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This manual provides a tutorial introduction to DATATRIEVE-11 for beginning users.

DATATRIEVE Primer

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Contents

	Page
Preface	<i>v</i>
Chapter 1 Introduction	
1.1 You, DATATRIEVE, and the Computer	1-1
1.2 Your Terminal	1-2
1.3 DATATRIEVE's Sample Inventory: YACHTS	1-2
1.4 Definitions	1-3
Chapter 2 Using DATATRIEVE	
2.1 Getting into and out of DATATRIEVE	2-1
2.2 DATATRIEVE Commands	2-2
2.2.1 HELP	2-3
2.2.2 SHOW	2-3
2.2.3 READY	2-4
2.2.4 FIND	2-5
2.2.5 SORT	2-8
2.2.6 PRINT	2-10
2.3 GUIDE MODE	2-13
Chapter 3 Simple Report Writing	
3.1 The Report Writer	3-1
3.1.1 Simple Report	3-2
3.1.2 Report with Multiple-Line Title	3-3
3.1.3 Report with "Total" Line	3-4
3.1.4 Report with "Average" Line	3-5
3.2 What Did You See?	3-6
Chapter 4 Storing and Modifying DATATRIEVE Records	
4.1 STORE Command	4-2
4.2 MODIFY Command	4-3
4.2.1 MODIFYing Individual Records	4-3
4.2.2 MODIFYing ALL Records in a Collection	4-5

Chapter 5 Defining DATATRIEVE Domains

Page

- 5.1 Using the Application Design Tool (ADT) 5-2
- 5.2 Storing Data in the New Domain 5-3

Appendix Accessing the Sample Data

Glossary

Index

Figures

- 1-1 VT100/LA120 Keyboard 1-2
- 1-2 Portion of Sample Yachts File 1-3
- 3-1 Simple Report 3-2
- 3-2 Report Containing a Multiple-Line Title 3-3
- 3-3 Report Containing "Total" 3-4
- 3-4 Report Containing "Average" 3-5

Tables

- 2-1 Simple Boolean Expressions 2-8

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Preface

So you don't know anything about computers? That's all right. The *Datatrieve Primer* was written especially for the beginning computer user. It is a "how-to" manual requiring no previous knowledge of computers or their operations.



Scope of this Primer

This book teaches you the basics of DATATRIEVE. You will learn to:

1. FIND the data needed for your task
2. Arrange (SORT) data for your job specifications
3. Use GUIDE MODE, a "hand-holding" tutorial feature that takes you through the command sequences for your specified task
4. Produce formatted documents (REPORTS) which present your data in a readable form
5. Update (MODIFY) data and STORE these changes
6. Enter new DATATRIEVE data into the computer
7. Create (DEFINE) new DATATRIEVE domains and fields with the Application Design Tool (ADT).

The appendix, primarily for system managers, explains how to get the sample data on various operating systems.

Conventions

color Text printed in red indicates your response to the computer. Type exactly as shown.

RET The **RET** symbol indicates a carriage return. Press the RETURN key on your keyboard.

Chapter 1

Introduction

1.1 You, DATATRIEVE, and the Computer

You use a computer to process information and solve complicated problems that are difficult and time-consuming for you to do manually. The computer receives and stores large amounts of data, performs operations on that data, and produces a result.

To process data, you must know how to give the computer exact instructions (commands). DATATRIEVE is a system of such commands; you use DATATRIEVE to instruct the computer to perform various operations on your established data.

DATATRIEVE's commands are familiar English words, and its command sequences have a sentence-like structure. You will find, therefore, that using DATATRIEVE is similar to having a conversation with a friend.

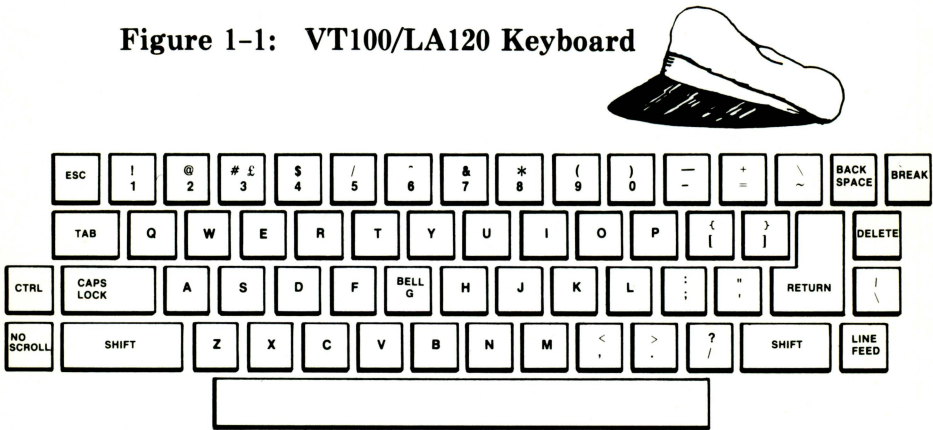


1.2 Your Terminal

You and the computer communicate with each other by means of your computer terminal. The terminal is known as an input/output (I/O) device. This means that you enter your instructions or data (input) on a keyboard similar to a typewriter and you see the results (output) on a screen similar to a television screen.

Figure 1-1 shows the keyboard of two typical input/output devices, DIGITAL's VT100 and LA120. (The LA120 is a "hard copy" terminal; input and output are printed on paper rather than on a screen.)

Figure 1-1: VT100/LA120 Keyboard



Most of the keys are like standard typewriter keys in position and function. The few "special" keys will not be used with DATATRIEVE at this beginning stage; just ignore them.

One useful key not usually found on a typewriter, however, is the DELETE or RUBOUT key. This key lets you "erase" mistakes from your screen immediately — a great advantage for poor spellers and "two-finger" typists!

Your keyboard may differ slightly from the VT100/LA120 one, but the function and relative position of the keys are basically the same.

1.3 DATATRIEVE's Sample Inventory: YACHTS

So that you can learn and practice DATATRIEVE commands on an established group of data, most examples in this book are based on a fictitious inventory of yachts.

Seven categories of information, called *fields*, are kept for each type of yacht: manufacturer, model, rig type, displacement (weight), length-over-all (LOA), beam size, and price.

This sample inventory will help you see how DATATRIEVE maintains, updates, displays, sorts, and extracts information from inventories or other related data (for example, payroll records, libraries, mailing lists, and so forth).

Figure 1-2: Portion of Sample Yachts File

MANUFACTURER	MODEL	RIG	LENGTH OVER ALL	WEIGHT	BEAM	PRICE
ALBERG	37MK II	KETCH	37	20,000	12	\$36,951
ALBIN	79	SLOOP	26	4,200	10	\$17,900
ALBIN	VEGA	SLOOP	27	5,070	08	\$18,600
ALBIN	BALLAD	SLOOP	30	7,276	10	\$27,500
AMERICAN	26	SLOOP	26	4,000	08	\$9,895
AMERICAN	26-MS	M/S	26	5,500	08	\$18,895
BAYFIELD	30/32	SLOOP	32	9,500	10	\$32,875
BLOCK I,	40	SLOOP	39	18,500	12	
BOMBAY	CLIPPER	SLOOP	31	9,400	11	\$23,950
BUCCANEER	270	SLOOP	27	5,000	08	
BUCCANEER	320	SLOOP	32	12,500	10	
CABOT	36	SLOOP	36	15,500	12	
CAL	2-27	SLOOP	27	6,700	09	
CAL	3-30	SLOOP	30	10,500	10	
CAL	2-34	SLOOP	33	9,500	10	
CAL	35	SLOOP	35	15,000	11	
CAL	29	SLOOP	29	8,000	09	
CAPE DORY	28	SLOOP	28	9,000	09	\$21,990
CAPE DORY	TYPHOON	SLOOP	19	1,900	06	\$4,295
CAPE DORY	25	SLOOP	25	4,000	07	\$8,995

1.4 Definitions

To use DATATRIEVE, you must know the following terms:

- File** A *file* is any logically related group of data. For example, all the yacht data in our sample yacht inventory is grouped into one file.
- Domain** A *domain* is also a specific group of related data and thus, for our purposes, means the same as "file." In other words, the yacht data in our sample inventory comprises the YACHTS domain.
- Record** A *record* consists of related items of data treated as one unit. For example, all the information for an individual yacht in our sample file makes up that yacht's record.

