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DATATRIEVE–11
Installation Guide

Order Number: AA–X022D–TC

This manual describes procedures for installing DATATRIEVE–11 on various PDP–11 operating systems.

Operating Systems:	RSX–11M/M–PLUS
	RSTS/E
	Micro/RSX
	Micro/RSTS
	VMS with VAX–11 RSX
Software Version:	DATATRIEVE–11 Version 3.3

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Preface

This manual describes the procedures used to install DATATRIEVE–11 on a PDP–11 or VAX system under an RSX or RSTS operating system from a distribution kit on tape or disk.

Operating Systems and Versions

DATATRIEVE–11 runs on the following operating systems and versions:

- RSX–11M Version 4.5 or higher
- RSX–11M–PLUS Version 4.1 or higher
- RSTS/E Version 9.7 or higher
- Micro/RSX Version 4.1 or higher
- Micro/RSTS Version 2.2 or higher
- VAX–11 RSX Version 4.2 or higher, under VMS Version 5.1 or higher

Intended Audience

This manual is intended for system managers. Extensive knowledge of the host operating system is assumed.

Document Structure

This manual is organized as follows:

- Chapter 1 outlines the installation process.
- Chapter 2 explains the Auto-Install installation procedure on RSX–11M and RSX–11M–PLUS.

- Chapter 3 explains the installation procedure on Micro/RSX.
- Chapter 4 explains the Auto-Install installation procedure on RSTS/E.
- Chapter 5 explains the installation procedure on Micro/RSTS.
- Chapter 6 explains the installation procedure on VAX–11 RSX running under VMS.

Chapters 2 and 4 include descriptions of the default configuration files on the respective operating systems and how RSX–11M/M–PLUS and RSTS/E users can change the defaults.

Associated Documents

The following list of the DATATRIEVE–11 documentation set briefly describes the contents of each manual:

- *DATATRIEVE–11 Summary Description.* This manual provides an overview of DATATRIEVE–11 to guide users through the documentation set.
- *Introduction to DATATRIEVE–11.* This manual begins with a brief overview of DATATRIEVE–11, then interactively introduces basic DATATRIEVE tasks.
- *DATATRIEVE–11 User's Guide.* This manual explains how to set up your DATATRIEVE–11 environment, how to use data dictionaries, and how to use DATATRIEVE to define, retrieve, modify, and restructure data.
- *DATATRIEVE–11 Guide to Writing Reports.* This manual presents examples of DATATRIEVE–11 reports and describes how to format and produce a report.
- *DATATRIEVE–11 Call Interface Manual.* This manual explains how to call DATATRIEVE–11 from within programs written in high-level programming languages such as FORTRAN, COBOL, and BASIC.
- *DATATRIEVE–11 Reference Manual.* This manual explains in detail the rules governing the use of DATATRIEVE–11 and presents full descriptions of the commands and statements that compose the DATATRIEVE–11 language.
- *DATATRIEVE–11 Quick Reference Guide.* This guide provides quick reference information on the syntax and elements of DATATRIEVE–11.

Conventions Used in This Document

The following conventions are observed in this manual:

Convention	Meaning
UPPERCASE	Uppercase words and letters in examples indicate that you should type the word or letter exactly as shown.
lowercase	Lowercase words and letters in examples indicate that you are to substitute a word or value of your choice.
[]	Brackets in examples indicate optional elements.
n	A lowercase n indicates that you must substitute a value.
RSX–11	RSX–11 is used as a generic term for the RSX–11M and RSX–11M–PLUS operating systems.
CTRL/x	This symbol indicates that you hold down the control key while you simultaneously press the specified letter key. For example, CTRL/Z indicates you hold down the CTRL key and press the letter Z.
RET	The RET symbol indicates that you press the RETURN key.
color	Colored printing in interactive examples shows what you enter.
$	The symbol $ represents the nonprinting ALTMODE key. This key, called the escape (ESC) key on many terminals, is pressed in place of the RETURN key when specified. Unless otherwise specified (that is, with the $), all commands terminate with a carriage return.
. . .	The vertical ellipsis in output examples indicates that repetitive or irrelevant text has been omitted.
. . .	The horizontal ellipsis indicates that the preceding element can be repeated.

Chapter 1

Introduction to Installing DATATRIEVE–11

DATATRIEVE–11 Version 3.3 offers new features and enhancements. Before you can use the new version, you must install it on your system. This chapter provides information you need to perform the installation.

On each of the supported operating systems, DATATRIEVE–11 is installed with an automatic installation procedure. To install DATATRIEVE–11 on your Micro/RSX or Micro/RSTS system, use the installation procedure provided with your distribution kit. The installation procedure prompts you for information that you must supply to complete the installation.

If your operating system is RSX–11M, RSX–11M–PLUS, or RSTS/E, the installation procedure in your distribution kit is an automatic installation procedure that is new in DATATRIEVE–11 Version 3.3. The new procedure, called Auto-Install, functions as follows:

- Automatically checks the installation files for a new version of itself or an update. If Auto-Install finds a new version or update, it asks you if you want to install it. If you respond with "YES," Auto-Install displays the commands needed to perform the installation or update. If you respond with "NO," Auto-Install issues a warning that this could cause installations to fail and reprompts you to perform the installation or update.

- Combines the installation and update procedures for all products. Auto-Install checks the update area and applies any updates it finds to a product's installation files prior to performing the installation. The update procedures for DATATRIEVE–11 are in directory [222,200] for RSX, and PATCH$ for RSTS/E.

- Creates the following log files of the installation in the user's login directory:

  AUTOIN.LOG, which contains the main installation procedure's dialogue
  DTRDTR.LOG, which contains the DATATRIEVE–11 portion of the dialogue

- Creates temporary work areas on the user's device and deletes them before the installation completes. If any of these remain after an installation, you may delete them. The temporary work areas are created as follows:

  On RSX:

  Auto-Install sets your default device and directory to your login device and directory. It then creates the work area in directory [367,100] on your login device.

  On RSTS/E:

  Auto-Install creates the work area in directory [0,81] on your login device. The logical name for this directory is AUTWRK$.

- Creates temporary files in the user's login directory and deletes them before the installation completes. If any remain after an installation, you may delete them. The names of the temporary files are as follows:

CUSTOM.DAT	INSTAL.TMP	DTRDTR.SAV
UPDATE.DAT	AUTUPD.DAT	DTRDTR.TMP
ISTAT.DAT	DTRDTR.CFG	

- Allows its own installation files to remain on the system after it is installed in sysdev:[367,367]. These files are needed to reinstall DATATRIEVE–11 and other products and should not be deleted. If you accidentally delete them, you can reinstall Auto-Install from the distribution kit. On RSX, the names and functions of the installation files are as follows:

AUTOIN.CMD	Control installations
PRODIN.CMD	Installs individual layered products
CUSTOM.CMD	Controls customization processes
UPDATE.CMD	Controls the updating of the configuration data file
UPDATE.TSK	Updates the configuration data file
PRDTBL.DAT	Lists products Auto-Install may support
INSTAL.DAT	Lists products installed by Auto-Install
DEFUPD.TSK	Updates the status of the configuration data file

On RSTS/E the names and functions of the installation files are as follows:

AUTOIN.COM	Controls installations
PRODIN.COM	Installs individual layered products
CUSTOM.COM	Controls customization processes
UPDATE.COM	Controls the updating of the configuration data file
UPDATE.TSK	Updates the configuration data file
PRDTBL.DAT	Lists products Auto-Install may support
INSTAL.DAT	Lists products installed by Auto-Install
DEFUPD.TSK	Updates the status of the configuration data file

- Stores DATATRIEVE–11 installation data files on the system after it is installed. Do not delete these files. If they are deleted, subsequent installations will fail unless they are performed from the distribution kit.

- Handles error messages as follows:

    Ignores WARNING messages

    Aborts the installation of a product if FATAL messages are received during the installation of the product

    Aborts itself if FATAL messages are received during Auto-Install's installation dialogue

    Aborts the installation of a product if ERROR messages are received during the installation of the product

- Uses a configuration data file, which contains the parameters and values used to determine which features of DATATRIEVE–11 are supported by default.
- Provides a procedure that assists you in customizing your configuration data file to indicate which features DATATRIEVE–11 uses by default.
- Makes every attempt to restore the system to its prior state if an installation fails.

Chapter 2

Installing DATATRIEVE–11 on an RSX–11M or RSX–11M–PLUS Operating System

This chapter explains how to install DATATRIEVE–11 on the RSX–11M and RSX–11M–PLUS operating systems. Prior to installing this version of DATATRIEVE–11, perform the following steps:

1. Read this chapter, which contains information necessary for installing DATATRIEVE–11.

2. Read the release notes, which describe new features and known problems for this version of DATATRIEVE–11. For information on how to access the release notes, see Section 2.6.

3. Ensure that the RSX operating system is installed and functioning properly.

4. Choose the optional attributes for your installation. See Section 2.1.1 in this chapter for information on optional DATATRIEVE–11 attributes.

2.1 Preparing to Install DATATRIEVE–11

Unless you choose the default installation, you must choose optional attributes for your installation of DATATRIEVE–11. The following sections discuss these options in detail.

2.1.1 Default Attributes

The configuration data file contains parameters and values that determine the default attributes. You can accept these defaults or change them by answering the questions you will be asked in the installation dialogue if you choose to customize DATATRIEVE–11. The configuration data file is called DTRDTR.CFG. It is stored in directory [222,222] on the device you specify in answer to the question in the installation dialogue "Final holding area for kit files after instal?"

Table 2–1 shows the questions in the configuration data file, the default answers for attributes, and the options that create the attributes.

Table 2–1: Configuration Data File with Default Attributes

Installation Question	Default Answer	Option
Target device	LB:	your choice
Final holding area for Kit files after installation	SY0:	your choice
Which directory do you want the DTR–11 task assigned to	LB:[1,54]	your choice; normally [1,54] on RSX-11M, [3,54] on RSX11M+
Name and location of dictionary	LB:[1,2]QUERY.DIC	your choice
Name and location of message file	LB:[1,2]QUERY.MSG	your choice
Name and location of Startup Command File	SY:QUERY.INI	your choice
Name and location of DDMF.LOG	SY:DDMF.LOG	your choice
Issue error messages for record too short	1=yes	0=no
Interpret input date	1=1/6 as January 6	0=1/6 as June 6
Control spooling	1=spool output	0=output to LP:
Divide by 0 warning	−1=yes	0=no warning
Terminal type	0=ask at runtime	1=VT52, 2=VT100
Control ADT	0=ADT enabled	1=ADT disabled
Set the default COLUMNS=PAGE	80	your choice
Message file organization	0=fixed	1=variable
Default size of dictionaries	200	your choice
Default protection	0=[grp,*]	−1=[*,*], 1=[grp,prgm]
Stack size (minimum 256)	256	your choice
Link against Supervisor Mode library	NO	YES
Is DECnet available	YES	NO
1=Flt_pt softw 2=FPP hardw 3=machine hardware decides at install	3	1=install FP SW, 2=omit FP SW
Allow future customization of this file?	YES	NO
Print release notes automatically?	NO	YES
Print the installation log automatically?	NO	YES

2.2 Mounting the Distribution Medium

To install DATATRIEVE–11, perform the following steps:

1. Log in to a privileged account. The installation procedure generates a log file, which will remain in your default login directory after you complete the installation. Using a hardcopy terminal produces a more detailed record of your installation session.

2. Verify that no one on your system is performing an installation using Auto-Install.

3. Verify that no one else on your system is using a previously installed version of DATATRIEVE–11.

4. If Auto-Install is not already installed on your system, verify that you have a total of 800 free blocks (including approximately 250 contiguous blocks for the largest component) of storage space available for Auto-Install on the system device (specified by *sysdev* in the installation procedure).

5. Verify that you have sufficient disk space to install DATATRIEVE–11. Approximately 7200 free blocks are needed; approximately 6500 will be permanently used by the software. This must include three sets of contiguous free blocks, each approximately 400 blocks long, for the DATATRIEVE–11 task, the DDMF server, and the LCDDMF server.

6. Place your distribution medium in the drive.

   If your distribution medium is a disk, insert the disk in the drive and set the switch to the RUN position. Make certain that the ready light is lit.

   If your distribution medium is tape, load the tape according to the instructions for your drive. Set the ONLINE/OFFLINE indicator to ONLINE and make certain that the ready light is on.

   If your distribution medium is a TK50 tape cartridge, insert the tape into the drive according to the instructions for the drive, and close the cartridge-release button on the drive. Press the LOAD button and make certain the LOAD light comes on.

7. Allocate and mount the device. Tapes and disks must be mounted foreign. For more information about allocating and mounting devices, see the *RSX–11M/M–PLUS Command Language Manual*.

8. Installation should take approximately 30 to 45 minutes, depending on your system environment, your configuration, and the software options you select.

2.3 Installing and Verifying DATATRIEVE–11

DATATRIEVE–11 is installed using the Auto-Install software. If Auto-Install has not been installed on your system, you must do so before installing DATATRIEVE–11.

2.3.1 Installing Auto-Install

To install Auto-Install, you must invoke the Backup and Restore Utility. You can do so by using one of the following commands, according to the type of distribution medium you have purchased:

For Disks:

```
$ BRU/NOI/NEW/IMAGE:RESTORE/BAC:AUT100.A/UFD indev: sysdev:
```

For Tapes:

```
$ BRU/REW/UFD/NOI/NEW/DENS:dens/BAC:AUT100.A indev: sysdev:
```

Replace *sysdev* with the name of your system device. Replace *indev* with the name of the device on which you allocated and mounted your distribution medium. The restored files will be located in sysdev:[367,367]. See the *RSX–11M/M–PLUS Utilities Manual* for more information on the Backup and Restore Utility.

