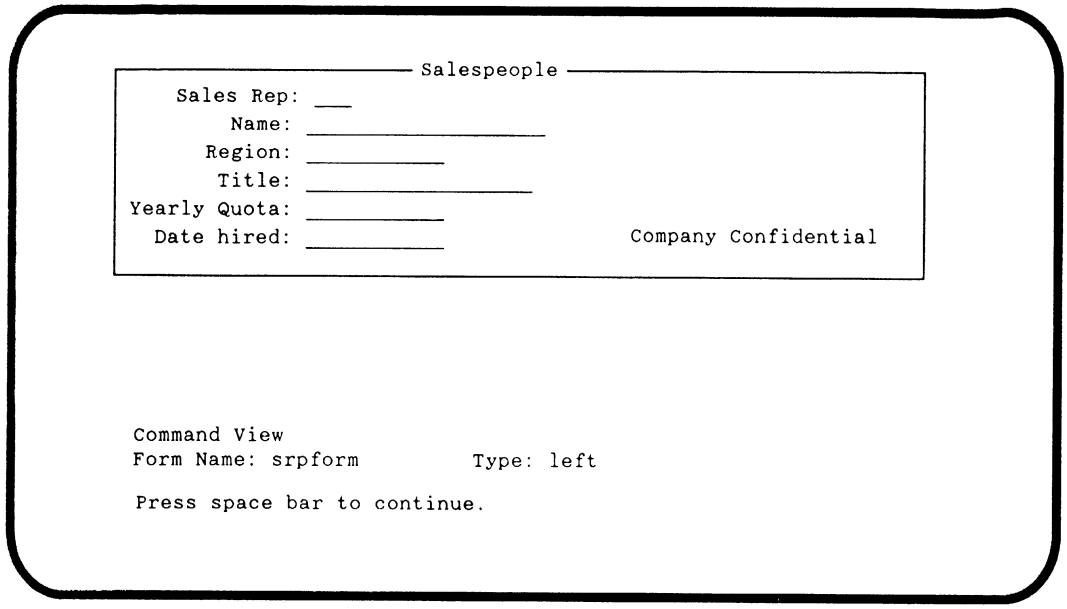


Figure 4–8: The srpform form

8. Press the SPACEBAR to return to the Screen Painter edit screen. Press OPTIONS (CTRL-O) and choose the COMMAND→GENERATE option from the menu. This option creates a PROGRESS procedure containing the FORM code for your current form. FAST TRACK displays the question:

```
Do you want database prefix with file names in generated code? yes
```

If the file names are unique to this database, you may type No. If the file names are used in more that one database, this answer must be Yes.

9. Press RETURN to accept the default value **yes.**

NOTE: When the Screen Painter generates the PROGRESS file for the form, it gives the file the same name as the form, plus the **.f** extension.

10. Press the SPACEBAR then press the OPTIONS (CTRL-O) key to access the Screen Painter command menu. Select the LEAVE→SAVE option to leave the Screen Painter and save your form as an object in the current FAST TRACK database. If you save your form to the database, you can access the form for use later as a template in the creation of other forms. The FAST TRACK Main Menu appears after you select this option.

4.1.1 Alternate Methods for Leaving the Screen Painter

There are three other ways to leave the Screen Painter:

- Press OPTIONS (CTRL-O) to see the command menu. Choose LEAVE→QUIT. The FAST TRACK Main Menu appears. If you have created a new form, it will not be saved. If you were modifying a previously created form, your changes will not be saved.

- Press OPTIONS (CTRL-O) to see the command menu. Choose OTHER→MAIN-MENU. FAST TRACK asks whether you want to save the changes to your form. Enter **Yes** or **No** and press RETURN. The FAST TRACK Main Menu appears.

- Press END (F4). FAST TRACK asks whether you want to save the changes to your form. Enter **Yes** or **No** and press RETURN. FAST TRACK returns you to the Screen Painter initialization window. You can either create a new form or return to the FAST TRACK Main Menu by pressing END (F4).

You now know how to use FAST TRACK to generate a default form for a file in your current database.

4.2 SETTING FORM CHARACTERISTICS

You can define many characteristics for your screen form using the options on the Screen Painter command menu. These form characteristics include the form title, whether the form is displayed in a bordered frame, screen position, size, as well as others.

This exercise teaches you: the form characteristics that you can change, how to display your text and frame in a different location on the screen, and how to change form characteristics.

1. Select the `Screen Painter` option from the FAST TRACK Main Menu.

2. Enter **srpform** as the form name and then press the GO (F1) key twice.

3. Once the srpform form appears, press [OPTIONS] ([CTRL]-[O]) and choose SETTINGS→SCREEN (FORM). The Screen Settings window appears with the default values shown in the following figure:

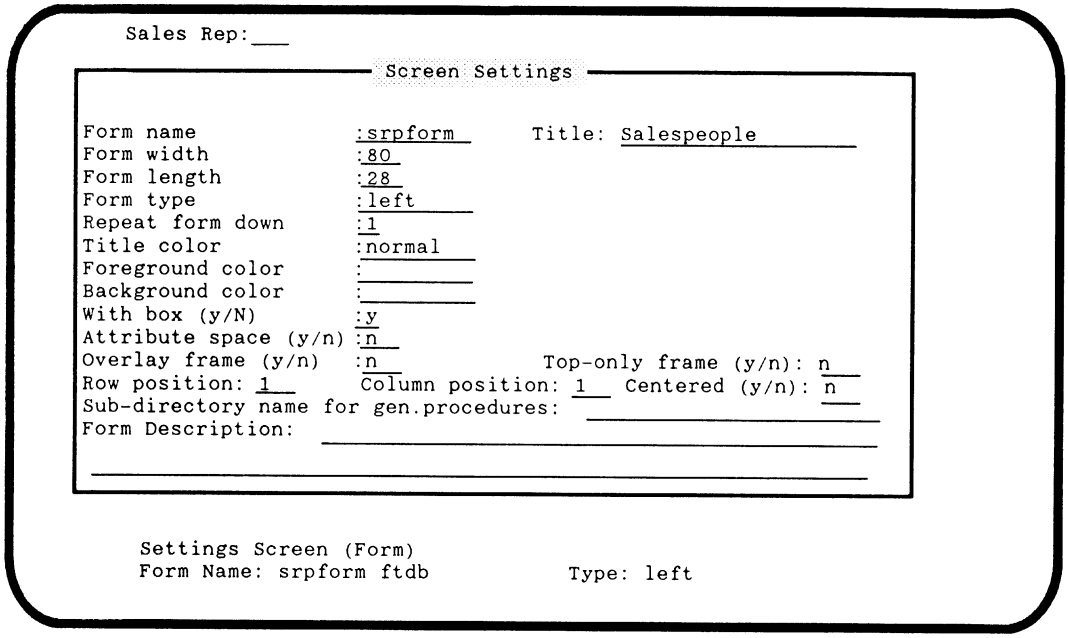


Figure 4–9: Screen Settings

These settings determine the following form characteristics:

Form name. Contains the name that FAST TRACK uses to refer to your form.

Title. Contains the title that appears at the top of the form. Your form cannot have a title unless it has a box.

Form width. Contains the number of characters that can fit on one line of the form. The maximum width is 255 characters. The default is 80 characters.

Form length. Contains the number of lines that the form requires. The form can be up to 66 lines long. The default is 28 lines.

`Form type`. Determines where labels appear in relation to the data area of the field. This field can have one of the following values:

left Labels appear to the left of the data.

top Labels appear above the data.

header Indicates that this is a header frame, which means that the contents of the frame appears at the top of each page in a report or paged display.

The default Form type is `left`.

`Repeat form down`. Determines how many records are displayed on a screen at a time. The default is 1. If you specify a value other than the default value, you will have scrolling capabilities when you generate a QBF against the form.

`Title color`. Specifies the color of the form title. The default is `normal`. See the "Frame Phrase" in the *PROGRESS Language Reference* manual for more information.

`Foreground color`. This field specifies the foreground color of the form. See the "Frame Phrase" in the *PROGRESS Language Reference* manual for more information.

`Background color`. This field specifies the background color of the form. See the "Frame Phrase" in the *PROGRESS Language Reference* manual for more information.

`With box`. Determines whether your form is displayed with or without a box around it. Your form cannot have a title unless it has a box. The default is `Y` (for yes).

`Attribute space`. Tells FAST TRACK whether or not you are using a spacetaking terminal. The default value is `N` (for no). For more information about spacetaking and non-spacetaking terminals, consult the *Programming Handbook*.

`Overlay frame`. Specifies a type of frame that can overlay any other frame except a top-only frame (see below). The default value is `N` (for no).

`Top-only frame`. Specifies whether or not the frame is a top-level frame. A top-level frame cannot be overlaid by another frame. The default is `N` (for no).

`Row position`. Determines the row in which the upper left corner of the form is located. The default value is 1.

`Column position`. Determines the column in which the upper left corner of the form is located. The default value is 1.

`Centered`. Specifies whether or not the frame is centered. If you specify `Y` for this option, the frame will be anchored in the top row and will be centered between the left and right sides of the screen. The default value is `N`.

`Sub-directory name for gen. procedures`. Allows you to specify a directory other than your current working directory, in which to save the file that contains the PROGRESS procedure that creates your form.

`Form description`. This is the form description that you entered in the form description field of the Screen Painter initialization window. This description appears as a comment in the include file generated when you leave the Screen Painter.

For more detailed information on these form settings and for information on the settings not discussed here, see Chapter 4 in the *PROGRESS FAST TRACK User's Guide*.

4. Use RETURN or TAB to move the cursor to the `Row position` field. Enter **10** for this value.

5. To center your text form in the top row of the screen, use RETURN or TAB to move the cursor to the `Centered` field. If you move too far, use BACKTAB (CTRL-U) to move to a previous field. Enter **Y** and press RETURN to change the value to `Yes`. Press GO (F1) to save the screen settings and return to the Screen Painter edit screen.

6. To see the `srpform` with the new settings, press OPTIONS (CTRL-O) and select `COMMAND→VIEW`.

```
                    Salespeople
    Sales Rep: ___
         Name: ____________________
       Region: ___________
        Title: ____________________
 Yearly Quota: ___________
   Date hired: ___________          Company Confidential


Command View
Form Name: srpform ftdb   Type: left

Press space bar to continue.
```

Figure 4–10: The srpform Form

7. Press SPACEBAR to return to the Screen Painter edit screen.

8. Press OPTIONS (CTRL-O) and choose the COMMAND→GENERATE option from the menu. Remember, this option overwrites the `srpform.f` file with the new PROGRESS FORM code. FAST TRACK displays the following question:

```
Do you want database prefix with file names in generated code? yes
```

   If the file names are unique to this database, you may type No. If the file names are used in more that one database, this answer must be Yes.

9. Press RETURN to accept the default value **yes.**

10. Press SPACEBAR to continue. Press OPTIONS (CTRL-O) and choose the LEAVE→SAVE option.

As you can see, the Screen Settings window allows you to customize the display of your default form. You can also use the Screen Painter to create custom forms that show only a few fields from a particular database file. The following section shows you how to create custom forms.

4.3 CREATING A CUSTOM FORM

Suppose you want to create a form containing customer mailing addresses, using only the customer name, address, city, state, and zip code and sales representative. You do not need all of the fields in the `customer` file to create this form. The Screen Painter allows you to select the fields that you want to appear on a form.

This exercise teaches you how to create a form that selectively uses fields in a file, and inserts a company banner on the form.

1. Choose the `Screen Painter` option from the FAST TRACK Main Menu. Name the form **tstfrm1** and use **Customer Addresses** as the form title. Press GO (F1). The cursor is placed in the upper left corner of the Screen Painter edit screen.

   Before you can insert specific fields into your form, you must first define the database file or files that contain those fields for the form.

2. Press OPTIONS (CTRL-O)and select the `DEFINE→FILE` option. The Database input Files window appears.

   A form may be associated with up to 12 input files. If you know the name of the file you can simply type it in.

3. To see a list of available files in the current FAST TRACK database, press [CHOICES] ([ESC] [C]). Use [TAB] or the arrow keys to highlight the customer file. Press [RETURN] to mark the file. FAST TRACK puts an asterisk (*) beside the customer file to mark it for inclusion in the current form.

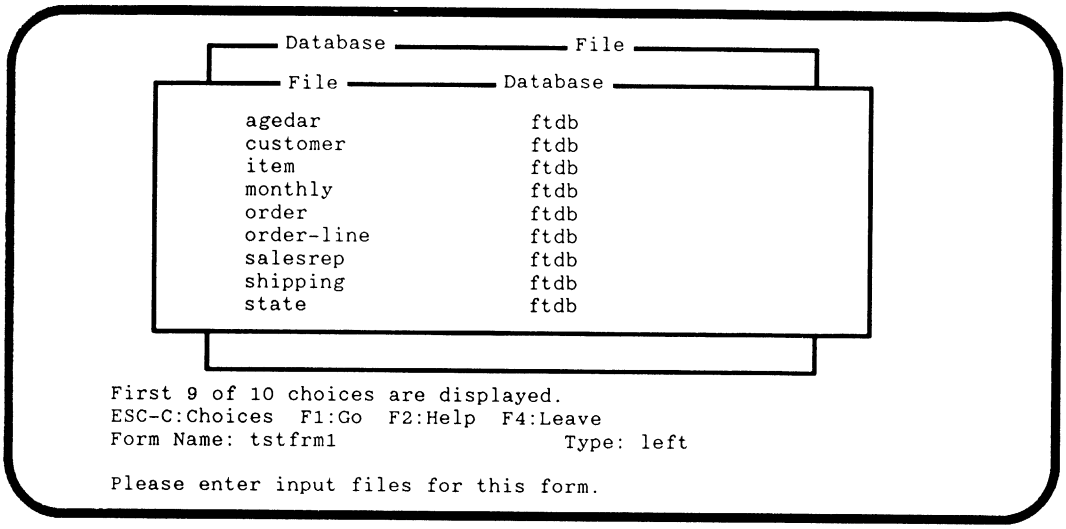


Figure 4–11: Choosing the Form's Input Files

4. Press [GO] (F1). FAST TRACK enters the customer filename and the ftdb database name into the database input files window. Press [GO] (F1) again to return to the Screen Painter edit screen. The cursor appears in the upper left corner of the screen.

   You now need to specify the fields that you want to incorporate into your form from the customer file.

5. Press [OPTIONS] ([CTRL]-[O]) and choose the INSERT→FIELD option. FAST TRACK now displays a menu of choices, containing the names of the input files and fields as shown in the following figure. The customer file is currently the only input file defined for the current form. Press the [RETURN] key to select the customer file. The cursor moves to the fields column to allow you to specify the fields from the customer file that you want to appear on the current form.

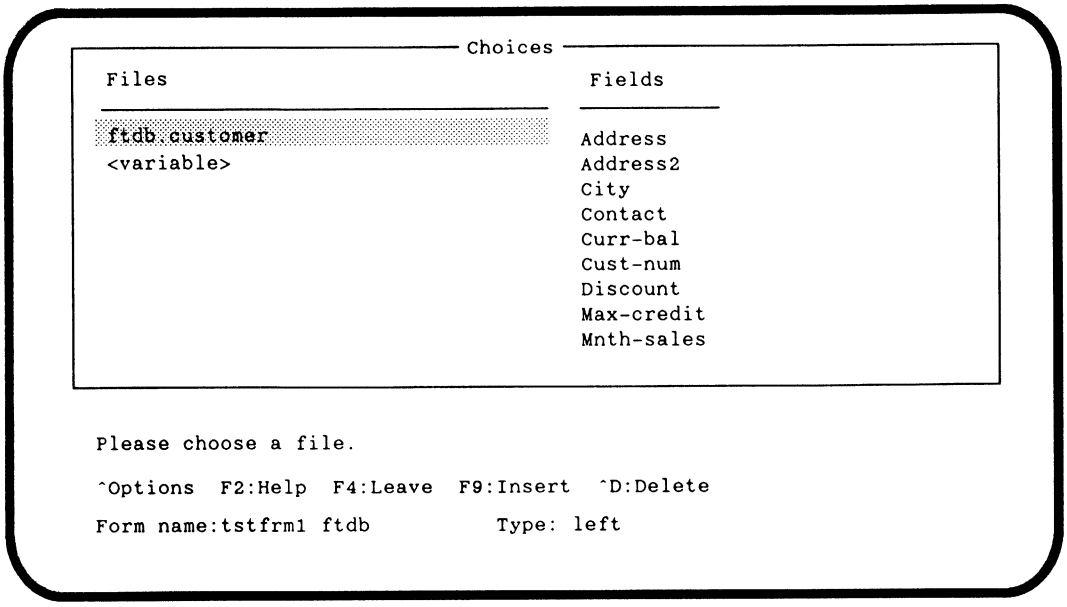


Figure 4–12: Selecting Fields for the Form

6. Notice that you do not see all of the available field choices. Use the arrow keys to scroll through the list. The order in which you select the fields determines the order in which they appear in your form. For the current exercise, select the `Address`, `City`, `Name`, `Phone`, `Sales-rep`, `St`, and `Zip` fields, in that order. You will learn how to change the order as you proceed through the tutorial.

   NOTE: If you make a mistake or change your mind you can deselect a field at any time. Move the cursor to the field that you want to deselect and press RETURN. This action unmarks the field.

7. After you have selected all of the fields for your form, press GO (F1). FAST TRACK inserts the fields into your form at the current cursor position. FAST TRACK inserts the fields in the same order in which you selected them.

```
Addr: _____________________
City: _________________
Name: ____________________
Tel num: ______________
Sls rep: ___
State:  __
Zip:  _____




Press any alphanumeric key to enter text.
^O:Options  F2:Help  F4:Leave  F9:Insert  ^D:Delete
Form name:tstfrm1 ftdb       Type: left
```

Figure 4–13: Customer Addresses Form

8. It is not necessary to leave your form to save it to the current FAST TRACK database. In fact, it is good practice to save your form periodically, using the COMMAND→SAVE option. Press [OPTIONS] ([CTRL]-[O]) and select COMMAND→SAVE to save your form to the current FAST TRACK database. Then press [SPACEBAR] to continue.

4.3.1 Editing a Form

There are several ways to improve upon the Customer Address form or `tstfrm1`. For one thing, you should change the order of the fields to correspond to the standard address format.

Before you attempt to move fields around on your form, it is important to understand the properties of fields. Every field has two parts, as shown in the following figure:

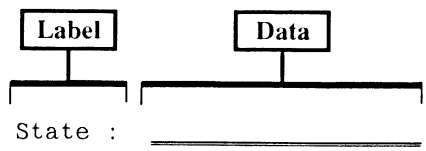


Figure 4–14: The Parts of a Field

- The *label* is the descriptive text the user sees when the application displays or accepts information for the field.
- The *data area* is where PROGRESS displays the relevant field data or receives input from a user.

The label and the data areas are defined in the PROGRESS Data Dictionary. When using the Screen Painter to create or edit a form, you can insert, move, or delete an entire field or just the label or data area of a field.

This exercise teaches how to move field labels and field data areas separately.

1. With the cursor in the first position on the top row of the `tstfrm1` form, press INSERT (F9). This opens a new blank row above the Addr field and moves everything else down a row.

2. Now use the ↓ to move the cursor to the Name field. Press OPTIONS (CTRL-O) and choose PICK→FIELD to mark this field. FAST TRACK displays the following message:

```
Type CTRL-O r p to delete; Or cursor to the target place, type ESC-V to move
```

   NOTE: If you make a mistake or change your mind at any time, you can use the PICK→UNDO option to deselect a field.

3. Use the ↑ to move the cursor back to the new top row. Press OPTIONS (CTRL-O) and choose PICK→MOVE. This option moves the Name field to the first row leaving behind a blank row.

4. Use the ↓ to move the cursor to the City field. Press TAB to move the cursor to the data area of the City field.

5. Use the → to move the cursor to the first blank space *after* the end of the field. Type a comma (,) in this position.

6. Use the ↓ or TAB to move the cursor to the data area of the State field. Press OPTIONS (CTRL-O) and choose PICK→OBJECT to mark the data area of the State field. This option allows you to move data and labels separately.

7. Move the cursor two spaces *after* the comma that you inserted to the right of the City field. Press OPTIONS (CTRL-O) and choose PICK→MOVE. FAST TRACK now moves only the data area of the State field to the position of the cursor.

8. Next position the cursor back on the label of the State field. Press OPTIONS (CTRL-O) and use PICK→OBJECT to pick the label. Next, press OPTIONS (CTRL-O) and choose select REMOVE→PICKED to remove the label.

9. Now move the cursor to the data area of the Zip field and mark it by pressing OPTIONS (CTRL-O) and selecting the PICK→OBJECT option. Move the cursor two spaces after the State data area. Press OPTIONS (CTRL-O) and choose the PICK→MOVE option to move the data area to the current cursor location.

10. Now move the cursor back to the label of the `Zip` field. Press the DELETE (F10) key to delete the entire row.

    The next operation is to move the `Sls rep` field to the right side of the form.

11. Press OPTIONS (CTRL-O) and select the `SETTINGS→MODE→CURSOR` option. This option displays the row and column numbers of the current cursor location in the lower right corner of your screen, as follows:

```
Press any alphanumeric key to enter text.
^D:Options  F2:Help  F4:Leave  F9:Insert  ^D:Delete        row: 10  col:1
Form name:tstfrm1 ftdb          Type: left
```

Figure 4–15: Cursor Column and Row Position

    This information helps you to place fields, text, and labels at precise locations in a form.

12. Move the cursor to the `Sls rep` field and press OPTIONS (CTRL-O) and use `PICK→FIELD` to mark the field. Use the → to move the cursor over to the right side of the screen, for example, column 55. Press OPTIONS (CTRL-O) and use `PICK→MOVE` to move the field to the new location.

13. Press OPTIONS (CTRL-O) and select `SETTINGS→MODE→CURSOR` to turn off the cursor position display.

14. To see how your form appears in your application, press OPTIONS (CTRL-O) and select COMMAND→VIEW. Your form should appear as follows:

```
                    Customer Addresses
Name:
Addr:
City:

Tel num:

                                                Sls rep:




Command View
Form name:tstfrm1  ftdb      Type: left

Press space bar to continue.
```

Figure 4–16: Customer Addresses Form

Press the SPACEBAR to return to the Screen Painter edit screen

15. Press OPTIONS (CTRL-O) and choose COMMAND→GENERATE. This option creates the `tstfrm1.f` file that contains the PROGRESS FORM code for your form. FAST TRACK displays the following question:

```
Do you want database prefix with file names in generated code? yes
```

If the file names are unique to this database, you may type No. If the file names are used in more that one database, this answer must be Yes.

16. Press RETURN to accept the default value **yes**. Press SPACEBAR to continue. Use OPTIONS (CTRL-O) and COMMAND→SAVE to save your form as an object in the current FAST TRACK database.

17. Press SPACEBAR to continue.

You now know how to place selected fields from a database file into a form. You also know how to move entire fields or parts of fields around in your form. These skills allow you to create forms that serve your needs or the needs of your users. The next section shows you how to alter the attributes of fields in your form.

4.3.2 Changing Field Attributes

While you are designing a form, you can also change the attributes of the fields that you place in your form. When the cursor is positioned on a field, you can choose the SETTINGS→FIELD option from the command menu to display the Field Attribute Setting window for that field. The Field Attribute Settings window allows you to set or change the following information for the current field:

- The field format
- The field label
- The field update order on the form
- Auto-return
- Help information for the field
- Validation for the field
- Invalid data message for the field

The field settings for the fields on your form originate in the PROGRESS Data Dictionary. When you alter the settings for a field using the Field Attribute Settings window, the new field settings appear only on the display of the current form and do not change the field format in the PROGRESS Data Dictionary. For example, you may have a customer name field that is defined as a character string that is 20 characters long. You can change the display format so that only the first eight characters are displayed.

NOTE: Although the display format can differ from the format defined in the PROGRESS Data Dictionary, the two formats cannot conflict. For example, you cannot change a field defined as a character field in the PROGRESS Data Dictionary to a decimal field in your form.

The Name field is defined in the PROGRESS Data Dictionary as a character field that is 20 characters long ("x(20)"). If you change the field format of the customer name to "x(8)", then tstfrm1 displays only the first eight characters of the name, but all the characters are still in the database. Let's change the length of the Name field.

1. Position the cursor on the Name field. Press [OPTIONS] ([CTRL]-[O]) and choose the SETTINGS→FIELD option to change the field settings. The following screen appears:

```
Name:  ____________________
Addr:  ____________________
City:  __________, __  _____

Tel num:  _____________
                                              Sls rep: ___

                  Field Attribute Setting
Field  : Name
File   : customer
Db     : ftdb
Format:  x(20)              Display only (y/n): n
Label  : Name:
Update order:  30   Auto-return (y/n): n  Attr-space (y/n): n
Help   :
Validate: ?
Invalid Msg:

Press any alphanumeric key to enter text.
^O:Options  F2:Help  F4:Leave  F9:Insert  ^D:Delete
Form Name:  tstfrml ftdb       Type: left
```

Figure 4–17: Field Attribute Window

2. Use the [↓] key to move the cursor to the Format field in the Field Attribute window and change the format to **x(8)** and press [GO] (F1).

3. Press [OPTIONS] ([CTRL]-[O]) and select COMMAND→GENERATE to overwrite the tstfrml.f procedure with the new PROGRESS FORM code for your form. FAST TRACK displays the following question:

```
Do you want database prefix with file names in generated code? yes
```

   If the file names are unique to this database, you may type No. If the file names are used in more that one database, this answer must be Yes.

4. Press [RETURN] to accept the default value **yes**.

5. Press the [SPACEBAR]. Press [OPTIONS] ([CTRL]-[O]) and select LEAVE→SAVE to save the form as an object in your database and return to the FAST TRACK Main Menu.

For more information on the field attribute settings and other attributes, see Chapter 4 in the *PROGRESS FAST TRACK User's Guide.* See Chapter 2 in the *Programming Handbook* for information about data formats.

4.4 ADDING FIELDS FROM MORE THAN ONE FILE

The forms that you created in the previous exercises contain fields from only one database file. Although a single file is a common characteristic for many forms, you may often want to retrieve and view related information from several different files in one form.

This exercise shows you how to add fields from different files into a single screen form.

1. Select the `Screen Painter` option from the FAST TRACK Main Menu. When the Screen Painter initialization window appears, enter **oline** as the name of the form and press [GO] (F1) twice to enter the Screen Painter edit screen.

2. Press [OPTIONS] ([CTRL]-[O]) and select the `SETTING→SCREEN(FORM)` option. Use [RETURN] to move to the `Form Type` field and enter **top**. This causes the field labels on your form to appear above the corresponding data areas. Enter **10** in the `Repeat form` down field. The `Repeat form` down setting determines how many records are displayed at the same time on the screen (or on a printed page). Press [GO] (F1) to return to the Screen Painter edit screen and save the form settings.

3. Press [OPTIONS] ([CTRL]-[O]) and choose the `DEFINE→FILE` option.

4. Press [CHOICES] ([ESC] [C]) to see the menu of files. Select the `item`, `order`, and `order-line` files for use in the form. Use the arrow keys to highlight each of the files and then press the [RETURN] key to mark them. When you have finished marking all of the desired files, press [GO] (F1). The selected filenames appear in the Input Files window. Press [GO] (F1) again to return to the Screen Painter edit screen.

5. Press OPTIONS (CTRL-O) again, and this time select the INSERT→FIELD option. FAST TRACK displays a menu of file and field choices as shown in the following figure.

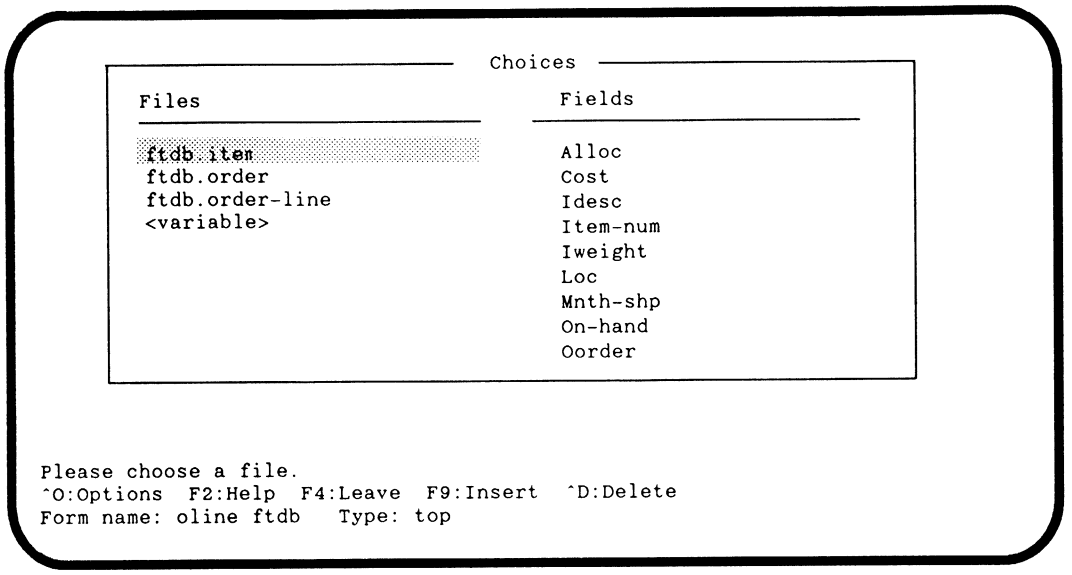


Figure 4–18: Choices of Files and Fields

The fields in the `fields` column correspond to the currently highlighted file in the `files` column. When you select fields to input into the current form, select them in the order in which you want them to appear in the form. The following table contains the names of the fields to input into your current form and their corresponding files.

File	Field
order	Order num
order-line	Line num
item	Desc
order-line	Qty
order-line	Price

6. The `item` file is highlighted. Use the ↓ to highlight the `order` file and press the RETURN key to select the file. The cursor automatically moves to the `fields` column to allow you to select fields from the `order` file. Move the cursor to the `Order-num` field and select it by pressing the RETURN key.

7. Use the ← to return to the `files` column. Use the ↓ to highlight the `order-line` file and select it by pressing the RETURN key. The cursor automatically moves to the **fields**

column to allow you to select fields from the order-line file. Move the cursor to the Line-num field and select it by pressing the [RETURN] key.

8. Use the [←] to return to the files column. Use the [↑] to highlight the item file and select it by pressing the [RETURN] key. The cursor automatically moves to the **fields** column to allow you to select fields from the item file. Move the cursor to the Idesc field and select it by pressing the [RETURN] key.

9. Use the [←] to return to the files column. Use the [↓] to highlight the order-line file and select it by pressing the [RETURN] key. The cursor automatically moves to the **fields** column to allow you to select fields from the order-line file. Use the arrow keys and the [RETURN] key to mark and select the Price and Qty fields.

   Remember, FASTTRACK places the selected fields into your current form in the order in which you select them.

10. Press [GO] (F1) to enter your field selections into the current form and return to the Screen Painter edit screen.

11. Press [OPTIONS] ([CTRL]-[O]) and select COMMAND→VIEW to view your form.

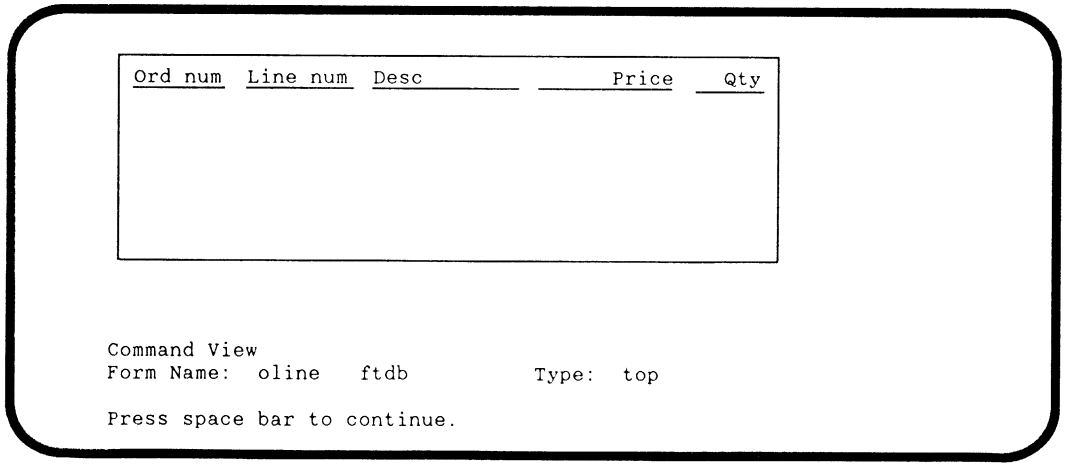


Figure 4–19: The oline Form

When you display information with this form, up to 10 records will be displayed at a time. This is because you entered 10 into the Repeat form down field in the Screen Settings window. Press [SPACEBAR] to return to the Screen Painter edit screen.

12. Press OPTIONS (CTRL-O) and choose the COMMAND→GENERATE option from the menu. This option creates the `oline.f` file that contains the PROGRESS FORM code for your form. FAST TRACK displays the following message:

```
Do you want database prefix in file names? yes
```

If the file names are unique to this database, you may type No. If the file names are used in more that one database, this answer must be Yes.

13. Press RETURN to accept the default value **yes.** Then press SPACEBAR to continue.

14. Press OPTIONS (CTRL-O) and choose the LEAVE→SAVE option to save the form in your current FAST TRACK database and return to the FAST TRACK Main Menu.

You now know how to place fields from several database files into a form.

4.5 CREATING FORMS FOR QBF OPERATIONS

One of the most important uses for forms is in QBF operations. In a QBF operation, you can access information in the database through forms rather than through a query language such as PROGRESS. The form determines what information is entered into or retrieved from a file and how that information is organized on the screen. You can use the Screen Painter to create forms for QBF operations. If a form does not exist, the QBF Generator creates a default form for the QBF operation.

This exercise teaches you how to copy a form and generate an associated QBF procedure for a single form.

1. Choose the `Screen Painter` option from the FAST TRACK Main Menu. In the Screen Painter initialization window, enter **qbf1** as the form name and press GO (F1) twice. The cursor appears in the upper left corner of the Screen Painter edit screen.

2. The COMMAND→COPY option lets you copy a form or a report into the form you are editing. Press OPTIONS (CTRL-O) and select the COMMAND→COPY option. FAST TRACK prompts you for the name of the file you want to copy.

3. Press CHOICES (ESC C) to see a list of available forms. If you have completed the second exercise in this chapter, you will have a form called `srpform` as shown in the following figure. Use the cursor to highlight the form name and press the RETURN key.