- Field** A *field* is a category of data within a record. In our sample inventory, price, weight, model, rig, length-over-all, beam, and manufacturer are fields making up a particular yacht's record.
- Collection** A *collection* consists of related records that you have brought together into one unit. For example, if you want a list of the yachts manufactured by O'Day, you instruct DATATRIEVE with the FIND command to collect the O'Day records into one group. This is obviously more convenient than working with the entire YACHTS file.

Note

Once you establish a collection, it becomes your *current* collection and remains such until you gather another collection of data.

Chapter 2

Using DATATRIEVE

2.1 Getting into and out of DATATRIEVE

To use DATATRIEVE, you must first “log in” to your computer. When you log in, two important functions are accomplished:

1. You identify yourself to the computer.
2. You alert the computer to be ready to accept your instructions.

Computers differ according to the operating systems that enable them to function and can therefore differ in their log-in procedures.

So, ask your system manager to show you how to log in to your computer. The system manager will give you a password, the unique name by which the computer knows you and which allows you to do certain tasks.

When you log in using your password, you see a prompt character that tells you the computer is ready to accept your commands.

Next to this prompt character, type DTR and press RETURN:

```
>DTR(RET)
```

The computer responds:

```
Datatrieve-11, DEC Query and Report System  
Version: V02.00  
Type HELP for help  
DTR>
```

The DTR> prompt means you are now in DATATRIEVE, and the computer is waiting for your first command.

When you finish working with DATATRIEVE, type EXIT and press RETURN:

```
DTR>EXIT(RET)
```

This command returns you to the computer's operating system. You are now ready to "log out"; your system manager will also show you how to do this.

2.2 DATATRIEVE Commands

Log in on your terminal and get into DATATRIEVE:

```
>DTR(RET)
Datatrieve-11, DEC Query and Report System
Version: V02.00
Type HELP for help
DTR>
```

You are now ready to begin using DATATRIEVE's commands.

Type the commands on the following pages as you come to them and carefully observe what happens. Use the examples as a guide at first, and then experiment with each command on your own.

By using and experimenting with these basic commands, you will quickly learn how each works in DATATRIEVE to accomplish specific tasks.

As you learn the following commands, remember these rules for entering them:

1. You can enter a command only after the prompt DTR>.
2. You must end all commands with a (RET).

When you enter a command, DATATRIEVE immediately begins executing it. You will be relieved to know that, except for the MODIFY command, you cannot destroy data with the commands you'll learn in this book. So don't worry about making mistakes. You can always go back to where you started, reissue the correct command(s), and proceed from there.

Now let's get started.

2.2.1 HELP

HELP displays a complete description of all commands, their effects, and examples of how to use them. The HELP feature is self-explanatory and is a convenient way to refresh your memory about DATATRIEVE.

Now that you're in DATATRIEVE, type HELP after the prompt:

```
DTR>HELP(RET)
```

Read what's on your screen. As you see from this display, you can get a list of topics for which help is available by entering:

```
DTR> HELP HELP(RET)
```

Read the topics and get help for each one, as follows:

```
DTR> HELP READY(RET)
```

```
DTR> HELP FIND(RET)
```

```
DTR> HELP SORT(RET)
```

```
DTR> HELP SHOW(RET)
```

... and so on. Even though you haven't used any of the commands yet, these explanations will familiarize you with their names and functions.

HELP is always available when you're in DATATRIEVE, so use it often.

2.2.2 SHOW

The SHOW command gives you a detailed summary of all the information in the computer's "dictionary" of DATATRIEVE data. The information in the dictionary includes lists of domains, records, procedures, tables, and collections available for DATATRIEVE manipulation.

When you type SHOW, you must also specify the information you want. If you want to see it ALL, type:

```
DTR>SHOW ALL(RET)
```

You see a list similar to the following example:

```
Domains:
    FAMILIES      KETCHES      OWNERS      OWNERS-SEQUENTIAL
    SAILBOATS     YACHTS       YACHTS-SEQUENTIAL

Records:
    FAMILY-REC    OWNER-RECORD      YACHT

Procedures:
    LOA-REPORT    PRICE-PER-POUND    VERIFY

Tables:
    RIG-TABLE
```

```
The current dictionary is SY:[1,2]QUERY.DIC;1
No established collections
No ready domains
```

Or you can specify a portion of this list, as follows:

```
DTR>SHOW DOMAINS(RET)
```

And only the “domains” section of the list will be displayed.

“Domains” is probably the only topic displayed by the SHOW command that is of use to you as a beginning DATATRIEVER. Therefore, SHOW ALL and SHOW DOMAINS are the only examples given here.

In more advanced DATATRIEVE use, the SHOW command displays details of specific domains, records, procedures, fields, and collections. The *User's Guide to DATATRIEVE-11* (hereafter called the *DATATRIEVE User's Guide*) completely explains these functions of SHOW.

2.2.3 READY

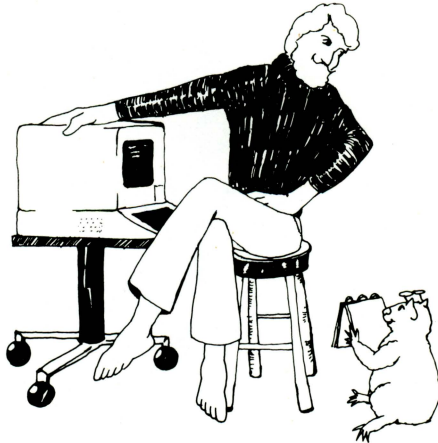
The READY command, followed by a domain name, tells DATATRIEVE you want to work with that domain's data.

Because you can do nothing with a domain that is not readied, READY is usually the first command you enter in an actual DATATRIEVE session. (If you need the names of available domains, type the SHOW DOMAINS command.) You can READY as many domains as you need during a session.

The READY command is simple:

```
DTR>READY YACHTS(RET)  
DTR>
```

The DTR> prompt tells you that the computer is waiting for your next command.



2.2.4 FIND

The FIND command “collects” a group of data from your READIED domain. This collection can consist of all the domain’s records or just a few. In either case, you must establish a collection before most processing can be done.

You can FIND (establish) as many collections as you need during a DATATRIEVE session. However, collections are not “saved”; each collection established by the FIND command cancels out the previous one. Therefore, the collection you’re working with is always your *current* collection.

Note

It is possible to form collections in DATATRIEVE and then *name* them so that they can be referred to later. This advanced function is explained in the *DATATRIEVE User’s Guide*.

The following example shows how the FIND command collects all 113 records in the YACHTS domain:

```
DTR>READY YACHTS(RET)  
DTR>FIND YACHTS(RET)
```

DATATRIEVE immediately tells you how many records are in your collection:

```
[113 records found]
```

In the following examples, you collect records from the YACHTS domain that meet certain specifications (called conditions):

```
DTR>FIND YACHTS WITH BEAM EQ 12(RET)
```

```
[13 records found]
```

You can break this collection down further by typing the command FIND CURRENT WITH followed by the desired condition, as follows:

```
DTR>FIND CURRENT WITH LOA > 35(RET)
```

```
[11 records found]
```

```
DTR>FIND CURRENT WITH LOA > 38(RET)
```

```
[5 records found]
```

```
DTR>FIND CURRENT WITH LOA > 40(RET)
```

```
[2 records found]
```

```
DTR>FIND CURRENT WITH LOA > 41(RET)
```

```
[0 records found]
```

```
DTR>FIND YACHTS WITH BUILDER EQUAL "PEARSON"(RET)
```

```
[10 records found]
```

```
DTR>FIND CURRENT WITH DISP < 10000(RET)
```

```
[4 records found]
```

Note that you must always enter DISP ("displacement") rather than WEIGHT, even though the header name will appear as WEIGHT in the printed output.