2.3.2 Invoking Auto-Install on RSX

You can invoke Auto-Install with any one of the following commands:

1. `@sysdev:[367,367]AUTOIN.CMD`
2. `@sysdev:[367,367]AUTOIN.CMD DTR`
3. `@sysdev:[367,367]AUTOIN.CMD indev:DTR`

Replace *sysdev* with the name of your system device. Replace *indev* with the name of the device on which you allocated and mounted your distribution medium.

If you use command 1, the installation dialogue begins with step 1 in the following section.

If you use command 2, the installation dialogue begins with step 2.

If you use command 3, the installation dialogue begins with step 3.

2.3.3 Installation Dialogue

This section describes the installation dialogue that appears on your screen. The text that follows each question explains the answers to the question. These explanations do not appear in the actual installation dialogue.

The default answer appears at the end of each question, enclosed in angle brackets (< >). You can accept the default answer by typing it or by pressing RETURN.

Depending on how you invoked Auto-Install, you will enter the dialogue at step 1, step 2, or step 3.

1. `Which product(s) do you want to install?`

   In response to this prompt, type "DTR," which is the product name for DATATRIEVE–11. Press CTRL/Z to exit from Auto-Install at this point.

2. `Where are the update files located <sysdev:>?`

   If the update files are located on the system device (*sysdev* in the installation procedure), press RETURN. If the update files are not located on the system device, enter the name of the device on which they are located, including the colon (:). To exit from Auto-Install at this point, press CTRL/Z.

   If there are no update files for DATATRIEVE–11 in this installation, press RETURN. The following messages will appear:

   ```
   WARNING----No updates found for configuration data file; procedure
   continuing
   WARNING----Update file DTR303.DAT not found at sysdev: [222,200]
             Kit files not updated; procedure continuing.
   ```

3. `Which device are the distribution files for DTR (DTR) located on`
   `(include colon)?`

   If you are installing DATATRIEVE–11 from a distribution kit, specify the drive on which you allocated and mounted the distribution disk or tape (in the form *ddnn*). If you are installing from an account on your system (for example, reinstalling an existing installation), specify the name of the device on which the source files are located (in the form *ddnn*). To exit from Auto-Install at this point, press CTRL/Z.

If you accept the default installation or have answered "YES" to the "Allow future customization of this file?" question during a previous installation, Auto-Install will issue the following question:

```
Do you want to customize DTR (DTR) (Y/N) <N>?
```

Type "Y" to customize your DATATRIEVE–11 installation.

Type "N" or press RETURN if you do not wish to customize DATATRIEVE–11.

The default may fulfill your system requirements. However, you may be able to improve performance by customizing. If you choose to customize DATATRIEVE–11, you are asked further questions.

If you have already customized DATATRIEVE–11 during a previous installation, or if you accept the default configuration, type "N" or press RETURN. The installation procedure will then skip all other questions pertaining to customization.

If you choose to customize, you will be asked further questions. Press RETURN to accept the default answer; press CTRL/Y to abort customization; press CTRL/Z to exit from customization but retain any changes made so far; or type a new value. If a question has multiple choices for the answer, the choices will be listed in angle brackets (< >).

NOTE

The default answers given in angle brackets may be different if you have customized the configuration file previously by editing the configuration data file. The answers you provide in this file become the default answers in the installation procedure.

Some examples of questions you will be asked if you are customizing follow. See Table 2–1 for all the questions and possible responses.

```
Final holding area for kit files after instal <SY0:>?
```

This is the device on which the distribution files will be stored when the installation is complete. Press RETURN if you want to store them on your default login device. Otherwise, enter the name of another device followed by a colon (:). The installation files will be stored in directory [222,222] on this device.

DATATRIEVE–11 has the option of using floating point emulation software if floating point processor hardware is not supported on the machine. The following question determines whether to install floating point emulation software.

```
1=Flt_pt softw  2=FPP hardw  3=Machine hardware decides at instal
```

If you specify 1, the floating point emulation software is installed regardless of whether the machine includes the floating point hardware. If you specify 2, the floating point emulation software is omitted without determining whether the floating point processor hardware is present. The default, 3, specifies that the floating point emulation software is installed if, and only if, the machine does not contain floating point hardware; if the floating point hardware is present, DATATRIEVE–11 uses floating point instructions.

You can improve performance by increasing the pool space available to DATATRIEVE for internal data structures. To increase the amount of pool space, you must have Supervisor Mode RMS and the floating point processor available, and you must choose them at installation time. Using the floating point processor also improves the speed of DATATRIEVE floating point operations.

```
Allow future customization of this file <YES>?
```

If you would like to allow DATATRIEVE–11 to be customized during subsequent installations, press RETURN. If you would like to disable customization during subsequent installations, type "N" or "NO."

```
Print the release notes automatically <NO>?
```

If you do not want to print the release notes, press RETURN. To print them, type "Y."

```
Print the installation log automatically <NO>?
```

If you do not want to print the log file, press RETURN. To print it, type "Y."

```
Do you want to customize DTR again <Y/N><NO>?
```

Type "Y" if you want to change any of your answers to the customization questions. If not, press RETURN or type "N."

Once the contents of the configuration data file are complete, Auto-Install installs DATATRIEVE–11. Throughout the installation process, Auto-Install displays several informational messages. Following the installation, Auto-Install runs the Installation Verification Procedure (IVP) for DATATRIEVE–11.

2.3.4 Installation Verification Procedure

The Installation Verification Procedure (IVP) consists of a program with many DATATRIEVE tests. If the installation and IVP are successful, the following message is displayed on your terminal at the end of the installation prodedure:

```
Installation of DTR (DTR) successful
```

If this message is not displayed on your terminal, an error has occurred in your installation. In this case, you must examine the installation output listing for error messages and correct the errors.

Begin the installation procedure again, starting with the command that invokes Auto-Install.

2.4 Installation Files

Once installed on your system, DATATRIEVE–11 causes specific directories to be searched for the files it needs. If you move these files to a different location, be sure to restore the original directory configuration before installing a subsequent update. The installation procedure deletes intermediary files, so that the files remaining in the directory when the installation procedure is complete are those you will need for rebuilding DATATRIEVE–11.

Table 2–2 lists and describes the files you should see on your target disk after installation. These files are necessary to make the software function properly and to perform the examples shown in the documentation.

[OPT] represents an account that is configurable by the installation, and [222,222] represents the final holding area for kit files after installation.

Table 2–2: RSX–11M/M–PLUS DATATRIEVE–11 Software Components

File Name	UIC	File Purpose
DTRLIB.OLB	LB:[1,1]	DATATRIEVE object library
DTCLIB.OLB	LB:[1,1]	Call Interface object library
SETUP.DTR	LB:[1,2]	DATATRIEVE setup file
OWNER.SEQ	LB:[1,2]	Sample data file
PERSON.SEQ	LB:[1,2]	Sample data file
YACHT.SEQ	LB:[1,2]	Sample data file
FAMILY.DAT	LB:[1,2]	Sample data file
YACHT.DAT	LB:[1,2]	IVP data file

(continued on next page)

Table 2–2 (Cont.): RSX–11M/M–PLUS DATATRIEVE–11 Software Components

File Name	UIC	File Purpose
PERSON.DAT	LB:[1,2]	IVP data file
OWNER.DAT	LB:[1,2]	IVP data file
DTRREL.DOC	LB:[1,2]	Online release notes
DTR.TSK	[OPT]	DATATRIEVE task image
DDMF.TSK	[OPT]	DATATRIEVE server task
REMDTR.TSK	[OPT]	DATATRIEVE Remote Terminal Interface
LCDDMF.TSK	[OPT]	Local server
QCPRS.TSK	[OPT]	Dictionary COMPRESS program
QXTR.TSK	[OPT]	Dictionary extract utility
QCVRT.TSK	[OPT]	Converts V2.x dictionaries to V3.x format
QDICT.TSK	[222,222]	Dictionary build program
MSGS.SEQ	[222,222]	Message file in distribution format
DTR11.ODL	[222,222]	DATATRIEVE overlay description file
DTR11.TKB	[222,222]	DATATRIEVE task build command file
DDM11.ODL	[222,222]	DATATRIEVE server overlay description file
DDM11.TKB	[222,222]	DATATRIEVE server task build command file
RD11P.TKB	[222,222]	Remote Terminal Interface program task build command file
LCI11.ODL	[222,222]	DATATRIEVE local server overlay description file
LCI11.TKB	[222,222]	DATATRIEVE local server task build command file
QC11P.TKB	[222,222]	COMPRESS program
QX11P.TKB	[222,222]	Dictionary extract utility command file
QT11P.TKB	[222,222]	Convert dictionary format command file
QD11P.TKB	[222,222]	Dictionary build program task build command file
QUERY.DIC	[OPT]	Data dictionary
QUERY.MSG	[OPT]	Message file
INSDTR.CMD	[222,222]	DATATRIEVE install file
INSDDM.CMD	[222,222]	DATATRIEVE server install file
DTR.TST	[222,222]	IVP DATATRIEVE test file

(continued on next page)

Table 2–2 (Cont.):   RSX–11M/M–PLUS DATATRIEVE–11 Software Components

File Name	UIC	File Purpose
DTRIVP.CMD	[222,222]	IVP command file
DTRDTR.CFG	[222,222]	Configuration file
DTRX.ODL	[222,222]	Main DATATRIEVE overlay description file
DTR303.DAT	[222,222]	DATATRIEVE Version 3.3 file

2.5 Kit Contents

The kit files are copied over from the Auto-Install work area to [222,222]
on the device you specify or default in answer to the following installation
dialogue question:

```
Final holding area for kit files after install?
```

The files are stored on your system so that future installations (such as
updates or patches) will not necessitate using the distribution kit. If you are
unable to allow space on your system for these files, you may delete them.
However, subsequent installations must be performed from the distribution
kit.

2.6 Accessing the Release Notes

The DATATRIEVE–11 release notes describe new features and known
problems for this version of DATATRIEVE–11. Auto-Install automatically
copies the release notes file from the distribution medium to directory
[222,222] on your system disk and names it DTRREL.DOC. Once you
have copied the release notes file to your directory, you can use the PRINT
command to print it.

In addition, the release notes are stored online in LB:[1,2]DTRREL.DOC.

If you accept the default installation or answer "YES" to the question
"Print the release notes automatically?" during the installation dialogue,
Auto-Install will print the release notes file.

To copy the release notes file from the distribution medium prior to installing
DATATRIEVE–11, enter one of the following commands according to the
distribution medium you have purchased:

For Disks:

```
$ BRU/NOI/NEW/IMAGE:RESTORE/BAC:DTRREL.BCK/UFD indev: outdev:
```

For Tapes:

```
$ BRU/DENS:dens/BAC:DTRREL.BCK/REW/NOI/UFD/NEW indev: outdev:
```

Replace *indev* with the device on which your distribution medium is allocated and mounted. Replace *outdev* with the destination device. See the *RSX–11M/M–PLUS Utilities Manual* for more information on the Backup Restore Utility (BRU). The restored Release Notes will be in *outdev:*[367,100]DTRREL.DOC.

Chapter 3

Installing DATATRIEVE–11 on a Micro/RSX System

To install DATATRIEVE–11 on a Micro/RSX system, use the Micro/RSX automatic installation procedure, OPTION.CMD. As this procedure executes, it displays prompts to which you must respond to install DATATRIEVE–11. This section explains how to use the OPTION installation procedure.

Before you invoke the installation procedure, perform the following steps:

1. Log in to a privileged account.
2. Verify that you have sufficient disk space to install DATATRIEVE–11. Your system requires approximately 3100 blocks for installation. All of this will be permanently used by the software.[1]
3. Verify that, within these 3100 blocks, you have free blocks of contiguous storage as follows: 400 blocks for the DATATRIEVE–11 task, 400 blocks for the DDMF task (the remote call interface server), and 375 blocks for LCDDMF (the local call interface server). The remaining free blocks can be noncontiguous storage for OTS and call interface libraries.
4. Note that installation should take approximately 15 minutes, depending on your system environment, your configuration, and the software options you select during installation.
5. Insert the DTR diskette or tape into the drive. If you insert the DTR tape, you also need to press the LOAD button. (The LOAD button will blink slowly for about 15 seconds. Wait until it stops blinking.)

---

[1] This block-count specification refers to the disk space required on your system disk. The sizes are approximations; actual sizes may vary depending on your system environment, your configuration, and the software options you select during installation.

Release notes are copied automatically as part of the installation procedure. You can read them on line or print them after you complete installation. They reside in directory [1,2] and are called DTRREL.DOC.

Invoke the installation procedure. If you are an inexperienced DATATRIEVE–11 user, type the following standard command:

```
$ @OPTION
```

If you are an experienced DATATRIEVE–11 user, you may wish to modify the standard command as follows:

```
$ @OPTION /DISK
```

The /DISK switch allows tape users to install DATATRIEVE–11 on a disk other than the system disk (LB:). For example, you can use an optional fixed disk, if you have one.

If you use the /DISK switch, the output disk you want to use must be spinning and mounted as a public device. You must also include two lines in the file LB:[1,2]STARTUP.CMD to ensure that this disk is mounted as a public device each time the system is started up. Insert the following lines immediately before the label .APP1:

```
.IF $$CLI EQ "MCR" MOU device:/SYS
.IF $$CLI EQ "DCL" MOUNT device:/SYSTEM
```

After you type the standard or a modified @OPTION command, OPTION displays its main menu.

If DATATRIEVE–11 is already installed on your system, you must type "R" to indicate that you want to remove the old version of DATATRIEVE–11. The installation command procedure displays the information you need to perform this operation. Once the task is removed, reinvoke OPTION.CMD by typing the standard or a modified @OPTION command.

When you are ready to install DATATRIEVE–11, type "I" to indicate that you want to install software. Then, follow the instructions displayed on your terminal.