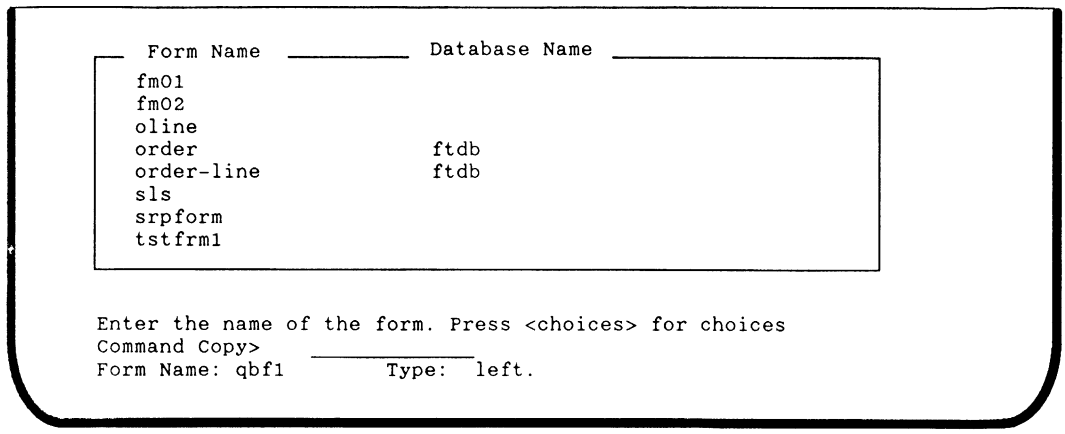


Figure 4–20: Copying a Form or Report

4. FAST TRACK displays a copy of `srpform` in the Screen Painter edit screen. When you use the COMMAND→COPY option, the entire current form is overwritten with the new form.

5. Press OPTIONS (CTRL–O) and choose the COMMAND→SAVE option to save the copy of the form. Press the SPACEBAR to continue.

6. From the Screen Painter edit screen, press OPTIONS (CTRL–O) and choose the SETTINGS→SCREEN (FORM) option. Press the TAB key to move the cursor to the `Title` field and enter **Salesrep QBF**. Next, move the cursor to the `Form Description` field and enter **Form for generating a salesrep qbf**. Press GO (F1) to save the form settings and return to the Screen Painter edit screen.

7. You are now ready to generate a QBF procedure for the current form. Press [OPTIONS] ([CTRL]-[O]) and select the DEFINE→QBF option. FAST TRACK displays the QBF Settings window as shown in the following figure.

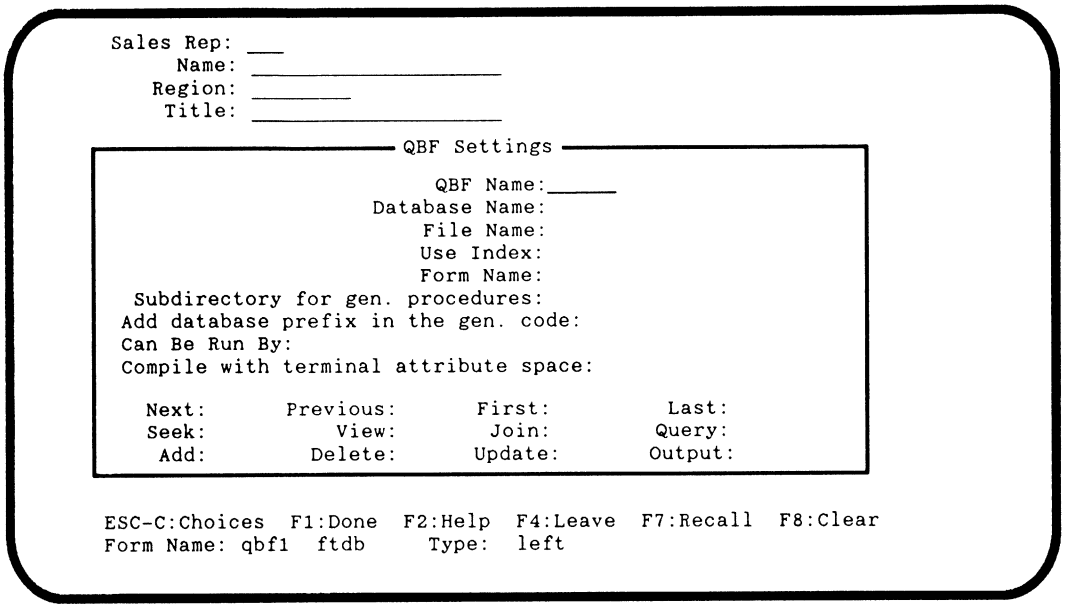


Figure 4–21: QBF Settings

This window allows you to set the following characteristics and capabilities of the QBF operation associated with the current form.

QBF Name. Enter a QBF name up to seven characters in length. FAST TRACK uses this name to identify your QBF procedure.

Database Name. This is the name of the database that contains the file indicated in the File Name field.

File Name. This is the name of the database file for which you want to generate the QBF. You cannot change this value, because it is determined by the input file for the current form. In this example, the input file is the salesrep file.

Use Index. FAST TRACK places the primary index of the current file into this field. The QBF procedure will use the Use index entry to access the data in the current file. The primary index of the salesrep file is rep. If the database file has other indexes, one of these can be used instead.

Form Name. The Form Name is the name of the form that will be used by the QBF. The default form name is the same as the QBF name. You can name the form anything you like.

`Sub-directory Name For Gen. Procedures.` If you want to save the QBF form and procedure that FAST TRACK generates in a directory other than your current working directory, you can specify it here.

`Add Database Prefix in the Gen. Code.` Unless you have a file with the same name in another database, you may answer no. If you answer yes, the procedure will only run for a database that has the same name as the one specified in the Database Name field.

`Can Be Run By.` This is a list of users who can use the QBF. By default, anyone can use the QBF. (For more information about FAST TRACK security, see Chapter 4 in the *PROGRESS FAST TRACK User's Guide.* For more information about PROGRESS security, see Chapter 11 of the *Programming Handbook*.)

`Compile with Terminal Attribute Space.` If you have a spacetaking terminal, you should respond Y. The default value is N for non-spacetaking terminals. See Chapter 7 in the *Programming Handbook* for more information about spacetaking and non-spacetaking terminals.

The remaining options in the settings window (`Next`, `Seek`, `Add`, etc.) correspond to operations that you can allow in the QBF procedure that FAST TRACK generates. If you answer **no** to any one of these operations, you will not be able to perform the operation with the QBF procedure and it will not appear in the command menu for QBF. By default, FAST TRACK allows all of these operations. For a full discussion of the functionality of these QBF operations, see Chapter 6 in the *PROGRESS FAST TRACK User's Guide.*

8. The cursor is now in the `QBF Name` field. Enter **qbf1** and press GO (F1).

   FAST TRACK automatically supplies the database name, file name, index, and form name. You can change only the entry in the **Use Index** field because it is the only current active field in the QBF Settings window.

9. The cursor is in the `Use Index` field. Use the RETURN key to move the cursor to the `Join` field and the `Query` field. Enter **No** in both fields. Press GO (F1) to accept the settings in the QBF Settings window and generate a QBF procedure. FAST TRACK displays the following message.

```
Generating QBF for form qbf1...
```

After generating the QBF procedure, FAST TRACK immediately runs your QBF procedure and saves it in a file called `qbf1.p`. The QBF procedure should appear on the screen as follows:

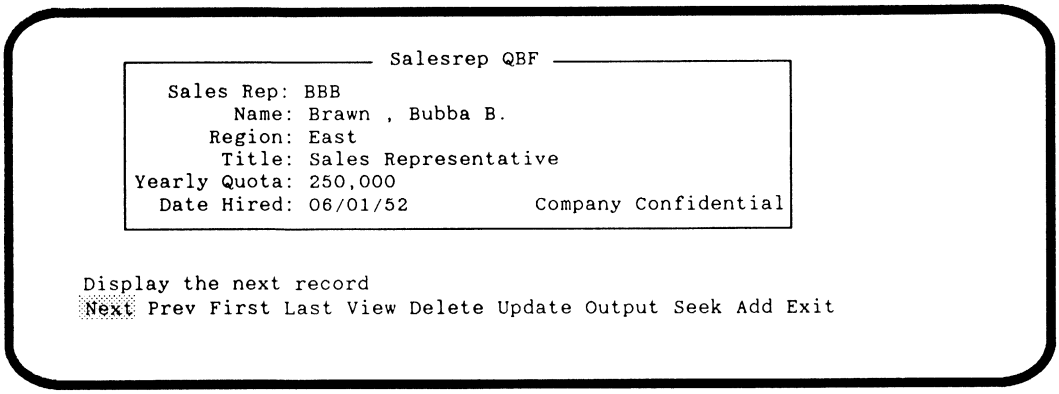


Figure 4–22: Salesrep QBF

Notice that the JOIN and the QUERY options do not appear on the command menu of the QBF procedure.

10. Select the EXIT option from the command menu of the QBF procedure and press RETURN to exit the procedure and return to the Screen Painter edit screen.

11. Press OPTIONS (CTRL-O) and choose LEAVE→SAVE to save the form to the current FAST TRACK database and return to the FAST TRACK Main Menu. You can now run the QBF procedure (`qbf1.p`) from the PROGRESS editor or through the OTHER→GOTO option on all of the command menus in the various FAST TRACK editors.

You now know how to copy a form and create a QBF procedure for a form created with the Screen Painter. For more information about QBF operations and the FAST TRACK QBF Generator, see Chapter 6 in this book.

4.6 CREATING VARIABLE FIELDS ON FORMS

The FAST TRACK Screen Painter allows you to create variable fields in a form. A *variable field* allows you to capture and display information that does not exist in the current FAST TRACK database. When you place a variable field onto a form, you are simply reserving a spot on the screen for variable information. You must write a PROGRESS procedure, using the PROGRESS editor, to produce the variable information for the field in the form.

User input is a common usage for a variable field in a form. Suppose you need an application that allows you to view all orders received before a certain date. This application needs to prompt a user for a date by which to qualify the orders displayed on the screen. To achieve this goal, you must first set up your form with the variable field and order fields on it. Then, you must use the PROGRESS editor to build the application which will use the form.

NOTE: You cannot generate a QBF procedure for a form that contains a variable field.

This exercise teaches you how to insert a variable field into a form and also shows you how to include a form in a PROGRESS application.

1. Choose the `Screen Painter` option from the FAST TRACK Main Menu. When the Screen Painter initialization window appears, enter **varfrm1** as the form name. Enter **Orders as of** for the `Form Title` and then press GO (F1) to enter the Screen Painter edit screen. The cursor appears in the upper left corner of the screen.

2. Since you want this form to display information about orders, press OPTIONS (CTRL-O) and choose the `DEFINE→FILES` option to define the `order` file for the current form. Enter the **order** file into the first input `File` field and then press the GO (F1) key. FAST TRACK automatically supplies the Database name.

3. To create a variable field, press OPTIONS (CTRL-O) and choose the `INSERT→FIELD` option. The Screen Painter displays a list of files and fields associated with the current form. One of the choices in the `Files` list is `<variable>`. This selection allows you to define a variable field for the current form.

4. Use the arrow keys to highlight the <variable> option and press RETURN. Highlight the <new variable> option in the fields column and press RETURN. The Variable Definition window appears as follows:

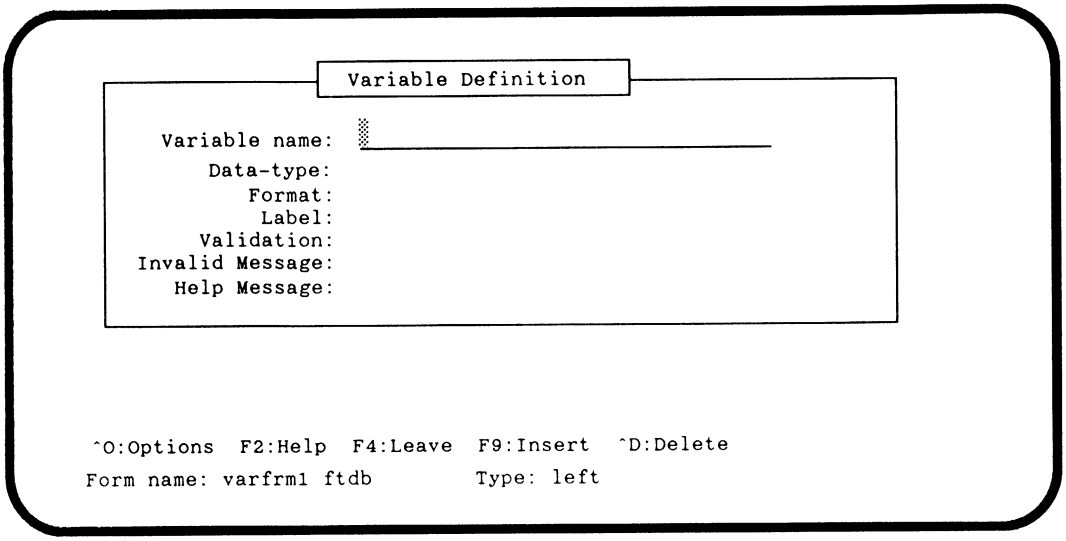


Figure 4–23: Variable Definition Window

This window allows you to enter the following information that defines a variable field:

Variable name. Every variable must have a name so that the procedures in your application can refer to it. The variable name:

- Can be up to 32 characters long.
- Must begin with an alphabetic character.
- Can contain any alphabetic, numeric, or underscores, but it must not contain spaces.
- Cannot be a PROGRESS keyword.

Data-type. The data type determines the type of information that can be displayed or entered into the current variable field. The PROGRESS language supports the following data types:

- `character`. Consists of alphanumeric data such as: "Joseph Puig", "Beacon Hill", "ski bindings", "123AB", and "1234".
- `date`. Three sets of two digit integers separated by slashes (/) or dashes (-): 09/13/57 or 09-13-57.

- `decimal`. A positive or negative number with up to 50 digits and 10 decimal places: 9999.99.
- `integer`. Any positive or negative whole number: 9999.
- `logical`. Anything that can have one of two possible values, such as Yes/No or Up/Down.

See Chapter 2 in the *Programming Handbook* for more information about data types.

Format. After you have specified the data type of a variable, FAST TRACK displays a default format for that data type. A format is like a template. To be acceptable, the data the user enters must match the format. You can alter this format to suit your needs. See Chapter 2 in the *Programming Handbook* for more information about data formats in PROGRESS.

Label. You can specify a label for your variable field. This label automatically appears next to data area of the variable field in your form. The default label is ?. If you don't want a label to appear with this field, use the CLEAR (F8) key to clear the field.

Validation. Your application can check that the information entered into the field passes whatever tests you define in the validation field. The test is written as a PROGRESS comparison expression. For example, if you want to make sure that the user does not enter a date that is earlier than today's date, use the validation test:

variable-name `< = today`

A validation test can be up to 50 characters long. For more information on the types of expressions that can appear here, see the explanation of the "Valexp" function in the *PROGRESS Language Reference* manual.

Invalid Message. If the user enters a value into the variable field that does not pass the validation test, your application displays the text you enter here. This message can be up to 50 characters long.

Help Message. When the cursor is located in the variable field, your application displays this help message at the bottom of the screen. A help message may be up to 50 characters long.

5. Enter the information for the variable field as shown in the following figure:

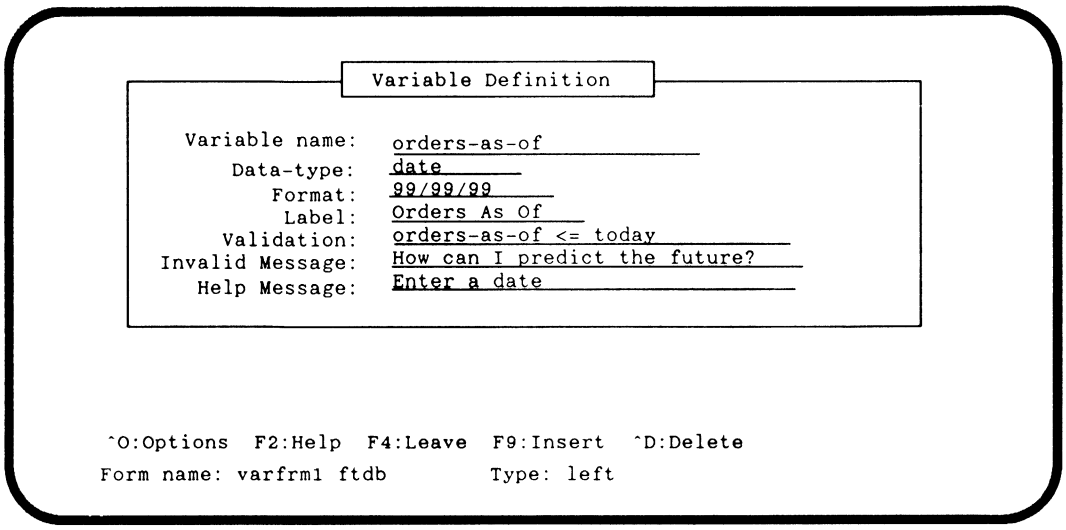


Figure 4–24: Variable Definition for Orders-as-of field

When you have entered the information for the variable definition, press GO (F1) to define the variable and enter the variable into you form at the current cursor location. The Screen Painter edit screen reappears.

Now you can add more fields to your form.

6. Press the ↓ key twice to move to the beginning of the third row on the Screen Painter edit screen.

7. Press OPTIONS (CTRL-O) and choose INSERT→FIELD. Again, a list of files and associated fields defined for the current form appears. The order file is highlighted. Press RETURN to select the order file and move to the fields column. Select the Order-num, Cust-num, Name, Odate, and Sdate fields in order. Press the GO (F1) key to place these fields onto the current form and to return to the Screen Painter edit screen.

8. Press OPTIONS (CTRL-O) and choose COMMAND→VIEW to view your form. Press the SPACEBAR to return to the Screen Painter edit screen.

9. Press OPTIONS (CTRL-O) and choose the COMMAND→GENERATE option from the menu. Type **NO** and press RETURN. FAST TRACK creates the varfrm1.f procedure that contains the PROGRESS FORM code for your form.

10. Press SPACEBAR. Then press OPTIONS (CTRL-O) and choose LEAVE→SAVE to save the form and return to the FAST TRACK Main Menu.

Now that you have created a form with a variable field, you can use the PROGRESS editor to look at the code generated for the `varfrm1.f` form and create a PROGRESS procedure that uses the form.

4.6.1 Viewing Your Form

First, let's look at the `varfrm1.f` form that you just created. There are several ways to examine the procedure generated by the Screen Painter. You can use any text editor or you can use the PROGRESS editor to work with your form procedure.

NOTE: Once you use the PROGRESS editor or any other text editor to modify your form, your form procedure will no longer correspond to the form object that exists in the current database. If you generate another form procedure based upon the form object in your current database, you will overwrite your modified form.

This exercise teaches how to use the PROGRESS editor to view a form generated by the FAST TRACK Screen Painter.

1. Press END (F4) from the FAST TRACK Main Menu to use the PROGRESS editor.

2. Press GET (F5). PROGRESS prompts you for the name of the file you want to load into the editor.

3. Enter **varfrm1.f** and press GO (F1). PROGRESS displays your form file in the editor as follows:

varfrm1.f

```
/* ..............................................................
File Name      : varfrm1.f
Form Name      : varfrm1.f       Title:  Orders as of
File Name      : order
Database Name  : ftdb
..............................................................*/

"Orders As Of:" AT 1
orders-asof
FORMAT "99/99/99" at  14 NO-LABEL
HELP "Enter a date."
VALIDATE (orders-asof <= today,
"How can I predict the future?")
SKIP (1)
order.Order-num
 AT 1
SKIP
order.Cust-num
 AT 1
SKIP
order.Name
 AT 1
skip
order.Odate
 AT 1
SKIP
order.Sdate
 AT 1
WITH SIDE-LABELS
```

```
31 lines were read.

Enter PROGRESS procedure.  Press F1 to run.
```

As you can see, FAST TRACK generated a PROGRESS procedure for the form. For more information about the various PROGRESS functions in this procedure, see the *PROGRESS Language Reference* manual. To see how you can use this form in a PROGRESS procedure, read the next section.

4.6.2 Using a Form with a Variable Field

Now, let's include this form in a PROGRESS procedure that will allow you to enter a date into the `Orders As Of` field on the `varfrm1.f` form and then search the `order` file in the current database to find and display all those order records received prior to the date specified.

1. Clear the PROGRESS editor by pressing CLEAR (F8) and type the following PROGRESS procedure to display your form. Be sure to include the curly braces. The braces specify the file enclosed within them, in this case the `varfrm1.f`, as an include file to be run in the procedure. The PROGRESS editor is not case sensitive; however, the PROGRESS keywords in the following procedure are capitalized for easy identification.

orders.p

```
DEFINE VARIABLE orders-asof AS DATE.
FORM {varfrm1.f}.
SET orders-asof.
FOR EACH order WHERE odate <= orders-asof:
        DISPLAY {varfrm1.f}.
        PAUSE.
END.
```

2. To save the procedure, press the SAVE (F6) key, type the procedure name **orders.p** and then press RETURN.

3. Press GO (F1) to run the procedure.

```
Orders As Of:  /  /

Ord num:
Cust num:
Name:
Ord date:
Shp date:

Enter a date
```

Figure 4–25: Filled in Form

Enter a date into the `Orders As Of` field and press the RETURN key. Remember, the validation on the `Orders As Of` field does not allow you to enter a date later than today's date. If the procedure finds order records that have an `Ord date` prior to or equal to the date entered into the `Orders As Of` field, the procedure displays those records one at a time. Press SPACEBAR to page through the order records. To return to the PROGRESS editor at anytime, press the END (F4) key.

4. To return to FAST TRACK, enter the following PROGRESS procedure into the editor.

```
RUN ft.p.
```

Press the GO (F1) key to run the procedure and return to the FAST TRACK Main Menu.

You now know how to use a variable field in a form to capture input information and how to use the input to search a file in the current database.

4.7 SUMMARY

If you followed along with the exercises in this chapter, you learned about some basic commands that allow you to:

- Enter and leave the Screen Painter.
- Create and save a default form.
- Set form characteristics.
- Create and edit a customized form.
- Change the attributes of fields on a form.
- Add fields from more than one file to a form.
- Copy a form.
- Create a QBF procedure for a form.
- Insert variable fields onto a form.
- Use the PROGRESS editor to view a form procedure generated by the Screen Painter.
- Use a form procedure generated by the Screen Painter in a PROGRESS procedure.

With these basic skills, you can create forms on your own. Read the other chapters of this tutorial to try out other FAST TRACK features. If you want more information about the FAST TRACK Screen Painter, see Chapter 6 in the *PROGRESS FAST TRACK User's Guide*.

Chapter 5
The Report Writer Tutorial

The FAST TRACK Report Writer lets you design and create reports using the data in your database. *Reports* organize and summarize data from your database. You can create reports from one or several database files with the Report Writer. This chapter teaches you how to:

- Create, view, and save a simple single-file report.
- Create a report with selected information, then sort the information.
- Use a variable in a report to calculate and display and format report data.
- Modify and existing report, remove fields from the report, select an area and preform an action on that area, and add break-groups to the report.
- Use an aggregate in any field in a report and display the result.
- Create a simple multiple-file report that displays a one-to-one relationship between two files in one report.
- Create a hierarchical report with nested sections that display one-to-many relationships between two files in the report.
- Redirect report output to a printer.

When you finish the exercises in this chapter, you will know how to run the Report Writer and how to create several types of reports. You can use the reports that you create in this chapter as templates for creating many of the reports that you will need in the future.

All of the exercises in this tutorial chapter use a copy of the FAST TRACK demonstration database called `mycopy`. See Chapter 1 of this book for information about how to create the `mycopy` database and start FAST TRACK. Familiarize yourself with the schema of the demonstration database in Appendix A before attempting to do these exercises.

5.1 SINGLE-FILE REPORTS

In this section, you will learn how to create two standard reports from one file. The file used in these single-file report examples is the `customer` file. The exercises below create and modify reports that:

- Display customer names and addresses.
- Display selected customer names and addresses.
- Display customer names and addresses and sort customers by name in alphabetical order.
- Display the results of calculations on customer data.
- Display customers, grouped by state with year-to-date sales totals for each state.

By creating and modifying these reports, you will learn how to:

- Enter and leave the Report Writer.
- Define files and variables for reports.
- Insert files, fields, and variables into reports.
- Sort report information.
- Break report information into logical groups.
- Use aggregates in reports.
- View reports on your screen.
- Create report procedures.

5.1.1 Creating a Report

The simplest type of report is one in which you list information from all the records in one database file. In this section, you will learn how to create a simple single-file report using the Report Writer.

This exercise teaches you how to create a report containing customer names and addresses, how to define files, insert fields, view reports, and save reports.

1. Select the `Report Writer` option from the FAST TRACK Main Menu. The following window appears:

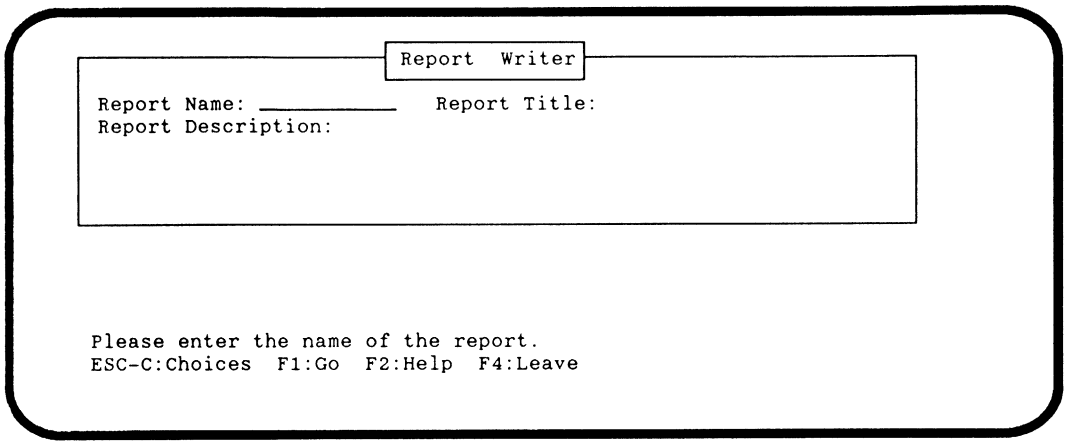


Figure 5-1: The Report Writer Initialization Window

You must fill in this window before you begin creating a report so that PROGRESS has a name under which to store the report. FAST TRACK uses the Report Title and Description to document the PROGRESS procedure that generates the report.

2. Enter **tstrep1** in the `Report Name` field and press GO (F1). Type **Test Report 1** in the `Report Title` field and press RETURN. Enter **Customer name and address report** in the `Report Description` field. When you finish filling in the window, press GO (F1) to begin working on your report.

You see the following screen:

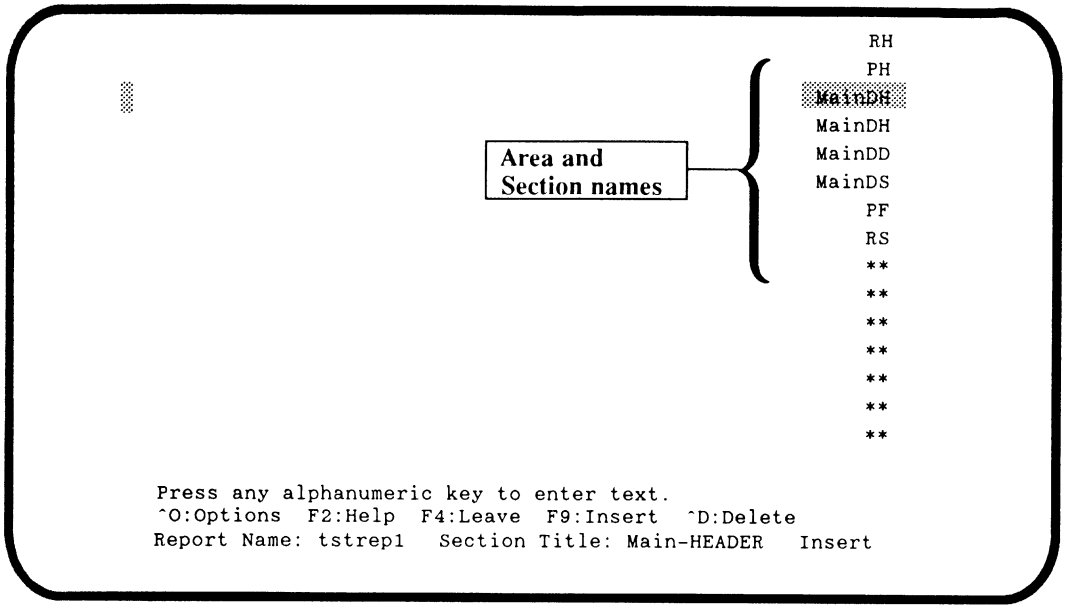


Figure 5–2: The Report Writer Edit Screen

This is the default screen FAST TRACK displays every time you create a new report. The report name, current section title, and the current editing mode appear at the bottom of the screen, and the abbreviations of the default report area and section names appear at the right side of the screen.

Every report has designated areas and sections. The areas and sections of a report correspond to how information is displayed in the report output. All reports have at least one data section. The data section is where the data of your report is displayed. The default data section is called `Main`. Although each of the report sections is initially defined to have only one or two lines reserved, each can be expanded.

Briefly, every report has these areas by default:

`RH (Report Header)`. The report header is a title or report banner. The contents of the `RH` section appear once, at the top of your report.

`PH (Page Header)`. The page header allows you to enter information that appears at the top of each page in your report, for example, the report date.

`MainDH (Detail Header)`. The detail header appears at the top of a column of data. It is an area within the `Main` data section of the report that usually contains the labels for the data in the detail data area.

MainDD (Detail Data). The actual data in a report appears in the detail data area. The data that appears in this area of the report corresponds to the labels and summary information in the MainDH and MainDS report areas. The MainDH, MainDD, and the MainDD report area comprise the Main data section. Every report has one default data section called Main.

MainDS (Detail Summary). The detail summary appears at the bottom of a Main data section in your report. It usually contains aggregates and other types of information that summarizes the data in the detail data section.

PF (Page Footer). The page footer allows you to enter information that appears at the bottom of each page in your report, for example, page numbers.

RS (Report Summary). The report summary appears at the end of a report and contains aggregates and other information that summarizes the data on your report.

The highlighted report section on the Report Writer edit screen is the section in which you are currently working. Later in this chapter, you will learn how to add lines to sections and add sections to reports.

You must enter information into each report area that you want to appear on the report output. For example, consider the following report output:

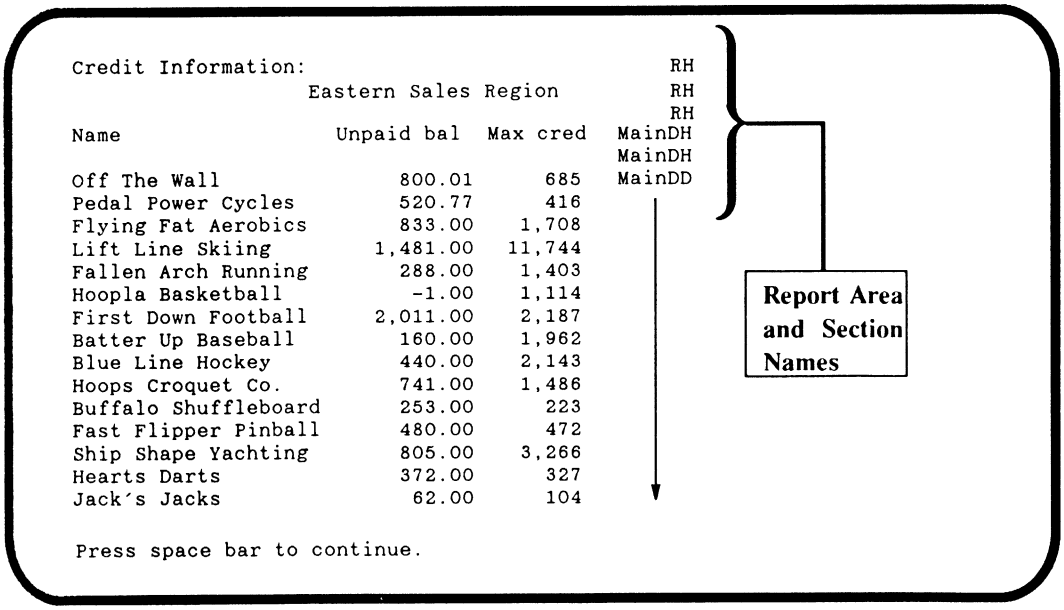


Figure 5-3: Sample Report Output

In the report output above only three report sections are used, the RH, MainDH, and the MainDD sections. The area and section labels do not actually appear on the report output, but they are used in the figure above to show the correlation between report area and sections and report output. All of the other report areas and sections do not affect the report output display, because nothing was entered into those report sections on the Report Writer edit screen. For example, the top three lines of the report are from the RH (report header) section and there is no PH (page header) section between the RH and the MainDH report sections on the report output. This is because nothing was entered into the PH report section during the creation of the report on the Report Writer edit screen.

For now you need not worry about area and section names. Just follow the directions in this exercise to create a report. When you learn how to create complex reports, area and sections become more important. Now, let's get back to writing your first report.