Within the YACHTS domain, you can use abbreviations for the following three field names: BUILDER (for MANUFACTURER), LOA (for LENGTH-OVER-ALL), and DISP (for DISPLACEMENT). These are the only field name abbreviations allowed.

```
DTR>FIND YACHTS WITH LOA BETWEEN 36 AND 40(RET)
```

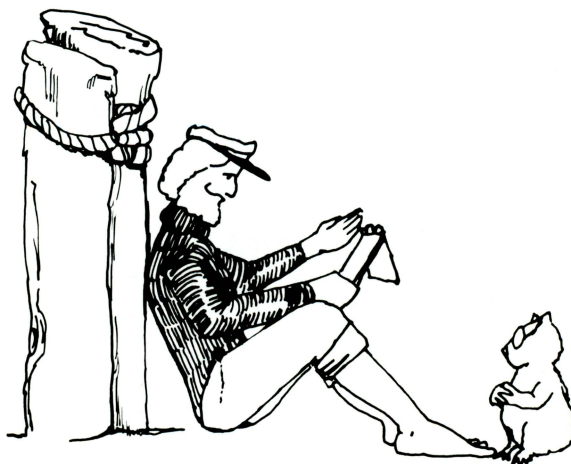
```
[15 records found]
```

```
DTR>FIND CURRENT WITH RIG = "KETCH"(RET)
```

```
[6 records found]
```

Note

Remember: Each FIND command establishes a *new* current collection.



Boolean Expressions

As you've probably noticed from the examples in this FIND section, certain symbols and phrases (=, EQUAL, >, <, BETWEEN, and so forth) are used to form your collections. These symbols and phrases are called Boolean expressions; they are used to compare the value of a field in a record with certain specifications.

You must choose these symbols and phrases from a list of terms that DATATRIEVE understands. Table 2-1 lists the symbols (also called operators) of simple Boolean expressions with examples of how they are used in DATATRIEVE.

Table 2-1: Simple Boolean Expressions*

Operator	Meaning	Example
> GT GREATER-THAN	GREATER THAN	FIND YACHTS WITH BEAM > 10
GE GREATER-EQUAL	GREATER THAN OR EQUAL TO	FIND YACHTS WITH LOA GE 30
< LT LESS-THAN	LESS THAN	FIND YACHTS WITH PRICE < 10000
LE LESS-EQUAL	LESS THAN OR EQUAL TO	FIND YACHTS WITH PRICE LE 10000
= EQ EQUAL	EQUAL TO	FIND YACHTS WITH RIG = "KETCH" **
NE NOT-EQUAL	NOT EQUAL TO	FIND YACHTS WITH RIG NE "SLOOP"
BT BETWEEN	VALUE IS BETWEEN x AND y INCLUSIVE	FIND YACHTS WITH LOA BT 25 AND 30

* DATATRIEVE lets you combine some Boolean expressions to form more precisely-defined collections in one step. You do this by using the compound Boolean expressions AND, NOT, OR, and parentheses. (See the *DATATRIEVE User's Guide* for an explanation of these compound operators.)

** The "equal" operator is handy because it lets you specify more than one condition if needed:

```
FIND YACHTS WITH BUILDER = "PEARSON" ,"O'DAY" ,"ALBIN"
```

However, you must *always* use a comma to separate multiple conditions.

2.2.5 SORT

After you establish a collection of records with FIND, use the SORT command to order the records according to your needs.

The SORT command lets you change the order of your collection as many times as you wish in a DATATRIEVE session. You can also use the SORT command with the following:

1. The FIND command — to order your collection when it is established.
2. The PRINT command — to order your collection when it is displayed.

The fields you SORT can be arranged in either of the following sequences:

1. ASCENDING (also called ASC or INCREASING)
2. DESCENDING (also called DESC or DECREASING)

Type the following examples of the SORT command. In the first two examples, you learn how SORT is used in a *two-step* operation:

```
DTR>FIND YACHTS WITH BUILDER EQ "ALBIN","GRAMPIAN"␣
```

```
[8 records found]
```

```
DTR>SORT BY ASCENDING PRICE␣
```

```
DTR>
```

```
DTR>FIND YACHTS WITH PRICE BETWEEN 35000 AND 40000␣
```

```
[7 records found]
```

```
DTR>SORT BY ASC LOA␣
```

```
DTR>
```

And in the last two examples, you see SORT *combined* with the FIND command:

```
DTR>FIND YACHTS WITH LOA > 40 SORTED BY DESC PRICE␣
```

```
[8 records found]
```

```
DTR>
```

```
DTR>FIND YACHTS WITH RIG = "KETCH" SORTED BY ASC BEAM␣
```

```
[13 records found]
```

```
DTR>
```

Bothered because you can't actually see what the SORT and FIND commands are doing? Never mind: you'll learn the PRINT command next.



2.2.6 PRINT

Unlike the FIND and SORT commands, the PRINT command lets you see the results of what you are doing. Use the PRINT command to display your collections on your terminal screen.

Once you establish your collection, you can see all of it. For example:

```
DTR>FIND YACHTS WITH BUILDER EQ "ALBIN", "GRAMPIAN" (RET)
```

```
[8 records found]
```

```
DTR>PRINT ALL (RET)
```

MANUFACTURER	MODEL	RIG	LENGTH OVER ALL	WEIGHT	BEAM	PRICE
GRAMPIAN	26	SLOOP	26	5,600	08	\$11,495
GRAMPIAN	28	SLOOP	28	6,900	10	\$14,475
GRAMPIAN	30	SLOOP	30	8,600	09	\$17,775
GRAMPIAN	34	KETCH	33	12,000	10	\$29,675
GRAMPIAN	2-34	SLOOP	34	11,800	10	\$29,675
ALBIN	79	SLOOP	26	4,200	10	\$17,900
ALBIN	VEGA	SLOOP	27	5,070	08	\$18,600
ALBIN	BALLAD	SLOOP	30	7,276	10	\$27,500

Or, you can see the results of a SORT command, for example:

DTR>SORT BY ASC MODEL(RET)

DTR>PRINT ALL(RET)

MANUFACTURER	MODEL	RIG	LENGTH	WEIGHT	BEAM	PRICE
			OVER			
			ALL			
GRAMPIAN	2-34	SLOOP	34	11,800	10	\$29,675
GRAMPIAN	26	SLOOP	26	5,600	08	\$11,495
GRAMPIAN	28	SLOOP	28	6,900	10	\$14,475
GRAMPIAN	30	SLOOP	30	8,600	09	\$17,775
GRAMPIAN	34	KETCH	33	12,000	10	\$29,500
ALBIN	79	SLOOP	26	4,200	10	\$17,900
ALBIN	BALLAD	SLOOP	30	7,276	10	\$27,500
ALBIN	VEGA	SLOOP	27	5,070	08	\$18,600

Note that DATATRIEVE sorts numeric data before alphabetic data in ascending sequence. In descending sequence, DATATRIEVE sorts in the opposite manner, with letters appearing before numbers.