When all the files are copied, a message will appear on the terminal:

```
Now running customization procedure for DTR
```

Next you will have to respond to the following:

```
Enter 1, 2, or 3 to decide if Floating Point Emulation
      Software will be used or Floating Point
      Processor.  3 is the default.

1. Yes - include the floating point emulation code,
         regardless of what the hardware looks like.

2. No  - do not include the floating point emulation code,
         regardless of what the hardware looks like.

3. Let the procedure decide based on the state
   of the machine being installed on.

Enter 1, 2, or 3 <3>
```

OPTION.CMD installs DATATRIEVE–11 and runs the Installation
Verification Procedure features of DATATRIEVE–11 and ensures that it is
working properly. If the IVP completes successfully, the following message
appears:

```
DATATRIEVE-11 installation verification successful.
```

If the installation procedure completes successfully, the following message
displays:

```
Procedure successfully completed.
```

When you see this message, DATATRIEVE–11 is ready for use. Be sure to
remove your diskette or tape from the drive.

If the installation procedure fails, your system issues an error message that
identifies the reason for failure. For explanations of error messages issued
by the installation procedure and suggestions for possible user actions to fix
problems, consult the appropriate operating system manual.

Table 3–1 lists the files you should see on your fixed disk after installation.
Do not delete any of these files; the software needs them to function and to
support the running of the examples shown in the documentation.

Table 3–1:   Micro/RSX DATATRIEVE–11 Software Components

File Name	UIC	File Purpose
DTCLIB.OLB	LB:[1,1]	Call Interface object library
DTRIVP.CMD	LB:[1,1]	IVP command file
DTR.TST	LB:[1,1]	IVP test file
SETUP.DTR	LB:[1,2]	DATATRIEVE setup file

(continued on next page)

Table 3–1 (Cont.):   Micro/RSX DATATRIEVE–11 Software Components

File Name	UIC	File Purpose
FAMILY.DAT	LB:[1,2]	Sample data file
YACHT.DAT	LB:[1,2]	IVP data file
PERSON.DAT	LB:[1,2]	IVP data file
OWNER.DAT	LB:[1,2]	IVP data file
OWNER.SEQ	LB:[1,2]	Sample data file
PERSON.SEQ	LB:[1,2]	Sample data file
YACHT.SEQ	LB:[1,2]	Sample data file
QUERY.DIC	LB:[1,2]	Data dictionary
QUERY.MSG	LB:[1,2]	Message file
DTRREL.DOC	LB:[1,2]	Online release notes
DTR.INS	LB:[1,2]	Installation command file
DDMINS.CMD	LB:[1,2]	DATATRIEVE server installation file
DDMREM.CMD	LB:[1,2]	Remove server file
DTRSUPER.CMD	LB:[1,2]	Determine system configuration file
DTR.TSK	LB:[3,54]	DATATRIEVE task image
DDMF.TSK	LB:[3,54]	DATATRIEVE server task
QCPRS.TSK	LB:[3,54]	Dictionary COMPRESS program
QXTR.TSK	LB:[3,54]	Dictionary extract utility
REMDTR.TSK	LB:[3,54]	DATATRIEVE Remote Terminal Interface
LCDDMF.TSK	LB:[3,54]	Local server
FAMILY.DAT	[SELF]	IVP data file
DTR.TST	[SELF]	IVP command file

Chapter 4

Installing DATATRIEVE–11 on a RSTS/E Operating System

This chapter explains how to install DATATRIEVE–11 on the RSTS/E operating systems. Prior to installing this version of DATATRIEVE–11, perform the following steps:

1. Read this chapter, which contains information necessary for installing DATATRIEVE–11.

2. Read the release notes, which describe new features and known problems for this version of DATATRIEVE–11. For information on how to access the release notes, see Section 4.6.

3. Ensure that the RSTS/E operating system is installed and functioning properly.

4. Choose the optional attributes for your installation. See Section 4.1.1 in this chapter for information on optional DATATRIEVE–11 attributes.

A DATATRIEVE–11 installation requires approximately 30 to 45 minutes to complete.

4.1 Preparing to Install DATATRIEVE–11

Unless you choose the default installation, you must choose optional attributes for your installation of DATATRIEVE–11. The following sections discuss these options in detail.

4.1.1 Default Attributes

The configuration data file contains parameters and values that determine the default attributes. You can accept these defaults or change them; that is, you can customize DATATRIEVE–11 by answering a set of questions in the installation dialogue.

The configuration data file is called DTRDTR.CFG. Its location depends on your response to the question:

```
Final holding area for Kit files after installation
```

The default location is logical name DTR$ on your system device. To override the default, you must be prepared to specify a logical name defined as a device and directory. (Auto-Install does not accept a physical device and directory specification in response to this question.) For example, you can define DTRKIT$ before starting the installation:

```
$ ASSIGN/SYSTEM/REPLACE DU0:[100,100] DTRKIT$
```

Then you can respond to the "Final holding area . . . " question by specifying the logical name DTRKIT$.

Table 4–1 shows the questions in the configuration data file, the default answers for attributes, and the options that create the attributes.

Table 4–1: Configuration Data File with Default Attributes

Installation Question	Default Answer	Option
Final holding area for Kit files after installation	DTR$:	your choice
Name and location of dictionary	LB:QUERY.DIC	your choice
Name and location of message file	LB:QUERY.MSG	your choice
Name and location of Startup Command File	SY:QUERY.INI	your choice
Name and location of DDMF.LOG	SY:DDMF.LOG	your choice
Issue error messages for record too short	1=yes	0=no
Interpret input date	1=1/6 as January 6	0=1/6 as June 6
Control spooling	1=spool output	0=output to LP:
Divide by 0 warning	−1=yes	0=no warning
Terminal type	0=ask at runtime	1=VT52, 2=VT100
Control ADT	0=ADT enabled	1=ADT disabled
Set the default COLUMNS=PAGE	80	your choice
Message file organization	0=fixed	1=variable
Default size of dictionaries	200	your choice
Default protection	0=[grp,*]	−1=[*,*], 1=[grp,prgm]
Stack size (minimum 256)	256	your choice
Link against Supervisor Mode library?	NO	YES
Is DECnet available	YES	NO
1=Flt_pt softw 2=FPP hardw 3=machine hardware decides at install	3	1=install FP SW, 2=omit FP SW
Allow future customization of this file?	YES	NO
Print release notes automatically?	NO	YES
Print the installation log automatically?	NO	YES

4.2 Mounting the Distribution Medium

To install DATATRIEVE–11, perform the following steps:

1. Log in to a privileged account. The installation procedure generates a log file, which will remain in your default login directory after you complete the installation. Therefore, it is no longer essential to use a hardcopy terminal to produce a record of your installation session.

2. Verify that no one on your system is performing an installation using Auto-Install.

3. Verify that no one else on your system is using a previously installed version of DATATRIEVE–11.

4. If Auto-Install is not already installed on your system, verify that you have 800 total free blocks of storage space available, including approximately 250 contiguous blocks for the largest component, for Auto-Install on the system device (specified by *sysdev* in the installation procedure).

5. Verify that you have sufficient disk space to install DATATRIEVE–11. Approximately 7200 free blocks are needed; approximately 6500 will be permanently used by the software. This must include three sets of contiguous free blocks, each approximately 400 blocks long, for the DATATRIEVE–11 task, the DDMF server, and the LCDDMF server.

6. Place your distribution medium in the drive.

    If your distribution medium is a disk, insert the disk in the drive and set the switch to the RUN position. Make certain that the ready light is lit.

    If your distribution medium is tape, load the tape according to the instructions for your drive. Set the ONLINE/OFFLINE indicator to ONLINE and make certain that the ready light is on.

    If your distribution medium is a TK50 tape cartridge, insert the tape into the drive according to the instructions for the drive, and close the cartridge-release button on the drive. Press the LOAD button and make certain the LOAD light comes on.

7. Installation should take approximately 30 to 45 minutes, depending on your system environment, your configuration, and the software options you select.

4.3 Installing and Verifying DATATRIEVE–11

DATATRIEVE–11 is installed using the Auto-Install software. If Auto-Install has not been installed on your system, you must do so before installing DATATRIEVE–11.

4.3.1 Installing Auto-Install

To install Auto-Install, type the following command:

```
$ RESTORE/REPLACE/ACCOUNT/END=NODISMOUNT indev:[1,2]AUT100.A AUTOIN$:*.*
```

Replace *indev* with the name of the device on which you allocated and mounted your distribution medium.

4.3.2 Invoking Auto-Install on RSTS/E

You can invoke Auto-Install with any one of the following commands:

1. `@AUTOIN$:AUTOIN.COM`
2. `@AUTOIN$:AUTOIN.COM DTR`
3. `@AUTOIN$:AUTOIN.COM indev:DTR`

Replace *indev* with the name of the device on which you allocated and mounted your distribution medium.

If you use command 1, the installation dialogue begins with step 1 in the following section.

If you use command 2, the installation dialogue begins with step 2.

If you use command 3, the installation dialogue begins with step 3.

4.3.3 Installation Dialogue

This section describes the installation dialogue that appears on your screen. The text that follows each question explains the answers to the question. These explanations do not appear in the actual installation dialogue.

The default answer appears at the end of each question, enclosed in angle brackets (< >). You can accept the default answer by typing it or by pressing RETURN.

Depending on how you invoked Auto-Install, you will enter the dialogue at step 1, step 2, or step 3.

1. `Which product(s) do you want to install?`

   In response to this prompt, type "DTR," which is the product name for DATATRIEVE–11. Press CTRL/Z to exit from Auto-Install at this point.

2. `Where are the update files located <PATCH$:>?`

   If the name of the patch account is PATCH$, press RETURN. If the patch account is not named PATCH$, you must be prepared to specify a logical name defined as a device and directory. To exit from Auto-Install at this point, press CTRL/Z.

   If there are no update files for DATATRIEVE–11 in this installation, press RETURN. The following messages will appear:

   ```
   WARNING----No updates found for configuration data file; procedure
   continuing.
   ```

   ```
   WARNING----Update file DTR303.DAT not found at PATCH$:
              Kit files not updated; procedure continuing.
   ```

3. `Which device are the distribution files for DTR (DTR) located on`
   `(include colon)?`

   If you are installing DATATRIEVE–11 from a distribution kit, specify the drive on which you allocated and mounted the distribution disk or tape (in the form *ddnn*). If you are installing from an account on your system (for example, reinstalling an existing installation), specify DTR$. To exit from Auto-Install at this point, press CTRL/Z.

If you accept the default installation or have answered "YES" to the "Allow future customization of this file?" question during a previous installation, Auto-Install will issue the following question:

```
Do you want to customize DTR (DTR) (Y/N) <N>?
```

Type "Y" to customize your DATATRIEVE–11 installation.

Type "N" or press RETURN if you do not wish to customize DATATRIEVE–11.

The default may fulfill your system requirements. However, you may be able to improve performance by customizing. If you choose to customize DATATRIEVE–11, you are asked further questions.

If you have already customized DATATRIEVE–11 during a previous installation, or if you accept the default configuration, type "N" or press RETURN. The installation procedure will then skip all other questions pertaining to customization.

If you choose to customize, you will be asked further questions. Press RETURN to accept the default answer; press CTRL/Y to abort customization; press CTRL/Z to exit from customization but retain any changes made so far;

or type a new value. If a question has multiple choices for the answer, the choices will be listed in angle brackets (< >).

NOTE

The default answers given in angle brackets may be different if you have customized already by editing the configuration data file. The answers you provide in this file become the default answers in the installation procedure.

Some examples of questions you will be asked if you are customizing follow. See Table 4–1 for all the questions and possible responses.

```
Final holding area for kit files after installation <DTR$:>?
```

This is the device on which the distribution files will be stored when the installation is complete. Press RETURN if you want to store them on your default login device. Otherwise, enter the name of another device followed by a colon (:).

DATATRIEVE–11 has the option of using floating point emulation software if floating point processor hardware is not present on the machine. The following question determines whether to install floating point emulation software.

```
1=Flt_pt softw  2=FPP hardw  3=Machine hardware decides at instal
```

If you specify 1, the floating point emulation software is installed regardless of whether the machine includes the floating point hardware. If you specify 2, the floating point emulation software is omitted without determining whether the floating point processor hardware is present. The default, 3, specifies that the floating point emulation software is installed if, and only if, the machine does not contain floating point hardware; if the floating point hardware is present, DATATRIEVE–11 uses floating point instructions.

You can improve performance by increasing the pool space available to DATATRIEVE for internal data structures. To increase the amount of pool space, you must have Supervisor Mode RMS and the floating point processor available, and you must choose them at installation time. Using the floating point processor also improves the speed of DATATRIEVE floating point operations.

```
Allow future customization of this file <YES>?
```

If you would like to allow the configuration file to be customized during subsequent installations, press RETURN. If you would like to disable customization during subsequent installations, type "N" or "NO."

```
Print the release notes automatically <NO>?
```

If you do not want to print the release notes, press RETURN. To print them, type "Y."

```
Print the installation log automatically <NO>?
```

If you do not want to print the log file, press RETURN. To print it, type "Y."

```
Do you want to customize DTR again <Y/N><NO>?
```

Type "Y" if you want to change any of your answers to the customization questions. If not, press RETURN or type "N."

Once the contents of the configuration data file are complete, Auto-Install installs DATATRIEVE–11. Throughout the installation process, Auto-Install displays several informational messages. Following the installation, Auto-Install runs the Installation Verification Procedure (IVP) for DATATRIEVE–11.