3. The cursor is currently on the MainDH area of the Main data section. Press OPTIONS (CTRL-O). The menu of editing commands appears at the bottom of the screen as shown in the following figure:

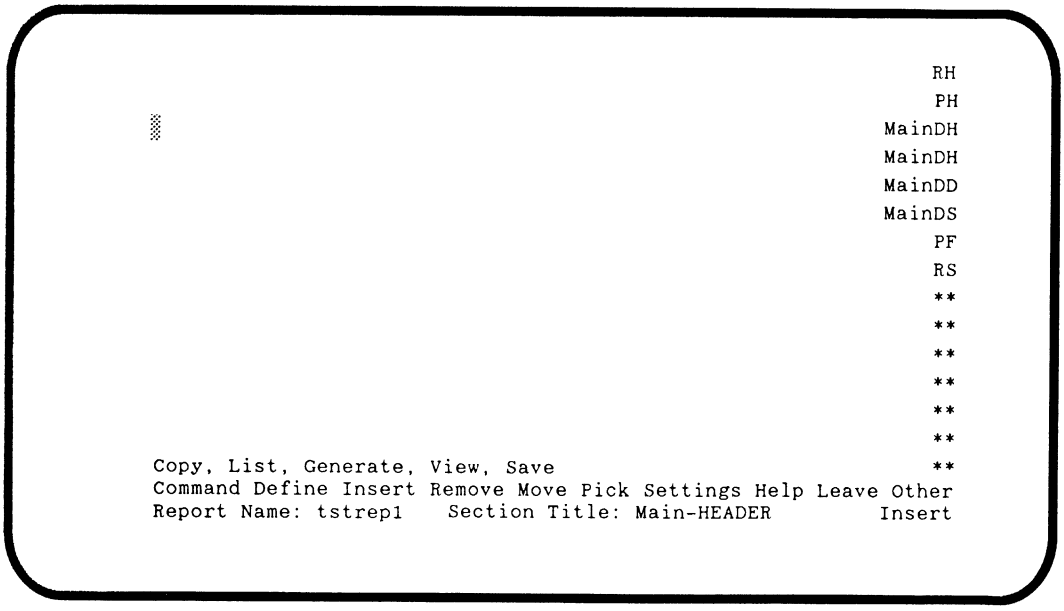


Figure 5–4: The Report Writer Command Menu

This tutorial explains several of the commands on the Report Writer command menu as they are used in the examples. For a full explanation of all these commands see Chapter 5 in the *PROGRESS FAST TRACK User's Guide.*

Before you can use data from a database file in the Main data section, you must define the file for use in that section.

4. Choose the DEFINE→FILES option with your cursor in the Main data section. The Input Files window appears as follows:

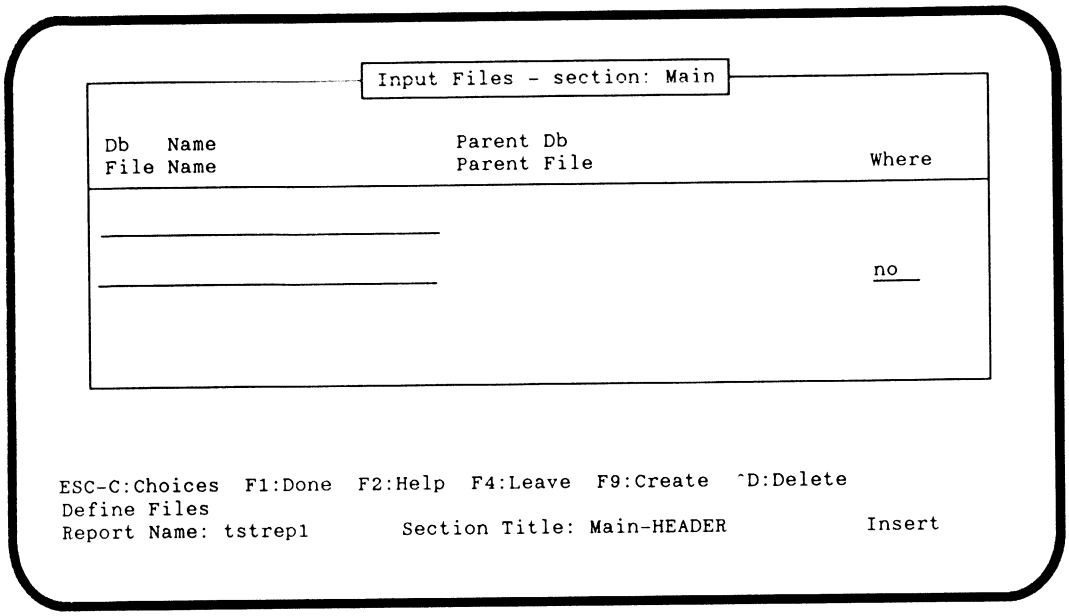


Figure 5–5: Input Files Window

5. Enter **ftdb** as the database and **customer** as the input file. Remember, you can also use CHOICES (ESC C) to display a listing of valid entries for fields in FAST TRACK windows. Press GO (F1) to accept the customer file as the input file and return to the Report Writer edit screen. Notice that ftdb is automatically entered as the database name.

   When you define a file for a report, you make *all* the fields in that file available for the report. To insert certain fields from the files into the report, use the INSERT→FIELD option.

6. With the cursor at the beginning of the MainDH row, press OPTIONS (CTRL-O) and select INSERT→FIELD. A list appears as shown in the following figure, containing the names of all the fields in the files defined for the current report section. In this case, you defined the customer file, so all the fields in that file are available.

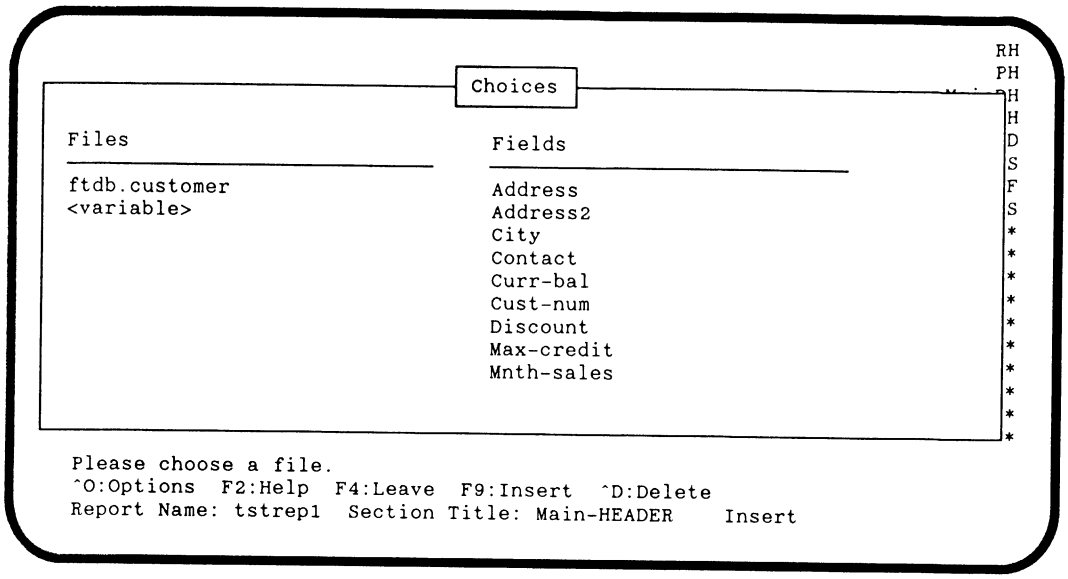


Figure 5–6: Choosing Fields in a File

7. The `customer` file is highlighted. Select the file by pressing RETURN. The filename remains highlighted and the cursor moves to the field list.

8. Select the `Name`, `Address`, `City`, `St`, and `Zip` fields in this order, by highlighting each field name and pressing RETURN. After you mark *all* of the desired fields, press GO (F1).

The Report Writer adds the fields to the report in the order in which you select them, not the order in which they appear in the list. The Report Writer edit screen should look like the following screen:

```
                                                                          RH
                                                                          PH
  Name            Addr            City          State     Zip     MainDH
                                                                  MainDH
  -------------   ------------    ----------    --        -----   MainDD
                                                                  MainDS
                                                                          PF
                                                                          RS
                                                                          **
                                                                          **
                                                                          **
                                                                          **
                                                                          **
                                                                          **
                                                                          **
                                                                          **
                                                                          **
                                                                          **

^O:Options  F2:Help  F4:Leave  F9:Insert  ^D:Delete
Report Name: tstrepl             Section Title: Main-HEADER    Insert
```

Figure 5–7: tstrepl Report Structure

When you place these fields in the Report Writer edit screen, two areas are affected. The field labels appear in the `MainDH` area. A dotted line marking the data area for each field appears in the `MainDD` area directly underneath the corresponding label. As you can see, the actual data of the report does not appear on the Report Writer edit screen. This window only shows the current structure of the report.

9. Next, press [OPTIONS] ([CTRL]-[O]) and choose COMMANDS→SAVE to save your current report as a file to the database. During long editing sessions, you should save your reports to the database often.

10. Press SPACEBAR. Press OPTIONS (CTRL-O) again and choose COMMANDS→VIEW to to view your report. Press SPACEBAR again. The first page of your report appears as follows:

```
Name                 Addr              City          State   Zip

Second Skin Scuba    79 Farrar Ave     Yuma          AZ      85369
Match Point Tennis   66 Homer Ave      Como          TX      75431
Off The Wall         20 Leedsville Ave Export        PA      15632
Pedal Power Cycles   11 Perkins St     Boston        MA      02145
Flying Fat Aerobics  39 Dalton St      Harfield      NY      14728
Lift Line Skiing     276 North St      Boston        MA      02114
Fallen Arch Running  49 Millmont St    Codys Corner  Fl      32010
Butternut Squash Inc 113 Russell Av    El Centro     CA      92243
Spike's Volleyball   34 Dudley St      Genoa         NV      89411
Hoopla Basketball    87 Calumnet St    Egg harbor    NJ      08215
First Down Football  354 Edmonds Ave   Loudon        NH      03301
Batter Up Baseball   1286 Adams Drive  Wingo         KY      42088
Blue Line Hockey     15 Farquah Ct     Orrington     ME      04474
Birdy's Badminton    125 Federal St    Hydro         OK      73048
Hoops Croquet Co.    Suite 415         Hingham       MA      02111

 Press space bar to continue.
```

Figure 5–8: Viewing a Report

11. Press the SPACEBAR to scroll through the report and return to the Report Writer edit screen. You can also cancel the report display by pressing the END (F4) key.

12. Press OPTIONS (CTRL-O) again and choose COMMANDS→GENERATE to generate a report procedure that contains the PROGRESS code for your current report. FAST TRACK displays the message:

```
Do you want database prefix in file names? yes
```

If the filenames are unique to this database, you may type No. If the filenames are used in more that one database, this answer must be yes.

13. Press RETURN to accept the default value **yes**.

When FAST TRACK generates a procedure to create a report, it adds a .p extension to the report name. FAST TRACK displays the message:

```
The report is now generated (tstrep1.p)
```

14. Press the SPACEBAR to continue. Press the OPTIONS (CTRL-O) to access the Report Writer command menu and select the LEAVE→SAVE option to return to the FAST TRACK Main Menu.

Now that you know how easy it is to create a report with the FAST TRACK Report Writer, let's make your report a bit more complex.

5.1.2 Creating and Sorting a Qualified Report

The report that you created in the previous exercise displays data from all of the records in the `customer` file. Suppose you want your report to list the names and addresses of customers who live in a state that begins with the letter N. When you define a file for use on a report, the Report Writer allows you enter a qualification. A *qualification* is an expression that limits the records displayed on the report from a database file. You can also sort the data displayed on your report in several different ways.

This exercise teaches you how to create a report with selected information and then sort the information.

1. Select the `Report Writer` option from the FAST TRACK Main Menu.
2. Let's edit the `tstrep1` report and add the qualification that only the customers from states that begin with the letter N can appear in the report. At the Report Writer initialization window, press CHOICES (ESC C) to see the names of the reports you have defined. The Choices window appears as follows:

```
                    Choices
 ar04  (Sales Journal)
 ar05  (Cash Receipts Journal)
 ar06  (Adjustments Journal)
 ar07  (Aged Receivables Report)
 oe04  (Open Orders - by Customer)
 oe05  (Open Orders - by Date)
 oe06  (Partially shipped orders)
 tstrep1  (Test Report 1)


Please enter the name of the report.
ESC-C:Choices  F1:Go  F2:Help  F4:Leave
```

Figure 5-9: Choices Window

3. Select the `tstrepl` report. FAST TRACK fills in the report title and report description information for that report, `tstrepl`, in the window. Press GO (F1) to place the `tstrepl` report structure into the Report Writer edit screen.

4. The cursor is in the first position of the first `MainDH` row. Press the OPTIONS (CTRL-O) key and select `DEFINE→FILES`. The Input Files window appears with `ftdb` entered on the first database name line, and `customer` file entered on the first file input line. Press RETURN to move the cursor into the `Where` field. The Qualifications window appears for the `customer` file.

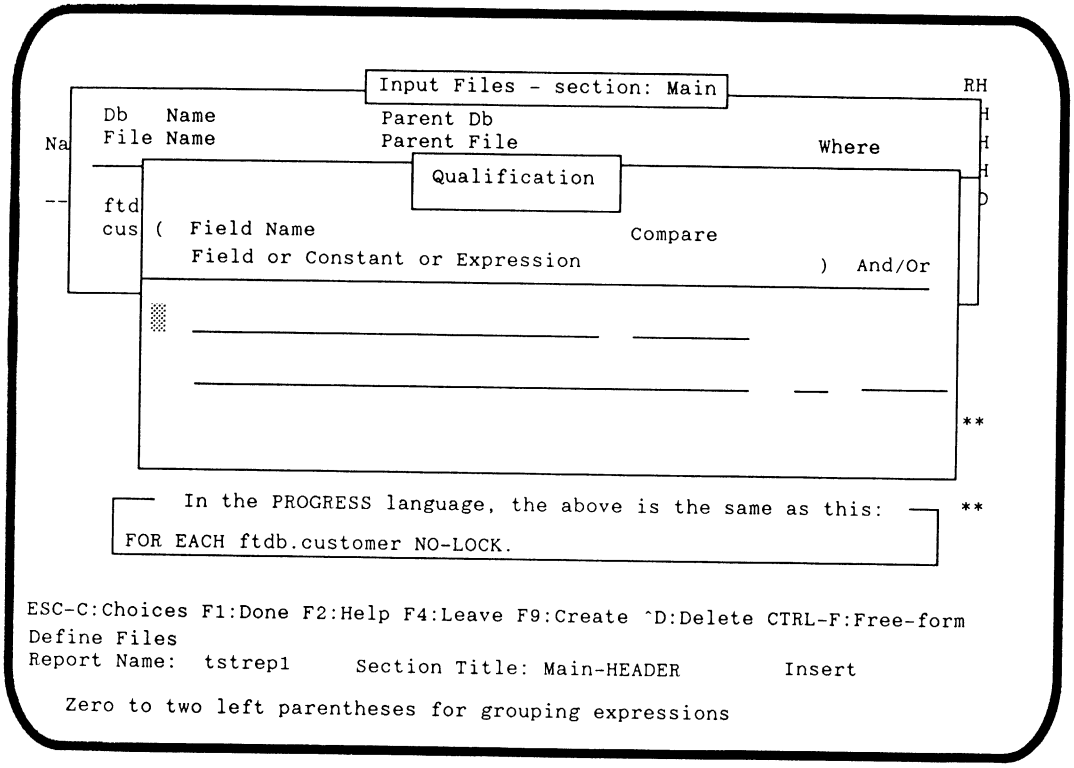


Figure 5–10: Qualifications Window

5. With the cursor in the first field in the Qualification window, press TAB to move to the `Field Name` field. Type the name of the state field (**st**) in the field and press RETURN. The cursor moves to the `Compare` field. The word `BEGINS` appears automatically in the field. The BEGINS comparison operator is the default operator for fields with character data.

You can use the default or you can choose any of the following comparison operators:

Table 5-1: Comparison Operators

Operator	Action
eq =	Tests for *equality* between two values.
ge >=	Tests whether one value is *greater than or equal to* another.
gt >	Tests whether one value is *greater than* another.
le <=	Tests whether one value is *less than or equal to* another.
lt >	Tests whether one value is *less than* another.
ne <>	Tests whether two values are *not equal*.
begins	Finds all records in a file, in which the specified character field begins with a specified string of characters.
matches	Finds all records in a file, in which the specified character field matches a specified string of characters. This operator accepts wild card characters: a period (.) in the specified character string matches *any* character, and an asterisk (*) matches a string of characters. For example, the word "frog" *matches* the string "fr*" or the string "fr.g".

You can press CHOICES (ESC C) to receive a list of the available operators. You can also receive help information about your current qualification by pressing the HELP (F2) key.

6. For the purposes of our example, fill in the qualifications as shown in the following figure. This is a simple qualification that finds all customers who live in states beginning with the letter N.

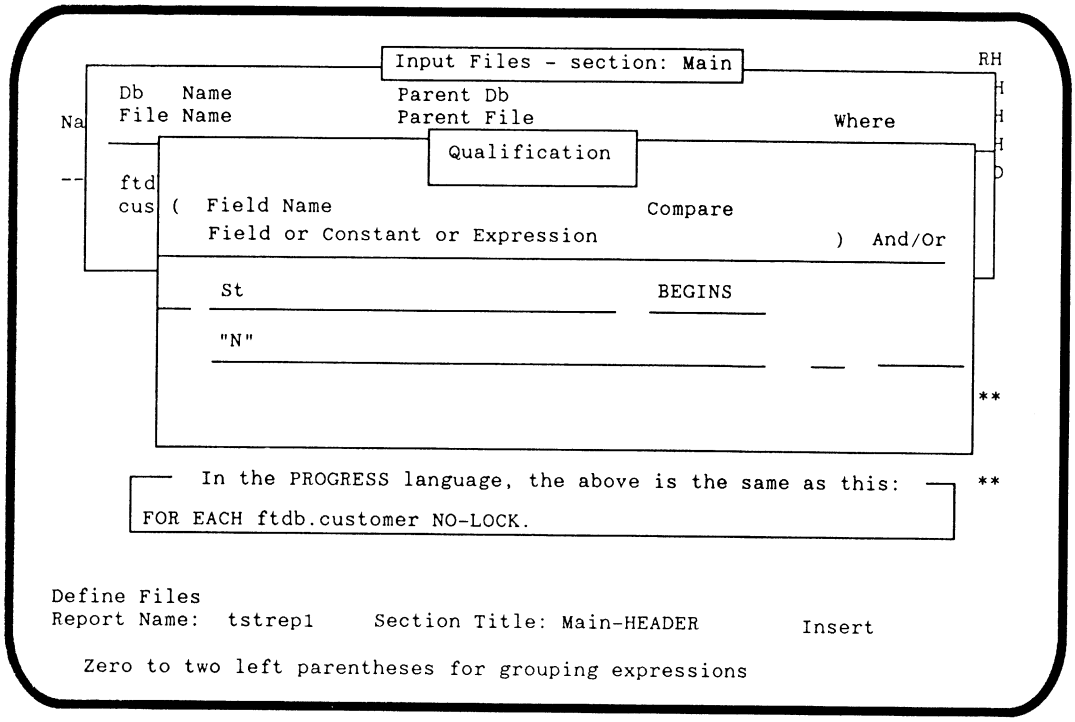


Figure 5–11: Filled–In Qualifications Window

After you type the information into a field, press RETURN to move to the next field. When you finish typing, press GO (F1) to accept the qualification and exit the Qualifications window. Notice the Where field now has a Yes value. Press GO (F1) again to accept the file definition and return to the Report Writer edit screen.

To enter complex qualifications, press CTRL–F to access the Free Form Qualification window. In the Free Form Qualifications window, there are no set fields and you must write your qualification in the PROGRESS language. For a complete discussion of comparison operators, precedence in qualifications, and Free Form qualifications, see Chapter 5 of the *PROGRESS FAST TRACK User's Guide.*

7. When you see the Report Writer edit screen, press OPTIONS (CTRL–O) and select COMMAND→SAVE to save the report as a file in your database.

8. Press SPACEBAR to continue. Then press OPTIONS (CTRL-O) again and select COMMAND→VIEW. Press SPACEBAR to see your completed report. The first page of your report should appear as follows:

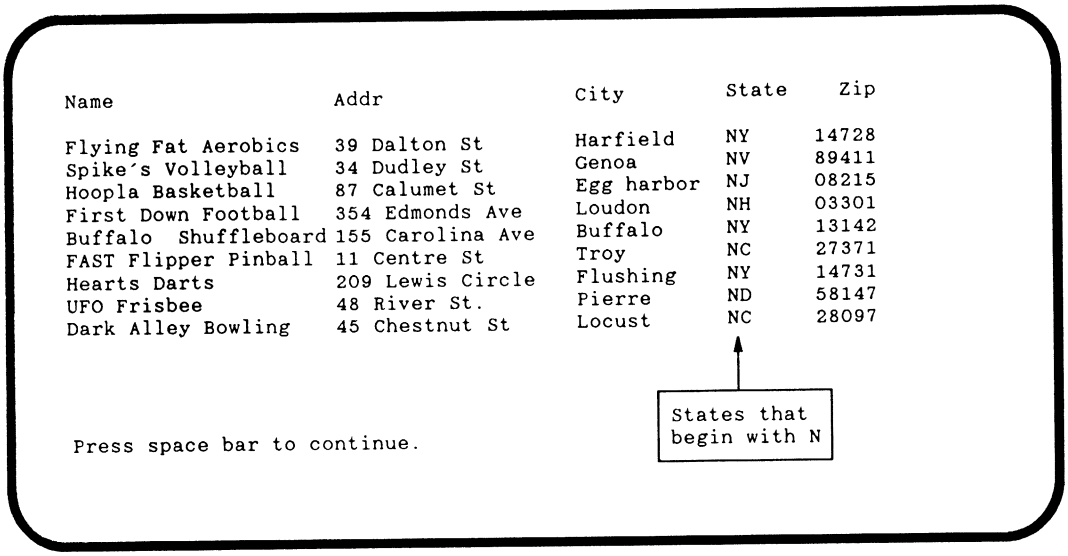


Figure 5-12: Customer Report

Notice that the new report lists only customers who live in states that begin with the letter N. Press the SPACEBAR to return to the Report Writer edit screen. You can also cancel the report display by pressing the END (F4) key.

Now let's sort the data in the Main data section alphabetically by customer name.

9. With your cursor in the Main data section, press OPTIONS (CTRL-O) and choose the DEFINE→SORTS option. The Sort Fields window appears as follows:

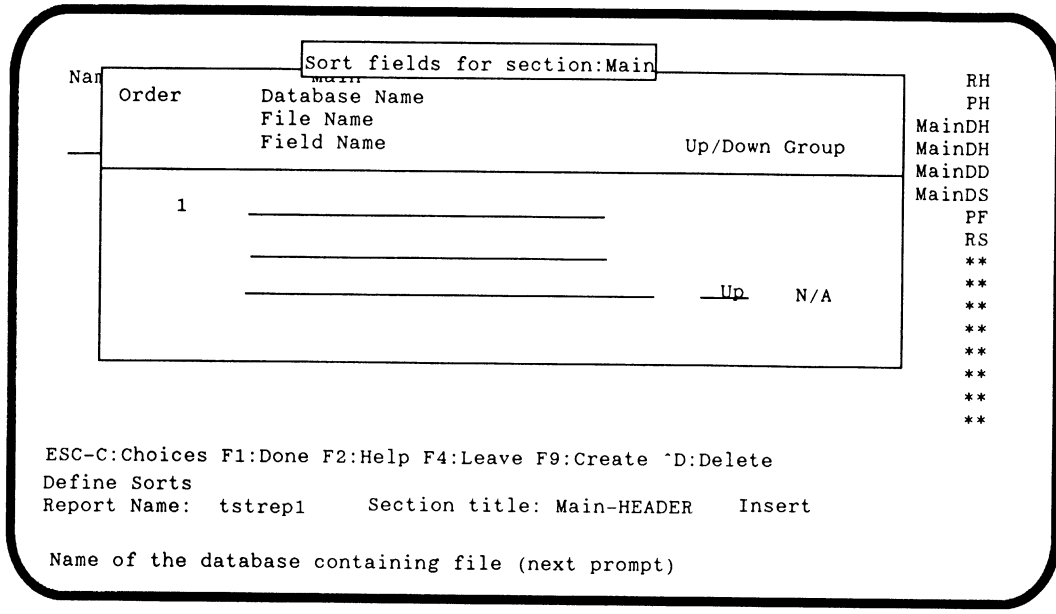


Figure 5-13: Sort Fields Window

You can sort your data alphabetically or numerically depending on the format of the field by which you choose to sort. For example, you can:

- Sort customers alphabetically by company name.
- Sort customers numerically by customer number, year-to-date sales, maximum credit, or zip code.

You can sort on any field in any file of the current database. For the purposes of this exercise, enter the sort information as shown in the following figure, to sort the customers alphabetically by name.

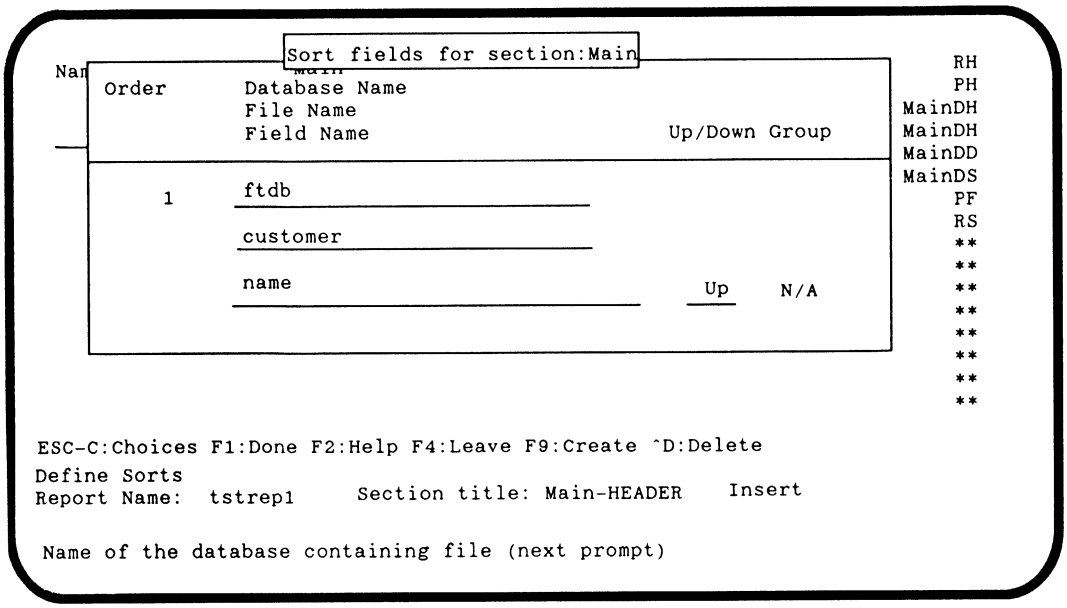


Figure 5-14: Filled In Sort Criteria

The `Order` field holds the default value, 1. This indicates that the field specified on this line is the primary sort field for the `Main` section of this report. Enter the name of the database that contains the file you are sorting, in the `Database Name` field. Enter the filename that contains the field that you are sorting by, in the `File Name` field. The `Field Name` field lets you specify the sort field. The `Up/Down` field lets you determine the sort order (A-Z or Z-A). Enter **Up** to sort in ascending order. Enter **Down** to sort in descending order. In this particular sort, the `Group Name` field is not used. Remember, you can use the CHOICES (ESC C) key to receive a list of acceptable values for each field in the Sort field window.

When you finish filling in the window as shown above, press GO (F1) to enter the sort information and return to the Report Writer edit screen.

10. Press OPTIONS (CTRL-O) and choose the COMMAND→VIEW option. Then press SPACEBAR to view your report in alphabetical order. Remember, the report is still defined to include only those customers living in states beginning with the letter N. The first page of the report should appear as follows:

```
Name                  Addr                City          State     Zip

Buffalo  Shuffleboard 155 Carolina Ave    Buffalo       NY        13142
Dark Alley Bowling    45 Chestnut St      Locust        NC        28097
FAST Flipper Pinball  11 Centre St        Troy          NC        27371
First Down Football   354 Edmonds Ave     Loudon        NH        03301
Flying Fat Aerobics   39 Dalton St        Harfield      NY        14728
Hearts Darts          209 Lewis Circle    Flushing      NY        14731
Hoopla Basketball     87 Calumet St       Egg harbor    NJ        08215
Spike's Volleyball    34 Dudley St        Genoa         NV        89411
UFO Frisbee           48 River St.        Pierre        ND        58147


Press space bar to continue.
```

Figure 5-15: Sorted Report

Press the SPACEBAR until you see the Report Writer edit screen again. You can also cancel the report display by pressing the END (F4) key.

11. Press OPTIONS (CTRL-O) again and choose COMMANDS→GENERATE to overwrite the `tstrpt1.p` procedure with PROGRESS code to produce the new report. FASTTRACK displays the message:

```
Do you want database prefix in file names? yes
```

If the filenames are unique to this database, you may type No. If the filenames are used in more that one database, this answer must be Yes.

12. Press RETURN to accept the default value **yes.** Then press the SPACEBAR to continue.

13. Press OPTIONS (CTRL-O) and choose LEAVE→SAVE to save the report to your database and return to the FAST TRACK Main Menu.

Now you know how to sort the data in your reports alphabetically or numerically. This gives you flexibility in the presentation of data in reports. In the next section, you learn techniques for performing calculations and for gathering data in logical groups in reports.

5.1.3 Using a Variable on a Report

Now that you have created some simple reports, let's begin work on a new and more complex report. The exercise in this section creates a report that calculates the available credit for each customer in a particular sales region. Available credit is the difference between a customer's accounts receivable and a customer's maximum credit.

In the Report Writer, a *variable* is a temporary storage place for data. You use variables the same way you use fields, to display data. However, the data in a variable is not stored permanently like other fields. The data in a variable field comes from calculations you specify when you use the variable.

This exercise teaches you how to: create a report that calculates the available credit for each customer in the eastern sales region, use a variable to perform the calculation and to display the calculation in a report, and format report data.

1. Select the `Report Writer` option from the FAST TRACK Main Menu. The Report Writer initialization window appears.

2. Name this report **tstrep2**, enter **Test Report 2** for the `Report Title`, and enter **Eastern sales region credit report** for the `Report Description`. Press [GO] (F1). FAST TRACK puts the cursor at the beginning of the first label row of the `Main` section.

3. Use the [↑] to highlight the RH (Report Header) area. Type in the following report header: **Credit Information:**. Press [OPTIONS] ([CTRL]-[O]), and choose `INSERT→NEXTROW`. A new RH line appears below the RH line that you are currently on. Press the [↓] once to move to the new line and type **Eastern Sales Region**. Insert one more row using the `INSERT→NEXTROW` option.

   You can use the [INSERT] (F9) key to insert a new row above the current row. You can also use [DELETE] (F10) to delete the row your cursor is on. These keystrokes can be used to expand any report section.

4. Use the [↓] to position the cursor in the `Main` data section. Press [OPTIONS] ([CTRL]-[O]) again, and choose `DEFINE→FILES`. You see the Input Files window. Enter **customer** as the input file and press [RETURN]. The Qualification window appears.

5. For the purposes of our example, fill in the qualifications as shown in the following figure. This qualification places all customers from the eastern sales region in your report. After you type information into a field, press [RETURN] to move to the next field.

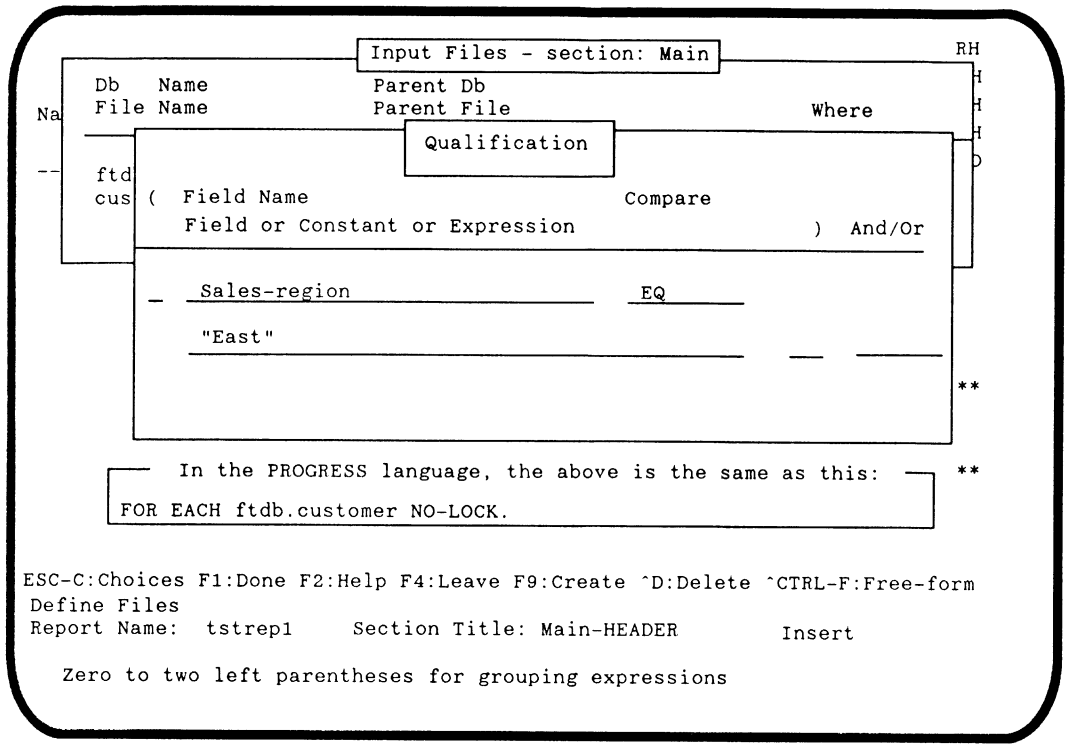


Figure 5–16: Filled-In Qualifications Window

6. When you finish entering the information as shown above, press GO (F1) to accept the qualification and leave the Qualifications window. Notice the `Where` field of the Input Files window now has a Yes value. Press GO (F1) again to save the file definition and return to the Report Writer edit screen.

7. Move the cursor to the beginning of the `MainDD` row and press OPTIONS (CTRL-O) and choose `INSERT→FIELD`. This opens up the list of file and field choices. The Choices window contains the files defined for the report section and allows you to select the fields from those files that you want to appear in your report.

8. The `customer` file is already highlighted. Select the `customer` file by pressing RETURN. The cursor moves to the `fields` column. The `fields` column contains the names of all the fields in the `customer` file. The filename is highlighted and the cursor is in the field list. Select the `Name`, `Curr-bal`, and `Max-credit` fields in that order. Then, press GO (F1).