You can see just a few records from your collection, for example:

DTR>PRINT CURRENT WITH PRICE BETWEEN 15000 AND 20000(RET)

MANUFACTURER	MODEL	RIG	LENGTH	WEIGHT	BEAM	PRICE
			OVER			
			ALL			
GRAMPIAN	30	SLOOP	30	8,600	09	\$17,775
ALBIN	79	SLOOP	26	4,200	10	\$17,900
ALBIN	VEGA	SLOOP	27	5,070	08	\$18,600

DTR>PRINT FIRST 5 RECORDS IN CURRENT(RET)

MANUFACTURER	MODEL	RIG	LENGTH	WEIGHT	BEAM	PRICE
			OVER			
			ALL			
GRAMPIAN	26	SLOOP	26	5,600	08	\$11,495
GRAMPIAN	28	SLOOP	28	6,900	10	\$14,475
GRAMPIAN	30	SLOOP	30	8,600	09	\$17,775
ALBIN	79	SLOOP	26	4,200	10	\$17,900
ALBIN	VEGA	SLOOP	27	5,070	08	\$18,600

In addition, the PRINT command lets you use all your specifications at once, if you only want to *display* certain data and *not* establish a new collection. For example:

```
DTR>PRINT YACHTS WITH BUILDER EQ "PEARSON" SORTED BY DESC LOA(RET)
```

MANUFACTURER	MODEL	RIG	LENGTH	WEIGHT	BEAM	PRICE
			OVER ALL			
PEARSON	419	KETCH	42	21,000	13	
PEARSON	39	SLOOP	39	17,000	12	
PEARSON	36	SLOOP	37	13,500	11	
PEARSON	365	KETCH	36	17,700	11	
PEARSON	35	SLOOP	35	13,000	10	
PEARSON	10M	SLOOP	33	12,441	11	
PEARSON	30	SLOOP	30	8,320	09	
PEARSON	28	SLOOP	28	7,850	09	
PEARSON	26	SLOOP	26	5,400	08	
PEARSON	26W	SLOOP	26	5,200	09	

Remember: Because FIND is the only command that establishes a collection, your *current* collection is the same as it was before you typed the last command above. Check on it by typing the following:

```
DTR>PRINT CURRENT(RET)
```

MANUFACTURER	MODEL	RIG	LENGTH	WEIGHT	BEAM	PRICE
			OVER ALL			
GRAMPIAN	26	SLOOP	26	5,600	08	\$11,495
GRAMPIAN	28	SLOOP	28	6,900	10	\$14,475
GRAMPIAN	30	SLOOP	30	8,600	09	\$17,775
ALBIN	79	SLOOP	26	4,200	10	\$17,900
ALBIN	VEGA	SLOOP	27	5,070	08	\$18,600
ALBIN	BALLAD	SLOOP	30	7,276	10	\$27,500
GRAMPIAN	34	KETCH	33	12,000	10	\$29,675
GRAMPIAN	2-34	SLOOP	34	11,800	10	\$29,675

You see? It is the same collection you established at the beginning of this section.

You have now learned the basic DATATRIEVE commands, and you should feel comfortable using them. Don't worry, however, if you're still a little unsure of yourself. DATATRIEVE contains a special tutorial feature for beginners — you'll learn to use GUIDE MODE next.

2.3 GUIDE MODE

The self-explanatory GUIDE MODE feature helps you:

1. While you're learning to use DATATRIEVE
2. Whenever you're unsure of the sequence of commands you need to accomplish your task

Comment: GUIDE MODE does not work on any terminals other than DIGITAL's VT52 and VT100. If you try to use it on any other type of terminal, you will encounter the following prompt:

```
Enter terminal type:
```

It is of no use to try to answer that prompt, since you still won't get GUIDE MODE. The GUIDE MODE feature also does not work on any hard-copy terminal such as the LA120.

To get GUIDE MODE (after you're logged into DATATRIEVE), type the following:

```
DTR>SET GUIDE(RET)
```

DATATRIEVE now prompts you, step by step, for every operation you want to perform.

If you need help, type a question mark (?). This shows you a list of the possible commands you can use to complete your statement; choose the appropriate response for your task.

Note

GUIDE MODE automatically spells out entire words and phrases immediately after you type only one or two letters. You might find this somewhat startling at first, but you'll soon get used to it.

When you're ready to return to "regular" DATATRIEVE, type LEAVE. The DTR> prompt means you're out of GUIDE MODE.

To see how GUIDE MODE works, you must use it. The following figures illustrate typical examples of GUIDE MODE "dialogue" as it appears on your terminal screen:

```
Enter command, type ? for help
```

When you type ? you'll see:

```
Enter command, type ? for help

The possible responses are:

READY      Make domain available
SHOW       Display status information
LEAVE      Return to normal Datatrieve
```

Type READY:

```
READY ^domain name, end with space
```

Type YACHTS:

```
READY YACHTS  
[Executing....]  
Ready for next command
```

Now type FIND:

```
FIND YACHTS  
    ^WITH or <return>
```

Now type W (GUIDE MODE automatically finishes typing ITH):

```
FIND YACHTS WITH  
    ^field name
```

Now type BEAM:

```
FIND YACHTS WITH BEAM  
^comparison
```

Now type EQ (GUIDE MODE finishes typing UAL "):

```
FIND YACHTS WITH BEAM EQUAL "  
^end with quote
```

Type 12":

FIND YACHTS WITH BEAM EQUAL "12"
[Executing....]

[13 records found]

Ready for next command

Chapter 3

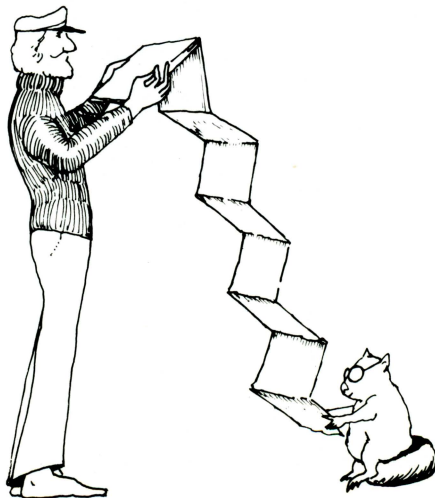
Simple Report Writing

3.1 The Report Writer

You know how to use DATATRIEVE to manipulate data, to isolate data for convenient reference, and to sort data for your job needs. Now you will learn to organize data in a form that is easy to read and understand. This process is called writing a report. You produce a report through a DATATRIEVE feature called the Report Writer.

It is beyond the scope of this primer to teach you all the commands for producing sophisticated report formats; many commands require more advanced knowledge of DATATRIEVE and its procedures than you've learned here. (See the *DATATRIEVE User's Guide* for a complete description of DATATRIEVE's report-writing capability and procedures.)

You can, however, create some "all-purpose" report formats simply by copying the following Report Writer sequences. Type the commands exactly as given. You will soon see that you can substitute your own data for the sample YACHTS data to produce reports similar to those shown here.



3.1.1 Simple Report

Figure 3-1 is an example of a report using the minimum number of commands:

Figure 3-1: Simple Report

```
DTR> READY YACHTS(RET)
DTR> FIND YACHTS WITH LOA >40(RET)
[8 records found]
DTR> REPORT(RET)
RW> SET REPORT-NAME="LUXURY YACHTS"(RET)
RW> PRINT LOA, BUILDER, PRICE(RET)
RW> END-REPORT(RET)
```

LUXURY YACHTS

LENGTH OVER ALL	MANUFACTURER	PRICE
41	CHALLENGER	\$51,228
41	COLUMBIA	\$48,490
41	GULFSTAR	\$41,350
41	ISLANDER	\$54,970
41	NAUTOR	
41	NEWPORT	
42	OLYMPIC	\$80,500
42	PEARSON	

- ① Typing REPORT puts you into the Report Writer.
- ② You must always title your report with the phrase SET REPORT-NAME= and your title must always be enclosed in quotation marks.
- ③ In the Report Writer context, PRINT means the fields you want shown in your report. You must specify each field.
- ④ The phrase END-REPORT produces your report.