4.3.4 Installation Verification Procedure

The Installation Verification Procedure (IVP) consists of a program with many DATATRIEVE tests. If the installation and IVP are successful, the following message is displayed on your terminal at the end of the installation procedure:

```
Successful completion of Installation test
```

If this message is not displayed on your terminal, an error has occurred in your installation. In this case, you must examine the installation output listing for error messages and correct the errors. For explanations of error messages issued by the installation procedure and possible remedial actions, see the operating system documentation.

Begin the installation procedure again, starting with the command that invokes Auto-Install.

When the IVP completes successfully, the following message appears on your terminal:

```
Installation of DTR (DTR) successful
```

4.3.5 Restart After Shutdown

The Command Control Language (CCL) command for DATATRIEVE–11 is
defined as DTR by the Auto-Install procedure. If your system shuts down,
redefine this CCL command using the following command:

```
$ DEFINE/COMMAND/SYSTEM DTR $DTR.TSK
```

4.4 Installation Files

Once installed on your system, DATATRIEVE–11 causes specific direc-
tories to be searched for the files it needs. If you move these files to a
different location, be sure to restore the original directory configuration
before installing a subsequent update. The installation procedure deletes
intermediary files, so that the files remaining in the directory when the
installation procedure is complete are those you will need for rebuilding
DATATRIEVE–11.

Table 4–2 lists and describes the files you should see on your target disk
after installation. Do not delete these files; the software needs them to
function. You may delete the kit files from DTR$ (or another final holding
area that you have specified) if you need disk space.

Table 4–2: RSTS/E DATATRIEVE–11 Software Components

File Name	PPN	File Purpose
DTRLIB.OLB	LB:	DATATRIEVE object library
DTCLIB.OLB	LB:	Call Interface object library
SETUP.DTR	[1,2]	DATATRIEVE setup file
DTRREL.DOC	[1,2]	Online release notes
OWNER.SEQ	[1,2]	Sample data file
PERSON.SEQ	[1,2]	Sample data file
YACHT.SEQ	[1,2]	Sample data file
YACHT.DAT	[1,2]	IVP data file
PERSON.DAT	[1,2]	IVP data file
OWNER.DAT	[1,2]	IVP data file

Table 4–2 (Cont.):   RSTS/E DATATRIEVE–11 Software Components

File Name	PPN	File Purpose
FAMILY.DAT	[1,2]	IVP data file
DTR.TSK	[1,2]	DATATRIEVE task image
DDMF.TSK	[1,2]	DATATRIEVE server task
LCDDMF.TSK	[1,2]	Local server
REMDTR.TSK	[1,2]	DATATRIEVE Remote Terminal Interface
QCPRS.TSK	[1,2]	Dictionary COMPRESS program
QXTR.TSK	[1,2]	Dictionary extract utility
QDICT.TSK	DTR$[1]	Dictionary build program
DTR11.TKB	DTR$[1]	DATATRIEVE task build command file
DTR11.ODL	DTR$[1]	DATATRIEVE overlay description file
DDM11.TKB	DTR$[1]	DATATRIEVE server task build command file
DDM11.ODL	DTR$[1]	DATATRIEVE server overlay description file
LCI11.TKB	DTR$[1]	DATATRIEVE local server task build command file
LCI11.ODL	DTR$[1]	DATATRIEVE local server overlay description file
RDRSTS.TKB	DTR$[1]	Remote Terminal Interface program task build command file
QCRSTS.TKB	DTR$[1]	COMPRESS program
QXRSTS.TKB	DTR$[1]	Dictionary extract utility command file
QDRSTS.TKB	DTR$[1]	Dictionary build program task build command file
QTRSTS.TKB	DTR$[1]	Dictionary conversion utility command file
MSGS.SEQ	DTR$[1]	Message file in distribution form
DTR.TST	DTR$[1]	IVP DATATRIEVE test file
DTRIVP.COM	DTR$[1]	IVP command file
DTRDTR.CFG	DTR$[1]	Configuration file

[1]Logical DTR$ is the default final holding area for kit files. You can change this to another logical location by responding to the question: "Final holding area for kit files after instal". See Section 4.1.1 for a more detailed explanation.

Table 4–2 (Cont.):   RSTS/E DATATRIEVE–11 Software Components

File Name	PPN	File Purpose
DTR303.DAT	DTR$[1]	DATATRIEVE Version 3.3 file
DTRT.ODL	DTR$[1]	Main DATATRIEVE overlay description file
QUERY.DIC	[OPT]	Data dictionary
QUERY.MSG	[OPT]	Message file

[1]Logical DTR$ is the default final holding area for kit files. You can change this to another logical location by responding to the question: "Final holding area for kit files after install". See Section 4.1.1 for a more detailed explanation.

4.5 Kit Contents

All kit files are copied over from the Auto-Install work area to the final holding area (that is, DTR$, unless otherwise specified) during the installation. They may be deleted if additional disk space is needed. If you delete them, you will have to use the distribution kit to do subsequent installations.

4.6 Accessing the Release Notes

The DATATRIEVE–11 release notes describe new features and known problems for this version of DATATRIEVE–11. Auto-Install automatically copies the release notes file from the distribution medium to directory [1,2] on your system disk and names it DTRREL.DOC. Once you have copied the release notes file to your directory, you can use the PRINT command to print it.

If you accept the default installation or answer "YES" to the question "Print the release notes automatically?" during the installation dialogue, Auto-Install will print the release notes file.

To copy the release notes file from the distribution medium prior to installing DATATRIEVE–11, enter the following command:

For disks:

```
$ RESTORE/REPLACE/END=NODISMOUNT indev:[1,2]DTRREL.BCK DTR$:*.*
```

For tapes:

```
$ RESTORE/REPLACE/REWIND/END=NODISMOUNT indev:DTRREL.BCK DTR$:*.*
```

Replace *indev:* with the device on which your distribution medium is allocated and mounted.

Chapter 5

Installing on a Micro/RSTS System

To install DATATRIEVE–11 on your Micro/RSTS system, use the installation procedure provided with your distribution kit. The installation procedure prompts you for information that you must supply to complete the installation. This section explains these prompts, the responses to them, and the other steps you must take to install DATATRIEVE–11.

Before you invoke the installation procedure, perform the following steps:

1. Log in to a privileged account.
2. Verify that no one on your system is using a previously installed version of DATATRIEVE–11.
3. Verify that you have sufficient disk space to install DATATRIEVE–11. Your system requires 2800 free blocks for installation. All of this space will be used permanently to contain the software.[1]
4. Verify that, within these 2800 blocks, you have 400 free blocks of contiguous storage for the DATATRIEVE–11 task and 375 free blocks for the LCDDMF task (the local call interface server). The remaining free blocks can be noncontiguous storage to the OTS library and other files.
5. Note that installation should take approximately 5 to 15 minutes, depending on your system environment, your configuration, and the software options you select during installation.

After completing these steps, you are ready to begin the installation. Mount the first floppy of the distribution medium on the appropriate device. Copy the release notes from the distribution medium and read them on line or print them. To copy the release notes, issue the following command:

---

[1] This block-count specification refers to the disk space required on your system disk. The sizes are approximations; actual sizes may vary depending on your system environment, your configuration, and the software options you select during installation.

```
$  RESTORE dev:[1,2]DTRREL.BCK *.*/END=NODISMOUNT
```

Replace *dev* with the device on which your distribution medium is mounted.
The release notes are copied to your directory and named DTRREL.DOC.

To invoke the installation procedure, issue the following command:

```
$  @[0,1]INSTAL DTR
```

After all the files have been copied, the following message is displayed on
your terminal:

```
          Reading config.DTR
```

Next you will have to respond to the following:

```
Enter 1, 2, or 3 to decide if Floating Point Emulation
     Software will be used or Floating Point
     Processor.  3 is the default.

1. Yes - include the floating point emulation code,
        regardless of what the hardware looks like.

2. No  - do not include the floating point emulation code,
        regardless of what the hardware looks like.

3. Let the procedure decide based on the state
   of the machine being installed on.

Enter 1, 2, or 3 <3>
```

The installation procedure installs DATATRIEVE–11 and runs the
Installation Verification Procedure (IVP). The IVP is a program that tests
the features of the DATATRIEVE–11 compiler and its Object Time System
(OTS) to ensure that they are working properly. If the installation procedure
is successful and the IVP completes successfully, the following message
appears:

```
Installation of  DATATRIEVE–11 Successful
```

When this message appears, DATATRIEVE–11 is ready for use.

If the installation procedure fails, your system will issue an error message
that identifies the reason for failure. For explanations of error messages
issued by the installation procedure and suggestions for possible user actions
to fix problems, consult the operating system manual for your system.

The Command Control Language (CCL) command for DATATRIEVE–11 is
defined as DTR by the Auto-Install procedure. If your system shuts down,
redefine this CCL command using the following command:

```
$  DEFINE/COMMAND/SYSTEM DTR $DTR.TSK
```

You may want to include this command in the startup file, [0,1]START.COM.

Table 5–1 lists the files you should see on your fixed disk after installation. [SYS] represents the system account, [SELF] represents your account, and DTR$ is the default location for kit files.

Table 5–1:   Micro/RSTS DATATRIEVE–11 Software Components

File Name	PPN	File Purpose
DTCLIB.OLB	LB:	Call Interface object library
SETUP.DTR	LB:	DATATRIEVE setup file
OWNER.SEQ	[1,2]	Sample data file
PERSON.SEQ	[1,2]	Sample data file
YACHT.SEQ	[1,2]	Sample data file
FAMILY.DAT	[1,2]	Sample data file
YACHT.DAT	[1,2]	IVP data file
PERSON.DAT	[1,2]	IVP data file
OWNER.DAT	[1,2]	IVP data file
QUERY.DIC	[1,2]	Data dictionary
QUERY.MSG	[1,2]	Message file
DTR.TSK	[SYS]	DATATRIEVE task image
LCDDMF.TSK	[SYS]	Local server
QCPRS.TSK	[SYS]	Dictionary COMPRESS program
QXTR.TSK	[SYS]	Dictionary extract utility
DTRREL.DOC	DTR$	Online release notes
DTR.TST	[SELF]	IVP command file

Chapter 6

Installation on VMS with VAX–11 RSX

This chapter describes how to install DATATRIEVE–11 as a layered product on VMS with VAX–11 RSX, using VMSINSTAL.

VMSINSTAL is the command procedure that installs DATATRIEVE–11 on your VAX–11 RSX system. As the command procedure executes, it displays questions regarding installation options. This chapter explains these questions, their answers, and other steps you must take to install DATATRIEVE–11.

Default settings are provided for all the questions. If you want to accept a default, press RETURN.

6.1 License Registration

You must register DATATRIEVE–11 for VAX–11 RSX through the VMS License Management facility (LMF) in accordance with the license agreement for your site. The license registration you need is contained in the Product Authorization Key (PAK) that is shipped with DATATRIEVE–11 software. The PAK is a paper certificate that contains information about the license you have to run a particular piece of software; you will enter some of this information interactively when you register the license.

License registration must be completed before you begin the installation. During the installation dialogue, VMSINSTAL asks whether you have registered your DATATRIEVE–11 license and loaded the appropriate authorization key. If you install the product without having registered it, you will be unable to run the Installation Verification Procedure (IVP) or use the software.

To register a license under VMS, log into the system manager's account, SYSTEM, with the PAK certificate close at hand. Then do either of the following:

- Invoke the procedure SYS$UPDATE:VMSLICENSE.COM. It will prompt you for information from your PAK.
- Issue a LICENSE REGISTER command, appending the qualifiers that correspond to PAK information.

If you plan to use DATATRIEVE–11 on more than one node in a VAXcluster, you need to perform a license load on the other nodes after you have completed the installation.

For detailed information on using LMF, refer to the manual on the License Management Utility in the VMS documentation set.

6.2 Required Operating System Components

For a list of the required VMS classes, see the Software Support Addendum (SSA), which comes with the Software Product Description (SPD).

6.3 Preparing to Install DATATRIEVE–11 with VMSINSTAL

Before you invoke VMSINSTAL, do the following:

1. Log in to the system account.
2. Be sure you are running VMS Version 5.1 (or higher) and that the VAX–11 RSX Version 4.2 (or higher) product is installed.
3. Be sure the logical name SYS$DISK is assigned to the disk that contains the current version of VMS. This disk also contains the command procedure that initiates the new installation or update procedure. Note that SYS$DISK should not be SYS$SYSTEM.
4. If possible, alter your system so that it is operating in standalone mode. If you cannot do this, at least disable the help files and the currently-installed version of DATATRIEVE–11. This will prevent other user activity from interfering with your installation.

5. Verify that you have sufficient disk space to install DATATRIEVE–11. Your system requires approximately 3300 free blocks for installation. Of this, 2400 blocks will be used permanently by the software.[1]

6. Verify that, within these 3300 blocks, you have 275 free blocks of contiguous storage for the DATATRIEVE–11 task. The remaining free blocks can be noncontiguous storage; it is used to contain files such as the call interface libraries, the dictionary files, and message files.

7. Note that installation should take approximately 20 to 30 minutes, depending on your system environment, your configuration, and the software options you select during installation.

8. Issue the following command:

```
$  SET DEFAULT SYS$UPDATE
```

Release notes are copied automatically as part of the installation procedure. You can retrieve any release notes copied from the SYS$HELP directory. During the installation, you will receive a prompt asking if you want to print the release notes and how many copies you want to print. After installation, you can type or print the release notes from SYS$SYSTEM:DTR11.RELEASE_NOTES.

After completing these steps, you are ready to invoke the installation procedure.

6.4 Installing DATATRIEVE

To begin the installation, type the following command:

```
$  @VMSINSTAL DTR11033 dev:
```

Replace *dev* with the device in which you placed your distribution kit.

The installation procedure first checks to ensure that you are running it in standalone mode. If you are not, VMSINSTAL issues a warning message that identifies the active processes on your system. It also asks if you want to continue.

```
Do you want to continue anyway [NO]?
```

If you want to install DATATRIEVE–11 in standalone mode, press RETURN. The installation procedure stops, so you can reconfigure your system and reinvoke VMSINSTAL.