Your report appears with the selected fields as shown in the following figure:

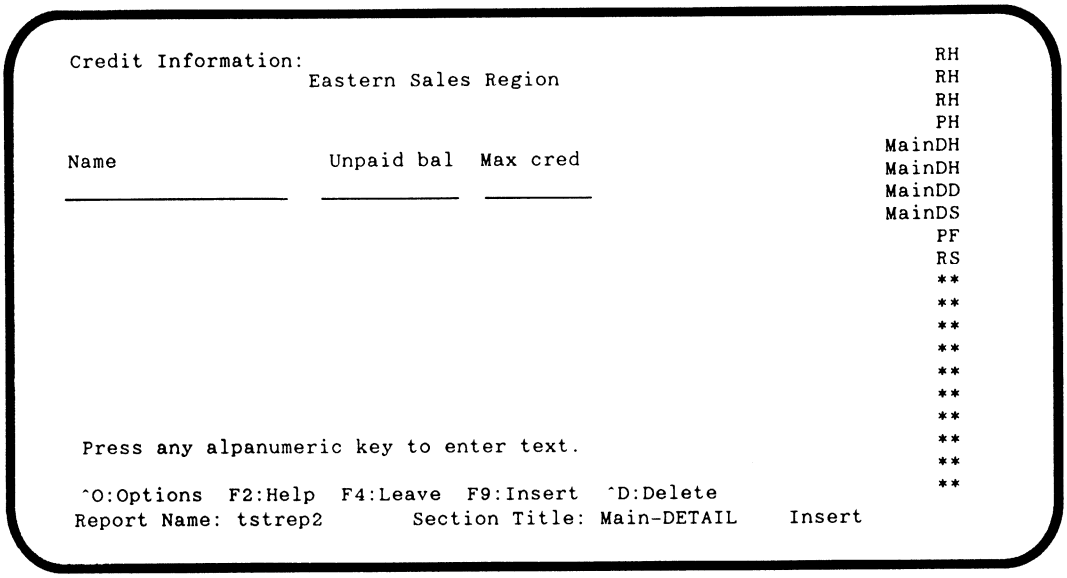


Figure 5–17: Credit Report

9. Press OPTIONS (CTRL-O) again and select COMMAND→VIEW, then press the SPACEBAR to see your report.

```
Credit Information:
                    Eastern Sales Region
Name                  Unpaid bal  Max cred

Off The Wall              800.01       685
Pedal Power Cycles        520.77       416
Flying Fat Aerobics       833.00     1,708
Lift Line Skiing        1,481.00    11,744
Fallen Arch Running       288.00     1,403
Hoopla Basketball          -1.00     1,114
First Down Football     2,011.00     2,187
Batter Up Baseball        160.00     1,962
Blue Line Hockey          440.00     2,143
Hoops Croquet Co.         741.00     1,486
Buffalo Shuffleboard      253.00       223
Fast Flipper Pinball      480.00       472
Ship Shape Yachting       805.00     3,266
Hearts Darts              372.00       327
Jack's Jacks               62.00       104


Press space bar to continue.
```

Figure 5-18: Customer Report

Notice the difference in format between the numbers in the `Max cred` field and the `Unpaid bal` field. Let's reformat the data in the `Max cred` field to show two decimal places like the `Unpaid bal` field. Press the SPACEBAR twice to return to the Report Writer edit screen.

10. Move your cursor to the data area of the Max cred field in the MainDD row. Press OPTIONS (CTRL-O) and select the SETTINGS→FIELD option. The Field Attribute Setting window appears as follows:

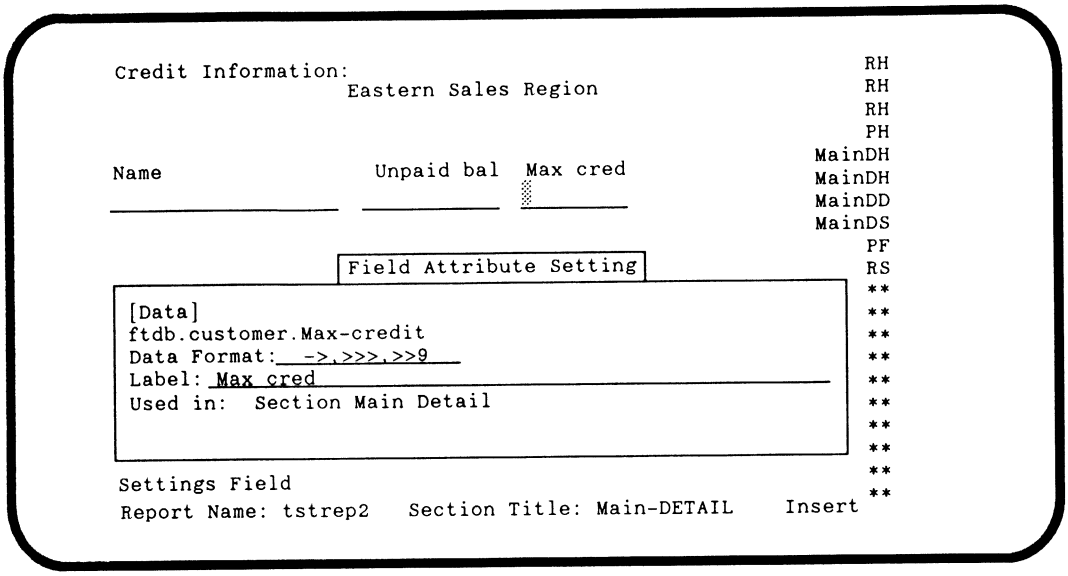


Figure 5–19: Field Attribute Setting Window

The Data field contains the name of the report field. The Data Format field contains the current format defined for the Max cred report field. The Label is the current label defined for the Max cred field. The Used in field tells you what report section or area contains the Max cred field. The default values in the Data format and Label fields are from the schema definition of the customer file in the PROGRESS Data Dictionary. The FAST TRACK Help system gives you information about field formats. You can also consult Chapter 5 in the *PROGRESS FAST TRACK User's Guide* for information about formatting fields.

For now, just add **.99** to the end of the current format in the Data Format field and press GO (F1). This adds two decimal places to the end of the Max cred field format only on the report display and does not change the format of the field in the PROGRESS Data Dictionary.

11. Press OPTIONS (CTRL-O) again and select COMMAND→VIEW. Then press the SPACEBAR to see your report. The tstrep2.p report appears as shown in the following figure:

```
Credit Information:
                  Eastern Sales Region
Name                 Unpaid bal      Max cred

Off The Wall             800.01        685.00
Pedal Power Cycles       520.77        416.00
Flying Fat Aerobics      833.00      1,708.00
Lift Line Skiing       1,481.00     11,744.00
Fallen Arch Running      288.00      1,403.00
Hoopla Basketball         -1.00      1,114.00
First Down Football    2,011.00      2,187.00
Batter Up Baseball       160.00      1,962.00
Blue Line Hockey         440.00      2,143.00
Hoops Croquet Co.        741.00      1,486.00
Buffalo Shuffleboard     253.00        223.00
Fast Flipper Pinball     480.00        472.00
Ship Shape Yachting      805.00      3,266.00
Hearts Darts             372.00        327.00
Jack's Jacks              62.00        104.00

Press space bar to continue.
```

Figure 5-20: Customer Report

Use the SPACEBAR to scroll through the report and return to the Report Writer edit screen.

Now let's insert a variable into the report.

12. Move the cursor to the first row in the report section MainDH. This section contains the labels for all of the fields in the MainDD report section. Position the cursor four spaces to the right of the Max cred label. This is where the variable will appear on the report. Next, press OPTIONS (CTRL-O) and choose the DEFINE→VARIABLES option. You see the Define Variables window.

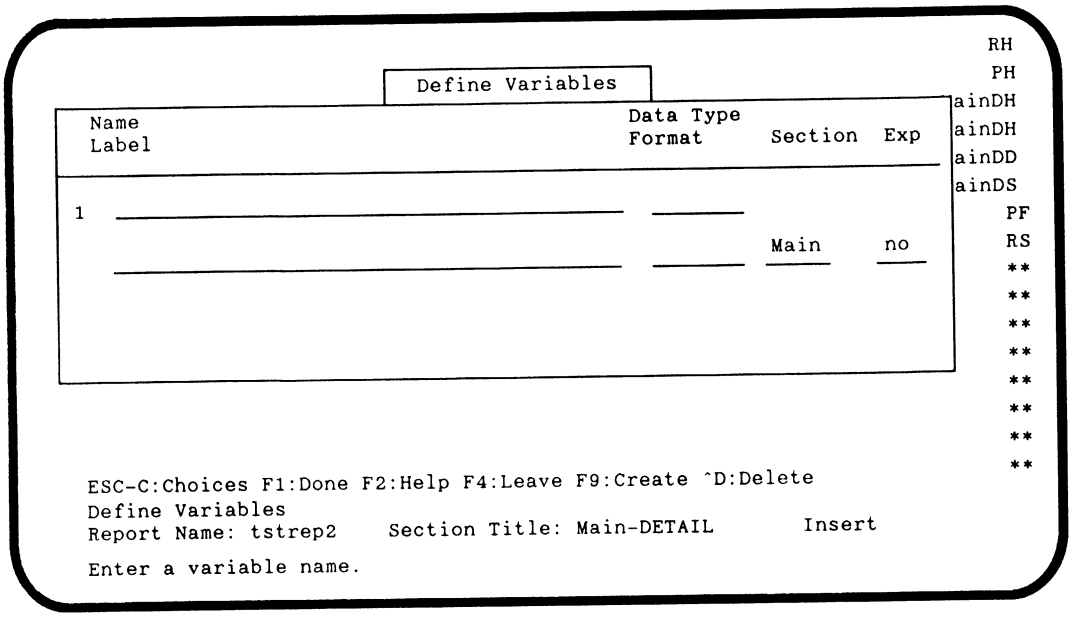


Figure 5-21: Define Variables Window

13. To calculate the difference between a customer's maximum credit and a customer's unpaid balance, you must subtract the unpaid balance from the maximum credit. Let's set up a variable to perform this calculation.

Enter the information in the following figure to create a variable called `avail-cred`.

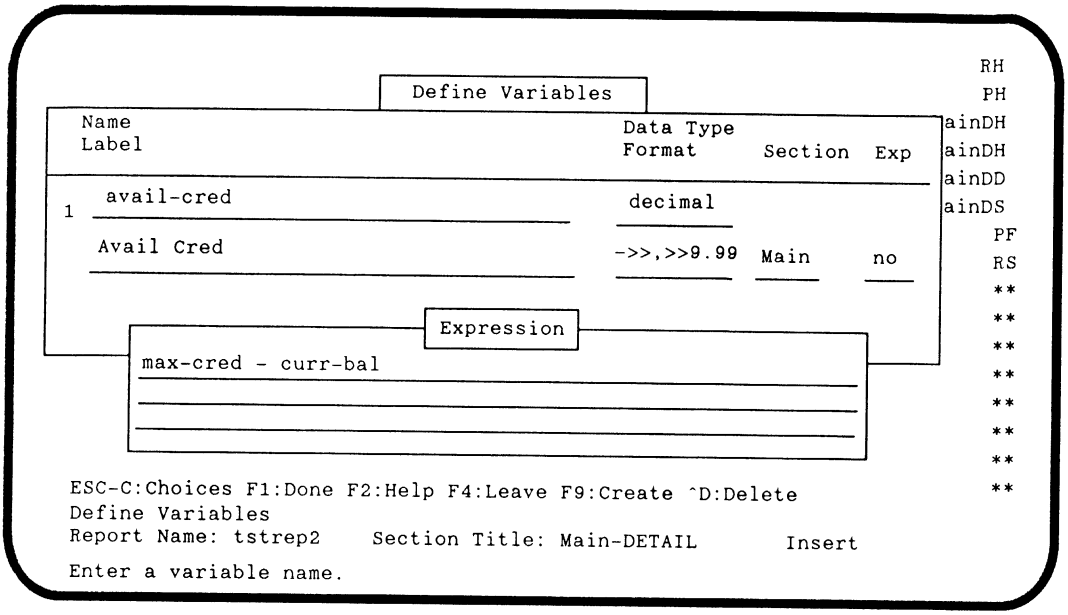


Figure 5–22: Expression Window

The name of the variable is **avail-cred**. The variable will always be a number and it is the difference between two decimal fields, so the data type is **decimal**. The label under which you want to display the data is **Avail cred**. The default format for a decimal number is **->>,>>9.99**, and the variable is in the **Main** data section of the report.

14. When the cursor is in the Exp field, press RETURN to display the Expression window. Expression is another word for the calculation you want FAST TRACK to perform to obtain values for the variable. Enter the expression shown in the preceding figure and press GO (F1). Make sure that spaces surround the minus (-) operator. The Exp field in the Define variables window changes from "no" to "yes". Press GO (F1) again to return to the Report Writer edit screen and save the variable definition.

    In this example, the value of the variable is the value of one field minus the value of another field. However, you can specify a wide variety of calculations for a variable. You can use any operator (addition, subtraction, multiplication, or division), or combination of operators in an expression. Just make sure that each operator has at least one blank space on both sides. You can combine constants (fixed values that you use in the expression) and field values. You can use the value of one or many fields. See Chapter 5 in the *PROGRESS FAST TRACK User's Guide* for more information about operators and expressions.

    Once you define a variable, you must insert the variable into the report.

15. Position your cursor in the first MainDH row and four spaces to the right of the Max cred label, as shown below:

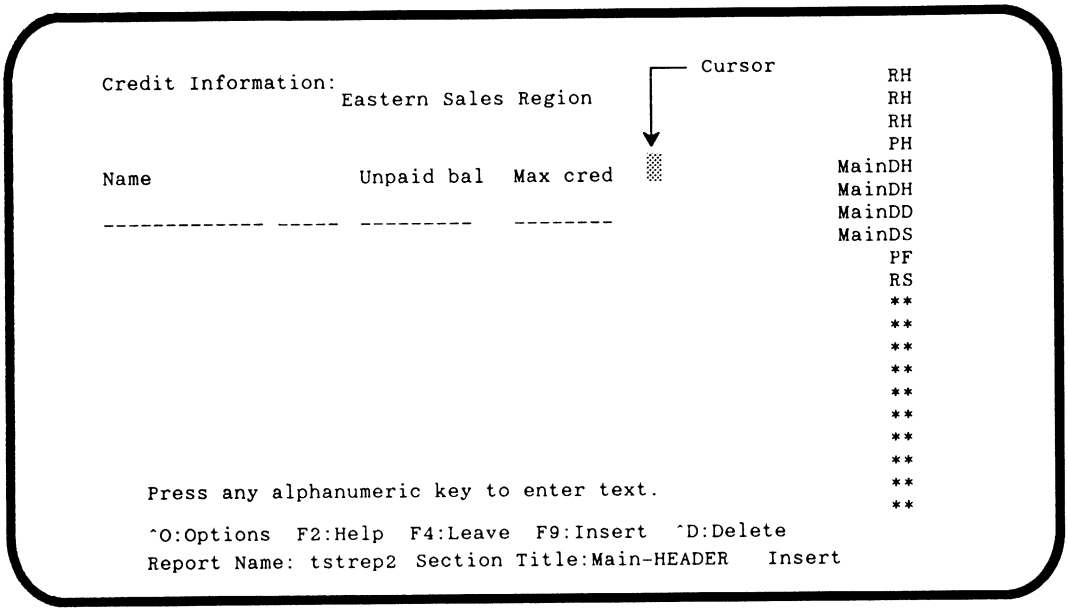
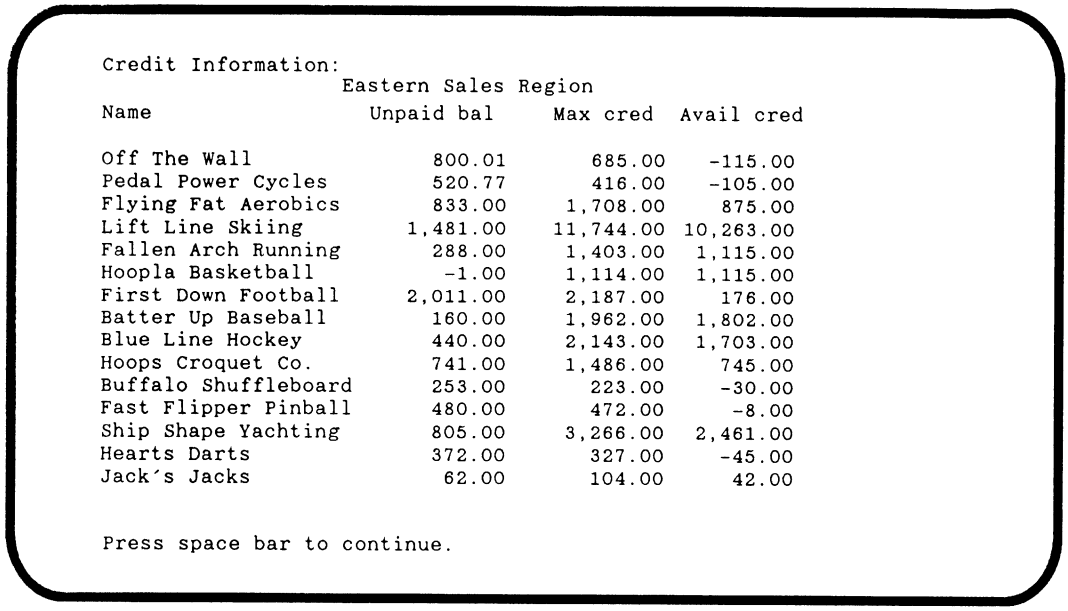


Figure 5-23: tstrep2 Report Structure

16. With the cursor in place, press OPTIONS (CTRL-O) and choose INSERT→FIELD. This opens up a list of file and field choices.

17. Highlight the <variable> selection and press RETURN. A list appears containing all of the variables defined for the current section. The only variable defined for the Main section is avail-cred. (The <new variable> choice lets you define a new variable and insert it at the current cursor location.) Highlight avail-cred and press RETURN. Press GO (F1) to see the Report Writer edit screen with the addition of the avail-cred field.

18. Press OPTIONS (CTRL-O) and choose COMMAND→VIEW. Then press the SPACEBAR to view your report. The first page should look like this:



```
Credit Information:
                  Eastern Sales Region
Name                Unpaid bal     Max cred  Avail cred

Off The Wall            800.01       685.00    -115.00
Pedal Power Cycles      520.77       416.00    -105.00
Flying Fat Aerobics     833.00     1,708.00     875.00
Lift Line Skiing      1,481.00    11,744.00  10,263.00
Fallen Arch Running     288.00     1,403.00   1,115.00
Hoopla Basketball        -1.00     1,114.00   1,115.00
First Down Football   2,011.00     2,187.00     176.00
Batter Up Baseball      160.00     1,962.00   1,802.00
Blue Line Hockey        440.00     2,143.00   1,703.00
Hoops Croquet Co.       741.00     1,486.00     745.00
Buffalo Shuffleboard    253.00       223.00     -30.00
Fast Flipper Pinball    480.00       472.00      -8.00
Ship Shape Yachting     805.00     3,266.00   2,461.00
Hearts Darts            372.00       327.00     -45.00
Jack's Jacks             62.00       104.00      42.00


Press space bar to continue.
```

Figure 5-24: tstrep2 Report

Press the SPACEBAR to return to the Report Writer edit screen. You can also cancel the report display by pressing the END (F4) key.

19. Press OPTIONS (CTRL-O) and select COMMAND→SAVE to save the report as a file in your database.

Now you know how to format data for reports and how to create variables to hold and display temporary data in reports. In the next section, you learn how to break report data into logical groups for display.

5.1.4 Creating a Break-Group Report

Suppose you need to create a report that displays the customer credit information and divides the data into a group for each state in the eastern sales region. The report must contain customer names, available credit (the variable from the previous example), and year-to-date sales for each customer. To create such a report, you break the data into logical groups.

This exercise teaches you how to: modify an existing report, remove fields from a report, select an area and then perform an action on that area, and add break-groups to the report.

To remove an area from a report, first select the area, then remove that area.

1. With the `tstrep2` report on the Report Writer edit screen, move the cursor to the beginning of the row of labels (the first `MainDH` row). Press [OPTIONS] ([CTRL]-[O]) and select the `MOVE→NEXT` option, or press [TAB] to move the cursor to the beginning of the `Unpaid bal` label.

2. Press [OPTIONS] ([CTRL]-[O]) and select `REMOVE→FIELD`. FAST TRACK removes the field from your screen. Now, follow the same procedure to remove the `max-credit` field.

3. Now there is a big gap between the `name` field and the `avail-cred` field. To move the `avail-cred` field closer to the `name` field, position the cursor on the `Avail cred` label and select `PICK→FIELD`. The Report Writer highlights the label and the data area of the field. Next, keeping the cursor on the first `MainDH` row, move the cursor towards the `name` field. Stop 2 spaces to the right of the data area of the `name` field. Press [OPTIONS] ([CTRL]-[O]) and choose `PICK→MOVE`. FAST TRACK moves the `avail-cred` field closer to the **name** field.

   NOTE: Regardless of where the cursor is when a field is picked, the cursor denotes the upper-left corner of the field when it is moved.

   You now know how to delete and move fields in reports.

4. Let's add one more field, year-to-date sales, to the report. Move the cursor (still on the first `MainDH` row) two spaces to the right of the `Avail cred` label. Press [OPTIONS] ([CTRL]-[O]), and choose `INSERT→FIELD`. Select the `customer` file and the `ytd-sls` field. Press [GO] (F1). The `ytd-sls` field appears in your report.

   Now you have a complete report that you can view. However, you still need to break the report into groups according to state.

5. To break the report into groups, position your cursor within the Main data section. Press OPTIONS (CTRL-O), DEFINE→BREAKS. The Break groups window appears. Fill in the window with the information shown in the following figure.

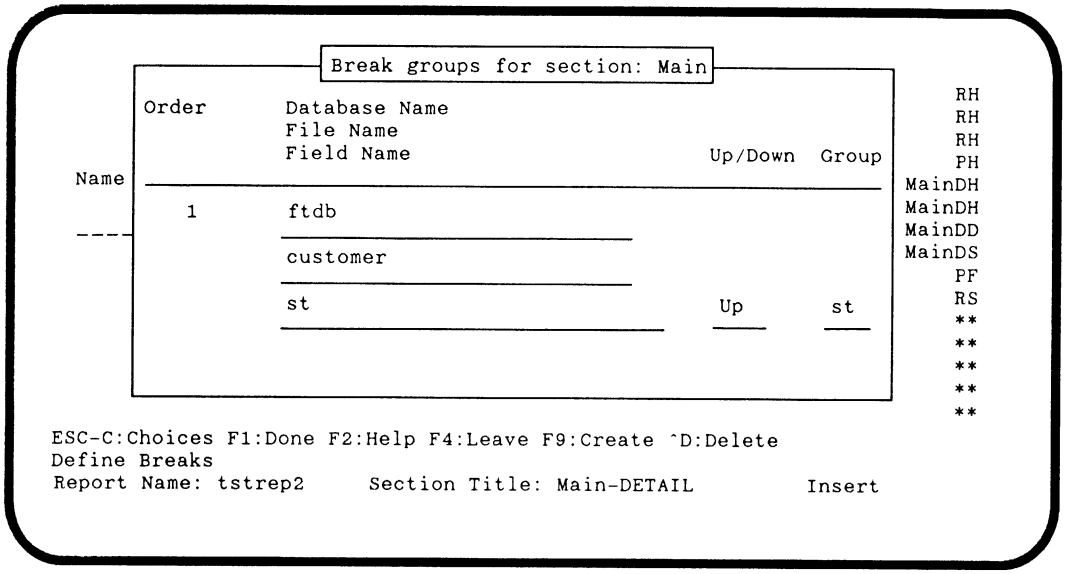


Figure 5-25: Break Groups Window

The Order field contains the number 1 and can not be updated. This number represents the priority of the current break-group in the current report section (Main). The Database Name field specifies the database that contains the files. The File Name field specifies the file containing the field upon which the break-group is determined. The Field Name field specifies the field upon which the break-group is determined. The Up/Down field allows you to sort the break-group in ascending (Up) or descending (Down) order. The Group Name field allows you to name the break group.

Customer is the file you want broken into groups, **ftdb** is the database containing the customer file, and you want the **St** field to determine the groups. Sort the states in the default order (**Up**) and enter **st** as the group name (you must name every break group).

6. Press GO (F1) when you finish filling in the window.

The Report Writer edit screen appears with the addition of the group name in the list of areas and sections. The report should look like this:

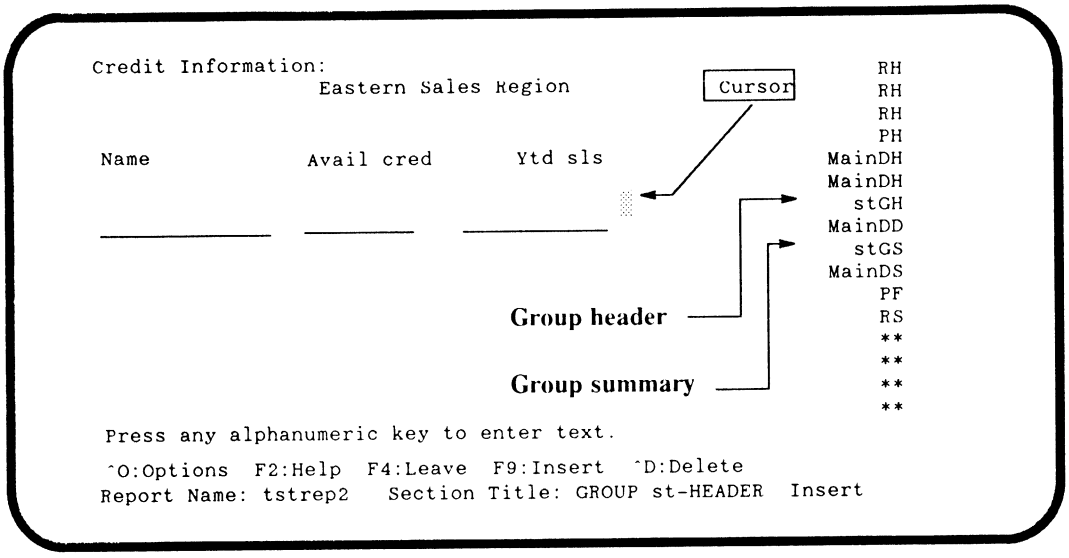


Figure 5-26: Report Structure with Break Group Areas

The stGH (group header) and stGS (group summary) section markers hold places for the break-group header and summary information. For now, let's examine group headers. (The next section in this chapter teaches you how to use the group summary area.)

The group header is the area where you put information about how to divide the report. In our example, because we want to group by state, the state information should appear in the group header line.

7. With your cursor in the stGH area, move the cursor across that line until it is positioned one or two spaces to the right of the ytd-sls field (see preceding figure). Then press OPTIONS (CTRL-O) and select INSERT→FIELD. Insert the st field of the customer file in the report. Press GO (F1). You see the report, including the st field.

NOTE: Fields inserted into report, page, or group headers and summaries rows have side labels by default. You can change the default label format using the SETTINGS→SECTION option.

```
Credit Information:                                          RH
                  Eastern Sales Region                       RH
                                                             RH
                                                             PH
Name              Avail cred     Ytd sls                  MainDH
                                                          MainDH
                                            State:___       stGH
______________   __________   ___________                 MainDD
                                                            stGS
                                                          MainDS
                                                              PF
                                                              RS
                                                              **
Press any alphanumeric key to enter text.                     **
                                                              **
^O:Options  F2:Help  F4:Leave  F9:Insert  ^D:Delete           **
Report Name: tstrep2     Section Title:  GROUP st-HEADER     Insert
```

Figure 5–27: Insert Fields within Break Group Report Areas

8. With your cursor on the State label, press INSERT (F9). This inserts an extra stGH line in your report. The extra line makes the report easier to read.

9. Press OPTIONS (CTRL-O) and choose COMMAND→VIEW. Then press the SPACEBAR to see your report on the screen. The first page should look like this:

```
Credit Information:
                  Eastern Sales Region
Name                Avail cred    Ytd  sls


                                          State: CT
Ship Shape Yachting    2,461.00   39,590.00

                                          State: FL
Chip's Poker           1,324.00   75,690.00
Fallen Arch Running    1,115.00   18,105.05

                                          State: GA
Stay Afloat Swimming   2,076.00   32,663.93

                                          State: KY
Batter Up Baseball     1,802.00   21,400.00

                                          State: MA
Jack's Jacks              42.00    1,143.00

Press space bar to continue.
```

Figure 5–28: Credit Information Report (tstrep2)

You can see how Report Writer divides the report. The customers are grouped by state. The state is displayed to the right and above the column of year-to-date-sales for customers in that state. Press the SPACEBAR until you see the Report Writer edit screen. You can also use the END (F4) key to cancel the report display.

10. Press OPTIONS (CTRL-O) and choose COMMAND→SAVE to save the report to your database. Press the SPACEBAR to continue.

At this point, you have created a sophisticated single-file report. The report is broken into logical categories and it includes a variable. There is one more item that rounds out this report. That item is called an *aggregate* (a predefined calculation on data in existing fields). An aggregate allows you to summarize data in a group. The next section teaches you how to include aggregates in reports.

5.1.5 Using an Aggregate in a Report

In the previous section, you learned how to use group headers for break-group reports. In this section you will learn to use the group summary area (**stGS**) on the report. All of the report summary areas are used specifically to display information that summarizes the data on your report. For example, in the previous section we created a credit report. In that report, it would be useful to take a total of the year-to-date sales for each state. The calculation of the total for a field is called an *aggregate*. Aggregates are calculations that are defined in the Report Writer. You can apply an aggregate to any field in a report and display the result.

If you exited from FAST TRACK after completing the last section, enter FAST TRACK and the Report Writer and open `tstrep2`. If you are already looking at the report screen for `tstrep2`, you can begin.

1. Move the cursor one line below the first dash in the `ytd-sls` data area, on the `stGS` line, as shown in the following figure:

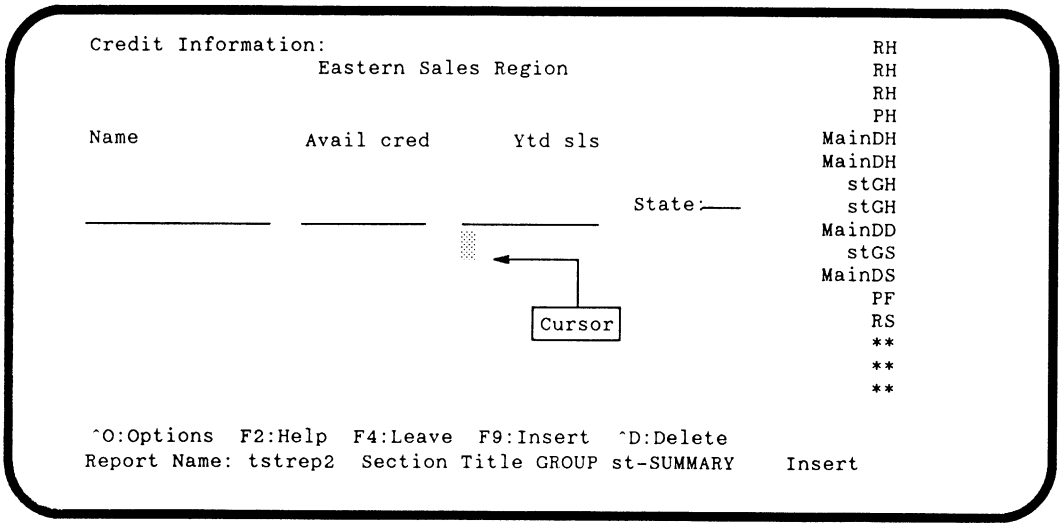


Figure 5–29: Insert Aggregates within Break Group Report Areas

2. Press the INSERT (F9) key to add a line to the stGS section.

3. Press the ↓ key to move the cursor down to the last stGS line. Press OPTIONS (CTRL-O) and select INSERT→VALUE. You see a Choices window that lists all the aggregate value types that FAST TRACK provides. The aggregates are: page-number, time, today, userid, average, count, maximum, minimum, total, sub-average, sub-count, sub-maximum, sub-minimum, and sub-total.

   When you insert an aggregate into a report, you must relate the aggregate to a field in the files defined for the report. The field does not need to be on the report. When you run the report, FAST TRACK performs the aggregate calculations and inserts the value in the report. You can learn more about each aggregate in Chapter 5 of the *PROGRESS FAST TRACK User's Guide*. For now, proceed with our example.

4. Use the ▼ key to highlight the `total` aggregate. Then, press RETURN. The Aggregate window appears as follows:

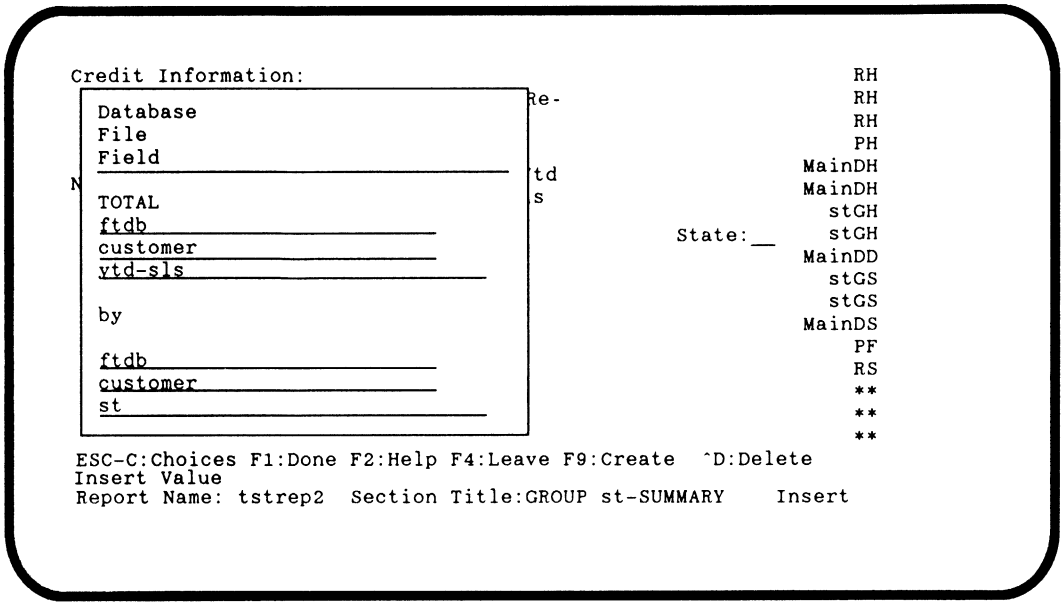


Figure 5-30: Aggregate Definition

The Aggregate window contains the name of the selected aggregate type. This window also prompts you to enter the name of the database, file, and field on which to perform the aggregate operation. If you want to perform the specified aggregate operation on a field based on a logical grouping, there is also a field to specify a grouping field. For example, in the current report, it would be useful to total year-to-date-sales (`ytd-sls`) for each state (`st`). Both of these fields are in the `customer` file.

5. Type in the aggregate information as shown in the preceding figure. When you finish, press GO (F1). The Report Writer edit screen appears with a new data area directly under the `ytd-sls` field.