3.1.2 Report with Multiple-Line Title

You may often need to use more than one line in your report title (*header lines*). Figure 3-2 shows how to do this:

Figure 3-2: Report Containing a Multiple-Line Title

```
DTR> READY YACHTS(RET)
DTR> REPORT YACHTS WITH BUILDER EQ "GRAMPIAN", "ALBIN"-(RET)
DTR> SORTED BY PRICE(RET)
RW> SET REPORT-NAME="YACHTS BY GRAMPIAN AND ALBIN"/(RET)
[Looking for header segment]
RW> "SPECIAL REPORT FOR CUSTOMER"/(RET)
[Looking for header segment]
RW> "REQUESTED 9/2/79"(RET)
RW> PRINT PRICE, RIG, LOA, MODEL, BUILDER(RET)
RW> END-REPORT(RET)
```

```
YACHTS BY GRAMPIAN AND ALBIN
SPECIAL REPORT FOR CUSTOMER
REQUESTED 9/2/79
```

PRICE	RIG	LENGTH OVER		MANUFACTURER
		ALL	MODEL	
\$11,495	SLOOP	26	26	GRAMPIAN
\$14,475	SLOOP	28	28	GRAMPIAN
\$17,775	SLOOP	30	30	GRAMPIAN
\$17,900	SLOOP	26	79	ALBIN
\$18,600	SLOOP	27	VEGA	ALBIN
\$27,500	SLOOP	30	BALLAD	ALBIN
\$29,500	KETCH	33	34	GRAMPIAN
\$29,675	SLOOP	34	2-34	GRAMPIAN

① A hyphen (-) at the end of an input line indicates that the command is to be continued on the next line.

② A slash (/) indicates that the report has a multiple-line title.



3.1.3 Report with "Total" Line

Figure 3-3 illustrates the commands for printing totals (summary lines) at the bottom of a report:

Figure 3-3: Report Containing "Total"

```
DTR> READY YACHTS(RET)
DTR> REPORT YACHTS WITH PRICE >35000 SORTED BY BUILDER(RET)
RW> SET REPORT-NAME="TOP-OF-THE-LINE YACHTS"/(RET)
[Looking for header segment]
RW> "SEPTEMBER INVENTORY"(RET)
RW> SET COLUMNS-PAGE=70(RET)
RW> AT BOTTOM OF REPORT PRINT COL 1, "TOTAL BOATS:";-(RET)
RW> COUNT, COL 35, "TOTAL PRICE:"; TOTAL PRICE USING $ZZZ,ZZZ(RET)
RW> PRINT BUILDER, MODEL, RIG, LOA, PRICE(RET)
RW> END-REPORT(RET)
```

```
TOP-OF-THE-LINE YACHTS
YACHTS OVER $35,000
SEPTEMBER INVENTORY
```

MANUFACTURER	MODEL	RIG	LENGTH		PRICE
			OVER	ALL	
ALBERG	30	KETCH	30		\$36,951
CARIBBEAN	35	SLOOP	35		\$37,850
CHALLENGER	35	SLOOP	35		\$39,215
CHALLENGER	41	KETCH	41		\$51,228
CHRIS-CRAFT	CARIBBEAN	SLOOP	35		\$37,850
COLUMBIA	41	SLOOP	41		\$48,490
GULFSTAR	41	KETCH	41		\$41,350
I. TRADER	37	KETCH	36		\$39,500
IRWIN	37 MARK II	KETCH	37		\$36,950
ISLANDER	FREEPORT	KETCH	41		\$54,970
LINDSEY	39	M/S	39		\$35,900
NORTHERN	37	KETCH	37		\$50,000
OLYMPIC	ADVENTURE	KETCH	42		\$80,500
TOTAL BOATS:	13	TOTAL PRICE:			\$590,754

- ① SET COLUMNS-PAGE= sets the width of your report.
- ② AT BOTTOM OF indicates where you want a "total" line shown at the bottom of your report.
- ③ COUNT tells DATATRIEVE to count the number of records shown in your report.
- ④ USING \$ZZZ,ZZZ indicates the maximum number of digits to be printed for the TOTAL PRICE field.



3.1.4 Report With "Average" Line

You can also print an average price or number as a summary line at the bottom of a report, as shown in Figure 3-4:

Figure 3-4: Report Containing "Average"

```
DTR> READY YACHTS(RET)
DTR> REPORT YACHTS SORTED BY ASC LOA(RET)
RW> SET REPORT-NAME="INVENTORY OF YACHTS BY LENGTH"/(RET)
[Looking for header segment]
RW> "MONTHLY REPORT"/(RET)
[Looking for header segment]
RW> "SEPTEMBER 1979"(RET)
RW> SET COLUMNS-PAGE=70(RET)
RW> AT BOTTOM OF REPORT PRINT COL 35, "AVERAGE PRICE:",- (RET)
RW> AVERAGE PRICE USING $ZZZ,ZZZ(RET)
RW> PRINT LOA, RIG, BUILDER, MODEL, DISP, PRICE(RET)
RW> END-REPORT(RET)
```

INVENTORY OF YACHTS BY LENGTH
MONTHLY REPORT
SEPTEMBER 1979

LENGTH OVER	RIG	MANUFACTURER	MODEL	WEIGHT	PRICE
16	SLOOP	WINDPOWER	IMPULSE	650	\$3,500
19	SLOOP	CAPE DORY	TYPHOON	1,900	\$4,295
20	SLOOP	ENCHILADA	20	2,300	

39	SLOOP	BLOCK I.	40	18,500	
39	M/S	LINDSEY	39	14,500	\$35,900
39	SLOOP	PEARSON	39	17,000	
41	KETCH	CHALLENGER	41	26,700	\$51,228
41	SLOOP	COLUMBIA	41	20,700	\$48,490
41	KETCH	GULFSTAR	41	22,000	\$41,350
41	KETCH	ISLANDER	FREEPORT	22,000	\$54,970
41	SLOOP	NAUTOR	SWAN 41	17,750	
41	SLOOP	NEWPORT	41 S	18,000	
42	KETCH	OLYMPIC	ADVENTURE	24,250	\$80,500
42	KETCH	PEARSON	420	21,000	
			AVERAGE PRICE:		\$11,586



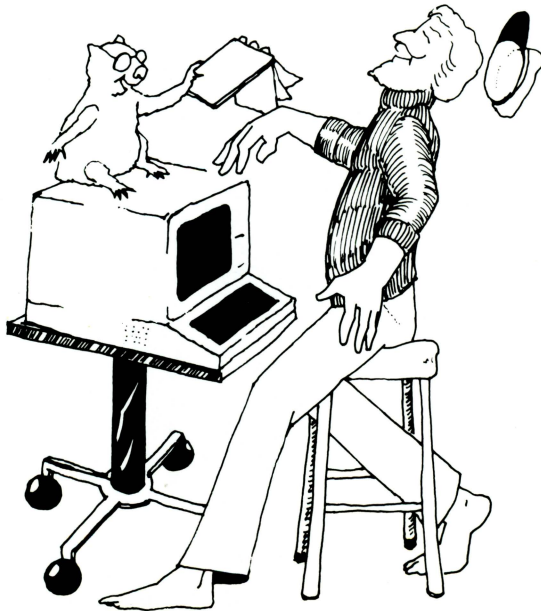
3.2 What Did You See?

If some of the command sequences preceding the report examples were confusing to you, don't worry about it. DATATRIEVE's Report Writer is a very flexible feature. Because it lets you specify *every* aspect of formatting a report, it seems complicated to a beginning user. But you are on your way to mastering report writing if you observed the following:

1. You must **READY** your domain or collection.
2. The word **REPORT** gets you into the Report Writer.
3. The **RW>** prompt tells you that you are using Report Writer commands.
4. You must **SET** a "report-name."
5. You must specify the fields you want printed in your report.
6. The phrase **END-REPORT** takes you out of the Report Writer and displays your report.