---

[1] This block-count specification refers to the disk space required on your system disk. The sizes are approximations; actual sizes may vary depending on your system environment, your configuration, and the software options you select during installation.

If you want to install DATATRIEVE–11 while processes are active on your system, type "YES".

VMSINSTAL then asks you if you are satisfied with the backup of your system disk.

```
Are you satisfied with the backup of your system disk [YES]?
```

If you are not satisfied, type "NO". VMSINSTAL will abort, and you can then backup your system disk. If you are satisfied, press RETURN or type "YES".

Once you have accepted the backup of your system disk, the following message appears:

```
Please mount the first volume of the set on dev:

Are you ready?
```

Place the first volume of your distribution kit in a free drive. Then, type "YES" to proceed. If you type "NO", VMSINSTAL will abort.

For each additional volume of your distribution kit, the installation procedure displays the following message:

```
%BACKUP-I-READYREAD, mount volume n on dev: for reading
Enter "Yes" when ready:
```

Place each volume in a free drive and type "YES". VMSINSTAL recognizes when you have mounted the correct number of volumes for your system and moves to the next step in installation. If you do not mount the correct number, VMSINSTAL aborts.

VMSINSTAL confirms that the entire distribution kit has been mounted; then, the following messages appear:

```
The following products will be processed:

DTR11 V3.3

Beginning installation of DTR11 V3.3 at hh:mm

%VMSINSTAL-I-RESTORE, Restoring product saveset A . . .
```

You will receive an information message indicating that the release notes have been copied to SYS$HELP.

You must have VMS Version 5.1 or higher on your system to proceed with the installation. The next prompt asks you to enter information concerning product licensing.

```
Product:       PDP11-DTR
Producer:      DEC
Version:       3.3
Release Date:  17-MAY-1989
```

```
Does this product have an authorization key registered and loaded?:
```

This prompt refers to the Product Authorization Key (PAK) that is provided in the DATATRIEVE–11 kit. You must verify that DATATRIEVE–11 has been registered correctly. If you have registered DATATRIEVE–11 using the PAK, type "YES". If not, type "NO" or press RETURN, and VMSINSTAL will discontinue the installation.

The next prompt identifies the release notes file.

```
This kit contains the file, DTR11033.RELEASE_NOTES, which is the release
notes for PDP--11 DATATRIEVE/VAX V3.3. This file is placed in SYS$HELP
after the installation.
```

This product includes a MACRO language file called QD.MAC that you can edit to customize DATATRIEVE–11 for querying. At this point in the installation, you can edit QD.MAC if you wish by spawning an edit process. The following shows how to enter and exit the process.

```
* Do you wish to Edit QD.MAC ? [YES]?
%DCL-S-SPAWNED, process SYSTEM_1 spawned
%DCL-S-ATTACHED, terminal now attached to process SYSTEM_1
```

The contents of the QD.MAC file are listed later in this chapter. You are advised to study this information to prepare your edits before you begin the installation.

Next, you are asked whether you want to run the Installation Verification Procedure (IVP) at this time. The IVP is a program that tests the features of DATATRIEVE–11 and its OTS to ensure that they are working properly.

If you accept the default, VMSINSTAL begins the IVP as soon as it completes installation. If you type "NO", VMSINSTAL stops after installation.

```
* Do you want to run the IVP after the installation [YES]?
```

Press RETURN or type "YES" if you want to run the IVP immediately following the installation. It is recommended that you do so, although you can run it separately at another time if you prefer.

The next prompt you receive asks the following:

```
Do you want to purge files replaced by this installation [YES]?
```

If you do not want to save any of the files from the previous version of DATATRIEVE–11, press RETURN. The files will be deleted during the installation procedure. However, if you want to save any files from the previous version, type "NO".

VMSINSTAL then completes the installation without asking you any more questions. Informational messages appear on your screen as VMSINSTAL finishes each step. Much of this information will be helpful if the installation does not go as expected.

If the IVP runs, output from it appears on your screen. When the IVP has completed successfully, VMSINSTAL displays a message informing you whether or not the installation was successful. After the IVP finishes running, terminate the installation procedure.

To terminate the installation procedure, enter "EXIT" in response to the following prompt:

```
Products:
```

If you are using the console device, VMSINSTAL displays the following message:

```
Please mount the console volume on dev:
Are you ready?
```

Mount the console volume in the console drive and type "YES" to continue. A message confirming the mounting of the console volume appears.

VMSINSTAL then signals termination with the following message:

```
VMSINSTAL procedure done at hh:mm
```

If this installation is successful, DATATRIEVE–11 is ready for use when the installation procedure is complete.

If the installation is not successful, consult the VMS installation documentation for possible causes of the failure.

6.5 Files Produced by Installation

Table 6–1 lists the files you should see on your target disk after installation. Do not modify files related to the resident library; the software requires the current versions. [SYS], [SYSTEST], and [SYSLIB] are system accounts; [OPT] represents an account that is defined by the installation.

Table 6–1:   VAX–11 RSX DATATRIEVE–11 Software Components

File Name	UIC	File Purpose
SETUP.DTR	LB:[1,2]	DATATRIEVE setup file
FAMILY.DAT	LB:[1,2]	Sample data file
OWNER.SEQ	LB:[1,2]	Sample data file
PERSON.SEQ	LB:[1,2]	Sample data file
YACHT.SEQ	LB:[1,2]	Sample data file
YACHT.DAT	[SYSTEST]	IVP data file
PERSON.DAT	[SYSTEST]	IVP data file
OWNER.DAT	[SYSTEST]	IVP data file
DTR.TSK	[SYS]	DATATRIEVE task image
QCPRS.EXE	[SYS]	Dictionary COMPRESS program
QXTR.EXE	[SYS]	Dictionary extract utility
QDICT.EXE	[SYS]	Dictionary build program
QUERY.DIC	[OPT]	Data dictionary
QUERY.MSG	[OPT]	Message file
DTR.TST	[SYSTEST]	DATATRIEVE IVP command file
DTR11IVP.COM	[SYSTEST]	Invokes DATATRIEVE IVP command file
DTRLIB.OLB	[SYSLIB]	DATATRIEVE object library

6.6   Postinstallation Considerations

This section describes necessary and optional follow-up procedures to be considered.

6.6.1   Running the Installation Verification Procedure

Normally, you will run the Installation Verification Procedure (IVP) automatically, as an adjunct to the installation. You can run the IVP anytime after the installation as follows:

```
$ SET DEF SYS$TEST
$ @DTR11IVP.COM
```

The IVP data files are generated when you run the DTR11IVP command file, using sample data files that should be present in LB:[1,2].

6.6.2 License Load on Other VAXcluster Nodes

If you plan to use the installed DATATRIEVE–11 on more than one node in a
VAXcluster, you must perform a license load on each node in the VAXcluster
from which you plan to use DATATRIEVE–11. Refer to Section 6.1 for
information about the license load procedure.

6.7 Contents of Query Description File QD.MAC

The following is a list of the Query Description file QD.MAC as provided
with the software. You can edit this file to customize DATATRIEVE–11 for
your system.

```
; COPYRIGHT (c) 1977, 1989
; DIGITAL EQUIPMENT CORPORATION, MAYNARD, MASS.
;
; THIS SOFTWARE IS FURNISHED UNDER A LICENSE AND MAY BE USED AND COPIED
; ONLY IN ACCORDANCE WITH THE TERMS OF SUCH LICENSE AND WITH THE
; INCLUSION OF THE ABOVE COPYRIGHT NOTICE.  THE SOFTWARE OR ANY OTHER
; COPIES THEREOF MAY NOT BE PROVIDED OR OTHERWISE MADE AVAILABLE TO ANY
; OTHER PERSON.  NO TITLE TO AND OWNERSHIP OF THE SOFTWARE IS HEREBY
; TRANSFERRED.
;
; THE INFORMATION IN THIS SOFTWARE IS SUBJECT TO CHANGE WITHOUT NOTICE
; AND SHOULD NOT BE CONSTRUED AS A COMMITMENT BY DIGITAL EQUIPMENT
; CORPORATION.
;
; DIGITAL ASSUMES NO RESPONSIBILITY FOR THE USE OR RELIABILITY OF ITS
; SORTWARE ON EQUIPMENT WHICH IS NOT SUPPLIED BY DIGITAL.
;
; February 83 Added parameter for record format, MSGLEN
;  Note: DICSIZ is now used as initial allocation quantity by QDICT

 .IDENT  /V03.03/


 .TITLE  QD  QUERY DICTIONARY DEFINITION

 .PSECT  QD

;
; The following two ASCII strings are used by both Datatrieve and the
; Datatrieve installation utility (QDICT) to identify the dictionary
; and the message files.  If these files are to reside other than in
; SYS$COMMON:[1,2], modify the following strings within the slashes (/).
;
QDNAM::          .ASCII  /LB:[1,2]QUERY.DIC/
QDNAML==.-QDNAM
QDINI::          .ASCII  /LB:[1,2]QUERY.DIC/

MSNAM::          .ASCII  /LB:[1,2]QUERY.MSG/
MSNAML==.-MSNAM
 .EVEN

QDNLEN:: .WORD QDNAML     ; Dynamic length field
```

```
                    FNAME:: .ASCII /DDMF.LOG/              ; Log file for the Server
                    FNAMS==.-FNAME         ; Length of log file
                     .EVEN

                    ;
                    ; The following ASCII string is used by Datatrieve to
                    ; identify the startup command file.
                    ;
                    INIFIL::.ASCII  "SY:QUERY.INI"
                    INILEN==.-INIFIL


                    ; To change the default in the following parameters,
                    ; remove the leading semicolon from the desired value, and
                    ; type a semicolon in front of the undesired parameter.

                    ; THE FOLLOWING PARAMETER CONTROLS INPUT RECORD LENGTH CHECKING

                    CHKLEN==1   ; ISSUE WARNING MESSAGE FOR RECORD TOO SHORT
                    ;CHKLEN==0   ; DON'T ISSUE WARNING MESSAGE


                    ; THE FOLLOWING PARAMETER CONTROLS DEFAULT MONTH/DAY VS. DAY/MONTH

                    MMDD==1    ; "1/6" IS INTERPRETED AS JANUARY 6
                    ;MMDD==0   ; "1/6" IS INTERPRETED AS JUNE 1


                    ; THE FOLLOWING PARAMETER CONTROLS AUTOMATIC SPOOL ON RSX-11M ONLY

                    SPL11M==1   ; SPOOL ALL OUTPUT REFERENCES TO LP:
                    ;SPL11M==0    ; SEND OUTPUT TO LP: DIRECTLY (NO ATTACH)


                    ; THE FOLLOWING PARAMETER CONTROLS THE ACTION TAKEN FOR DIVIDE BY ZERO

                    DIV0==-1  ; ISSUE WARNING MESSAGE AND RETURN -1 AS VALUE
                    ;DIV0==0  ; DON'T ISSUE WARNING MESSAGE AND RETURN 0 AS VALUE


                    ; THE FOLLOWING PARAMETER CONTROLS THE TERMINAL TYPE FOR GUIDE MODE

                    TRMTYP==0  ; DETERMINE TERMINAL AT RUNTIME (VT52 OR VT100)
                    ;TRMTYP==1  ; TERMINAL IS ASSUMED TO BE A VT52
                    ;TRMTYP==2  ; TERMINAL IS ASSUMED TO BE A VT100


                    ; THE FOLLOWING PARAMETER CONTROLS DISABLING OF ADT

                    ADTENA==0  ; ADT ENABLED
                    ;ADTENA==1 ; ADT DISABLED

                    ; The following parameter controls the default columns-page

                    COLPAG==80.

                    ; The following parameter controls the record format for QDICT.

                    MSGLEN==0  ; Fixed Length Record Format.
                    ;MSGLEN==1  ; Variable Length Record Format.

                    ; The following parameter controls the default data dictionary size
                    ; It is also used as the initial allocation quantity by QDICT.
```

```
DICSIZ==200.  ; 200 decimal blocks is the default dictionary
    ; size when you create a data dictionary in
    ; DATATRIEVE with the DEFINE DICTIONARY command.
    ; To change the default, replace 200 with the desired
    ; number of decimal blocks. All dictionaries created
    ; within DATATRIEVE-11 will have the new block
    ; allocation.


; This parameter determines the default protection which is to be assigned
; to new dictionary elements:

;QDPROT ==  -1  ; [*,*]
QDPROT  == 0  ; [group,*]
;QDPROT ==  1  ; [group,programmer]


; The following are global systems which are not defined on all operating
; systems:

IO.RTT==5001
SF.GMC==2560
TC.TTP==10
TC.WID==1
T.V100==15
EF.TNS==3
LN.TNS==16

  .END
```