6. Now you need to label the aggregate. Place your cursor two spaces to the right of the end of the new data area and type the label: **Total sales this year**. The Report Writer edit screen now looks like this:

```
Credit Information:                                                   RH
                   Eastern Sales Region                               RH
                                                                      RH
                                                                      PH
Name              Avail cred      Ytd sls                        MainDH
                                                                 MainDH
                                                                   stGH
                                                    State: __      stGH
______________  __________  ___________                          MainDD
                                                                   stGS
                            ___________ Total sales this year      stGS
                                                                 MainDS
                                                                     PF
                                                                     RS
                                                                     **
                                                                     **
Press any alphanumeric key to enter text.                            **
^O:Options  F2:Help  F4:Leave  F9:Insert  ^D:Delete
Report Name: tstrep2  Section Title:GROUP st-SUMMARY  Insert
```

Figure 5–31: tstrep2 Report Structure

7. Press OPTIONS (CTRL-O) and choose COMMAND→VIEW, then press the SPACEBAR to see your report on the screen. The first page should look like this:

```
Credit Information:
                   Eastern Sales Region
Name                    Avail cred       Ytd sls


                                                   State: CT
Ship Shape Yachting     2,461.00     39,590.00

                                     39,590.00 Total sales this year

                                                   State: FL
Chip's Poker            1,324.00     75,690.00
Fallen Arch Running     1,115.00     18,105.05

                                     93,795.05 Total sales this year

                                                   State: GA
Stay Afloat Swimming    2,076.00     32,663.93

                                     32,663.93 Total sales this year
Press space bar to continue.
```

Figure 5–32: Credit Information Report (tstrep2)

Press the SPACEBAR to move through the report and return to the Report Writer edit screen. You can also use the END (F4) key to cancel the report display.

8. Press OPTIONS (CTRL-O) again and choose COMMANDS→GENERATE to generate a procedure (`tstrep2.p`) containing the PROGRESS code to produce the new report. FAST TRACK displays the following question:

```
Do you want database prefix in file names? yes
```

If the file names are unique to this database, you may type *No*. If the filenames are used in more that one database, this answer must be *Yes*.

9. Press RETURN to accept the default value **yes**. Press SPACEBAR to continue.

10. Press OPTIONS (CTRL-O) and choose LEAVE→SAVE to save the report your database and return to the FAST TRACK Main Menu.

The group summary summarizes information for a group. The summary can contain a variable or an aggregate that calculates and displays relevant information for the group.

Now you know how to create a report and are familiar with the following basic Report Writer skills:

- Qualifying the data for a report.
- Sorting a report.
- Using variables in a report.
- Moving and removing fields from a report.
- Breaking a report into logical groups.
- Using aggregates in a report.

You can combine these capabilities to create complex reports that meet your specific needs. When you begin to write more reports, refer to Chapter 5 in the *PROGRESS FAST TRACK User's Guide* for detailed information about the Report Writer.

You are now ready to learn about reports generated from several files. The following sections of this chapter teach you how to create reports that use fields from several files in your database.

5.2 MULTIPLE-FILE REPORTS

Until now, you have used only one file in each report. You will often want to use several files in a single report. The use of several files in one report increases the importance of the report structure.

The Report Writer supplies a wide range of tools that allow you to relate files on a report and structure your report to reflect those relationships. There are two basic file relationships that occur:

- One-to-one relationships, where one record in a file corresponds to one record in another file.
- One-to-many relationships, where a single record in one file corresponds to several records in another file.

One of the more important concepts that you will learn in the following exercises, is how to use report sectioning to display these two types of relationships.

Report sections are essentially reports within a report. Although you do not have to create new report sections to have several files in a report, the creation of new report sections is an effective tool that allows you to clearly display data relationships in your report. To effectively display a one-to-one relationship between two files, define both files within one report section. The creation of a new report section is most effective when used to display a one-to-many relationship between two files in a report. In this case, the new report section is nested within another report section. Reports that contain nested sections are called *hierarchical reports*. You can, however, use break-groups with a single report section to also display a one-to-many relationship between files.

The following sections contain exercises that will show you how to structure reports to show one-to-one and one-to-many file relationships. By creating these reports, you will learn how to:

- Use several files in a report.
- Relate files in a report.
- Create and use several sections to structure and control the display of a report.

5.2.1 Creating a Simple Multiple-File Report

This section introduces you to a simple multiple-file report that displays a one-to-one relationship between files in the report. Suppose that you want to display a corresponding customer name for each invoice record in your database. The customer information is located in the `customer` file and the invoice information is located in the `agedar` file. Although the `agedar` file contains a customer number, the full name of the customer appears only in the `customer` file. The relationship between the `agedar` file and the `customer` file is a one-to-one relationship. For

each customer number in the agedar file, there is one corresponding customer name in the customer file. For example:

invoice record1 customer record1
invoice record2 customer record2
invoice record3 customer record3
invoice record4 customer record2
etc...

Figure 5-33: Example Report Structure (one-to-one relationship)

As stated earlier, the most efficient way to display a one-to-one relationship between two files in a report is to define both files in one report section. With this concept in mind, let's create this report.

The following exercise shows you how to display a one-to-one relationship between two files in one report.

Begin by creating a new report to work with.

1. Select the Report Writer option from the FAST TRACK Main Menu.
2. When the Report Writer initialization window appears, name this report **tstrep3**, enter **Test Report 3** for the Report Title, and enter **Multiple file report** for the Report Description. Press [GO] (F1). FAST TRACK puts the cursor in the upper left corner of the Main section.
3. With your cursor in the Main section of the report, press [OPTIONS] ([CTRL]-[O]), and choose DEFINE→FILES. The Input Files window appears as follows:

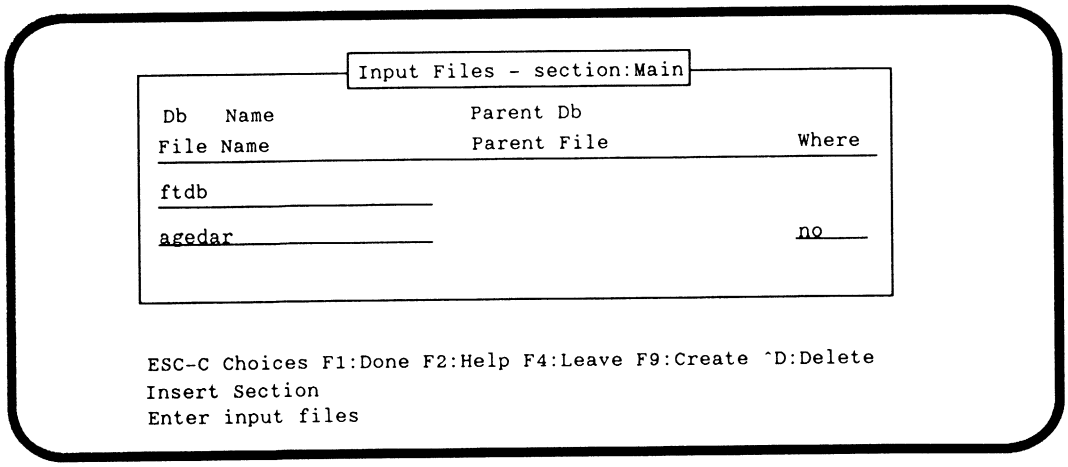


Figure 5-34: Input Files Window

Enter **agedar** as the first input file as shown in the preceding figure. FAST TRACK automatically enters ftdb as the database. You can define more than one file per report

section. Because, the **agedar** file does not contain the name of the customer, you specify the **customer** file as the second input file.

Press the [▼] key to create a new file input line and enter **customer** as the filename on the new line. Again, FAST TRACK automatically enters `ftdb` as the database. Remember, the goal of this report is to print the name of the customer that corresponds to the customer number in an invoice record. There is no defined index relationship between the customer number (`ar_cust`) field of the `agedar` file and the customer number (`cust-num`) field of the `customer` file in the database. However, these two fields contain similar data types and can be used to establish a file relationship using the `Where` field. Leave the `Parent File` field empty for now. You will learn how to use this field later. Press [RETURN] at the `Where` field. The Qualifications window appears.

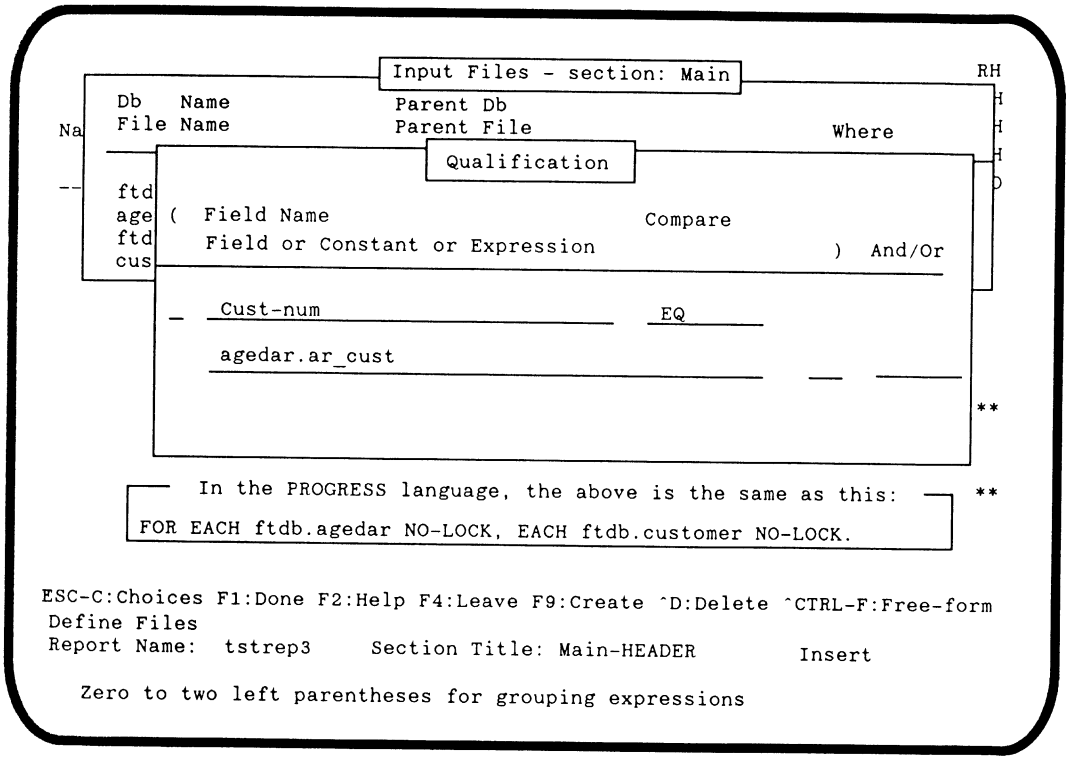


Figure 5–35: Qualifications Window

Fill in the Qualification window as shown in the preceding figure. This qualification relates the `customer` file with the `agedar` file through their respective customer number fields. Press [GO] (F1) to enter the qualification and return to the Input Files window. Notice that the `Where` field now has `yes` in it. Press [GO] (F1) again to enter the file information and return to the Report Writer edit screen.

4. With the cursor still at the beginning of the MainDH row, press OPTIONS (CTRL-O) and choose INSERT→FIELD. This opens up the list of file and field choices.

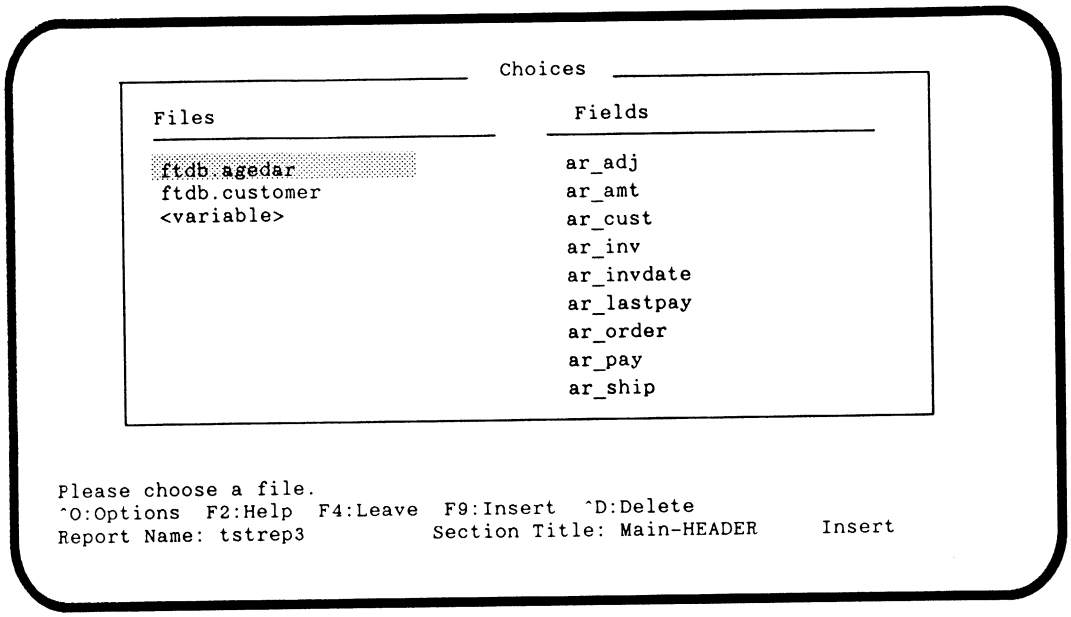


Figure 5-36: Insert Fields

5. The agedar file is highlighted. When a file is highlighted in the files column, the fields in that file appear in the fields column. Press RETURN to select the agedar file and move to the fields column. Select the ar_inv and the ar_cust fields in that order.

6. Press the ← key to return to the files column. Highlight the customer file and press RETURN to move to the field column. Select the name field from the customer file.

7. Press the ← key to return to the files column again. Highlight the agedar file and press RETURN to move to the field column. Select the ar_amt field from the agedar file.

8. Press GO (F1) to enter these fields into the report and return to the Report Writer edit screen. The report structure should appear as follows:

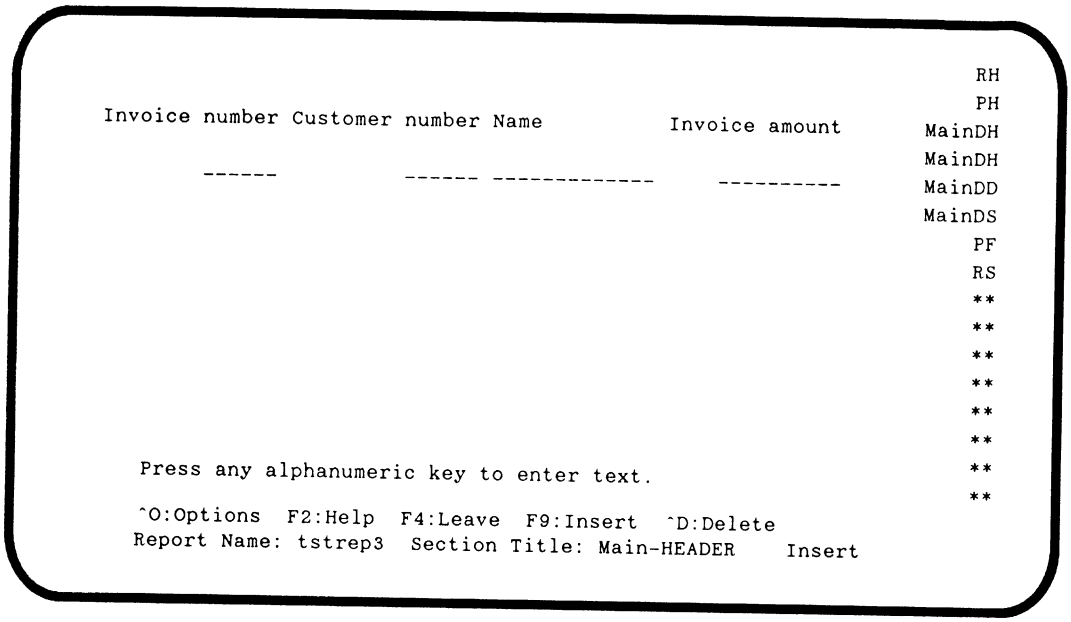


Figure 5–37: tstrep3 Report Structure

9. Press OPTIONS (CTRL-O) and choose COMMAND→VIEW. Then press the SPACEBAR to see your report on the screen.

The first page of the report should appear as follows:

```
Invoice number Customer number Name                    Invoice amount

             1              17 Hard Knocks Skating             80.00
             2              25 Hearts Darts                    81.00
             3              22 Pocket Billiards Co.            84.00
             4               4 Pedal Power Cycles              84.00
             5              13 Blue Line Hockey                87.00
             6               7 Fallen Arch Running             70.00
             7               3 Off The Wall                    63.00
             8               2 Match Point Tennis              59.00
             9              16 Thundering Surf Inc.            57.00
            10               4 Pedal Power Cycles              97.00
            11              10 Hoopla Basketball               98.00
            12               9 Spike's Volleyball              82.00
            13              10 Hoopla Basketball               58.00
            14              15 Hoops Croquet Co.               72.00
            15              12 Batter Up Baseball              58.00
            16              12 Batter Up Baseball             100.00
            17              27 UFO Frisbee                    104.00
            18              26 Jack's Jacks                    88.00

 Press space bar to continue.
```

Figure 5–38: Invoice Report (tstrep3)

Press the SPACEBAR to move through the report and return to the Report Writer edit screen.

10. Press OPTIONS (CTRL-O) again and choose COMMANDS→GENERATE to generate a report procedure (`tstrep3.p`) that contains the PROGRESS code to produce the new report. FAST TRACK displays the message:

```
Do you want database prefix in file names? yes
```

If the filenames are unique to this database, you may type No. If the filenames are used in more that one database, this answer must be Yes.

11. Press RETURN to accept the default value **yes**. Then press the SPACEBAR to continue.

12. Press OPTIONS (CTRL-O) and choose LEAVE→SAVE to save the report as a file in your database and return to the FAST TRACK Main Menu.

Now you should be familiar with how to display a one-to-one file relationship on a report. The report section that you use to show this relationship does not always have to be the `Main` report section, as in the previous example. You can create new report sections to display this type of file relationship. The exercise in the next section shows you how to create new report sections and nest them to efficiently display a one-to-many file relationship.

5.2.2 Creating a Hierarchical Report

The creation of a new report section is most effective when used to display one-to-many relationship between two files in a report. In this case, the new report section is nested within another report section. Reports with nested sections are called hierarchical reports. In the exercise that follows, you will learn how to relate the files on a hierarchical report and structure the report to clearly display the file relationships.

Suppose that you want to display order and order line information for each customer in your database. As you know, customer information is located in the `customer file`. Order information is in the `order` file and order line information is in the `order-line` file. Remember, when you use several files to make up a report, the report structure becomes more important.

The following exercise shows you how to: create a report with nested sections that display one-to-many file relationships. This hierarchical report contains order and order line information for each customer in the database. You will understand more about the structure of a hierarchical report as you create it.

Begin by creating a new report to work with:

1. Select the `Report Writer` option from the FAST TRACK Main Menu.

2. When the Report Writer initialization window appears, name this report **tstrep4**, enter **Test Report 4** for the `Report Title`, and enter **Hierarchical report** for the `Report Description`. Press GO (F1). FAST TRACK puts the cursor in the first label row of the `Main` section.

   Now take a moment to think about the purpose, files, and structure of your report. For each customer in your database, you want to display information about each customer's orders. The `order` file contains information about all orders placed by your customers. You have to draw a relationship between the `customer` file and the `order` file. On your report, the clearest method of displaying this relationship is to list a customer record and then present all the order records that relate to that customer record.

For example:

customer record1
  order record1
  order record2
customer record2
  order record3
customer record3
  order record4
  order record5
  order record6
etc...

Figure 5-39: Example Report Structure (one-to-many relationship)

Using the Report Writer, you can structure your report to display the relationship between the `customer` and `order` files as shown above. As you can see in the preceding figure, there is a one-to-many relationship between customers and orders. There can be many orders per customer.

To obtain the report structure shown in the preceding example, you must create a new nested report section. The outer report section, in this case the `Main` section, should contain the information from the `customer` file. The nested section should contain the information from the `order` file and a relationship definition that displays only the orders that correspond to a particular customer. The following steps show you how to accomplish these tasks.

3. With your cursor in the `Main` data section, press OPTIONS (CTRL-O), and choose `DEFINE→FILES`. The Input Files window appears. Enter **customer** as the input file and press GO (F1). The Report Writer edit screen reappears.

4. With the cursor at the beginning of the first `MainDH` row, press OPTIONS (CTRL-O) and choose `INSERT→FIELD`. This opens up the list of file and field choices.

5. Select the `customer` file by pressing RETURN. The filename is highlighted and the cursor is placed in the field list. Select `name` and `cust-num` from the `customer` file and press GO (F1). These two fields appear on the Report Writer edit screen.

6. Now, let's insert a new nested section into the `Main` section of the report to hold order information for customers. Press OPTIONS (CTRL-O) and `INSERT→SECTION`. The following screen appears:

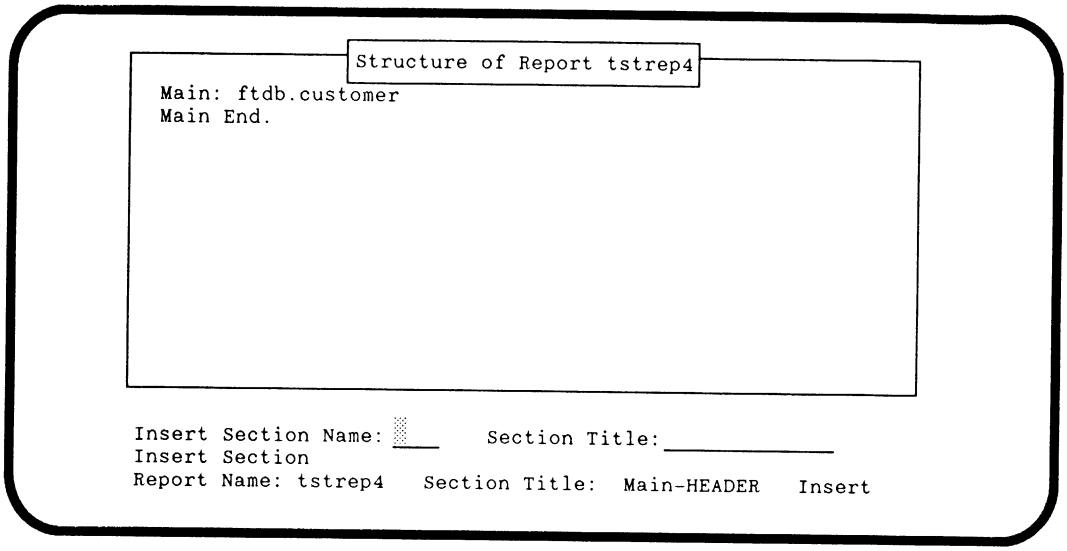


Figure 5–40: tstrep4 Report Structure

This screen displays the current structure of the report. The report contains one section, `Main`, which uses the `customer` file.

7. The cursor is on the `Insert Section Name` field. You can only enter four characters for this field. FASTTRACK uses this name to display the section on the Report Writer edit screen. Type **ord** for the `section name` and **Order** in the `Section Title` field. Then, press RETURN.

The screen now looks like this:

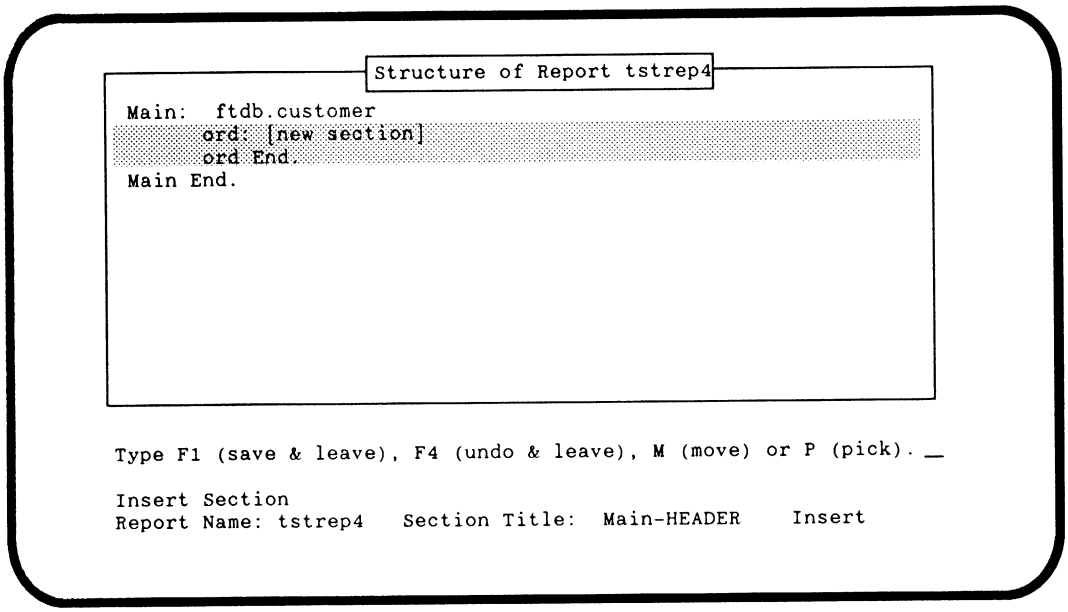


Figure 5-41: tstrep4 Report Structure with ord Section

8. The Report Writer places the new section (ord) within the Main section by default. Notice that the ord section does not yet list a filename. To continue, select one of the options from the list below the structure window. Because the ord section is in the correct location (within the Main section), press GO (F1) to accept the current report structure.

The Input Files window appears and prompts you to define files for use in the new section.

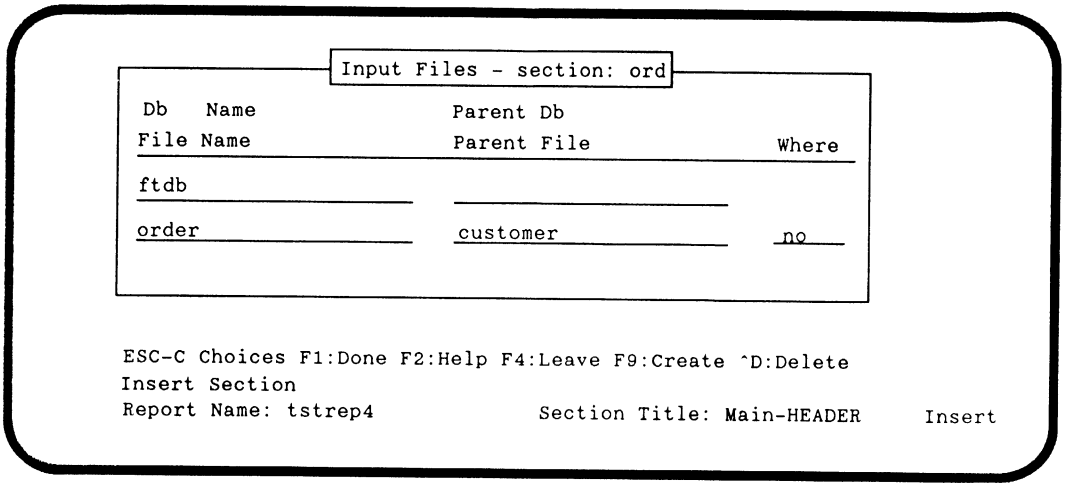


Figure 5-42: Input Files Window

Enter **order** for the filename and press RETURN. FAST TRACK automatically enters ftdb as the database name.

The Parent File field allows you to relate the order file to another file on the report. So far, the customer file is the only other file defined for this report. In order to relate two files on a report using this field, they must be related by a unique index in your database. The customer and order files are related in the database by an index on the cust-num field.

Because you want to show each order for each customer, make the **customer** file the parent file of order. While in this field, you can use the CHOICES (ESC C) key to display a list of acceptable parent files for the file specified in the File name field. If there is more than one unique index in the order file relating to the customer file, you must relate the files explicitly using the Qualifications window.

Leave the Where field set to **no** for now.

9. Press [GO] (F1). The Report Writer edit screen reappears, with a modification. The ord section is now listed in the column of area and section names. When you want to enter information in the ord section of the report, position the cursor on the header (ordDH), detail (ordDD), or summary (ordDS) area of the section.

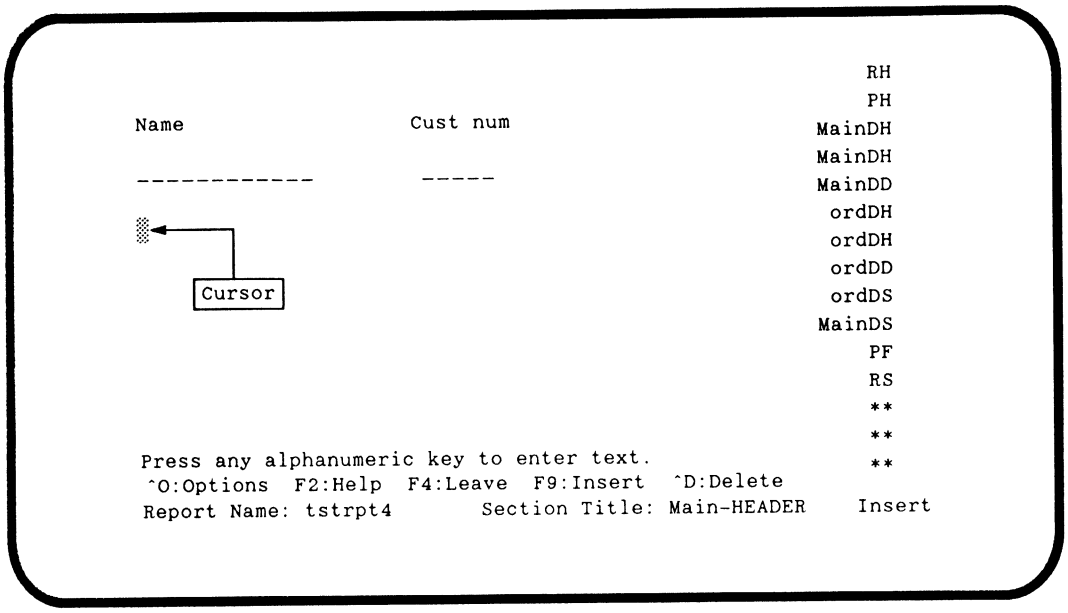


Figure 5-43: Report Writer Edit Screen

10. Move the cursor to the beginning of the second ordDH row (see the preceding figure) and press the [INSERT] (F9) key to add a line to the ordDH section. Press the [SPACEBAR] three times to indent the section. Then, press [OPTIONS] ([CTRL]-[O]) and choose INSERT→FIELD. Notice that the customer file is available for use within this section. Nested report sections can access the files defined for the section in which they are nested.

Select the order file and the order-num and odate fields. Press [GO] (F1). The Report Writer places the fields onto your report. Now the report includes customer and order information.

Take another moment to consider your report structure. You have already taken care of the relationship between customers and orders in the steps above. Now, you have to relate order-line information with each order. Each order-line record contains information about an item used in an order. There can be several items in an order. Your report should have the following structure to effectively show this relationship.

customer record1
  order record1
    order–line record1
    order–line record2
  order record2
    order–line record3
customer record2
  order record3
    order–line record4
    order–line record5
etc...

Figure 5–44: Example Report Structure (one–to–many relationship)

To nest another section within the ord section, you follow the same procedure that you used to insert the order section. This new section will display the order–line information of each order.

11. With your cursor in the Ord section, press OPTIONS (CTRL–O) and choose INSERT→SECTION. The Report Structure screen appears:

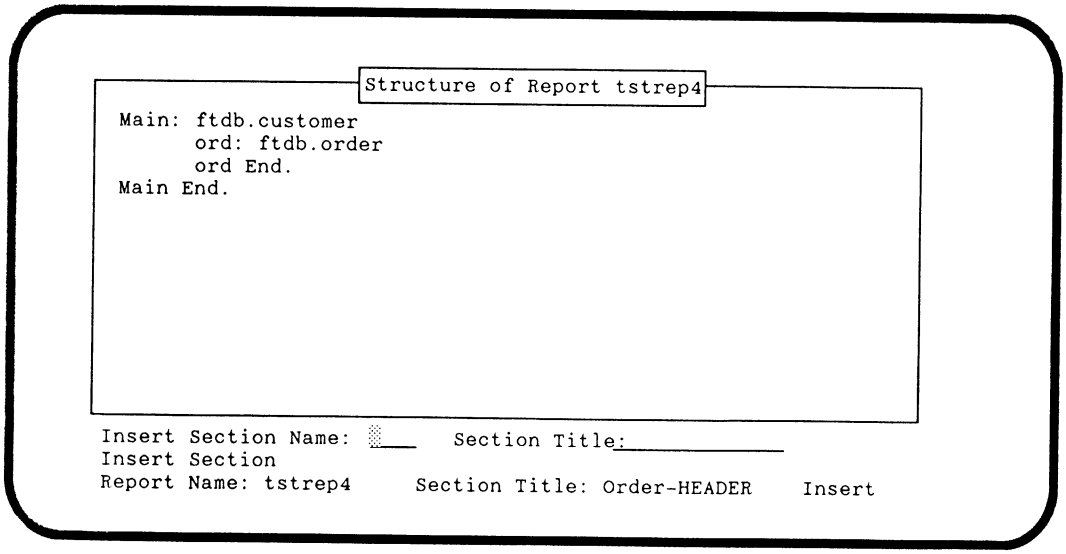


Figure 5–45: tstrep4 Report Structure

12. The cursor is on the Insert Section Name field. Type **olin** for the section name and **Order info** in the Section Title field. Then press RETURN.