These are only a few of the basic rules in the DATATRIEVE Report Writer.

Using the preceding sample report sequences as a guide, practice writing your own reports on the YACHTS data. Experiment!



Chapter 4

Storing and Modifying DATATRIEVE Records

Up to now, you have been using simple DATATRIEVE commands to manipulate established data. You have not been able to change data or to enter new records. This chapter teaches you to use the STORE and MODIFY commands to:

1. Update and correct data
2. Add new records to existing domains

To use the STORE and MODIFY commands, you must READY the domain to tell DATATRIEVE you have the authority (“privileges”) to change or add data. Your system manager decides if your job requires you to have this authority and then grants you the necessary access privileges.

Once you are authorized to use STORE and MODIFY, READY the domain for WRITE privileges. Type the following:

```
DTR>READY YACHTS (SHHHH) WRITE(RET)
```

(SHHHH) is the password authorizing you to use the STORE and MODIFY commands on the sample YACHTS data. When working with your own data, you will have a unique password assigned by your system manager.

You can now establish your collections and manipulate data as you did before, but you can also change records and add new ones.

4.1 STORE Command

Use the STORE command to enter new records in a domain. Be sure to READY the domain for WRITE privileges:

```
DTR>READY YACHTS (SHHHH) WRITE (RET)
```

Now type the following:

```
DTR>STORE YACHTS (RET)
```

DATATRIEVE prompts you to enter data for each field in the new record:

```
Enter MANUFACTURER:  HOBIE (RET)
Enter MODEL:  16 (RET)
Enter RIG:  SLOOP (RET)
Enter LENGTH-OVER-ALL:  16 (RET)
Enter DISPLACEMENT:  500 (RET)
Enter BEAM:  8 (RET)
Enter PRICE:  1,600 (RET)
```

Check to see that your new record is correct:

```
DTR>FIND YACHTS WITH BUILDER EQ "HOBIE" (RET)
```

```
[1 record found]
```

```
DTR>PRINT ALL (RET)
```

MANUFACTURER	MODEL	RIG	LENGTH OVER ALL	WEIGHT	BEAM	PRICE
HOBIE	16	SLOOP	16	500	08	\$1,600

Note

DATATRIEVE prompts you for each field individually; it does not accept a RETURN as a response to the prompt. However, you can leave a field *blank* if you wish: press the space bar several times after the "enter" prompt and then (RET).

4.2 MODIFY Command

You can change DATATRIEVE records with the MODIFY command. Use MODIFY to update or correct records in any domain.

While learning to use MODIFY, you will also become familiar with another DATATRIEVE command: SELECT.

4.2.1 MODIFYing Individual Records

The MODIFY command requires two steps:

1. FIND your collection.
2. SELECT the record you want to MODIFY.

Use the SELECT command to isolate a record that you want to change. The forms of this command are:

1. SELECT FIRST
2. SELECT NEXT (repeat as many times as needed)
3. SELECT LAST
4. SELECT number
(This form of the SELECT command refers to the *number* of the record you want, not how many records you are selecting. For example, entering SELECT 5 gives you the fifth record, not records 1 through 5.)

Type the following examples and observe how the SELECT command works with MODIFY:

```
DTR>FIND YACHTS WITH BUILDER EQ "IRWIN" (RET)
```

```
[4 records found]
```

```
DTR>PRINT ALL (RET)
```

MANUFACTURER	MODEL	RIG	LENGTH OVER ALL	WEIGHT	BEAM	PRICE
IRWIN	30	SLOOP	30	10,000	10	\$19,950
IRWIN	HALF TON	SLOOP	30	7,300	10	
IRWIN	37 MARK II	KETCH	37	20,000	11	\$36,950
IRWIN	25	SLOOP	25	5,400	12	\$10,950

The record you want to MODIFY is the first one, so type:

DTR>SELECT 1 (or, alternatively, SELECT FIRST) (RET)

Although it's not always necessary, make sure you have the record you want by typing:

DTR>PRINT (RET)

MANUFACTURER	MODEL	RIG	LENGTH OVER ALL	WEIGHT	BEAM	PRICE
IRWIN	30	SLOOP	30	10,000	10	\$19,950

To MODIFY the price in this record, type:

DTR>MODIFY PRICE (RET)

DATATRIEVE prompts you, and you respond:

Enter PRICE: 20,500 (RET)

The price is now changed. Check it:

DTR>PRINT (RET)

MANUFACTURER	MODEL	RIG	LENGTH OVER ALL	WEIGHT	BEAM	PRICE
IRWIN	30	SLOOP	30	10,000	10	\$20,500

Now, MODIFY the price of the next record in the collection:

DTR>SELECT NEXT (RET)

DTR>MODIFY PRICE (RET)

Enter PRICE: 15,000 (RET)

DTR>PRINT (RET)

MANUFACTURER	MODEL	RIG	LENGTH OVER ALL	WEIGHT	BEAM	PRICE
IRWIN	HALF TON	SLOOP	30	7,300	10	\$15,000

4.2.2 MODIFYing ALL Records in a Collection

You can also MODIFY ALL the records in a collection, if they all are to have the *same* field values. In this case, you do not need to SELECT a particular record.

To simultaneously change all records in a collection, use the MODIFY ALL command as follows:

```
DTR>FIND YACHTS WITH BUILDER EQ "ISLANDER" (RET)
```

```
[5 records found]
```

```
DTR>PRINT ALL (RET)
```



MANUFACTURER	MODEL	RIG	LENGTH OVER ALL	WEIGHT	BEAM	PRICE
ISLANDER	28	SLOOP	28	5,994	10	\$15,908
ISLANDER	30	KETCH	30	8,600	10	\$20,990
ISLANDER	36	KETCH	36	13,450	11	\$31,730
ISLANDER	BAHAMA	SLOOP	24	4,200	08	\$8,500
ISLANDER	FREEPORT	KETCH	41	22,000	13	\$54,970

```
DTR>MODIFY ALL RIG (RET)
```

```
Enter RIG: KETCH (RET)
```

```
DTR>PRINT ALL (RET)
```

MANUFACTURER	MODEL	RIG	LENGTH OVER ALL	WEIGHT	BEAM	PRICE
ISLANDER	28	KETCH	28	5,994	10	\$15,908
ISLANDER	30	KETCH	30	8,600	10	\$20,990
ISLANDER	36	KETCH	36	13,450	11	\$31,730
ISLANDER	BAHAMA	KETCH	24	4,200	08	\$8,500
ISLANDER	FREEPORT	KETCH	41	22,000	13	\$54,970

As you see, all RIG fields in the collection are changed to KETCH.

If you want to leave a field's value *blank*, press the space bar several times after the "enter" prompt, then **(RET)**. For example:

```
DTR>MODIFY ALL PRICE(RET)
```

```
Enter PRICE: (press space bar several times)(RET)
```

```
DTR>PRINT ALL(RET)
```

MANUFACTURER	MODEL	RIG	LENGTH OVER ALL	WEIGHT	BEAM	PRICE
ISLANDER	28	KETCH	28	5,994	10	
ISLANDER	30	KETCH	30	8,600	10	
ISLANDER	36	KETCH	36	13,450	11	
ISLANDER	BAHAMA	KETCH	24	4,200	08	
ISLANDER	FREEPORT	KETCH	41	22,000	13	

All records in the collection are now blank in the PRICE field.

Caution

Remember, the **MODIFY** command *changes* data. You can use it as many times as necessary in a **DATATRIEVE** session. But once the data is changed, you have no record of the previous data. So, be careful when **MODIFYING** records, especially when using the **MODIFY ALL** command.