Sample RSX–11M/M–PLUS Installation Log

```
RSX-11M/M-PLUS Auto-Install Procedure V1.0

        02-MAY-89    09:36:39


Type "?" for help; CTRL/Z to end; or valid input.

Which product(s) do you want to install? DTR

Type "?" for help; CTRL/Z to exit Auto-Install; or valid input.

Where are the update files located <DU0:>?

Type "?" for help; CTRL/Z to skip this product; or valid input.

Which device are the distribution files for DTR (DTR) located on (include colon)? MM0:

BRU - Start Tape 1 on MM0:

BRU - End of Tape 1 on MM0:

BRU - Complete

Products being installed:
    Device      Product Task name
    ------      ------- ---------
    MM0:        DTR     (DTR)

Determining system configuration.

BRU - Start Tape 1 on MM0:

BRU - End of Tape 1 on MM0:

BRU - Complete

WARNING -- no updates found for configuration data file; procedure continuing.

Do you want to customize DTR (DTR) (Y/N) <N>?  Y

Target device <LB:>?

Final holding area for kit files after instal <SY0:>?

Which directory do you want the DTR-11 task assigned to ([g,m]) <[1,54]>?

Name and location of dictionary <LB:[1,2]QUERY.DIC>?
```

```
Name and location of message file <LB:[1,2]QUERY.MSG>?

Name and location of startup command file <SY:QUERY.INI>?

Name and location of DDMF.LOG <SY:DDMF.LOG>?

Issue error messages for record too short <1=yes,0=no> <1>?

Interpret input date<1= 1/6 as Jan 6, 0= 1/6 as Jun 1> <1>?

Control spooling <0=send directly to LP:, 1=spool output, > <1>?

Divided by 0 warning <-1=yes, 0=no warning given> <-1>?

Terminal type <0=ask terminal at runtime, 1=VT52, 2=VT100> <0>?

Controls ADT <0=ADT enabled, 1=ADT disabled> <0>?

Set the default COLUMNS-PAGE <80>?

Message file organization <0=Fixed, 1=Variable> <0>?

Default size of dictionaries <200>?

Default protection <-1 [*,*], 0 [grp,*], 1 [grp,prgm]> <0>?

Stack size <minimum 256> <256>?

Link against Supervisor Mode library <NO, YES> <NO>?

Is DECnet available (YES/NO) <YES>?

1=Flt_pt Softw, 2=FPP Hardw, 3=Machine hardware decides at instal <3>?

Allow future customization of this file <YES>?

Print release notes automatically <NO>?

Print the installation log automatically <NO>?

Do you want to customize DTR (DTR) again (Y/N) <N>?


Installation of DTR (DTR) beginning at 02-MAY-89 09:39:20


Reading DTRDTR.CFG.

Transferring kit files to work area.

BRU - Start Tape 1 on MM0:

BRU - End of Tape 1 on MM0:

BRU - Complete

BRU - Start Tape 1 on MM0:

BRU - End of Tape 1 on MM0:

BRU - Complete

DMO -- TT0:  dismount from MM0: *** Final dismount initiated ***
*** MM0:  -- Dismount completed

Updating kit files.

WARNING -- update file DTR303.DAT not found at DU2:[222,200].
          Kit files not updated; procedure continuing.
```

A–2 Sample RSX–11M/M–PLUS Installation Log

```
Building product DTR (DTR).

Runing pre-processing for QD

Check system config

Building product DATATRIEVE-11

It will take approximately 30 minutes to build product DATATRIEVE

Module "QD    " replaced


Now build the Datatrieve-11 utilities

UNABLE TO CREATE NEW QUERY DICTIONARY,  FILE ALREADY EXSITS.
CREATING MESSAGE FILE
POPULATING MESSAGE FILE
SUCCESSFUL COMPLETION

Task-build Datatrieve-11

Copy task and library to correct accounts

Build local call interface

Install Datatrieve-11 task

Build the remote terminal interface

Build DDMF

Now copy appropriate files

Install the tasks and make DDMF DECnet object 30.


DATATRIEVE-11 installation procedure ended

Transferring files from work area.

Running IVP command procedure DTRIVP.CMD.

!
!  Start of DATATRIEVE-11 V3.3 Installation Test
!
!
! **************************** N O T E *************************************
! *
! * This verification procedure will scroll on the screen for about 7 minutes. *
! *            ( No input is required from you during this time. )
! *
! *************************************************************************
!
! PRINT TODAY'S DATE
!
PRINT "TODAY" USING DD-MMM-YYYYBBW(9)
02-MAY-1989  Tuesday
```

```
!
! CLEAN UP FROM POSSIBLE PREVIOUS RUNS OF TEST
!
DELETE FAMILIES;
DELETE FAMILY-REC;
DELETE KETCHES;
DELETE OWNERS-SEQUENTIAL;
DELETE OWNERS;
DELETE OWNER-RECORD;
DELETE SAILBOATS;
DELETE YACHTS-SEQUENTIAL;
DELETE YACHTS;
DELETE YACHT;
DELETE PRICE-PER-POUND;
DELETE VERIFY;
DELETE LOA-REPORT;
DELETE RIG-TABLE;
DELETE PERSONNEL;
DELETE PERSONNEL_SEQ;
DELETE PERSONNEL_REC;
DELETE PERSONNEL_SEQ_REC;
!
! DEFINE RECORD
!
DEFINE RECORD YACHT USING
01 BOAT.
  03 TYPE.
     06 MANUFACTURER PIC X(10)
        QUERY-NAME IS BUILDER.
     06 MODEL PIC X(10).
  03 SPECIFICATIONS
     QUERY-NAME SPECS.
     06 RIG PIC X(6)
        VALID IF RIG EQ "SLOOP","KETCH","MS","YAWL".
     06 LENGTH-OVER-ALL PIC XXX
        VALID IF LOA BETWEEN 15 AND 50
        QUERY-NAME IS LOA.
     06 DISPLACEMENT PIC 99999
        QUERY-HEADER IS "WEIGHT"
        EDIT-STRING IS ZZ,ZZ9
        QUERY-NAME IS DISP.
     06 BEAM PIC 99.
     06 PRICE PIC 99999
        VALID IF PRICE>DISP*1.3 OR PRICE EQ 0
        EDIT-STRING IS $$$,$$$.
;
[Record YACHT is 41 bytes long]
!
! DEFINE DOMAINS
!
DEFINE DOMAIN YACHTS-SEQUENTIAL USING YACHT ON LB:[1,2]YACHT.SEQ ;
DEFINE DOMAIN YACHTS USING YACHT ON YACHT.DAT;
!
! DEFINE THE ACTUAL FILE FOR YACHTS
!
DEFINE FILE YACHTS KEY=TYPE(NO DUP),KEY=MODEL(DUP,NO CHANGE),
       ALLOCATION=30, SUPERSEDE
!
! MAKE YACHTS ACCESSABLE BY OTHERS
```

```
!
DEFINEP YACHTS 2,PW,"SHHHH",W   ! PASSWORD FOR WRITE
DEFINEP YACHTS 3,UIC,[*,*],R    ! EVERYONE ELSE GETS READ
DEFINEP YACHT  2,UIC,[*,*],RE   ! GIVE ACCESS TO RECORD DEFINITION, TOO
SHOWP YACHTS
      1,UIC, [1,*], "RWMEC"
      2,PW, "SHHHH", "W"
      3,UIC, [*,*], "R"
!
! DEFINE PROCEDURES
!
DEFINE PROCEDURE PRICE-PER-POUND
PRICE/DISP ("PRICE"/"PER"/"POUND") USING $$.99
END-PROCEDURE
DEFINEP PRICE-PER-POUND 2,UIC,[*,*],RE
!
DEFINE PROCEDURE VERIFY
VERIFY USING
  BEGIN
    PRINT
    DISPLAY "CONFIRM WITH Y IF OK"
    IF *.CONFIRM NOT CONTAINING "Y" THEN ABORT "UPDATE ABORTED"
  END
END-PROCEDURE
DEFINEP VERIFY 2,UIC,[*,*],RE
!
! COPY DATA FROM SEQUENTIAL TO INDEXED FILE
!
READY YACHTS WRITE
SHOW FIELDS
YACHTS
    BOAT
        TYPE [Indexed field]
            MANUFACTURER (BUILDER)    [Character string, indexed key]
            MODEL        [Character string, indexed key]
        SPECIFICATIONS (SPECS)
            RIG [Character string]
            LENGTH_OVER_ALL (LOA)     [Character string]
            DISPLACEMENT (DISP) [Number]
            BEAM       [Number]
            PRICE      [Number]
READY YACHTS-SEQUENTIAL
SHOW READY
Ready domains:
        YACHTS_SEQUENTIAL: RMS SEQUENTIAL, PROTECTED READ
        YACHTS: RMS INDEXED, PROTECTED WRITE
!
! *********** NOTE  ***********
! *** The following STORE will take 1 - 2 minutes. ***
! *****************************
!
FOR YACHTS-SEQUENTIAL STORE YACHTS USING BOAT=BOAT
!
FINISH YACHTS-SEQUENTIAL;
!
! TEST STORE
!
! PLEASE SUPPLY THE FOLLOWING VALUES:
!    MANUFACTURER:      HINKLEY
```

```
!     MODEL:             BERMUDA 40
!     RIG:               YAWL
!     LENGTH-OVER-ALL:   140
!     LENGTH-OVER-ALL:   40
!     DISPLACEMENT:      20000
!     BEAM:              12
!     PRICE:             82000 AND XX/100
!     PRICE:             $82,000
!     CONFIRM:           N
!
STORE YACHTS USING BEGIN
      MANUFACTURER= "HINKLEY"
      MODEL = "BERMUDA 40"
      RIG = "YAWL"
      LENGTH-OVER-ALL = 40
      DISPLACEMENT= 20000
      BEAM = 12
      PRICE = 82000
      END
!
!
! CHANGE READY MODE FOR READ ACCESS
!
READY YACHTS
FIND YACHTS WITH PRICE NE 0
[51 records found]
SORT BY LOA,DESC DISPLACEMENT
SHOW ALL
Domains:
      YACHTS             YACHTS_SEQUENTIAL
Records:
      YACHT
Procedures:
      PRICE_PER_POUND VERIFY
Tables:
The current dictionary is SY:[1,1]QUERY.DIC
Collections:
      CURRENT
Ready domains:
      YACHTS: RMS INDEXED, PROTECTED READ
SHOW CURRENT
Collection CURRENT
      Domain: YACHTS
      Number of records: 51
      No selected record
      Sort order: LENGTH_OVER_ALL,DISPLACEMENT
PRINT ALL

                             LENGTH
                             OVER
MANUFACTURER   MODEL   RIG   ALL   WEIGHT BEAM  PRICE
```

```
WINDPOWER    IMPULSE     SLOOP    16       650   07   $3,500
CAPE DORY    TYPHOON     SLOOP    19     1,900   06   $4,295
VENTURE      21          SLOOP    21     1,500   07   $2,823
VENTURE      222         SLOOP    22     2,000   07   $3,564
EASTWARD     HO          MS       24     7,000   09   $15,900
ISLANDER     BAHAMA      SLOOP    24     4,200   08   $6,500
IRWIN        25          SLOOP    25     5,400   12   $10,950
CAPE DORY    25          SLOOP    25     4,000   07   $8,995
SALT         19          SLOOP    25     2,600   07   $6,590
WESTERLY     CENTAUR     SLOOP    26     6,700   08   $15,245
GRAMPIAN     26          SLOOP    26     5,600   08   $11,495
AMERICAN     26-MS       MS       26     5,500   08   $18,895
TANZER       26          SLOOP    26     4,350   09   $11,750
ALBIN        79          SLOOP    26     4,200   10   $17,900
AMERICAN     26          SLOOP    26     4,000   08   $9,895
HUNTER       27          SLOOP    27     6,500   09   $14,999
ALBIN        VEGA        SLOOP    27     5,070   08   $18,600
CAPE DORY    28          SLOOP    28     9,000   09   $21,990
SABRE        28          SLOOP    28     7,400   09   $22,000
GRAMPIAN     28          SLOOP    28     6,900   10   $14,475
TANZER       28          SLOOP    28     6,800   10   $17,500
ISLANDER     28          SLOOP    28     5,994   10   $15,908
NORTHERN     29          SLOOP    29     7,250   09   $20,975
IRWIN        30          SLOOP    30    10,000   10   $19,950
HUNTER       30          SLOOP    30     9,500   10   $21,500
GRAMPIAN     30          SLOOP    30     8,600   09   $17,775
ISLANDER     30          SLOOP    30     8,600   10   $20,990
ALBIN        BALLAD      SLOOP    30     7,276   10   $27,500
RYDER        S. CROSS    SLOOP    31    13,600   00   $32,500
BOMBAY       CLIPPER     SLOOP    31     9,400   11   $23,950
WRIGHT       SEAWIND II  SLOOP    32    14,900   00   $34,480
CHALLENGER   32          SLOOP    32    12,800   11   $31,835
O'DAY        32          SLOOP    32    11,000   00   $29,500
BAYFIELD     30/32       SLOOP    32     9,500   10   $32,875
GRAMPIAN     34          KETCH    33    12,000   10   $29,675
GRAMPIAN     2-34        SLOOP    34    11,800   10   $29,675
CARIBBEAN    35          SLOOP    35    18,000   11   $37,850
CHRIS-CRAF   CARIBBEAN   SLOOP    35    18,000   11   $37,850
CHALLENGER   35          SLOOP    35    14,800   12   $39,215
I. TRADER    37          KETCH    36    18,600   12   $39,500
ISLANDER     36          SLOOP    36    13,450   11   $31,730
ALBERG       37 MK II    KETCH    37    20,000   12   $36,951
IRWIN        37 MARK II  KETCH    37    20,000   11   $36,950
NORTHERN     37          KETCH    37    14,000   11   $50,000
LINDSEY      39          MS       39    14,500   12   $35,900
HINKLEY      BERMUDA 40  YAWL     40    20,000   12   $82,000
CHALLENGER   41          KETCH    41    26,700   13   $51,228
GULFSTAR     41          KETCH    41    22,000   12   $41,350
ISLANDER     FREEPORT    KETCH    41    22,000   13   $54,970
COLUMBIA     41          SLOOP    41    20,700   11   $48,490
OLYMPIC      ADVENTURE   KETCH    42    24,250   13   $80,500

SELECT FIRST
PRINT
```