The screen now looks like this:

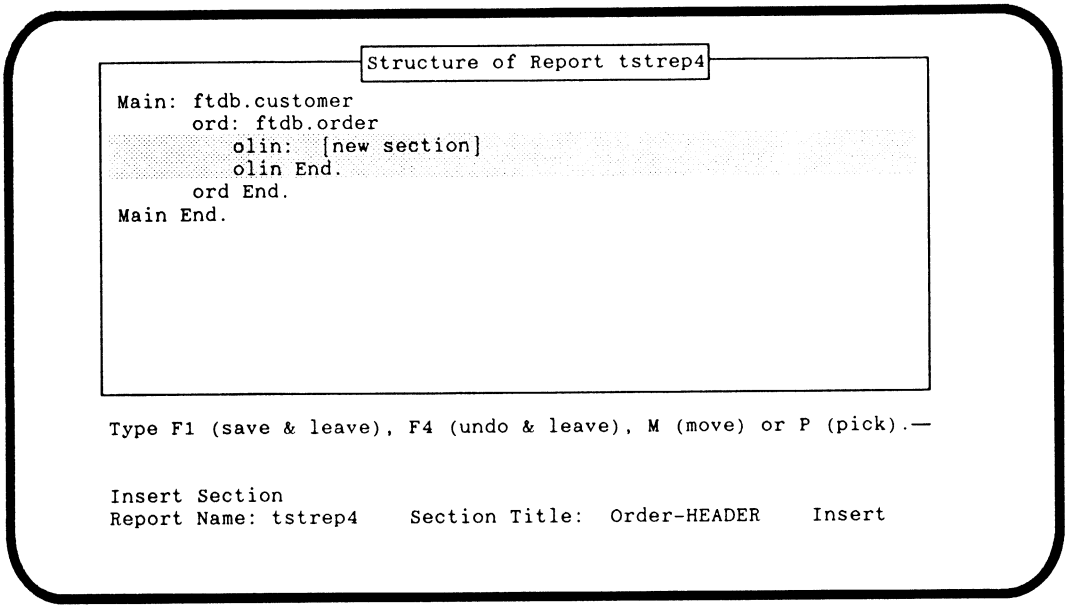


Figure 5–46: tstrep4 Report Structure with olin Section

13. The Report Writer places the new section (`olin`) within the `ord` section by default. To continue, you select one of the options from the list below the structure window. Because the `olin` section is in the correct location, press GO (F1) to accept the report structure.

14. The Input Files window appears. Enter **order–line** for the filename. To display the `order-line` records that are related to a particular `order` record, you must relate the `order-line` file to the `order` file. The two files are already related in the database through an index on the `order-num` field. Enter **order** as the parent file.

15. You can define more than one file per section. The `order-line` file does not contain an item description for items in an order. This information is contained in the `item` file. The `item` file is related to the `order-line` file by an index on the `item-num` field. Press the ↓ key to create a new file input line and enter **item** as the filename and **order–line** as the parent file. This action defines a one-to-one relationship between the `order-line` and `item` files with this new section.

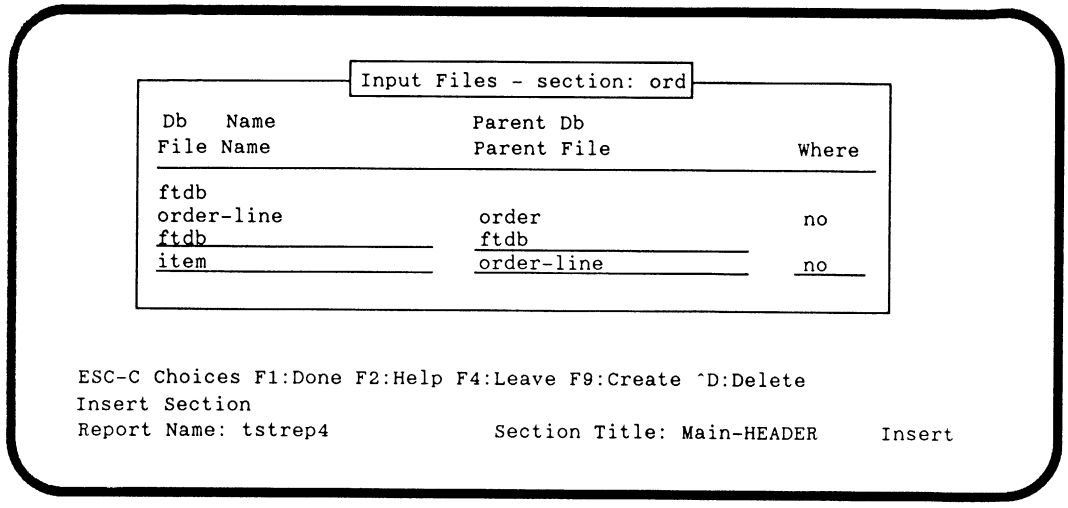


Figure 5–47: Input Files Window

16. Press [GO] (F1). The Report Writer edit screen reappears, with the `olin` section listed in the column of area and section names.

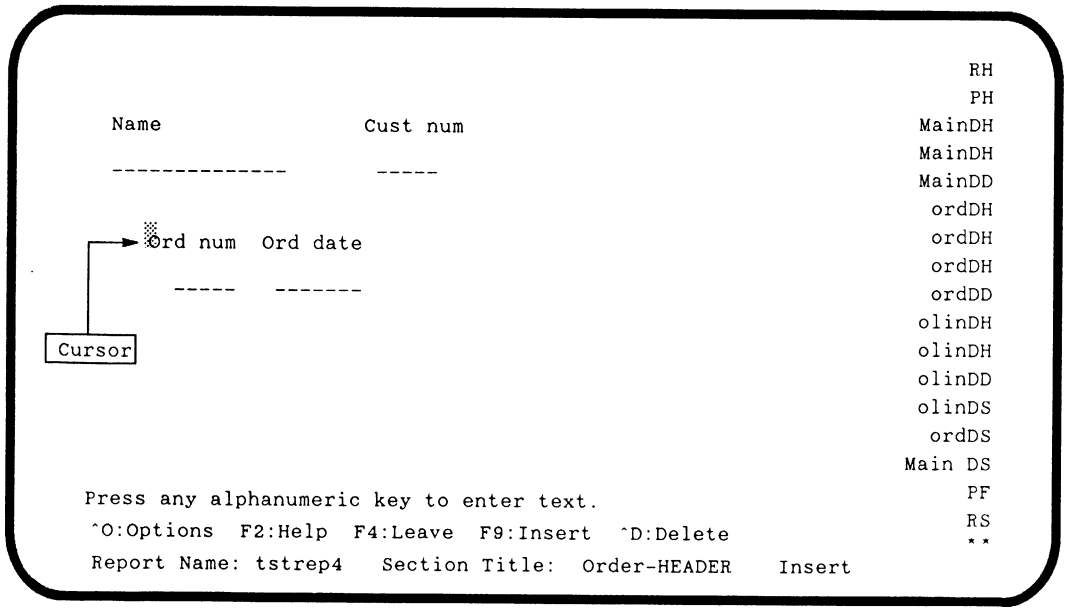


Figure 5–48: Report Writer edit screen

17. Move the cursor to the second `olinDH` row, insert a new `olinDH` line using the [INSERT] (F9) key, and press the [SPACEBAR] three times to indent the `olin` section. Press [OPTIONS] ([CTRL]-[O]) and choose the INSERT→FIELD option. Select the `order-line` file and the `Item-num` field. Use your [←] key to move back to the first column. Select the `item` file and then the `Idesc` field. Finally, select the `order-line` file again and `Qty` and `Price` fields. Press [GO] (F1). The Report Writer inserts the fields in your report. Again, notice that you can access both the `customer` and the `order-line` files in this section without defining them for the section.

```
                                                                   RH
                                                                   PH
Name                Cust num                                  MainDH
                                                              MainDH
--------------      -----                                     MainDD
                                                               ordDH
   Ord num  Ord date                                           ordDH
                                                               ordDH
     -----  -------                                            ordDD
                                                              olinDH
       Item num  Desc              Qty         Price          olinDH
                                                              olinDH
          -----  ------------  ------  ------------           olinDD
                                                              olinDS
                                                               ordDS
                                                              MainDS
                                                                  PF
^O:Options  F2:Help  F4:Leave  F9:Insert  ^D:Delete               RS
Report Name:tstrep4 Section Title: Order info-HEADER          Insert
```

Figure 5–49: tstrep4 Report Structure

18. Press [OPTIONS] ([CTRL]-[O]) and choose COMMANDS→SAVE to save the report as a file to your database.

19. When FAST TRACK finishes saving the report, press the SPACEBAR. Then press OPTIONS (CTRL-O) and choose COMMAND→VIEW. Press the SPACEBAR again to display your report on the screen. The first page of the report should appear as follows:

```
Name                    Cust num
Second Skin Scuba             1
   Ord num  Ord date
         10  09/27/90
      Item num  Desc              Qty         Price
         00001  Fins               56         42.95
         00007  Buoyancy Vest      32        125.00
         00024  Snorkel            76         13.95
Name                    Cust num
Match Point Tennis            2
   Ord num  Ord date
         6  09/13/90
                                 :

Press space bar to continue.
```

Figure 5-50: Customer Order Report (tstrep4)

Press the SPACEBAR several times to scroll through your report and return to the Report Writer edit screen. Your report is essentially complete, however, let's add a report date and paginate the report. You can also use the END (F4) key to cancel the report display.

20. Use the ↑ to highlight the page header section (PH). Press the INSERT (F9) key to insert a new PH row below the current row. Enter the following text: **Report date:**.

21. Then, press OPTIONS (CTRL-O) and select INSERT→VALUE. Highlight the TODAY value and press RETURN. This action places a data area in the PH section. This data area displays the current date every time you display this report.

22. Use the → to move across the PH line approximately 25 spaces and enter the following text: **Page:**.

23. Press OPTIONS (CTRL-O) and select the INSERT→VALUE option. Highlight the PAGE-NUMBER value and press RETURN. This action places another data area in the PH section. This data area displays the current page number.

24. You can also use the page number to format your report. You can specify that each customer begin on a new page in the report. Press [OPTIONS] ([CTRL]-[O]) and select the SETTINGS→PAGE-EJECT option. The following screen appears:

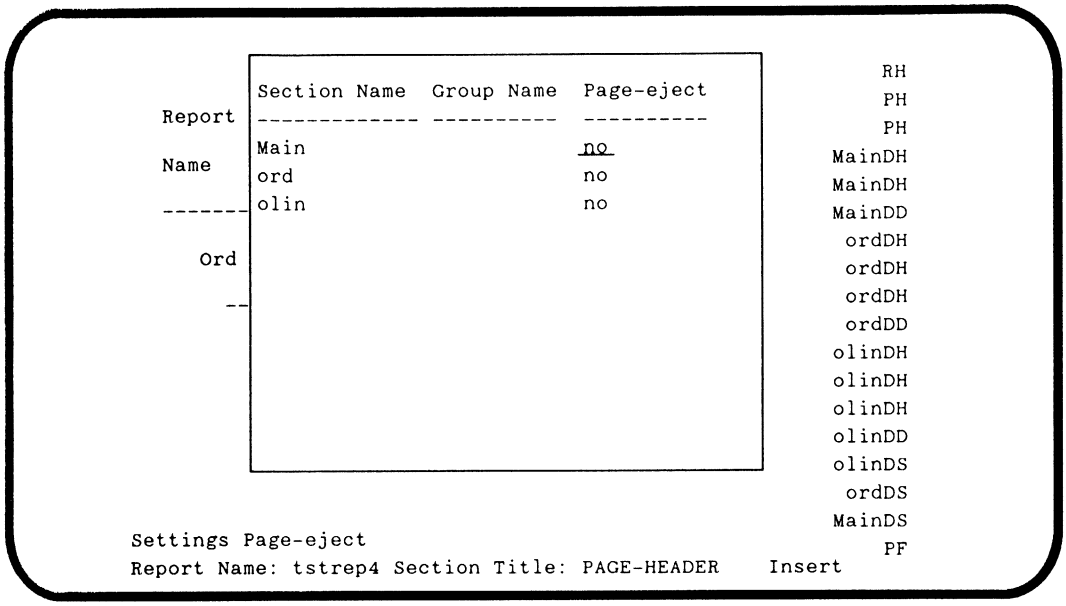


Figure 5-51: Page-eject Window

Notice that each of the report sections appears on this screen. You can specify a page-eject for any section on your report. Enter **yes** to page-eject the `Main` section. This causes each customer on your report to begin on a new page. Press [GO] (F1) to accept the page-eject information and return to the Report Writer edit screen.

25. Press [OPTIONS] ([CTRL]-[O]) and choose COMMANDS→SAVE to save the report in your database. Press the [SPACEBAR] to continue.

26. When FAST TRACK finishes saving the report, press [OPTIONS] ([CTRL]-[O]) and choose COMMAND→VIEW. Then press the [SPACEBAR] to display your report on the screen.

The first page of the report should appear as follows:

```
Report date: 03/29/90                                  Page:  1

Name                    Cust num

Second Skin Scuba             1

   Ord num    Ord date
        10    09/27/90

     Item num     Desc                  Qty          Price

        00001     Fins                   56          42.95
        00007     Buoyancy Vest          32         125.00
        00024     Snorkel                76          13.95


Press space bar to continue.
```

Figure 5–52: Customer Order Report (tstrep4)

Your report lists each customer, the customer's number, the order number and order date for each order placed by the customer, and the information about the items in each order. Press the SPACEBAR to scroll through your report and return to the Report Writer edit screen. You can also use the END (F4) key to cancel the report display.

27. Press OPTIONS (CTRL-O) again and choose COMMANDS→GENERATE to generate a report procedure (`tstrep4.p`) that contains the PROGRESS code to produce the new report. FAST TRACK displays the message:

```
Do you want database prefix in file names? yes
```

28. Press RETURN to accept the default value **yes**. Then press the SPACEBAR to continue.

Now you know how to create a hierarchical report and use report sections to clearly display data relationships.

5.2.3 Redirecting Report Output

The COMMAND→GENERATE option creates and compiles a PROGRESS procedure that contains the code of the report that you are currently designing. The report structure, data information, and settings are coded in PROGRESS and placed in the procedure. FAST TRACK stores the procedure into a file that has the report name and a .p extension. FAST TRACK also stores a compiled version of your report procedure in a file that has the report name and a .r extension.

By default, the output of a report is displayed on the screen of the user running the report. This output destination is coded in the PROGRESS procedure that produces the report output. Displaying your report output on the screen has been helpful in the context of this tutorial; however, you or an end-user may want to send report output to a printer, or a file, or you may want to send it through an output processing program.

To change the destination of your report output, you must change the default report settings. You can access these settings by selecting the SETTINGS→REPORT option from the Report Writer command menu.

The following exercise shows you how to redirect your report output to a printer.

1. You should still be in the tstrep4 report. Press the OPTIONS (CTRL-O) and select the SETTINGS→REPORT option. This option allows you to access the output and security settings for your current report. The following screen appears:

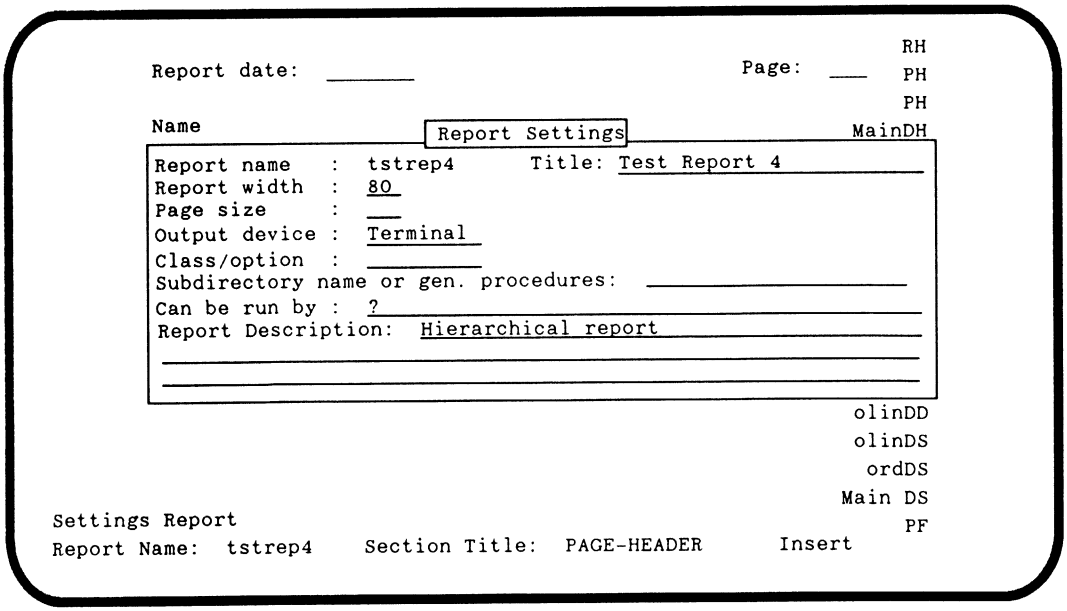


Figure 5–53: Report Settings Window

A full description of the fields and settings on this screen appears in Chapter 5 of the *PROGRESS FAST TRACK User's Guide*. For now, just follow along with the exercise to redirect the output of your report to the default printer.

2. Use TAB or RETURN to move the cursor to the `Output device` field and type the letter **P** for printer. You can enter a specific printer name in the `Class/option` field; however, leave this field empty for this exercise. When you enter "printer" into the `Output device` field and do not specify a printer name in the `Class/option` field, your report output is sent to the default printer.

3. Press GO (F1) to save the current report settings and return to the Report Writer edit screen.

4. Press OPTIONS (CTRL-O) and select the COMMAND→SAVE option to save the report in your current FAST TRACK database. Remember, this option does not generate any PROGRESS code. Press SPACEBAR to continue.

5. Press OPTIONS (CTRL-O) and select the COMMAND→GENERATE option to generate and compile your report procedure (`tstrep4.p`). FAST TRACK displays the message:

```
Do you want database prefix in file names? yes
```

6. Press RETURN to accept the default value **yes**. Then press the SPACEBAR to continue.

Now you can run your report and test where your report output goes. You can use either the OTHER→GOTO option on the Report Writer command menu or the PROGRESS editor to run your report. Let's use the OTHER→GOTO command to test your report.

7. Press OPTIONS (CTRL-O) and select OTHER→GOTO. The GoTo window appears as shown in the following figure:

```
GoTo
Type of object to run: Menu
Name of object to run: _____
```

Figure 5–54: The Go To Window

Enter **report** as the object type and **tstrep4** as the object name. Press GO (F1) to run you report procedure. You will not see the report output on your screen. FAST TRACK displays a message telling you that your report has been sent to the default printer. Press SPACEBAR to return to the Report Writer edit screen.

8. Press OPTIONS (CTRL-O) and select the LEAVE→QUIT option to return to the FAST TRACK Main Menu.

Your report procedure contains the necessary PROGRESS code that directs the report output to a default printer. Every time a user runs the current report, the output will be directed to a default printer. There are other output destinations that you can specify. For example, you can enter **Ask** in the `Output device` field of the Report Settings window and allow a user to direct the report output to a specific device at runtime. If you want to change the report output destination, you must specify a new output device and class/option in the Report Settings window and then use the COMMAND→GENERATE option to overwrite the existing report procedure with the new report code.

5.3 SUMMARY

If you followed along with the examples in this chapter, you should now know how to use the Report Writer to do the following:

- Create and edit several types of single-file and multiple-file reports.
- Define and relate files for use in a report.
- Qualify the data that appears in a report.
- Manipulate data formats for report displays.
- Sort report data.
- Use a variable to perform calculations on report data and display the results.
- Logically group report data using break-groups.
- Summarize report data with aggregates.
- Paginate reports.
- Generate report procedures.
- Redirect report output.

You can combine these capabilities to create complex reports that meet your specific needs. When you begin to write more reports, refer to Chapter 5 in the *PROGRESS FAST TRACK User's Guide* for detailed information about the Report Writer.

Chapter 6
The QBF Generator Tutorial

QBF stands for "Query-By-Form." In a QBF operation, you can access information in the database through forms rather than through a query language such as PROGRESS. The form determines what information is entered into or retrieved from a database file and how that information is organized on the screen. You can use the Screen Painter to create forms for QBF operations. If a form does not exist for a file, the QBF Generator creates a default form to be used in the QBF operation.

This chapter shows you how a QBF procedure can perform the following actions:

- Look at individual records in a database file, move forward and backward through the database file one record at a time, or go directly to a specific record. You can also print records.
- Find and view related records from several files.
- Search for a subset of records in the database file. You select a subset of records by defining search criteria that a record must pass in order to be included in the subset.
- Perform database file maintenance operations on the records in the form. These operations include adding, deleting, and updating records. If you have PROGRESS Query/Run-time, you will not be able to add, delete, or update records in the database with the QBF Generator.
- Provide scrolling capabilities if you generate the QBF procedure against a down form.

Figure 6–1 shows a "customer" form in a sample QBF procedure.

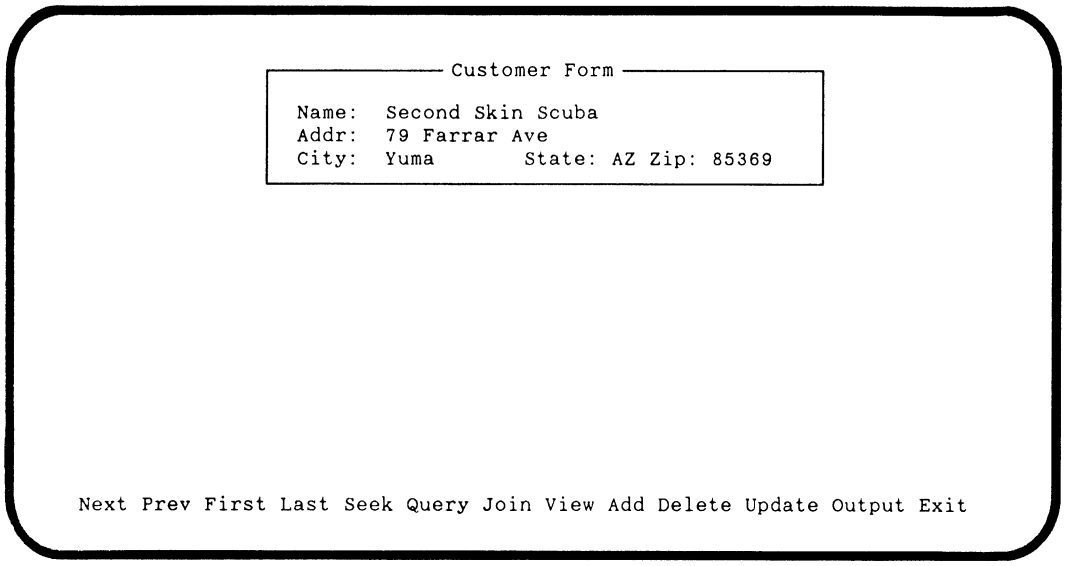


Figure 6–1: A Customer QBF Procedure

The form appears at the top of the screen. Along the bottom of the screen, the procedure displays a command menu of options for accessing information in the database file.

You can use the QBF Generator to create QBF procedures for individual forms that you have created with the Screen Painter. When you generate a QBF procedure, you can define certain characteristics of the QBF, as shown in Figure 6-2.

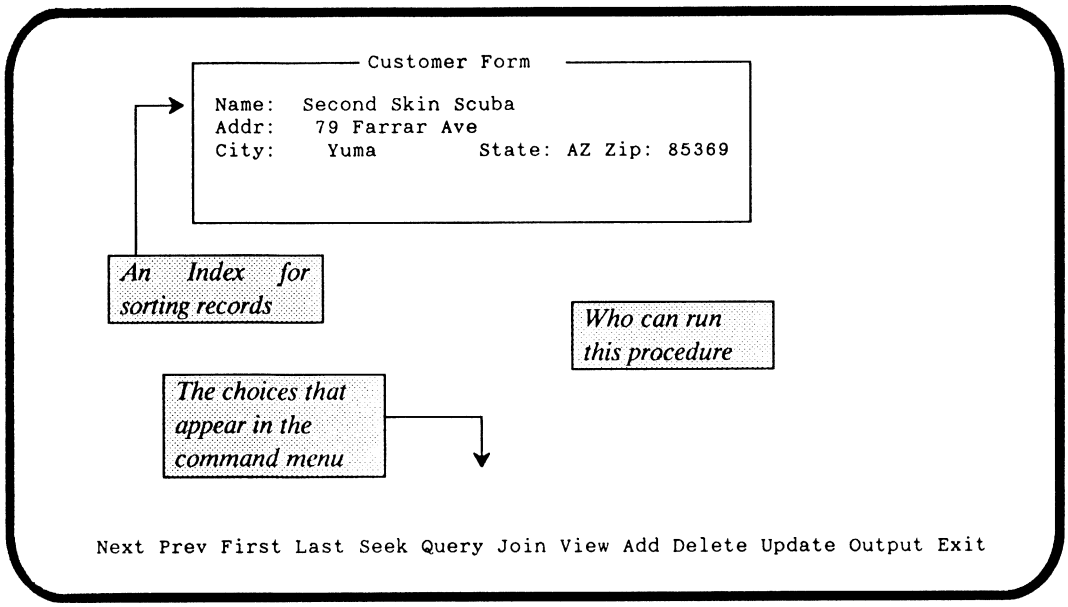


Figure 6–2: Characteristics of a Single QBF Procedure

When you run the QBF Generator from the FAST TRACK Main Menu, you first select the files for which you want to generate a QBF. FAST TRACK will automatically generate a default QBF form for each of the selected files as well as one additional QBF for each form defined for those files. The QBF Generator produces a main menu that lets you access all of the generated QBF procedures. When you generate QBFs from the Main Menu, you cannot customize all of the settings. By default, the primary index is used for sorting records and all options appear on the command menu. Generating QBF procedures for every file in your current database is one way to test your database design.

6.1 A TUTORIAL PROJECT

The example in this chapter builds a QBF operation to query data in three related files: a customer file, a sales representative file, and a state file. These files are located in a copy of the demonstration database. See Chapter 1 of this book for information about how to copy the mycopy database from the demonstration database and start FAST TRACK. Familiarize yourself with the schema of the demonstration database in Appendix A before attempting to do these exercises. You can also view the database schema using the PROGRESS Data Dictionary from the PROGRESS Help option on the FAST TRACK Main Menu.

6.1.1 Creating a QBF Procedure

This exercise teaches you how to choose those files that you want to query and how to create a QBF procedure called qbfmen1.p.

1. Choose the QBF Generator option from the FAST TRACK Main Menu. The QBF Generator displays a list of file choices as shown in the following figure:

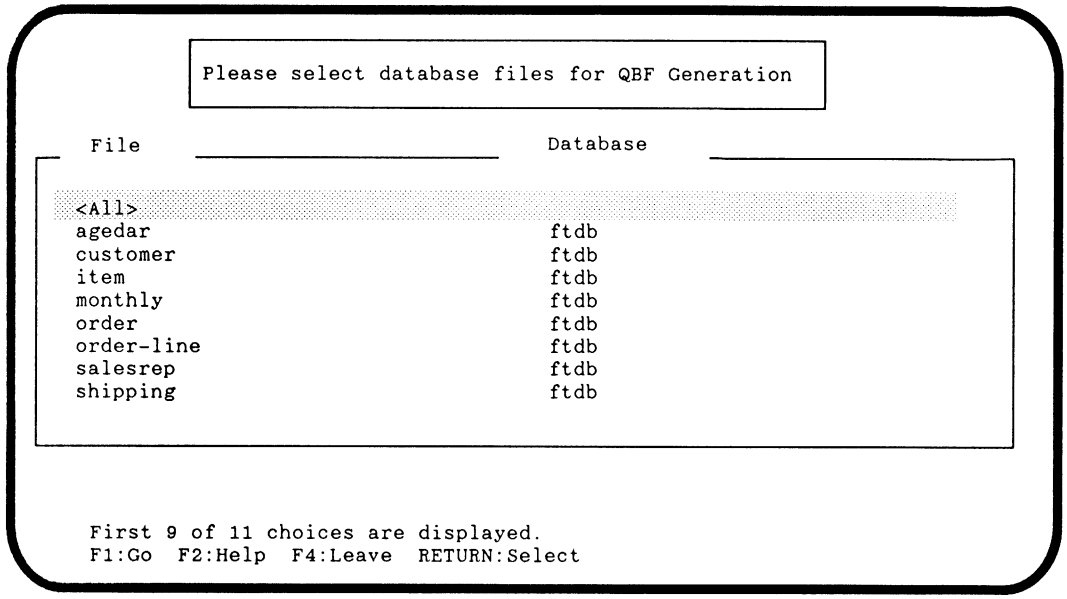


Figure 6–3: The QBF Generation Database File Choices Window

2. The choices window contains the name of all of the files in the current application database. This file listing allows you to select the files to be to generate the QBF procedures. Use the ↓ to highlight the customer file in the list of choices and press RETURN.

   An asterisk (*) appears beside the choice to indicate that the customer file has been chosen. If you make a mistake, you can unmark a filename by highlighting it again and pressing RETURN.

3. Now repeat step 2 to choose the salesrep file.

4. Next, you want to choose the state file, but it is not visible on the list. Press the ↓ key until it appears. Notice how the window scrolls to show you the state file. Press RETURN.

5. Press GO (F1). The list of choices disappears and the cursor moves to the QBF Generation Options window. This window requests that you specify certain information needed by the QBF Generator.

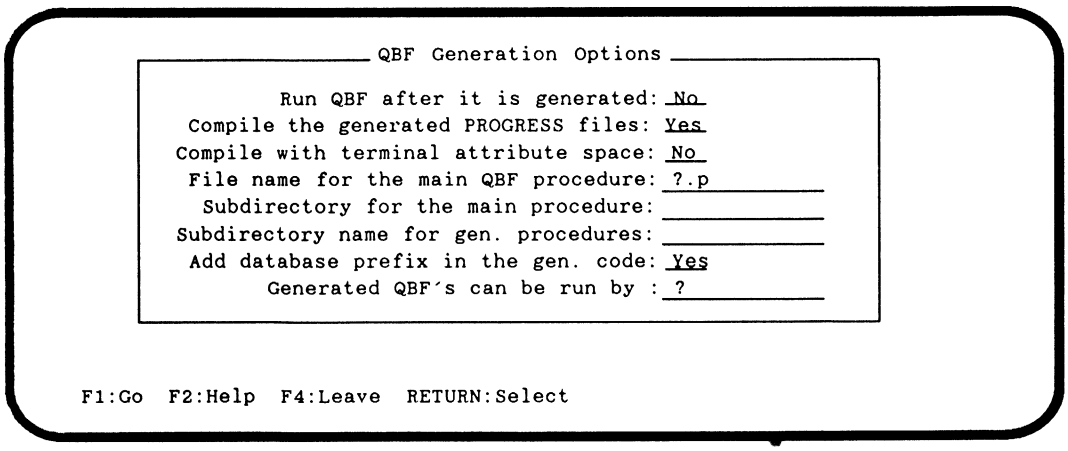


Figure 6–4: The QBF Generation Options Window

6. Enter **Yes** for the `Run QBF after it is generated` option. This instructs FAST TRACK to run the QBF procedure immediately after the QBF Generator creates it. If you answer No, the FAST TRACK Main Menu appears immediately after the generation of a QBF procedure.

7. Press ↓ to move the cursor to the `Compile the generated PROGRESS files` option. Accept the default, yes, by pressing RETURN. Compiling the QBF procedures can make your application run much faster.

8. If you plan to run the QBF on a spacetaking terminal, enter **Yes** for the `Compile with terminal attribute space` option. If you are sure that the QBF will be run only on a non-spacetaking terminal, enter **No**. See Chapter 7 of the *Programming Handbook* for more information about spacetaking and non-spacetaking terminals.

9. For the purposes of this tutorial, type the name **qbfmen1.p** for the `File name for the main QBF procedure` option and press RETURN.

   You can give your QBF procedure any name that you like. The QBF Generator automatically adds the `.p` (for procedure) extension to the name that you entered. The QBF procedure named in this field is the procedure that generates a main menu for the QBF operation and accesses the QBF procedures generated for the `customer`, `salesrep`, and `state` files.

   The `Sub-directory for the main procedure` option allows you to specify the sub-directory in which you want the main QBF procedure to be located. For the moment you do not need to specify a subdirectory. By default, FAST TRACK places the file in your current working directory.

The `Sub-directory name for gen. procedures` option allows you to specify the sub-directory in which you want the generated QBF procedures to be located. For the moment you do not need to specify a subdirectory. By default, FAST TRACK stores the procedures for the default forms in a subdirectory with the same name as the logical name of the file's database. If you are using proft as startup script, the default logical name is ftdb. (QBF's for existing forms are, by default, stored in the current working directory).

The `Add database prefix in the gen. code` option allows you to specify whether or not the database prefix will be added to the generated code.

10. Press GO (F1) to enter the QBF options and generate the QBF procedures. FAST TRACK displays a message that the default form name for the file customer will be truncated to 7 characters.

    The QBF Generator automatically creates a default form for each of the files specified for the QBF procedure. After creating each of the forms, the QBF Generator generates the QBF procedure for the form. If there are other forms created by the Screen Painter that associated with the specified files, the QBF Generator will also generate a QBF procedure for those forms.

    The QBF Generator also generates the menu that ties all of the QBF procedures created for the specified files together. Each of the options on the main menu of the QBF procedure is the name of the form that it uses to query the database.

    NOTE: The QBF Generator cannot generate a QBF procedure for forms that contain variable fields.

11. As it works, the QBF Generator informs you of its actions by displaying messages as it creates default forms for files, generates QBFs for forms, and compiles the QBF procedures.

    This process can take several minutes to complete because the QBF Generator is creating a QBF procedure for each form plus a default form for each file, as well as a menu to drive the new procedures.

6.1.2 Using a QBF Procedure

By default, the QBF Generator returns to the FAST TRACK Main Menu after it generates a procedure. However, because you entered *Yes* to the `Run QBF after it is generated` field, the QBF Generator automatically runs the `qbfmen1.p` procedure after it generates the procedure.

It is important to remember that you are now in the `qbfmen1.p` procedure and are no longer using the FAST TRACK QBF Generator. A menu of QBF names appears as shown in the following figure. There is a menu entry for each of the forms generated by the QBF generator.

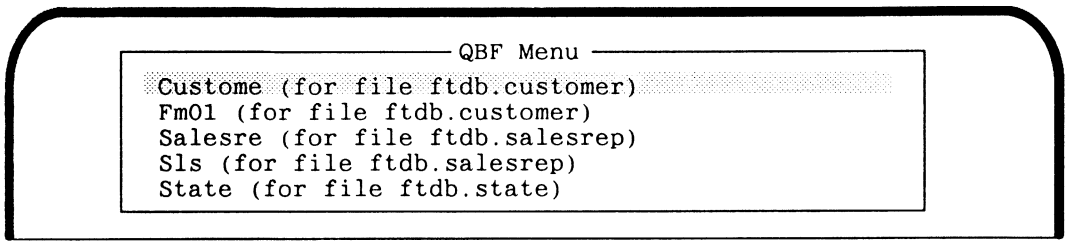


Figure 6–5: Menu of QBF Procedures for qbfmen1.p

You can now use your QBF procedure to query the selected database files.

This exercise teaches you how to: use a QBF procedure (qbfmen1.p) to run query forms for selected records, move through the QBF command menu, and view selected records.

At this point, the `Custome` QBF option is highlighted in the QBF names menu. Assume that you need to browse through this file.