Practice the **MODIFY** command on the sample **YACHTS** domain as much as you need to feel comfortable using it. When working with your own files, however, you may want to print out a hard copy of your data *before* you change any records. You can then check the accuracy of your modifications as well as restore the original data if you make a mistake.

Chapter 5

Defining DATATRIEVE Domains

So far, you have been working with existing DATATRIEVE domains and records. You will now learn to:

1. Create your own domains
2. Define the fields that make up these new domains

The Application Design Tool (ADT) helps you define new domains in much the same way that GUIDE MODE helps you use DATATRIEVE. ADT prompts you:

1. For domain and field names
2. For the type of data to be included in each field
3. For the space to be allotted for the data in each field

ADT then stores these new data definitions in a special file available for DATATRIEVE use.



5.1 Using the Application Design Tool (ADT)

As with GUIDE MODE, the easiest way to learn ADT is to use it. Let's begin....

1. Log in to DATATRIEVE and type ADT:

```
DTR>ADT (RET)
```

2. You're now in ADT. It asks:

```
Do you want help? (YES or NO): YES (RET)
```

3. Read the "help" information displayed on your screen. Following this text, ADT asks whether you want detailed or abbreviated questions prompting you for information to create your new domain and its fields:

```
Do you want detailed questions? (YES or NO) :
```

After you are familiar with ADT, you can answer NO to this prompt, but at the beginning it's best to answer with

```
YES (RET)
```

4. The following gives you an idea of the *types* of information that ADT asks you to supply. These are abbreviations of the actual questions asked by ADT. Use the sample answers which appear here in capital letters.

```
Domain name: SUBSCRIPTIONS
```

```
File name: SUBSCR.DAT (.DAT" indicates a "data" file)
```

```
First field: TITLE
```

```
Form of data in field: CHARACTERS
```

```
Length of field: 20
```

```
Next field: CODE
```

5. ADT asks if you want to define any more fields. When you answer NO, it knows you are finished defining fields for this domain.

6. ADT displays information about two types of DATATRIEVE files, indexed and sequential. Because we are working only with *sequential* files here, answer NO to the following question:

```
Do you want your data file indexed?(YESorNO): NO(RET)
```

7. ADT asks you to supply a name for the file where the *definitions* for the SUBSCRIPTIONS domain are to be stored:

```
What is the name of the file where the DATATRIEVE domain and  
field definitions should go?: SUBSCR.CMD
```

Following your response, ADT prints the full file specification for the new domain's definitions:

```
The DATATRIEVE definitions for your domain are located in  
file SY:[202,203]SUBSCR.CMD;1
```

8. ADT asks if you want to define another domain. Your NO answer to that final question automatically puts you back into DATATRIEVE and you will see the DTR> prompt sign.

If you need help answering any ADT question, type a question mark (?) and read the instructions.

Note

If you get "stuck" or confused at any time in ADT, press the "Z" character on your keyboard while holding down the CONTROL key. This returns you to DATATRIEVE. When you see the DTR> prompt, you can begin again.

5.2 Storing Data in the New Domain

Now you must define the new domain so that you can STORE data in it. You do this by typing the "at sign" (@) character on your keyboard, followed by the file name:

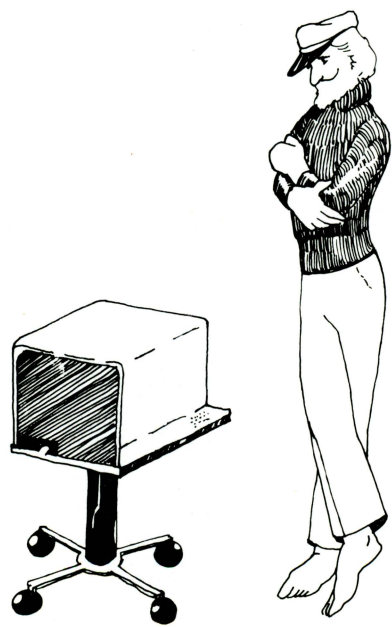
1. After the DTR> prompt, type:

```
DTR> @SUBSCR.CMD(RET)
```

- Remember, SUBSCR.COMD is the name of the file where ADT stored the new domain definition for DATATRIEVE use. DATATRIEVE now displays the definition for you as it creates the definition in the dictionary. This definition contains the specifications for entering data into the new domain:

```
DEFINE DOMAIN SUBSCRIPTIONS USING SUBSCRIPTIONS-REC
ON SUBSCR;
DEFINE RECORD SUBSCRIPTIONS-REC USING
01 SUBSCRIPTIONS-REC,
02 TITLE          PIC IS X(20),
02 CODE           PIC IS X(3),
02 EXPIRATION-DATE  USAGE IS DATE
  EDIT-STRING IS DD-MMM-YY
  QUERY-NAME IS EXP-DATE,
02 PRICE          PIC IS S9(2)V99
  EDIT-STRING IS $$$.$$,
;
[Record SUBSCRIPTIONS-REC is 36 bytes long]
DEFINE FILE FOR SUBSCRIPTIONS;
```

- You can now READY the SUBSCRIPTIONS domain for WRITE privileges and STORE data. See Chapter 4 to refresh your memory about using the STORE command.
- Now, go back and use ADT to create a new domain on your own.



Appendix

Accessing the Sample Data

This appendix is intended primarily for your system manager; however, if a manager is not available, you may need to do the following task yourself.

In order to use the sample data (the YACHTS domain), you must copy the data file YACHT.DAT into your computer account. You must first know which of the following operating systems controls the computer:

- IAS
- VAX/VMS
- RSX-11M
- RSX-11M Plus
- RSTS/E

Type the following commands to copy the data file for DATATRIEVE's sample domain YACHTS into your account:

1. IAS or VAX/VMS:

```
COPY LB:[1,2]YACHT.DAT *.*
```

2. RSX-11M, RSX-11M Plus or RSTS/E:

```
PIP SY:=LB:[1,2]YACHT.DAT
```

The YACHTS domain is now set up for you to use.

If DATATRIEVE is already installed in the operating system, you get into DATATRIEVE by typing:

DTR **RET**

If DATATRIEVE is not installed, type one of the following commands (according to the operating system):

1. IAS:

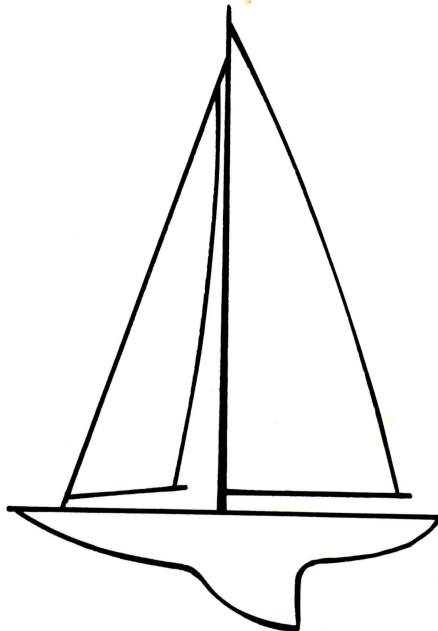
RUN [11,1]DTR

2. VAX/VMS:

MCR DTR

3. RSTS/E, RSX-11M or RSX-11M Plus:

RUN \$DTR



Glossary

Access Privileges

Authority to use, or to perform specialized functions on, a computer system or program. Your system manager grants you such authority by assigning you a password.

Application Design Tool (ADT)

An interactive DATATRIEVE tool which helps you define new domains and fields.

Boolean Expressions

Expressions containing certain symbols or phrases (called Boolean *operators*) used to compare values. For example, in the DATATRIEVE command `FIND YACHTS WITH BEAM > 10`, “BEAM > 10” is a Boolean expression containing the Boolean operator “>” (greater than).

Collection

A group of related records brought together into one unit by the FIND command.