MANUFACTURER	MODEL	RIG	LENGTH OVER ALL	WEIGHT	BEAM	PRICE
WINDPOWER	IMPULSE	SLOOP	16	650	07	$3,500

```
SELECT
PRINT BOAT,:PRICE-PER-POUND

                              LENGTH                       PRICE
                              OVER                         PER
MANUFACTURER    MODEL    RIG  ALL   WEIGHT BEAM  PRICE  POUND

 CAPE DORY   TYPHOON   SLOOP   19    1,900  06  $4,295 $2.26

!
!
! DEFINE REPORT PROCEDURE
!
DEFINE PROCEDURE LOA-REPORT
REPORT ON TI:
   SET REPORT-NAME="JIM'S VERY OWN LISTING"/"OF"/"INTERESTING SAILBOATS"/
      "(BY LENGTH)"
   SET LINES-PAGE=55, COLUMNS-PAGE=72
   AT TOP OF LOA PRINT LOA("LENGTH")
   PRINT TYPE, RIG, DISP, BEAM USING Z9 , PRICE
   AT BOTTOM OF LOA PRINT SKIP, COL 32, "*** AVERAGE ***",
      AVERAGE DISP, AVERAGE BEAM, AVERAGE PRICE
   AT BOTTOM OF REPORT PRINT SKIP, "REPORT AVERAGES",
      AVERAGE DISP, AVERAGE BEAM, AVERAGE PRICE
   AT BOTTOM OF PAGE PRINT SKIP, COL 20,
      """ANOTHER SERVICE OF QUERY ENTERPRISES"""
END-REPORT
END-PROCEDURE
!
! INVOKE REPORT (SUGGEST OUTPUT ON TI:)
!
:LOA-REPORT


                    JIM'S VERY OWN LISTING
                            OF
                  INTERESTING SAILBOATS          25-Apr-89
                       (BY LENGTH)               Page 1

      LENGTH     MANUFACTURER    MODEL     RIG    WEIGHT  BEAM   PRICE

       16        WINDPOWER    IMPULSE   SLOOP      650     7    $3,500

                             *** AVERAGE ***       650    07    $3,500
       19        CAPE DORY    TYPHOON   SLOOP    1,900     6    $4,295

                             *** AVERAGE ***     1,900    06    $4,295
       21        VENTURE      21        SLOOP    1,500     7    $2,823

                             *** AVERAGE ***     1,500    07    $2,823
       22        VENTURE      222       SLOOP    2,000     7    $3,564

                             *** AVERAGE ***     2,000    07    $3,564
       24        EASTWARD     HO        MS       7,000     9   $15,900
                 ISLANDER     BAHAMA    SLOOP    4,200     8    $6,500

                             *** AVERAGE ***     5,600    08   $11,200
       25        IRWIN        25        SLOOP    5,400    12   $10,950
                 CAPE DORY    25        SLOOP    4,000     7    $8,995
                 SALT         19        SLOOP    2,600     7    $6,590
```

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                       *** AVERAGE ***      4,000   08   $8,845
26        WESTERLY    CENTAUR    SLOOP      6,700    8  $15,245
          GRAMPIAN    26         SLOOP      5,600    8  $11,495
          AMERICAN    26-MS      MS         5,500    8  $18,895
          TANZER      26         SLOOP      4,350    9  $11,750
          ALBIN       79         SLOOP      4,200   10  $17,900
          AMERICAN    26         SLOOP      4,000    8   $9,895

                       *** AVERAGE ***      5,058   08  $14,196
27        HUNTER      27         SLOOP      6,500    9  $14,999
          ALBIN       VEGA       SLOOP      5,070    8  $18,600

                       *** AVERAGE ***      5,785   08  $16,799
28        CAPE DORY   28         SLOOP      9,000    9  $21,990
          SABRE       28         SLOOP      7,400    9  $22,000
          GRAMPIAN    28         SLOOP      6,900   10  $14,475
          TANZER      28         SLOOP      6,800   10  $17,500
          ISLANDER    28         SLOOP      5,994   10  $15,908

                       *** AVERAGE ***      7,218   09  $18,374
29        NORTHERN    29         SLOOP      7,250    9  $20,975

                       *** AVERAGE ***      7,250   09  $20,975
30        IRWIN       30         SLOOP     10,000   10  $19,950
          HUNTER      30         SLOOP      9,500   10  $21,500
          GRAMPIAN    30         SLOOP      8,600    9  $17,775

          "ANOTHER SERVICE OF QUERY ENTERPRISES"



                     JIM'S VERY OWN LISTING
                              OF
                    INTERESTING SAILBOATS          25-Apr-89
                        (BY LENGTH)                Page 2


LENGTH    MANUFACTURER    MODEL      RIG    WEIGHT  BEAM  PRICE

          ISLANDER    30         SLOOP      8,600   10  $20,990
          ALBIN       BALLAD     SLOOP      7,276   10  $27,500

                       *** AVERAGE ***      8,795   09  $21,543
31        RYDER       S. CROSS   SLOOP     13,600    0  $32,500
          BOMBAY      CLIPPER    SLOOP      9,400   11  $23,950

                       *** AVERAGE ***     11,500   05  $28,225
32        WRIGHT      SEAWIND II SLOOP     14,900    0  $34,480
          CHALLENGER  32         SLOOP     12,800   11  $31,835
          O'DAY       32         SLOOP     11,000    0  $29,500
          BAYFIELD    30/32      SLOOP      9,500   10  $32,875

                       *** AVERAGE ***     12,050   05  $32,172
33        GRAMPIAN    34         KETCH     12,000   10  $29,675

                       *** AVERAGE ***     12,000   10  $29,675
34        GRAMPIAN    2-34       SLOOP     11,800   10  $29,675

                       *** AVERAGE ***     11,800   10  $29,675
35        CARIBBEAN   35         SLOOP     18,000   11  $37,850
          CHRIS-CRAF  CARIBBEAN  SLOOP     18,000   11  $37,850
          CHALLENGER  35         SLOOP     14,800   12  $39,215
```

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                          *** AVERAGE ***      16,933  11  $38,305
       36      I. TRADER   37          KETCH   18,600  12  $39,500
               ISLANDER    36          SLOOP   13,450  11  $31,730

                          *** AVERAGE ***      16,025  11  $35,615
       37      ALBERG      37 MK II    KETCH   20,000  12  $36,951
               IRWIN       37 MARK II  KETCH   20,000  11  $36,950
               NORTHERN    37          KETCH   14,000  11  $50,000

                          *** AVERAGE ***      18,000  11  $41,300
       39      LINDSEY     39          MS      14,500  12  $35,900

                          *** AVERAGE ***      14,500  12  $35,900
       40      HINKLEY     BERMUDA 40  YAWL    20,000  12  $82,000

                          *** AVERAGE ***      20,000  12  $82,000
       41      CHALLENGER  41          KETCH   26,700  13  $51,228
               GULFSTAR    41          KETCH   22,000  12  $41,350
               ISLANDER    FREEPORT    KETCH   22,000  13  $54,970
               COLUMBIA    41          SLOOP   20,700  11  $48,490

                          *** AVERAGE ***      22,850  12  $49,009

        "ANOTHER SERVICE OF QUERY ENTERPRISES"



                   JIM'S VERY OWN LISTING
                          OF
                   INTERESTING SAILBOATS       25-Apr-89
                        (BY LENGTH)            Page 3


       LENGTH     MANUFACTURER    MODEL    RIG    WEIGHT  BEAM  PRICE

       42         OLYMPIC     ADVENTURE  KETCH   24,250  13  $80,500

                          *** AVERAGE ***       24,250  13  $80,500

   REPORT AVERAGES                             10,597  09  $26,498

        "ANOTHER SERVICE OF QUERY ENTERPRISES"


!
! RATTLE UPDATE
!
FIND YACHTS WITH BEAM=0
[5 records found]
PRINT ALL

                          LENGTH
                          OVER
MANUFACTURER    MODEL      RIG    ALL    WEIGHT BEAM  PRICE

 METALMAST   GALAXY      SLOOP    32     9,500  00
 O'DAY       32          SLOOP    32    11,000  00  $29,500
 RYDER       S. CROSS    SLOOP    31    13,600  00  $32,500
 TA CHIAO    FANTASIA    SLOOP    35    23,200  00
 WRIGHT      SEAWIND II  SLOOP    32    14,900  00  $34,480

SELECT FIRST;PRINT
```

A–10   Sample RSX–11M/M–PLUS Installation Log

```
                              LENGTH
                              OVER
MANUFACTURER   MODEL     RIG  ALL   WEIGHT BEAM  PRICE

 METALMAST   GALAXY    SLOOP  32    9,500  00

READY YACHTS MODIFY
!
! RESPOND WITH 47 (OR SOMETHING)
!
MODIFY USING BEAM = 47
PRINT TYPE,BEAM

MANUFACTURER   MODEL    BEAM

 METALMAST   GALAXY     47

!
! RESPOND WITH 48 (OR SOMETHING)
!
MODIFY ALL USING  BEAM = 48
!
PRINT ALL BEAM

BEAM

 48
 48
 48
 48
 48

!
! RESPOND EACH TIME WITH 0 (PLEASE)
!
FOR CURRENT PRINT TYPE THEN MODIFY USING BEAM = 0

MANUFACTURER    MODEL

 METALMAST   GALAXY
 O'DAY       32
 RYDER       S. CROSS
 TA CHIAO    FANTASIA
 WRIGHT      SEAWIND II

READY YACHTS READ
PRINT ALL

                              LENGTH
                              OVER
MANUFACTURER   MODEL     RIG  ALL   WEIGHT BEAM  PRICE

 METALMAST   GALAXY    SLOOP    32   9,500  00
 O'DAY       32        SLOOP    32  11,000  00  $29,500
 RYDER       S. CROSS  SLOOP    31  13,600  00  $32,500
 TA CHIAO    FANTASIA  SLOOP    35  23,200  00
 WRIGHT      SEAWIND II SLOOP   32  14,900  00  $34,480
```

```
!
! CHECK MULTIPLE COLLECTIONS AND STATISTICAL FUNCTIONS
!
FIND SMALLS IN YACHTS WITH LOA<24 AND PRICE NE 0
[4 records found]
!
FIND BIGGIES IN YACHTS WITH LOA>40 AND PRICE NE 0
[5 records found]
!
SHOW COLLECTIONS
Collections:
        BIGGIES (also CURRENT)
        SMALLS
!
PRINT AVERAGE DISP

WEIGHT

23,130

!
PRINT MAX DISP

WEIGHT

26,700

!
PRINT AVERAGE PRICE OF BIGGIES,AVERAGE PRICE OF SMALLS

 PRICE   PRICE

$55,307  $3,545

!
SORT SMALLS BY LOA,DISP
SORT BIGGIES BY LOA,DISP
SELECT FIRST SMALLS
SELECT LAST BIGGIES
PRINT SMALLS.BOAT,SKIP,BIGGIES.BOAT

                              LENGTH
                              OVER
MANUFACTURER    MODEL     RIG    ALL    WEIGHT BEAM   PRICE

 WINDPOWER    IMPULSE    SLOOP   16       650  07   $3,500
 OLYMPIC     ADVENTURE   KETCH   42    24,250  13  $80,500

!
!
PRINT YACHTS WITH LOA EQ MAX LOA OF YACHTS

                              LENGTH
                              OVER
MANUFACTURER    MODEL     RIG    ALL    WEIGHT BEAM   PRICE

 OLYMPIC     ADVENTURE   KETCH   42    24,250  13  $80,500
 PEARSON     419         KETCH   42    21,000  13
```

```
!
! TEST OF HIERARCHIES AND VIEW
!
DEFINE DOMAIN FAMILIES
 USING FAMILY-REC ON LB:[1,2]FAMILY.DAT;
DEFINE RECORD FAMILY-REC
01 FAMILY.
   03 PARENTS.
      06 FATHER PIC X(10).
      06 MOTHER PIC X(10).
   03 NUMBER-KIDS PIC 99 EDIT-STRING IS Z9.
   03 KIDS OCCURS 0 TO 10 TIMES DEPENDING ON NUMBER-KIDS.
      06 EACH-KID.
         09 KID-NAME PIC X(10) QUERY-NAME IS KID.
         09 AGE PIC 99 EDIT-STRING IS Z9.
;
[Record FAMILY_REC is 142 bytes long]
!
! PERFORM A FEW NIFTY OPERATIONS ON FAMILIES
!
READY FAMILIES
SHOW FIELDS FOR FAMILIES
 FAMILY
     PARENTS
         FATHER [Character string]
         MOTHER [Character string]
     NUMBER_KIDS     [Number]
     KIDS [List]
         EACH_KID
             KID_NAME (KID)   [Character string]
             AGE       [Number]
PRINT FAMILIES

                    NUMBER    KID
  FATHER    MOTHER   KIDS    NAME    AGE
```

```
JIM        ANN          2    URSULA      7
                             RALPH       3
JIM        LOUISE       5    ANNE       31
                             JIM        29
                             ELLEN      26
                             DAVID      24
                             ROBERT     16
JOHN       JULIE        2    ANN        29
                             JEAN       26
JOHN       ELLEN        1    CHRISTOPHR  0
ARNIE      ANNE         2    SCOTT       2
                             BRIAN       0
SHEARMAN   SARAH        1    DAVID       0
TOM        ANNE         2    PATRICK     4
                             SUZIE       6
BASIL      MERIDETH     6    BEAU       28
                             BROOKS     26
                             ROBIN      24
                             JAY        22
                             WREN       17
                             JILL       20
ROB        DIDI         0
JEROME     RUTH         4    ERIC       32
                             CISSY      24
                             NANCY      22
                             MICHAEL    20
TOM        BETTY        2    MARTHA     30
                             TOM        27
GEORGE     LOIS         3    JEFF       23
                             FRED       26
                             LAURA      21
HAROLD     SARAH        3    CHARLIE    31
                             HAROLD     35
                             SARAH      27
EDWIN      TRINITA      2    ERIC       16
                             SCOTT      11

FIND FAMILIES WITH ANY KIDS WITH AGE>25
[7 records found]
PRINT ALL SKIP, PARENTS, ALL KIDS SORTED BY AGE

                        KID
  FATHER     MOTHER    NAME     AGE

JIM        LOUISE     ROBERT     16
                      DAVID      24
                      ELLEN      26
                      JIM        29
                      ANNE       31

JOHN       JULIE      JEAN       26
                      ANN        29

BASIL      MERIDETH   WREN       17
                      JILL       20
                      JAY        22
                      ROBIN      24
                      BROOKS     26
                      BEAU       28
```