1. Press RETURN to choose the `Custome` QBF.

The following form appears:

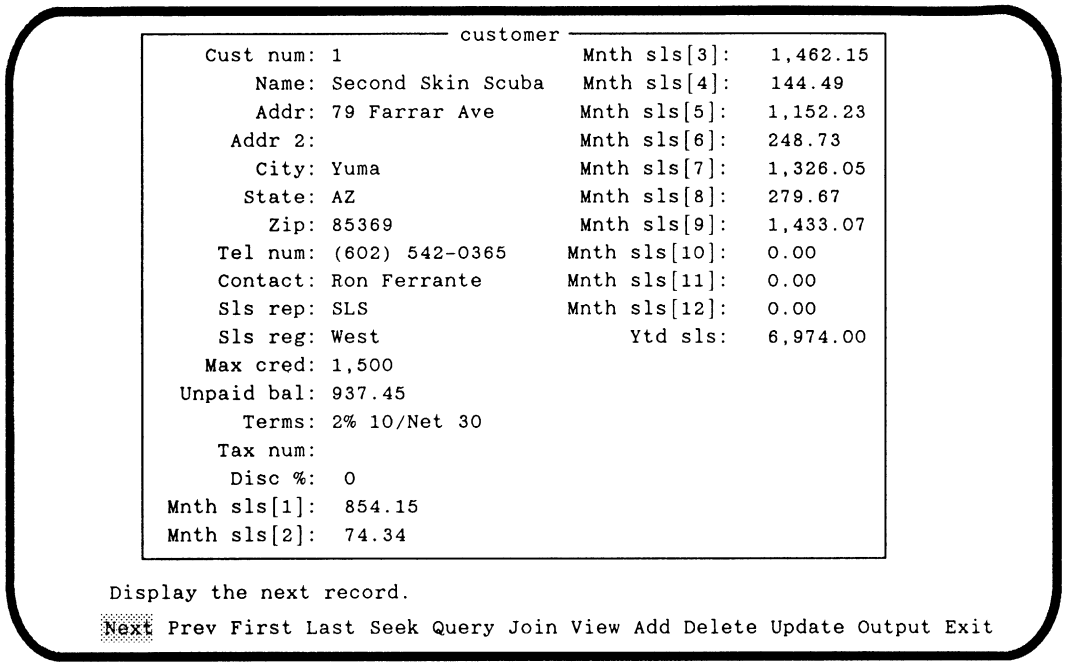


Figure 6-6: Customer QBF Form

The form shows the first record in the customer file. Each record is indexed by the customer number, which is the primary index field. At the bottom of the screen is a command menu of options that will aid you in moving around in the database.

The following table summarizes all of the command menu options:

Table 6-1: QBF Command Menu

Option	Action
NEXT	Displays the next record in the file.
PREV	Displays the previous record in the file.
FIRST	Displays the first record in the file.
LAST	Displays the last record in the file.
SEEK	Displays a record based on index value you specify.
QUERY	Finds records that match the qualifications you specify.
JOIN	Joins two related files.
VIEW	Displays available QBF forms.
ADD	Adds a record to the file.
DELETE	Deletes a record from the file.
UPDATE	Lets you edit and update the current record.
OUTPUT	Sends the current record to a specified output device.
EXIT	Exits the current process.

You will use these menu options throughout this chapter.

2. Type **N** or press RETURN to choose the NEXT option from the command menu.

   This option displays the next record in the file. Because the `customer` file is indexed by the customer number, an integer, the NEXT option displays customer number 2. The order in which the records appear is determined by the primary index of the file.

3. Choose the SEEK option by typing **S**. This option allows you to display a particular record by entering an index value. When you choose SEEK, FAST TRACK displays an empty form for the `customer` file, as shown in the following figure. The cursor is in the customer number field of the `customer` form.

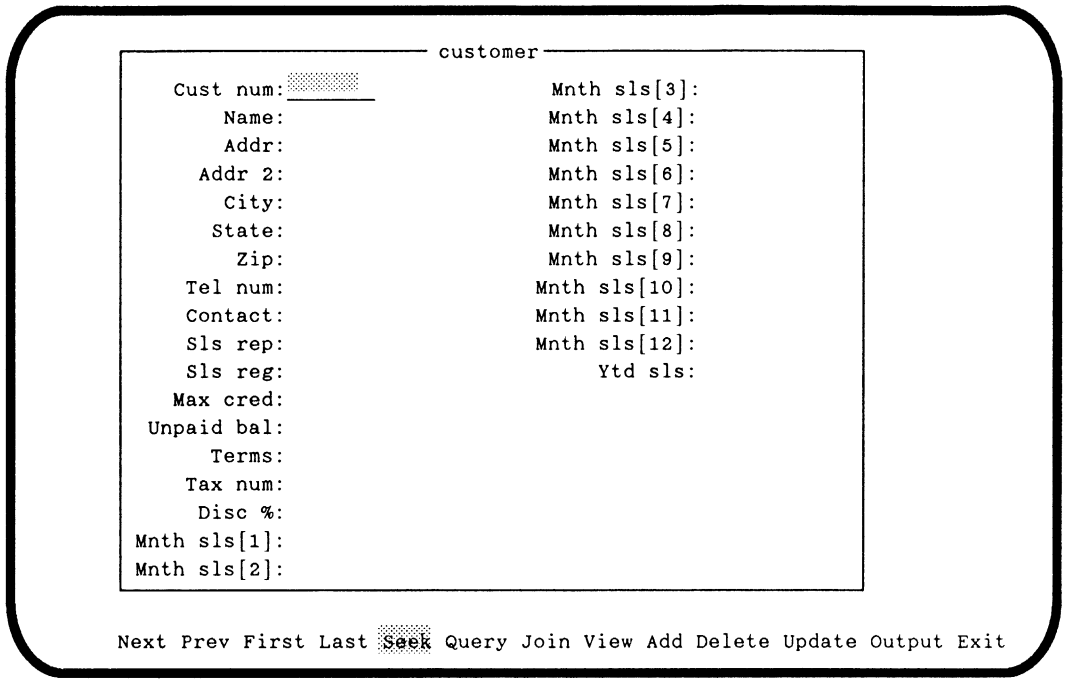


Figure 6–7: The SEEK Option

4. Type **22** and press RETURN. FAST TRACK displays the record for the customer with customer number 22.

5. Type **V** to select the VIEW option from the command menu. The menu of available QBF forms appears as shown in the following figure. The view option allows you to search for and inspect records in another file.

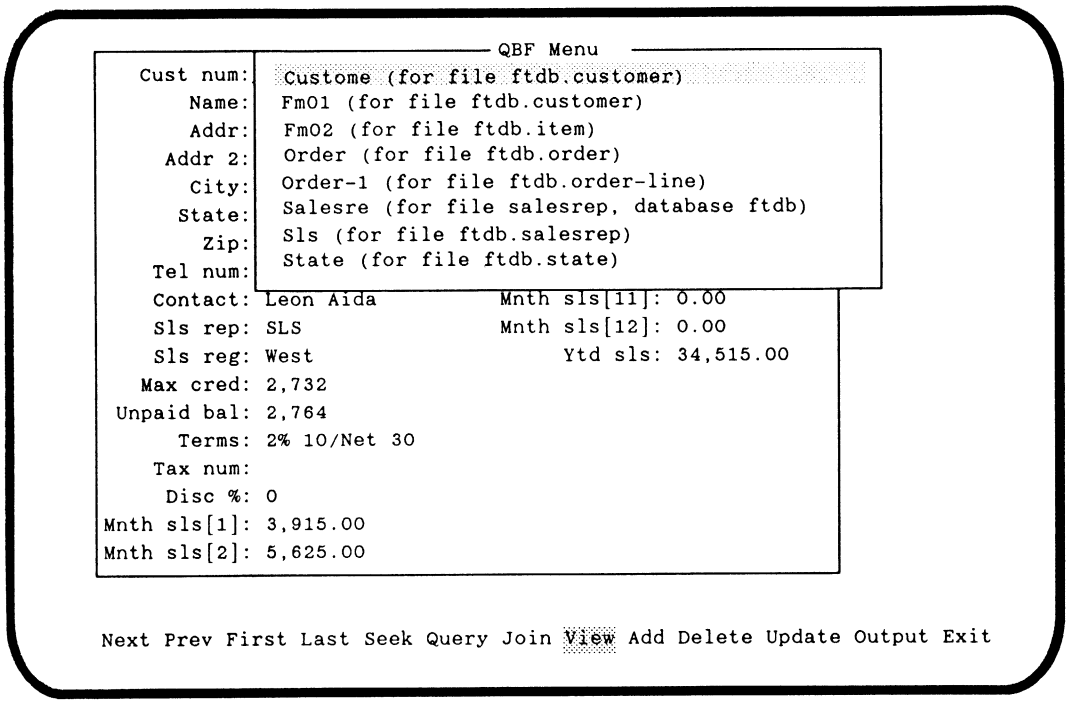


Figure 6–8: The VIEW Option

6. Use the ↓ key to highlight the salesre QBF and then press RETURN. The following form appears:

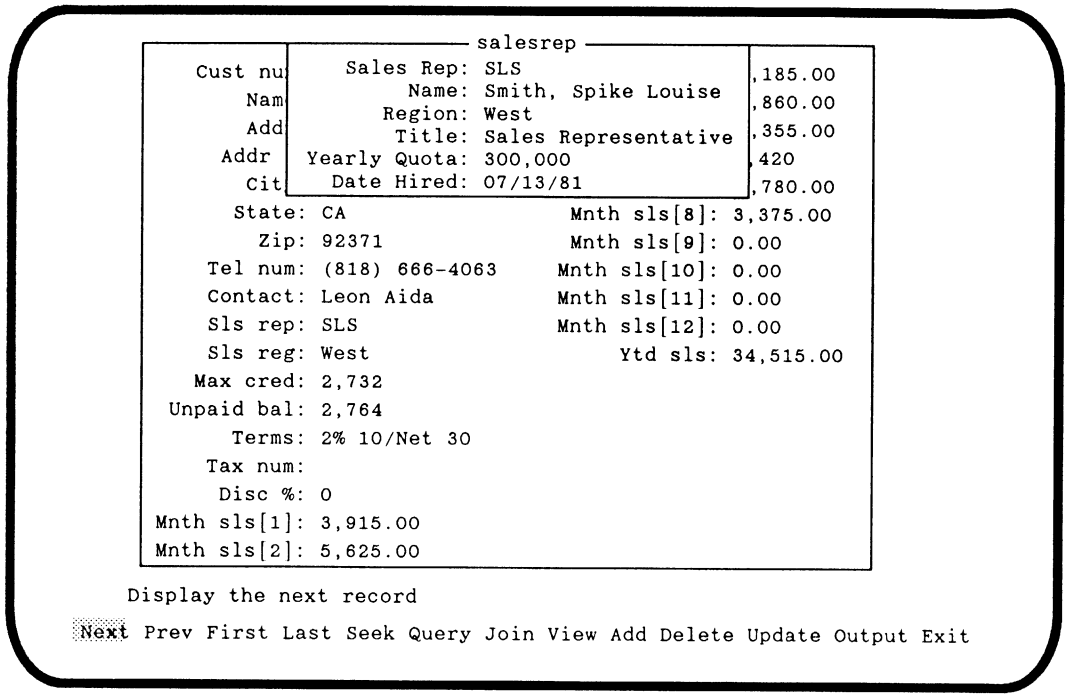


Figure 6-9: salesre QBF Form (VIEW Option)

The salesrep file is indexed alphabetically by the sales representatives' initials, and all of the records for the salesrep file are available for inspection.

The sales representative for this account is SLS. To see the salesrep record for SLS, type **S** for Seek and type **SLS.**

Note that you may perform any QBF operation on the current file. For instance, you could update, delete, or add a salesrep record at this time. You can even view another file.

7. Choose the EXIT option by typing **E.** This option exits from the process that you are currently using, a VIEW on the salesrep QBF. The customer QBF reappears.

8. Type **E** again to exit the customer QBF form and to return to the QBF menu.

6.1.3 Joining Files

You can use the JOIN option in your QBF procedure to access records in a related file. Two files are *related* if all index fields in a unique index in one of the files exists with the same names and data types in the related file.

Note that the JOIN procedure does not allow you to browse through an entire file, unlike the VIEW procedure. The only records you see are the related records. You can use the JOIN option to display a one-to-may relationship between two files. For example, all of the orders of a customer. Or you can use the JOIN option to display a one-to-one relationship between two files. For example, the customer that corresponds to an order.

This exercise teaches you how to join related files.

1. Press RETURN to choose the Custome QBF. The first record appears.
2. Type **J** to select the JOIN option. FAST TRACK displays the following QBF Menu.

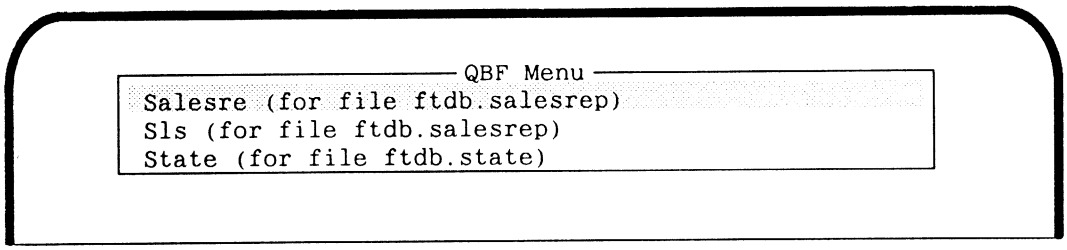


Figure 6-10: The JOIN Option

This menu contains only those files that are related by an index to the customer file.

3. Choose the salesre QBF, which is already highlighted, by pressing RETURN. If there is more than one unique index between the customer file and the salesrep file, a Choices window appears to allow you to select the unique index upon which to base the join operation. In this example, however, there is only one unique index between the two specified files. Therefore, you do not have to specify a unique index.

When you select the salesre QBF, the following screen appears:

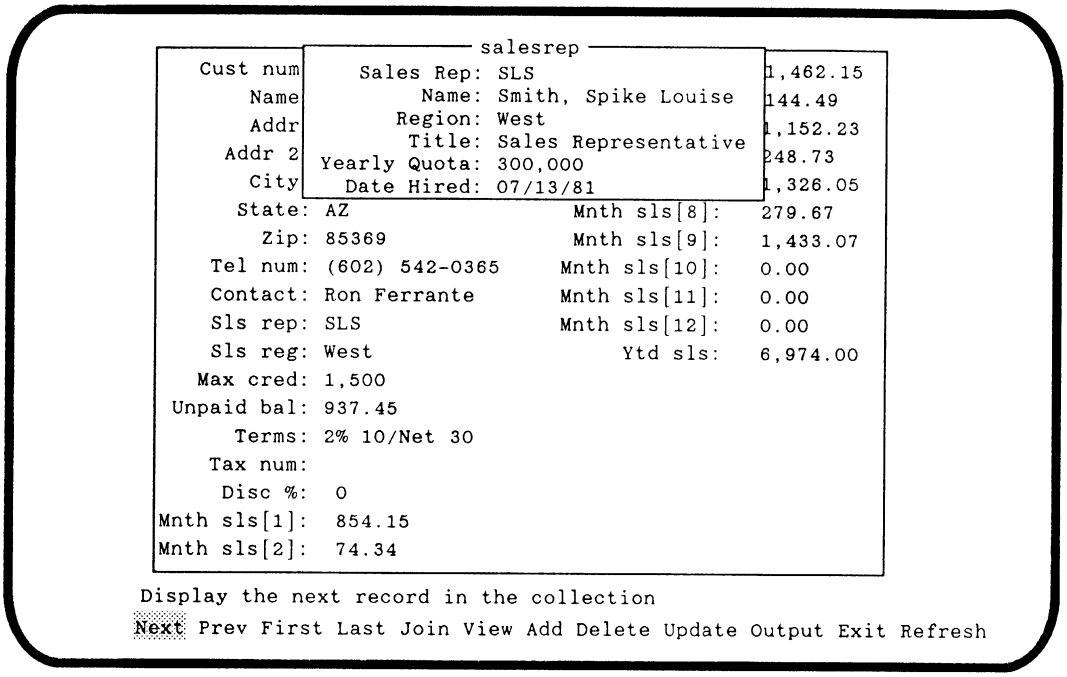


Figure 6–11: customer/salesrep JOIN Display

The QBF procedure displays the record for the salesrep of the customer currently being viewed, customer number 1.

4. Type **E** to select the EXIT option and return to the customer form.

You can also search through the customer file using the QUERY option. This option allows you to enter search criteria and then use the criteria to browse through the customer file.

6.1.4 Querying a File

The QUERY option allows you to specify criteria for a particular field in the form that you want to investigate. For instance, suppose you need to locate the record of a particular customer. You could view each record in the `customer` file until you located the record you want. This strategy might be adequate for a small database, but it could become tedious with a large one. If you know the customer number, you could use the SEEK option. Without the customer number, however, this is impossible because the SEEK option uses the primary index (`cust-num`) to search the `customer` file. Suppose that all you know is that the customer's name is "Pocket Billiards Co." Using the QUERY option, you can easily find this customer's record.

A qualification expresses a type of restriction on the files that you want to view. The following are typical restrictions in ordinary English:

- All customers in states that begin with M.
- All customer records for the Western region.
- All customers with greater than $2,000 in purchases in April.

The Qualification window asks you to supply specific information about the way you want PROGRESS to query your database. A qualification consists of at least three parts:

- A field name.
- A comparison operator.
- A field name or constant operand.

A query can be up to 50 lines long. Each line contains one comparison expression.

This exercise teaches you how to fill in a qualifications menu using comparison operators and run a query.

1. Type **Q** to select the QUERY option.

Because a QBF form for the customer file is currently on the display, FAST TRACK displays the customer Qualification window, as shown in the following figure:

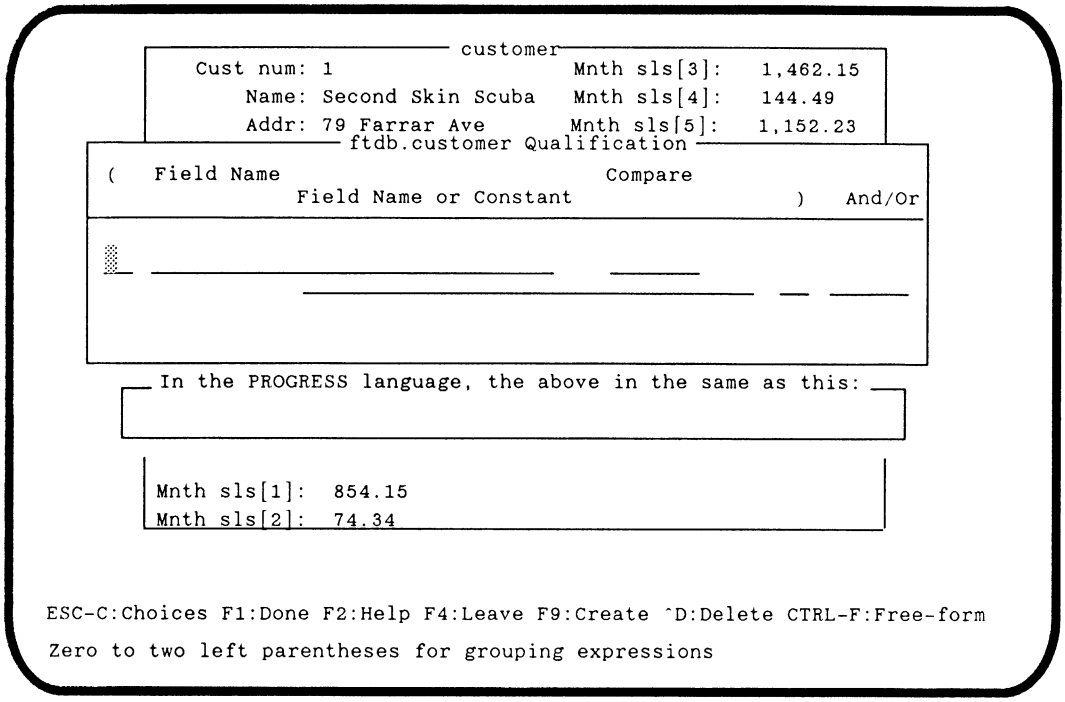
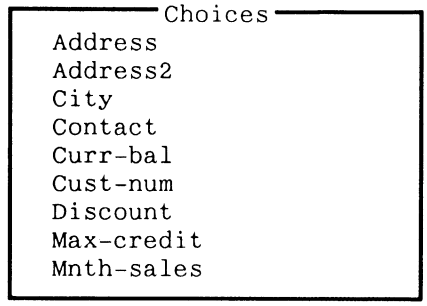


Figure 6–12: The Customer Qualifications Window

2. Press TAB to skip the parenthesis field and move the cursor to the Field Name field. Press CHOICES (ESC C) to display the Choices window as follows:



The Choices window displays an alphabetically sorted menu of available field names in the customer file.

Note that there may be more choices in the list than can fit in the window. Scrolling down the list with the [▼] will bring any additional choices into view. If you press [RETURN] while an item is highlighted, the item is automatically inserted into the `Field Name` field.

The field name specifies the field on which you want to base the search. For instance, if you only need to update the file for Second Skin Scuba, enter the field name *Name*. If you need to find all of the customers in Massachusetts, enter the field name *St* for state.

3. Press [▼] until the `Name` field is highlighted. Press [RETURN] to enter **Name** in the customer Qualification window.

   The cursor automatically advances to the `Compare` field and FAST TRACK fills in the default comparison operator, `begins`, for the `Name` field and inserts double quotes (" ") at the beginning of the `Field Name or Constant` field.

4. With the cursor in the `Compare` field, press the [CHOICES] ([ESC] [C]). A menu of valid comparison operators appears, as shown in the following figure. The `eq` operator is highlighted.

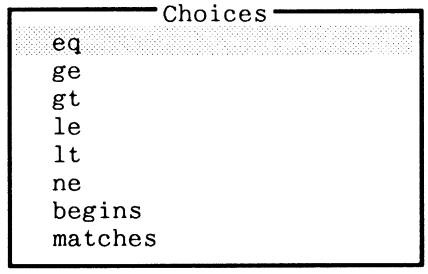


Table 6-2 describes the available comparison operators.

Table 6–2: Comparison Operators

Operator		Action
eq	=	Tests for *equality* between two values.
ge	>=	Tests whether one value is *greater than or equal to* another.
gt	>	Tests whether one value is *greater than* another.
le	<=	Tests whether one value is *less than or equal to* another.
lt	>	Tests whether one value is *less than* another.
ne	<>	Tests whether two values are *not equal*.
begins		Finds all records in a file, in which the specified character field begins with a specified string of characters.
matches		Finds all records in a file, in which the specified character field matches a specified string of characters. This operator accepts wild card characters: a period (.) in the specified character string matches *any* character, and an asterisk (*) matches a string of characters. For example, the word "frog" *matches* the string "fr*" or the string "fr.g".

Note that comparison operators compare *like* data types, that is you must compare characters to characters, and numbers to numbers. All of these operators work with both character data types and numerical data types except for the operators `begins` and `matches`, which can be used only with characters. See Chapter 7 in the *PROGRESS Language Tutorial* for more information about operators.

5. Press RETURN to choose the `eq` operator. FAST TRACK enters `eq` in the `Compare` field and positions the cursor in the `Field Name or Constant` field.

6. Now type the name of the customer in quotes "Pocket Billiards Co.". Note that the quotes are required in this case because the Name field is always a character string. Your qualification should appear as follows:

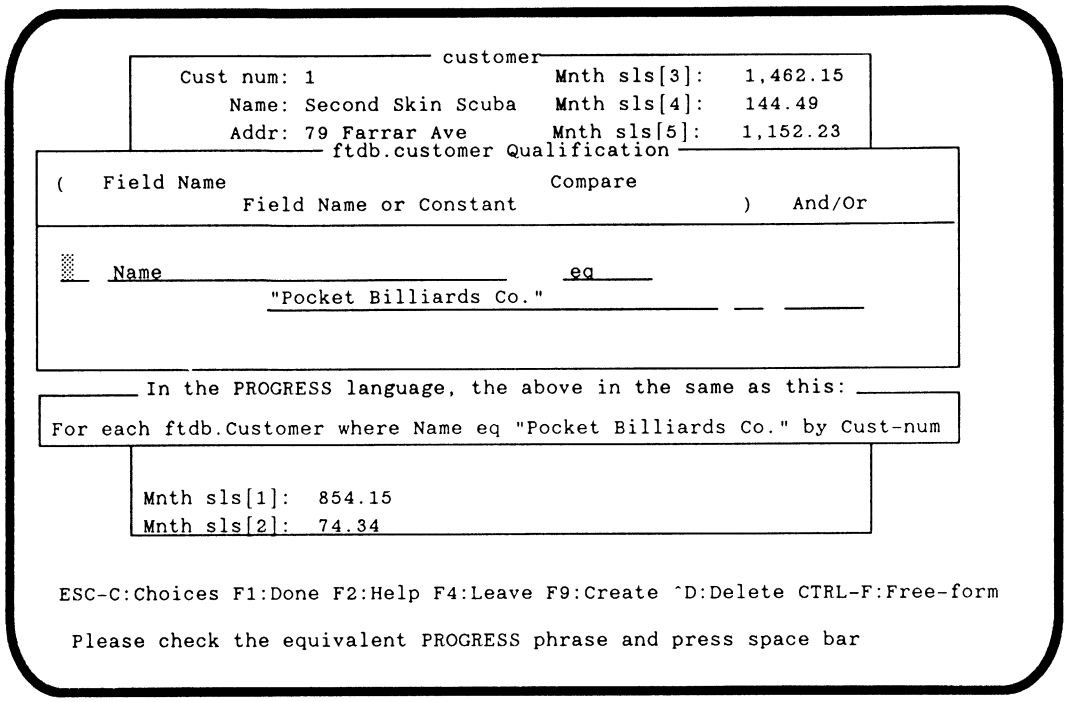


Figure 6–13: The Customer Qualifications Window

As you enter your query into the Qualification window, FAST TRACK translates it into a PROGRESS FOR EACH statement. This PROGRESS statement appears below the Qualifications window. (For more information about the PROGRESS FOR EACH statement generated by a query, see the *PROGRESS Language Reference* manual.)

7. For the moment, ignore the parenthesis fields and the And/Or field. Press GO (F1) to save the qualification and display all the customer records that meet the search criteria. FAST TRACK prompts you to check the PROGRESS statement on the display and then press the SPACEBAR to start the search.

   The query that you entered, finds only one customer record. In cases where several records meet the search criteria, these records are collected and handled by the QBF procedure as if they are the only records in the current database file. After the records are found, you can use the command menu options to work with these selected records or continue your query of other records. You can VIEW another record, JOIN two files, DELETE or UPDATE.

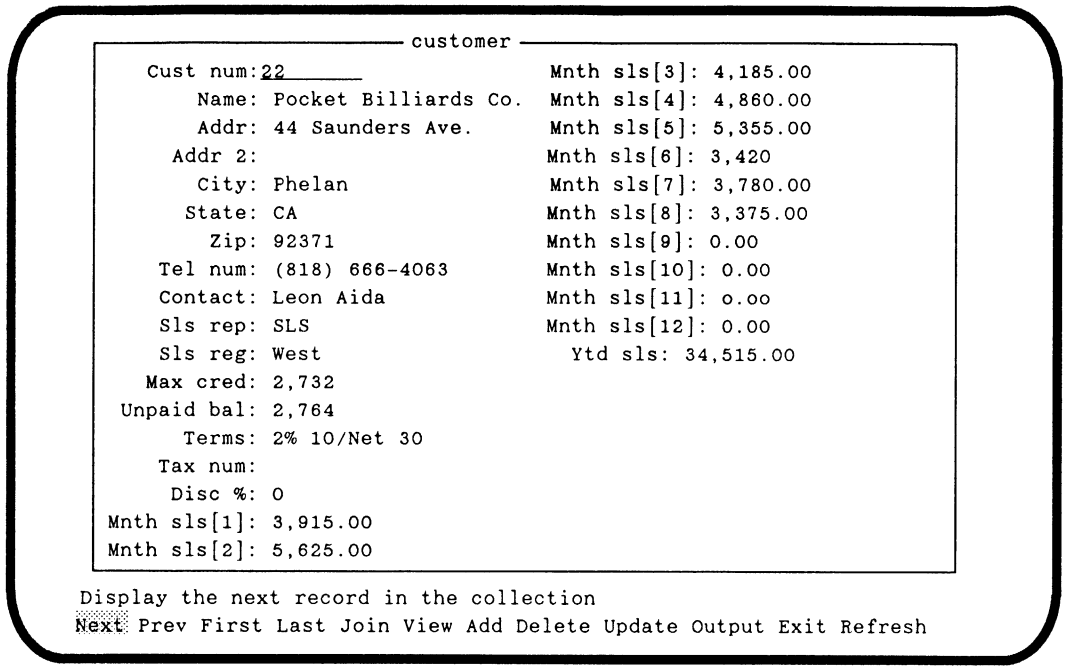


Figure 6–14: Query Result

8. When you have finished working with the Pocket Billiards Co. record, type **E** to return to the customer Qualification window.

In the exercise above, you used a simple qualification; however, qualifications can be complex. The next section introduces components and methods of entering complex qualifications.

6.1.5 Connected Comparisons

You can construct complex qualifications in a number of ways. One way is by combining simple comparison expressions with the logical operators *and, or,* and *not.*

For example, you can qualify your database search in negative terms similar to this English expression:

All salesmen who are not from California

Table 6-3: Logical Operators

Operator	Action
`and`	In comparison expressions connected by `and`, *both* expressions must be true for a record to be included in the query.
`or`	In comparison expressions connected by `or`, only one of the expressions must be true in order for the record to be included in the query.
`not`	The negation operator is `not`. It is always used in conjunction with one of the logical connectives `and` or `or`.

This exercise teaches you how to search a file for records using connected comparisons.

Suppose you want to search the customer database to find all of those customers in Boston whose unpaid balance is greater than $1,000. This type of qualification is done in two parts. The first part of the qualification describes all of the customers in Boston, and the second describes customers with an unpaid balance greater than $1,000.

1. Fill the customer Qualifications window with the values shown in the following figure. Use [CHOICES] ([ESC] [C]) to save time filling in the window. After you finish entering the first line of the qualification, use the [↓] to create a new input line and enter the second line of the qualification.

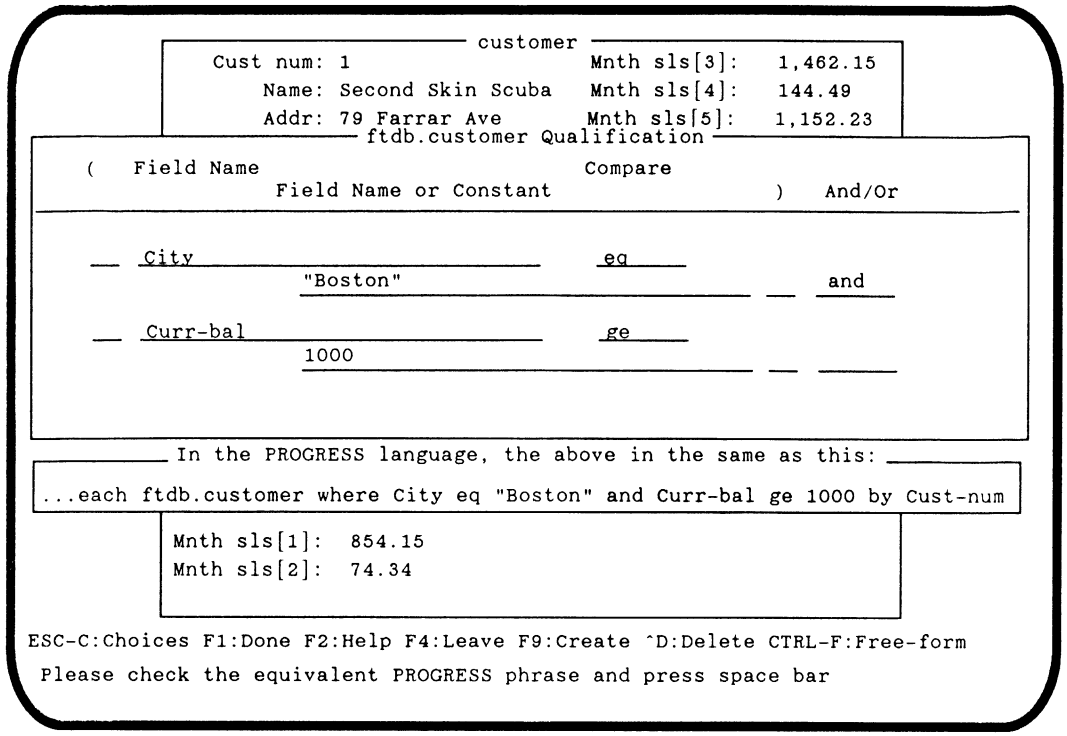


Figure 6–15: The Customer Qualifications Window

2. Press GO (F1) when you have finished entering the qualification. FAST TRACK prompts you to check the PROGRESS statement and then press the SPACEBAR to start the search. The QBF procedure displays the record of the first customer that meets the qualification: "city is equal to Boston" and the unpaid balance is greater than or equal to $1000." In this case, only customer number 6 "Lift Line Skiing" meets the qualification.

3. When you have finished working with the record, type **E** to return to the Qualification window.

The qualification in the preceding example is a bit more complex than your first qualification; however, it is still quite simple. The following section introduces the use of parentheses and the concept of operator precedence in qualifications.

6.1.6 Order of Evaluation

When you begin to combine more than two comparison expressions, you can introduce ambiguities. Consider the following qualification:

```
st eq "MA" and city eq "Boston" or city eq "Yuma"
```

This qualification searches for those customers who live either in Boston, Massachusetts or in Yuma, where Yuma can be in any state. The logical connective **and** always dominates **or**. That is, the PROGRESS language always evaluates the truth of expressions joined by **and** first. Afterwards, it considers expressions joined by **or**. To search for those customers who live in Boston, Massachusetts or Yuma, Massachusetts, use the following qualification:

```
st eq "MA" and (city eq "Boston" or city eq "Yuma")
```

Logical expressions within parentheses are evaluated before expressions that lie outside the parenthesis. (For more information about precedence, see the *PROGRESS Language Reference* manual.)

This exercise teaches you the order in which PROGRESS evaluates the truth of expressions.

1. With the Qualifications window on the screen, enter the following qualification:

ftdb.customer Qualification

(	Field Name	Compare	Field Name or Constant	)	And/Or
	St	eq	"MA"		And
	City	eq	"Boston"		Or
	City	eq	"Yuma"		

2. After you have entered these expressions into the Qualifications window, press GO (F1). Then press the SPACEBAR.

   The QBF locates all of the customers from Boston, Massachusetts and from Yuma in any state. Use the NEXT and PREV options to verify this. You should see the records for customer numbers 1, 4, 6, and 26.