Command

A word or phrase that you type on your terminal, instructing the computer to perform an operation. FIND, SORT, MODIFY, and READY are examples of DATATRIEVE commands.

Data Definition

A description of the data structure of a DATATRIEVE record, such as its size, type, and relative location.

DELETE Key

A terminal keyboard key which you use to erase mistakes made while typing.

Dialogue

Your interaction with DATATRIEVE, especially when using GUIDE MODE or ADT.

Domain

A DATATRIEVE term describing a logically related group of data; synonymous with *file*.

Field

A unit of data within a record. For example, each YACHT record contains seven *fields*: model, manufacturer, displacement (weight), length-over-all, rig, beam, and price.

File

A general term for a logically related group of data. In DATATRIEVE, files are called *domains*.

Guide Mode

DATATRIEVE's interactive tutorial tool; a learning aid which leads you step-by-step through DATATRIEVE operations.

I/O Device

Input/Output device. A device which receives instructions or data (input) and/or produces a result (output); for example, a terminal or a printer.

Login Procedure

An identification procedure used to gain access to a computer.

Operating System

A collection of programs that controls the overall operation of a computer. For example, DATATRIEVE can be used on several operating systems, such as IAS, RSX-11M, RSTS/E, and VAX/VMS.

Password

A unique name or group of characters, usually kept secret, which is assigned to each user, verifying access to a particular system or program.

Prompt

A character or phrase displayed on your terminal screen, which lets you know that the computer is ready to accept your next command. The DATATRIEVE prompt is DTR>.

Query Name

In DATATRIEVE, a synonym for a field name, usually a shorter word making input easier to type and remember. For instance, you can type LOA (for LENGTH-OVER-ALL), BUILDER (for MANUFACTURER), and DISP (for DISPLACEMENT).

Record

A group of fields treated as a unit. For example, all the information about an individual yacht in DATATRIEVE's sample YACHTS domain makes up that yacht's *record*, consisting of seven different fields.

Report

Output which is organized in a planned format. In DATATRIEVE, you use the Report Writer feature to format and produce reports.

Sequential File

A file which lets you retrieve data *only* in a one-after-another order. DATATRIEVE's sample YACHTS domain is a sequential file.

Terminal

A device, consisting of a keyboard and display mechanism, used to enter and receive data to and from a computer; an I/O (input/output) device.

Index

A

- @ character. *See* 'at sign'
- Abbreviations, of field names, 2-7
- Access privileges, 4-1
- Accessing sample data
 - commands for, A-1
- Adding new records, 4-1
- ADT, 5-1. *See also* *Application Design Tool*
 - getting help in, 5-2
 - using, 5-2
- ADT command, 5-2
- Application Design Tool, 5-1. *See also* *ADT*
- AT BOTTOM OF, used in report writing, 3-4
- 'At sign', used in defining new domains, 5-3

B

- Boolean expressions, 2-8t
 - defined, 2-7

C

- Collection
 - current, 1-4, 2-5, 2-7
 - defined, 1-4
- Collections, naming, 2-5
- Commands, 1-1
 - for accessing sample data, A-1
 - ADT, 5-2
 - EXIT, 2-2
 - FIND, 2-5, 2-6
 - HELP, 2-3
 - LEAVE, 2-13
 - MODIFY, 4-3
 - MODIFY ALL, 4-5
 - PRINT, 2-10
 - READY, 2-4
 - SELECT, 4-3

SET GUIDE, 2-13

SHOW, 2-3, 2-4

SORT, 2-8, 2-9

STORE, 4-2, 5-3

Conditions, used with FIND, 2-6

CONTROL-Z, 5-3

Correcting mistakes, 2-2

COUNT, used in report writing, 3-4

D

'*.DAT*'. *See* *data file*

Data

- correcting, 4-1

- updating, 4-1

Data file, 5-2

DATATRIEVE commands, structure of, 1-1

DATATRIEVE prompt, 2-1. *See also* *DTR> prompt*

Defining new domains, 5-1

Defining new fields, 5-1

DELETE key, 1-2. *See also* *RUBOUT key*

Dictionary, of DATATRIEVE data, 2-3

Domain, defined, 1-3

Domain definition, 5-4

- where ADT stores, 5-4

Domains, defining new, 5-1

DTR> prompt, 2-1. *See also*

DATATRIEVE prompt

E

END-REPORT, used in report writing, 3-2, 3-6

EXIT command, 2-2

F

Field, defined, 1-4

Field names, abbreviations, 2-7

Fields, blank, 4-2, 4-6
Fields, defining new, 5-1
File
 defined, 1-3
 indexed, 5-3
 sequential, 5-3
File specification, 5-3
FIND command, 2-5, 2-6

G

GUIDE MODE, 2-13
 getting help in, 2-13
 getting into, 2-13
 leaving, 2-13

H

HELP command, 2-3
Hyphen, as continuation character, 3-3

I

I/O device, 1-2. *See also terminal*
IAS, A-1
Indexed file, 5-3

K

Keyboard, 1-2. *See also terminal*

L

LA120, 1-2. *See also terminal*
LEAVE command, 2-13
Login procedures, 2-1
Logout procedures, 2-2

M

Mistakes, correcting, 2-2
MODIFY ALL command, 4-5
MODIFY command, 4-3
MODIFYing ALL records, 4-5
MODIFYing individual records, 4-3

N

New domains, defining, 5-1
New fields, defining, 5-1
New records, adding, 4-1

O

Operating systems, 2-1, A-1
 IAS, A-1
 RSTS/E, A-1
 RSX-11M, A-1
 RSX-11M Plus, A-1
 VAX/VMS, A-1

P

Password, 2-1
PRINT command, 2-10
 used in report writing, 3-2
Privileges, access, 4-1

Q

Question mark
 used in ADT, 5-3
 used in GUIDE MODE, 2-13

R

READY command, 2-4
Record, defined, 1-3
Records, adding new, 4-1
Report
 with 'Average' line, 3-5, 3-5f
 formats, 3-1
 with Multiple-Line Title, 3-3, 3-3f
 Simple, 3-2, 3-2f
 with 'Total' line, 3-4, 3-4f
REPORT, used in report writing, 3-2,
 3-6
Report Writer, 3-1
Report writing
 AT BOTTOM OF, used in, 3-4
 basic rules, 3-6
 COUNT, used in, 3-4
 defined, 3-1

END-REPORT, used in, 3-2, 3-6
PRINT, used in, 3-2
REPORT, used in, 3-2, 3-6
RW> prompt, 3-6
SET COLUMNS-PAGE=, used in,
3-4
SET REPORT-NAME=, used in, 3-2
SET, used in, 3-6
use of hyphen in, 3-3
use of slash in, 3-3
USING \$ZZZ,ZZZ, used in, 3-4

RSTS/E, A-1
RSX-11M, A-1
RSX-11M Plus, A-1
RUBOUT key, 1-2. *See also DELETE*
key
RW> prompt, 3-6

S

Sample Inventory, 1-2
Sample Yachts File, 1-3f
SELECT command, 4-3
Sequential file, 5-3
SET COLUMNS-PAGE=, used in
report writing, 3-4
SET GUIDE command, 2-13

SET REPORT-NAME=, used in report
writing, 3-2
SET, used in report writing, 3-6
SHOW command, 2-3, 2-4
Simple Boolean Expressions, 2-8t
Slash, used in report writing, 3-3
SORT command, 2-8, 2-9
ascending order, 2-9
descending order, 2-9
STORE command, 4-2, 5-3

T

Terminal
as I/O device, 1-2
keyboard, 1-2
LA120, 1-2
VT100, 1-2

U

USING \$ZZZ, ZZZ, used in report
writing, 3-4

V

VAX/VMS, A-1
VT100, 1-2. *See also terminal*
VT100/LA120 Keyboard, 1-2f

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