3. Now press [END] (F4) to return to the Qualifications window. Use the [↓], [↑], and [TAB] keys to position the cursor and insert parentheses in the appropriate fields, as follows:

```
------------------------ ftdb.customer Qualification ------------------------
  (    Field Name                                  Compare
                   Field Name or Constant                        )     And/Or
-------------------------------------------------------------------------------
       St                                            eq
                   "MA"                                              And
  (    City                                          eq
                   "Boston"                                          Or
       City                                          eq
                   "Yuma"                                        )
-------------------------------------------------------------------------------
```

4. Now press [GO] (F1). Then press the [SPACEBAR].

The result is different from the previous qualification. This time the QBF finds all of the records for customers from Boston, Massachusetts. Since there are *no* customers from Yuma, Massachusetts, no such records can be returned.

5. Now press [END] (F4) to return to the Qualifications window. Use the [↓], [↑] and [TAB] keys to position the cursor and remove the parentheses and reverse the *and* and *or* as follows:

```
------------------------ ftdb.customer Qualification ------------------------
  (    Field Name                                  Compare
                   Field Name or Constant                        )     And/Or
-------------------------------------------------------------------------------
       St                                            eq
                   "MA"                                              Or
       City                                          eq
                   "Boston"                                          And
       City                                          eq
                   "Yuma"
-------------------------------------------------------------------------------
```

6. Now press [GO] (F1). Then press the [SPACEBAR].

Again, the result is different. This time the QBF finds all of the records for customers from Massachusetts. Since there are *no* customers for whom it is true that the city is both Boston *and* Yuma, no such records can be returned.

7. To experiment with negation, press END (F4) to return to the Qualifications window. Now modify the qualifications as follows.

```
──────────────── ftdb.customer Qualification ────────────────
  (   Field Name                            Compare
               Field Name or Constant                    )   And/Or
─────────────────────────────────────────────────────────────
      St                                     eq
               "MA"                                          And Not
      City                                   eq
               "Boston"                                      Or
      city                                   eq
               "Yuma"
```

8. Press GO (F1). Then press the SPACEBAR.

This time the QBF procedure returns *only* customers from Yuma in any state and all customers from Massachusetts, except those from Boston.

9. Press END (F4) to return to the Qualifications window again. This time modify the qualifications as follows.

```
──────────────── ftdb.customer Qualification ────────────────
  (   Field Name                            Compare
               Field Name or Constant                    )   And/Or
─────────────────────────────────────────────────────────────
      St                                     eq
               "MA"                                          And
      City                                   eq
               "Boston"                                      And Not
      curr-bal                               le
               600
```

10. Press GO (F1). Then press the SPACEBAR.

This time the QBF returns all of the records for customers in Boston, Massachusetts that have a current balance greater than 600 dollars. Use the NEXT and PREV options for verification.

11. When you have finished working with the records, type **E** to return to the Qualification window.

12. Press END (F4) to leave the Qualification window and return to the customer QBF. The next exercise will start from here.

To enter long complex qualifications, use the Free Form Qualification window. To access the Free Form Qualifications window, press CTRL-F at the Qualification window. In the Free Form Qualifications window, there are no displayed fields as there are in the Qualifications window. You write your qualification in the PROGRESS language. For a an explanation of Free Form qualifications, comparison operators, and precedence in qualifications, see Chapter 6 of the *PROGRESS FAST TRACK User's Guide* and the *PROGRESS Language Reference* manual.

6.1.7 Adding, Deleting, and Updating Records

Aside from querying your database files, QBF procedures developed with the FAST TRACK QBF Generator can also perform database file maintenance operations on the records. These operations include adding, deleting, and updating records in the database.

NOTE: If you are using FAST TRACK on PROGRESS Query/Run-time you will not be able to generate a QBF procedure that adds, deletes, or updates records in a database.

This exercise teaches you how to add, delete, and update records.

1. You should still have the custome QBF on your screen. Choose the ADD option from the QBF command menu. The following screen appears:

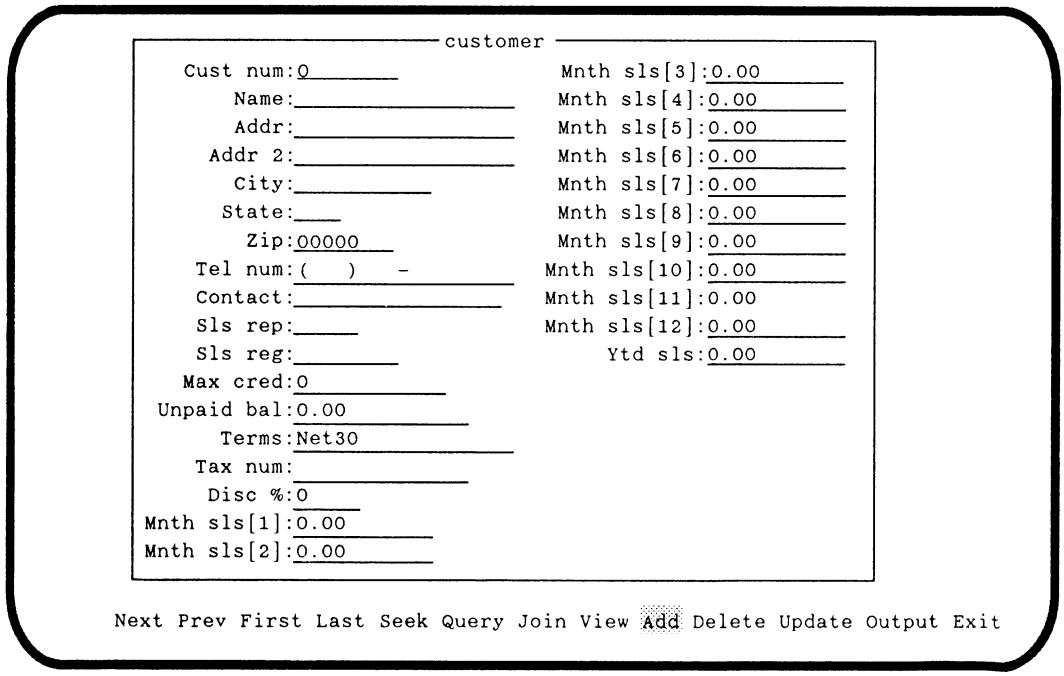


Figure 6–16: The ADD Option (Custome Form)

The cursor is in the first field in the record, the Cust num field.

2. Type **67** and press [RETURN]. The cursor is now in the Name field.

3. Fill in the rest of the form any way you want, but be sure to enter **SLS** in the Sls rep field and a valid state in the State field. Press [GO] (F1) to add the record to your customer file.

   Note that you can enter any customer number. If there is an existing record with the customer number 67, an error message appears when you press [GO] (F1) to enter your record. The cursor then returns to the customer number field for you to enter a *new* number. There should not be a customer with the customer number 67 in your current FAST TRACK database, so no error message appears and your new record is added to the customer file.

4. To delete the record for the customer you just added, use any method to locate the record — NEXT, PREV, FIRST, LAST, SEEK, QUERY, VIEW, or JOIN. (Unless you have moved to another record in your customer file, you should have the record for customer 67 on your screen at this time.)

5. Now type **D** to select the DELETE option. The QBF procedure prompts you to confirm the deletion. Type **y** to delete the record. The previous record in the file appears.

6. Type **F** to find the first record in the customer file.

7. Type **U** to select the UPDATE option. The QBF procedure underlines all of the fields, as shown in the following figure. You can now modify the record.

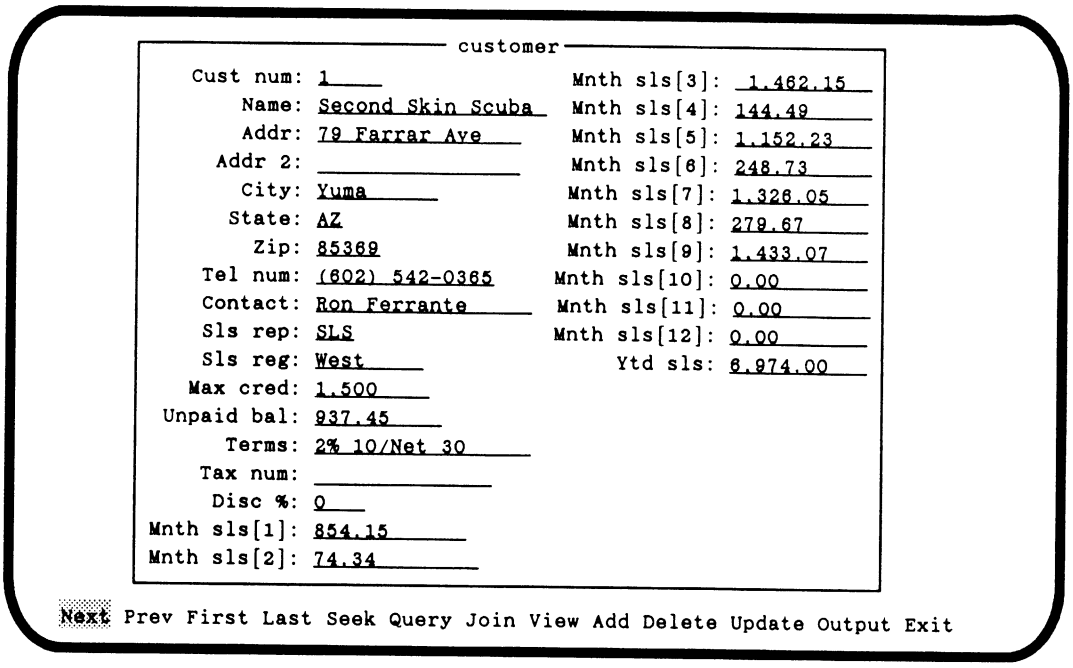
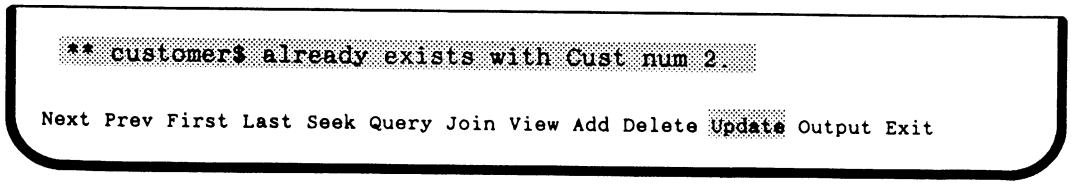


Figure 6–17: The Customer Form

8. Change the customer number of this customer from 1 to **2**. Press GO (F1).

   The QBF immediately returns the following message:



   This message notifies you that a customer, with 2 as a customer number, already exists.

9. You can change the customer number to any customer number that doesn't already exist. For this exercise, change it back to **1**. Use the RETURN to move from one field to another on the form. You can change the content of any field on the form. When you have finished altering the record, press GO (F1) to enter the new record information into the database file.

Your customer QBF procedure now displays the updated record of customer 1.

6.1.8 Sending the Current Record to an Output Device

When you are using a QBF procedure generated by FAST TRACK to query a database file, the procedure displays only one record at a time. You can use any of the options on the QBF command menu to display the record — NEXT, PREV, FIRST, LAST, SEEK, QUERY, VIEW, or JOIN. To send the current record to an output device, select the **OUTPUT** option from the QBF command menu. The following window appears:

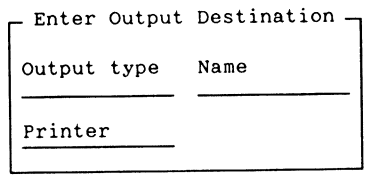


Figure 6–18: Output Destination window

This window contains the following fields:

Output type. Specify the type of output device. The valid output types are:

`Printer`. Send the current record to a default or specific printer.

`File`. Send the current record to a specified file.

`Spool`. Send the current record to a specified UNIX spooler program (UNIX only).

Name. Specify the name of the output device. If you enter *File* or *Spool* as the output type, you must enter the name of the disk file or spool program in this field. If you enter *Printer* as the output type and you do not enter a name, the record will be sent to the default printer.

Use the GO (F1) key to enter values into these fields. If you press the GO (F1) key while in the `Name` field, the current record is sent to the specified output destination and the Output Destination window disappears. To leave the Output Destination window without sending the current record to an output device, press the END (F4) key.

6.1.9 Leaving the QBF procedure

To leave the `qbfmen1.p` QBF procedure, select the `EXIT` option from the QBF command menu to return to the main menu of the QBF procedure.

If you ran the QBF procedure from the the FAST TRACK QBF Generator, press the END (F4) key to return to the FAST TRACK Main Menu. If you ran the QBF procedure from the PROGRESS editor, press the END (F4) key to return to the PROGRESS editor. At this point in the tutorial, press the END (F4) key to exit the QBF procedure and return to the FAST TRACK Main Menu.

6.2 FILES

The QBF generator creates a procedure based on the criteria you enter into the Database QBF Generation Options window. In the preceding exercise, you created a procedure called `qbfmen1.p`. (The QBF Generator automatically adds a **.p** extension to the names of all QBF procedures that it generates.)

In the previous exercise, the QBF Generator ran `qbfmen1.p` immediately after you created it. This is because you answered **Yes** to the `Run QBF after it generated` option in the Database QBF Generation Options window. If you enter **No** to the `Run QBF after it is generated` field, the QBF Generator automatically returns to the FAST TRACK Main Menu after generating the procedure. You can then use the PROGRESS editor to run the QBF procedure.

This exercise teaches you how to use the PROGRESS editor to run a QBF procedure.

1. Press the END (F4) key at the FAST TRACK Main Menu to access the PROGRESS editor. Use the following statement to run `qbfmen1.p`:

```
RUN qbfmen1.p.
```

2. Press the GO (F1) key to execute the procedure.

3. When you are finished working in your QBF procedure, press END (F4) to exit the QBF procedure and return to the PROGRESS editor. To return to the FAST TRACK Main Menu from the PROGRESS editor, enter the following statement:

```
RUN ft.p.
```

4. Press the GO (F1) key and the FAST TRACK Main Menu appears.

You can also use procedures generated with the QBF Generator as *include files* in other PROGRESS procedures. For more information about include files, see the *PROGRESS Language Reference* manual.

6.3 SUMMARY

In this tutorial, you have learned to use the basic features of the FAST TRACK QBF Generator. This tutorial introduced the following skills and concepts:

- Entering the QBF Generator, creating a form and QBF procedure, and running a QBF procedure.
- Moving through records in a database file using a QBF procedure.
- Joining two files and querying the files based on search criteria that you entered.
- Adding, deleting, and modifying records in a database file.
- Sending a record to a specified output device.
- Leaving a QBF procedure.

For detailed information about the QBF Generator, see Chapter 6 in the *PROGRESS FAST TRACK User's Guide.*

Appendix A
The Demonstration Database

This appendix contains schema information for the files in the demonstration database used throughout this tutorial. Acquaint yourself with the files, fields, and indexes in this appendix to better understand the tutorial exercises in this book. For each file in the demonstration database, this appendix contains a table showing field information and a table showing index information.

The information in this appendix contains enough of the schema to give you a good idea of the structure of the demonstration database. To obtain a more complete picture of the demonstration database schema, access the PROGRESS Data Dictionary through the PROGRESS `Help` option on the FAST TRACK Main Menu.

File: Agedar

Field Definitions (Agedar)

Field Name	Datatype	Format	Label	Extent	Decimal Places
ar_inv	integer	>>>>>9	Invoice number		
ar-cust	integer	>>>>>9	Customer number		
ar_invdat	date	99/99/99	Invoice date		
ar_amt	decimal	->>,>>9.99	Invoice amount		2
ar_pay	decimal	->>,>>9.99	Total payments		2
ar_adj	decimal	->>,>>9.99	Total adjustment		2
ar_lastpay	date	99/99/99	Last payment date		
ar_order	integer	>>>>>9	Order Number		
ar_ship	decimal	->>,>>9.99	Shipping Charge		2

Index Definitions (Agedar)

Index Name	Primary	Unique	Components	Characteristics	
				Ascending	Abbreviate
ar_cust	no	no	ar_cust	yes	no
ar_inv	yes	yes	ar_inv	yes	no
ar_invdate	no	no	ar_invdate	yes	no

File: Customer

Field Definitions (Customer)

Field Name	Datatype	Format	Label	Extent	Decimal Places
Cust-num	integer	>>>>9	Cust num		
Name	character	x(20)	Name		
Address	character	x(20)	Addr		
Address2	character	x(20)	Addr 2		
City	character	x(12)	City		
St	character	!!	State		
Zip	integer	99999	Zip		
Phone	character	(999) 999-9999	Tel num		
Contact	character	x(20)	Contact		
Sales-rep	character	!(3)	Sls rep		
Sales-region	character	x(8)	Sls reg		
Max-credit	decimal	->,>>>,>>9	Max cred		2
Curr-bal	decimal	->,>>>,>>9.99	Unpaid bal		2
Terms	character	x(20)	Terms		
Tax-no	character	x(15)	Tax num		
Discount	integer	>>9	Disc %		
Mnth-sales	decimal	->,>>>,>>9.99	Mnth sls		2
Ytd-sls	decimal	->,>>>,>>9.99	Ytd-sls		2

Index Definitions (Customer)

Index Name	Primary	Unique	Components	Characteristics	
				Ascending	Abbreviate
cust-num	yes	yes	Cust-num	yes	no
name	no	no	Name	yes	yes
zip	no	no	Zip	yes	no

File: Item

Field Definitions (Item)

Field Name	Datatype	Format	Label	Extent	Decimal Places
Item-num	integer	99999	Item num		
Idesc	character	x(15)	Desc		
Subs-item	integer	99999	Subs item		
Cost	decimal	->,>>>,>>9.99	Cost		2
Loc	character	x(8)	Loc		
Prod-line	character	x(6)	Product line		
On-hand	integer	->>>>9	On hand		
Alloc	integer	->>>>9	Alloc		
Rop	integer	->>>>9	Rop		
Oorder	integer	->>>>9	On order		
Iweight	decimal	>>9.99	Item weight		2
Mnth-shp	integer	->>>>9	Mnth shp		

Index Definitions (Item)

Index Name	Primary	Unique	Components	Characteristics	
				Ascending	Abbreviate
idesc	no	no	Idesc	yes	no
item-num	yes	yes	Item-num	yes	no

File: Monthly

Field Definitions (Monthly)

Field Name	Datatype	Format	Label	Extent	Decimal Places
tf_inv	integer	>>>>>9	Invoice Number		
tf_cust	integer	>>>>9	Customer number		
tf_date	date	99/99/99	Transaction date		
tf_amt	decimal	->>,>>9.99	Total amount		2
tf_dist	decimal	->>,>>9.99	Distribution amount		2
tf_glacct	integer	>>>>>9	G/L account number		
tf_print	logical	yes/no	Invoice Printed yet		
tf_order	integer	>>>>9	Order Number		
tf_type	character	x(1)			
tf_sales	character	x(3)	Salesperson		

Index Definitions (Monthly)

Index Name	Primary	Unique	Components	Characteristics	
				Ascending	Abbreviate
tf_cust	yes	no	tf_cust	yes	no
tf_sales	no	no	tf_sales	yes	no
tf_type	no	no	tf_type	yes	no

File: Order

Field Definitions (Order)

Field Name	Datatype	Format	Label	Extent	Decimal Places
Order-num	integer	>>>>9	Ord num		
Cust-num	integer	>>>>9	Cust num		
Name	character	x(20)	Name		
Address	character	x(20)	Addr		
Address2	character	x(20)	Addr 2		
City	character	x(12)	City		
St	character	!!	State		
Zip	integer	99999	Zip		
Odate	date	99/99/99	Ord date		
Sdate	date	99/99/99	Shp date		
Pdate	date	99/99/99	Prom date		
Shp-via	character	x(20)	Ship via		
Misc-info	character	x(20)	Misc info		
Cust-po	character	x(20)	Cust po		
Terms	character	x(20)	Terms		
Sales-rep	character	!(3)	Sls rep		
Shipped	character	x(1)	Shp flag		

Index Definitions (Order)

Index Name	Primary	Unique	Components	Characteristics Ascending	Abbreviate
cust-order	no	yes	Cust-num Order-num	yes yes	no no
order-date	no	no	Odate	yes	no
order-num	yes	yes	Order-num	yes	no

File: Order-line

Field Definitions (Order-line)

Field Name	Datatype	Format	Label	Extent	Decimal Places
Order-num	integer	>>>>9	Order num		
Line-num	integer	>>9	Line num		
Item-num	integer	99999	Item num		
Price	decimal	->,>>>,>>9.99	Price		2
Qty	integer	->>>>9	Qty		
Qty-ship	integer	->,>>>,>>9	Qty ship		
Disc	integer	>>9	Disc %		

Index Definitions (Order-line)

Index Name	Primary	Unique	Components	Characteristics Ascending	Abbreviate
item-num	no	no	Item-num	yes	no
order-line	yes	yes	Order-num Line-num	yes yes	no no

File: Salesrep

Field Definitions (Salesrep)

Field Name	Datatype	Format	Label	Extent	Decimal Places
sale-rep	character	!(3)	Sales Rep		
slsname	character	x(30	Name		
slsrgn	character	x(8)	Region		
slstitle	character	x(30)	Title		
slsquota	decimal	->,>>>,>>9	Yearly Quota		0
hire-date	date	99/99/99	Date hired		

Index Definitions (Salesrep)

Index Name	Primary	Unique	Components	Characteristics	
				Ascending	Abbreviate
rep	yes	no	sales-rep	yes	no

File: Shipping

Field Definitions (Shipping)

Field Name	Datatype	Format	Label	Extent	Decimal Places
weight-break	decimal	>>>>9.99	Weight break		2
charge	decimal	->>,>>9.99	Charge		2

Index Definitions (Shipping)

Index Name	Primary	Unique	Components	Characteristics	
				Ascending	Abbreviate
shipping	yes	no	weight-break	yes	no

File: State

Field Definitions (State)

Field Name	Datatype	Format	Label	Extent	Decimal Places
st	character	!!	st abbr		
st-desc	character	x(15)	State		
sls-reg	character	x(8)	Sls reg		

Index Definitions (State)

Index Name	Primary	Unique	Components	Characteristics	
				Ascending	Abbreviate
state	yes	yes	st	yes	no

File: Syscontrol

Field Definitions (Syscontrol)

Field Name	Datatype	Format	Label	Extent	Decimal Places
company	character	x(30)	Company name		
closing-date	date	99/99/99	Closing dates		
sales-acct	integer	>>>>>9	Sales		
ship-acct	integer	>>>>>9	Ship acct		
tax-acct	integer	>>>>>9	Tax acct		
tax-amount	decimal	>>9.99	Tax amount		
tax-state	character	x(2)	Tax state		
currfismon	integer	>9	Current Fiscal Month		
applname	character	x(30)	Application Name		
aracct	integer	>>>>>9	Accnts Rec. account		
cashacct	integer	>>>>>9	Cash Account		
printr	logical	yes/no			

Index Definitions (Syscontrol)

Index Name	Primary	Unique	Components	Characteristics	
				Ascending	Abbreviate
key	no	no	company	yes	no

Glossary

active field — An active field in a FAST TRACK window is underlined or highlighted. You can modify or enter information into active fields. See also **FAST TRACK window.**

aggregate — A field that displays the results of a calculation on a certain database field. Aggregate fields usually display summary information about data in a certain field. The FAST TRACK Report Writer supplies a number of aggregates. For example, the aggregate **total** allows you to total all of the values in a particular field in a database file.

application — A set of programming language instructions that accomplish a specific task. An application can be created from FAST TRACK and PROGRESS procedures, using the Menu Editor to link the procedures produced in the other FAST TRACK modules or in PROGRESS.

break-group — A set of records having a common value in a certain database field. Break-groups are used on reports to display file and record relationships.

CASE — Acronym for Computer Assisted Software Engineering. CASE software assists the developer in creating code and producing end-user applications. FAST TRACK is an example of CASE software.

choices window — A window in FAST TRACK that presents the developer with one or more choices, associated with the current active field. The Choices Window allows you to select from a list of valid choices. See also **active field.**

command area — A screen area located at the bottom of each editor screen in FAST TRACK. The command area consists of three lines: information line, menu line, and status line, which display menus and information for the current editor.

command interface — Another name for the many menus and menu options in an application. See also **menu** and **menu option.**

command menu — The horizontal menu that appears at the bottom of the screen in the Menu Editor, Screen Painter, and Report Writer. The Command Menu gives you access to editing and other options. See also **horizontal menu.**

comparison operators — Arithmetic operators used to build expressions in the QBF Generator and Report Writer modules. Example comparison operators are **eq**, which represents equals, and **gt**, which represents greater than.

constant — A value that does not change.

convft — A FAST TRACK utility that allows you to convert a PROGRESS Version 4 database to a FAST TRACK database.

data area — A component of a field on a report or form that is reserved to display or accept data associated with the field. See also **field**.

database — The primary storage file used by FAST TRACK and PROGRESS to retrieve and update information directly related to the application.

data definitions — The characteristics of the files, fields, and indexes that comprise the schema of a PROGRESS or FAST TRACK database. The structure of a given database. See also **data dictionary**.

data dictionary — The PROGRESS Data Dictionary allows you to define schema of a PROGRESS or FAST TRACK database. See also **data definitions**.

data format — The display format of the data in a database field. Different types of data have different data formats.

data section — The section or portion of a report that displays the data from a database.

data type — The type of data contained in a field. There are several types of data: decimal, integer, logical, character, and date.

deployment — The process necessary to port applications developed with FAST TRACK to another system running a version of FAST TRACK.

developer — The person who uses FAST TRACK to create an application for the end-user. The developer is typically a 4GL programmer or a system administrator.

development report — A report that displays information about FAST TRACK components such as files and fields in a dictionary, and field usage in forms.

device — See **output device**.

end-user — The person who ultimately uses the application developed with FAST TRACK. Typically, this person has little to do with using FAST TRACK itself.

expression — A combination of field values, constants, variables, operators, and parenthesis used to perform a calculation.

escape sequence — A key sequence that invokes a special FAST TRACK function. For example, the ESC C (ALT-C in DOS) escape sequence access a Choices window that supplies the valid entries for a field in a FAST TRACK window.

FAST TRACK — See **PROGRESS FAST TRACK.**

FAST TRACK database — A PROGRESS database with an extended schema that supports the FAST TRACK application. You can only run FAST TRACK on a FAST TRACK database. To convert a PROGRESS database to a FAST TRACK database, use the **convft** utility. See also **database.**

field — A single data element. A record typically contains several related fields.

file — A collection of records containing similar information.

footer — Information located at the bottom of a page or at the end of a report. A footer typically contains a page number or summary information.

form — A screen layout used in a QBF procedure or other PROGRESS procedure for data input and output. You design forms in FAST TRACK using the Screen Painter module.

ftload — A FAST TRACK utility that allows you to convert a PROGRESS database to a FAST TRACK database and displays the FAST TRACK Maintenance Menu. From the FAST TRACK Maintenance Menu, you can load a FAST TRACK application into a FAST TRACK database and compile it. **ftload** is normally used on a RUN-TIME system to convert a PROGRESS database to a FAST TRACK database.

ft.p — The PROGRESS procedure that runs FAST TRACK. You can execute FAST TRACK from PROGRESS by typing **RUN ft.p** in the PROGRESS editor and pressing the GO (F1) key.

function keys — Auxiliary keys typically located at the top of the keyboard or along either side of the keyboard. In FAST TRACK, function keys perform predefined operations such as executing a module. The **PROGRESS Help** and **Settings** options on the FAST TRACK Main Menu allow you to see the actual key settings for your own terminal. See also **Settings.**

header — Information located at the top of a page, at the beginning of a report, or at the beginning of a report section. Headers usually contain titles, dates, and other types of introductory information.

hierarchical report — A report that contains report sections that are nested with a main report section. Hierarchical reports are commonly used to display one-to-many file relationships between database files. See also **report** and **report section.**

horizontal menu — A menu in which the menu options are lined up horizontally. Horizontal menus appear across the bottom of the screen in the three FAST TRACK editors. See also **command menu.**

include file — A file with PROGRESS code that can be included within another program file. The Report Writer and Menu Editor allow you to define include files, thus allowing you to customize your reports and menus using other PROGRESS procedures.

information line — The top line of the command area in each FAST TRACK editor. The information line gives information about the function of the currently highlighted option in the command menu. See also **command area** and **command menu.**

insert mode — One of two text entry modes in FAST TRACK. In insert mode, each character you type is inserted in the position where the cursor is located. The cursor and the character under it move one space to the right. The MODE (F3) keys allows you to toggle between the text entry modes. See also **overstrike mode.**

label — A component of a field on a report or form that displays descriptive text about the data in the current field. See also **field.**

logical operator — Any operator, such as **And, Or,** and **Not,** that combines expressions to test for a logical truth.

Maintenance — An option on the FAST TRACK Main Menu that allows you to access utilities that dump and load data files, maintain output devices, dump and load FAST TRACK applications or portions of them, compile FAST TRACK applications,

menu — A listing of options that perform various actions, such as run a report, QBF procedure, PROGRESS procedure, or display another menu. The FAST TRACK Menu Editor allows you to create and edit menus and assign actions to menu options. See also **horizontal menu** and **vertical menu.**

Menu Editor — A FAST TRACK module that allows you to create menus and associate reports, QBF procedures, and PROGRESS procedures with menu options. Menus created with the FAST TRACK Menu Editor are dedicated to specific FAST TRACK databases and cannot be used with non-FAST TRACK databases.

menu line — The second line in the command area in each of the FAST TRACK editors. The menu line shows the commands of the current editor that execute an action or access another menu. See also **command area.**

menu option — One choice in a menu listing. A menu option can display another menu, produce a report, answer a query, or exit from the application. See also **menu.**

object — A collection of related records in a FAST TRACK database that comprise a report, menu, form, or QBF procedure. An object is created when a report, form, menu, or QBF procedure is saved in a FAST TRACK database.

output device — The output destination of a report or record. An output device can be a terminal, a printer, a disk file, or a UNIX program. You can also specify an output device with an include file.

overstrike mode — One of two text entry modes in FAST TRACK. In overstrike mode, each character you type *replaces* the character at the position of the cursor. Overstrike mode is the PROGRESS default. The MODE (F3) keys allows you to toggle between the text entry modes. See also **insert mode.**

procedure — Defined steps taken to perform an task. A series of programming language commands and statements that perform a desired data processing task. The procedures referred to in this book contain PROGRESS commands and statements.

prodb — The PROGRESS database copy command.

proft — The FAST TRACK start-up command.

PROGRESS editor — A tool in the FULL PROGRESS and QUERY/RUN-TIME PROGRESS environments that allow you to create, edit, and run PROGRESS procedures. The PROGRESS editor also has many advanced features such as syntax checking and context sensitive help.

PROGRESS FAST TRACK — The full FAST TRACK application development environment contains tools to generate menus, reports, forms, and QBF procedures. It also contains utilities that allow you to distribute, compile, run, manipulate, and maintain applications developed with FAST TRACK. To access the full functionality of FAST TRACK, you must run FAST TRACK with FULL PROGRESS.

PROGRESS FAST TRACK RUN-TIME — A collection of FAST TRACK utilities that allow you to compile, run, and maintain the database of applications developed with FAST TRACK. In the PROGRESS RUN-TIME environment, you must have the DEVELOPER'S TOOLKIT to compile applications developed with FAST TRACK. You can use FAST TRACK RUN-TIME with RUN-TIME, QUERY/RUN-TIME, or FULL PROGRESS.

PROGRESS Help — A selection from the FAST TRACK Main Menu that allows you to access the PROGRESS Help System. The PROGRESS Help System allows you to access your operating system, the PROGRESS Data Dictionary, and the PROGRESS editor, as well as, information about database files, fields, and error messages.

PROGRESS QUERY/REPORT — The QUERY/REPORT product consists of the FAST TRACK Report Writer. It also contains utilities that allow you to compile, run, and maintain the database of applications developed with FAST TRACK. You can use QUERY/REPORT with QUERY/RUN-TIME or FULL PROGRESS.

QBF Generator — A FAST TRACK module that allows you to create query-by-form (QBF) procedures for files in a FAST TRACK database. The QBF procedures generated by the QBF Generator can be used in any other PROGRESS application accessing the same or a similar database. See also **query-by-form.**

qualification — A search criteria that limits the data displayed on a report or in a query from a database. A qualification typically consists of a field name, a comparison operator, and a field name or constant. In complex qualifications, logical operators are used to join several qualifications.

query-by-form — A query operation that allows you to access information in the database through forms rather than through a query language such as PROGRESS. The form determines what information is entered into or retrieved from a database file and how that information is organized on the screen.

record — A set of related data elements(fields). A database file typically contains many records that contain similar information.

report — An organized display of data from a database. The FAST TRACK Report Writer allows you to create and edit reports that display and summarize the data from one or many files in a database. Reports can contain text, fields, variables, and aggregates.

report area — A portion of a report section. For example the header area of a data section on a report. See also **report section.**

report section — A display area of a report containing a type of report information. For example, all reports have a report section in which data is displayed. Reports also have report header and footer sections and several other types of report sections.

Report Writer — A FAST TRACK module that allows to create and edit reports from data in a FAST TRACK database and then generate PROGRESS procedures that allow you to include your reports into other PROGRESS applications. See also **report.**

Screen Painter — A FAST TRACK module that allows you to create and edit forms and then generate files containing a PROGRESS FORM statement. You can use these files in QBF procedures or other PROGRESS procedures. See also **form.**

Settings — A FAST TRACK utility that allows you to view and alter the key settings for the FAST TRACK editors.

status line — The bottom line of the command area in each FAST TRACK editor. The status line gives you information about the current file and the current text entry mode. See also **command area.**

submenu — Any menu that is not the main menu of an application. A menu accessed by the selection of a menu option on another menu. See also **menu.**

text — One or more ASCII character strings.

Use Operating System — An option from the FAST TRACK Main Menu that allows you to escape from FAST TRACK and temporarily access your operating system.

variable — A field on a report or form that allows you to capture and display information that does not exist as a field in the current FAST TRACK database. On reports, variables usually display the result of a calculation on several database fields. On forms, variables are commonly used to accept input information.

vertical menu — A menu in which the menu options are lined up one above the other. The FAST TRACK Main Menu is an example of a vertical menu. See also **menu**.

window — A collection of fields and text used to display information or prompt a user for information. In FAST TRACK windows, underlined or highlighted fields are called active fields. You input information into or modify the information in active fields.

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