A–14 Sample RSX–11M/M–PLUS Installation Log

```
JEROME       RUTH        MICHAEL   20
                         NANCY     22
                         CISSY     24
                         ERIC      32

TOM          BETTY       TOM       27
                         MARTHA    30

GEORGE       LOIS        LAURA     21
                         JEFF      23
                         FRED      26

HAROLD       SARAH       SARAH     27
                         CHARLIE   31
                         HAROLD    35

FINISH
!
! DEFINE A VIEW OF THE DOMAIN YACHTS
!
DEFINE DOMAIN KETCHES
 OF YACHTS BY
01 KETCH OCCURS FOR YACHTS WITH RIG EQ "KETCH".
  03 TYPE FROM YACHTS.
  03 LOA FROM YACHTS.
  03 PRICE FROM YACHTS.
;
!
! SHOW OFF KETCHES
!
READY KETCHES
PRINT KETCHES

                       LENGTH
                       OVER
MANUFACTURER   MODEL    ALL    PRICE

 ALBERG       37 MK II   37    $36,951
 CHALLENGER   41         41    $51,228
 FISHER       30         30
 FISHER       37         37
 GRAMPIAN     34         33    $29,675
 GULFSTAR     41         41    $41,350
 I. TRADER    37         36    $39,500
 IRWIN        37 MARK II 37    $36,950
 ISLANDER     FREEPORT   41    $54,970
 NORTHERN     37         37    $50,000
 OLYMPIC      ADVENTURE  42    $80,500
 PEARSON      365        36
 PEARSON      419        42
```

```
FINISH
!
! DEFINE A DOMAIN AND FILE OF SAILBOAT OWNERS
!
DEFINE DOMAIN OWNERS
 USING OWNER-RECORD ON OWNER.DAT;
DEFINE RECORD OWNER-RECORD
01 OWNER.
   03 NAME PIC X(10) QUERY-HEADER IS "OWNER"/"NAME"
      EDIT-STRING IS X(5).
   03 BOAT-NAME PIC X(17) QUERY-HEADER IS "BOAT NAME".
   03 TYPE.
      06 BUILDER PIC X(10).
      06 MODEL PIC X(10).
;
[Record OWNER_RECORD is 47 bytes long]
DEFINE DOMAIN OWNERS-SEQUENTIAL USING OWNER-RECORD ON LB:[1,2]OWNER.SEQ;
DEFINE FILE FOR OWNERS KEY=TYPE(DUP), SUPERSEDE
READY OWNERS WRITE
READY OWNERS-SEQUENTIAL
!
! ************ NOTE  ***********
! *** The following STORE will take about 1/2 minute. ***
! ******************************
!
FOR OWNERS-SEQUENTIAL STORE OWNERS USING OWNER=OWNER
FINISH OWNERS-SEQUENTIAL
!
! PRINT OUT THE OWNERS FILE
!
PRINT OWNERS

OWNER
NAME       BOAT NAME       BUILDER     MODEL

SHERM MILLENNIUM FALCON ALBERG     35
STEVE DELIVERANCE       ALBIN      VEGA
HUGH  IMPULSE           ALBIN      VEGA
JIM   EGRET             C&C        CORVETTE
ANN   EGRET             C&C        CORVETTE
BOB   FIESTA            CAL        28
JIM   REGRET            CHEAP      DINK
NEIL  JARGES PRIDE      CROCKER    33
GERAR KESTREL           ERICSON    39
ARNE  CHIMERA           HINKLEY    BERMUDA 40
JIM   POTEMKIN          ISLANDER   BAHAMA
ANN   POTEMKIN          ISLANDER   BAHAMA
STEVE POTEMKIN          ISLANDER   BAHAMA
HARVE MANANA            ISLANDER   BAHAMA
TOM   LONE TRAVELLER    PEARSON    10M
DICK  PURSUIT           PEARSON    26
CHRIS VANITY            PEARSON    ARIEL
JOHN  STRIDER           RHODES     SWIFTSURE
```

```
FINISH
!
! DEFINE THE MIGHTY, MULTIPLE FILE VIEW OF YACHTS AND OWNERS
!
DEFINE DOMAIN SAILBOATS
 OF YACHTS, OWNERS BY
01 SAILBOAT OCCURS FOR YACHTS.
   03 BOAT FROM YACHTS.
   03 SKIPPERS OCCURS FOR OWNERS WITH TYPE EQ BOAT.TYPE.
      05 NAME FROM OWNERS.
;
!
! EXERCISE SAILBOATS A LITTLE
!
READY SAILBOATS
SHOW FIELDS
SAILBOATS
    SAILBOAT
        BOAT
            TYPE [Indexed field]
                MANUFACTURER (BUILDER) [Character string, indexed key]
                MODEL [Character string, indexed key]
            SPECIFICATIONS (SPECS)
                RIG    [Character string]
                LENGTH_OVER_ALL (LOA)  [Character string]
                DISPLACEMENT (DISP)    [Number]
                BEAM    [Number]
                PRICE   [Number]
        SKIPPERS [List]
            NAME        [Character string]
PRINT FIRST 5 SAILBOATS
```

			LENGTH OVER				OWNER
MANUFACTURER	MODEL	RIG	ALL	WEIGHT	BEAM	PRICE	NAME
ALBERG	37 MK II	KETCH	37	20,000	12	$36,951	
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	STEVE
							HUGH
AMERICAN	26	SLOOP	26	4,000	08	$9,895	

```
FIND SAILBOATS WITH ANY SKIPPERS
[7 records found]
PRINT ALL
```

			LENGTH OVER				OWNER
MANUFACTURER	MODEL	RIG	ALL	WEIGHT	BEAM	PRICE	NAME

```
ALBIN        VEGA        SLOOP    27      5,070   08  $18,600 STEVE
                                                              HUGH
C&C          CORVETTE    SLOOP    31      8,650   09          JIM
                                                              ANN
HINKLEY      BERMUDA 40  YAWL     40     20,000   12  $82,000 ARNE
ISLANDER     BAHAMA      SLOOP    24      4,200   08   $6,500 JIM
                                                              ANN
                                                              STEVE
                                                              HARVE
PEARSON      10M         SLOOP    33     12,441   11          TOM
PEARSON      26          SLOOP    26      5,400   08          DICK
RHODES       SWIFTSURE   SLOOP    33     14,000   10          JOHN

!
! CHECK OUT TABLES
!
DEFINE TABLE RIG-TABLE
"SLOOP" : "ONE MAST",
"KETCH" : "TWO MASTS, BIG ONE IN FRONT",
"YAWL"  : "SIMILAR TO KETCH",
"M/S"   : "SAILS AND BIG MOTOR",
ELSE "SOMETHING ELSE"
END-TABLE
!
READY YACHTS
FIND YACHTS WITH RIG IN RIG-TABLE
[109 records found]
PRINT ALL TYPE, RIG, RIG VIA RIG-TABLE USING X(30)

MANUFACTURER   MODEL     RIG               RIG

 ALBERG        37 MK II  KETCH   TWO MASTS, BIG ONE IN FRONT
 ALBIN         79        SLOOP   ONE MAST
 ALBIN         BALLAD    SLOOP   ONE MAST
 ALBIN         VEGA      SLOOP   ONE MAST
 AMERICAN      26        SLOOP   ONE MAST
 BAYFIELD      30/32     SLOOP   ONE MAST
 BLOCK I.      40        SLOOP   ONE MAST
 BOMBAY        CLIPPER   SLOOP   ONE MAST
 BUCCANEER     270       SLOOP   ONE MAST
 BUCCANEER     320       SLOOP   ONE MAST
 C&C           CORVETTE  SLOOP   ONE MAST
 CABOT         36        SLOOP   ONE MAST
 CAL           2-27      SLOOP   ONE MAST
 CAL           2-34      SLOOP   ONE MAST
 CAL           29        SLOOP   ONE MAST
 CAL           3-30      SLOOP   ONE MAST
 CAL           35        SLOOP   ONE MAST
 CAPE DORY     25        SLOOP   ONE MAST
 CAPE DORY     28        SLOOP   ONE MAST
 CAPE DORY     TYPHOON   SLOOP   ONE MAST
 CAPITAL       NEWPORT   SLOOP   ONE MAST
 CARIBBEAN     35        SLOOP   ONE MAST
 CHALLENGER    32        SLOOP   ONE MAST
 CHALLENGER    35        SLOOP   ONE MAST
 CHALLENGER    41        KETCH   TWO MASTS, BIG ONE IN FRONT
 CHRIS-CRAF    CARIBBEAN SLOOP   ONE MAST
 COLUMBIA      35        SLOOP   ONE MAST
 COLUMBIA      41        SLOOP   ONE MAST
 COLUMBIA      PAYNE 9.6 SLOOP   ONE MAST
```

```
DOUGLAS     32         SLOOP  ONE MAST
DOWN EAST   32         SLOOP  ONE MAST
DOWN EAST   38         SLOOP  ONE MAST
DUFOUR      25         SLOOP  ONE MAST
ENCHILADA   20         SLOOP  ONE MAST
ENDEAVOUR   32         SLOOP  ONE MAST
ERICSON     23/ SPECIA SLOOP  ONE MAST
ERICSON     CRUISING/3 SLOOP  ONE MAST
FISHER      30         KETCH  TWO MASTS, BIG ONE IN FRONT
FISHER      37         KETCH  TWO MASTS, BIG ONE IN FRONT
GRAMPIAN    2-34       SLOOP  ONE MAST
GRAMPIAN    26         SLOOP  ONE MAST
GRAMPIAN    28         SLOOP  ONE MAST
GRAMPIAN    30         SLOOP  ONE MAST
GRAMPIAN    34         KETCH  TWO MASTS, BIG ONE IN FRONT
GULFSTAR    41         KETCH  TWO MASTS, BIG ONE IN FRONT
HINKLEY     BERMUDA 40 YAWL   SIMILAR TO KETCH
HUNTER      27         SLOOP  ONE MAST
HUNTER      30         SLOOP  ONE MAST
I. TRADER   37         KETCH  TWO MASTS, BIG ONE IN FRONT
IRWIN       25         SLOOP  ONE MAST
IRWIN       30         SLOOP  ONE MAST
IRWIN       37 MARK II KETCH  TWO MASTS, BIG ONE IN FRONT
IRWIN       HALF TON   SLOOP  ONE MAST
ISLANDER    28         SLOOP  ONE MAST
ISLANDER    30         SLOOP  ONE MAST
ISLANDER    36         SLOOP  ONE MAST
ISLANDER    BAHAMA     SLOOP  ONE MAST
ISLANDER    FREEPORT   KETCH  TWO MASTS, BIG ONE IN FRONT
MARIEHOLD   32         SLOOP  ONE MAST
METALMAST   GALAXY     SLOOP  ONE MAST
MOODY       33         SLOOP  ONE MAST
NAUTOR      SWAN 41    SLOOP  ONE MAST
NEWPORT     27S        SLOOP  ONE MAST
NEWPORT     30 II      SLOOP  ONE MAST
NEWPORT     41 S       SLOOP  ONE MAST
NICHOLSON   33         SLOOP  ONE MAST
NORTHERN    29         SLOOP  ONE MAST
NORTHERN    37         KETCH  TWO MASTS, BIG ONE IN FRONT
O'DAY       27         SLOOP  ONE MAST
O'DAY       32         SLOOP  ONE MAST
OLYMPIC     ADVENTURE  KETCH  TWO MASTS, BIG ONE IN FRONT
ONTARIO     32         SLOOP  ONE MAST
ONTARIO     VIKING     SLOOP  ONE MAST
PACESHIP    PY26       SLOOP  ONE MAST
PEARSON     10M        SLOOP  ONE MAST
PEARSON     26         SLOOP  ONE MAST
PEARSON     26W        SLOOP  ONE MAST
PEARSON     28         SLOOP  ONE MAST
PEARSON     30         SLOOP  ONE MAST
PEARSON     35         SLOOP  ONE MAST
PEARSON     36         SLOOP  ONE MAST
PEARSON     365        KETCH  TWO MASTS, BIG ONE IN FRONT
PEARSON     39         SLOOP  ONE MAST
PEARSON     419        KETCH  TWO MASTS, BIG ONE IN FRONT
RANGER      26         SLOOP  ONE MAST
RANGER      28         SLOOP  ONE MAST
RANGER      29         SLOOP  ONE MAST
RANGER      33         SLOOP  ONE MAST
```

```
RHODES      SWIFTSURE  SLOOP  ONE MAST
ROBERTS     29         SLOOP  ONE MAST
ROBERTS     36         SLOOP  ONE MAST
RYDER       S. CROSS   SLOOP  ONE MAST
S2          8M AFT     SLOOP  ONE MAST
S2          8M MID     SLOOP  ONE MAST
SABRE       28         SLOOP  ONE MAST
SALT        19         SLOOP  ONE MAST
SAN JUAN    21         SLOOP  ONE MAST
SAN JUAN    26         SLOOP  ONE MAST
SCAMPI      30         SLOOP  ONE MAST
SOLNA CORP  SCAMPI     SLOOP  ONE MAST
TA CHIAO    FANTASIA   SLOOP  ONE MAST
TANZER      26         SLOOP  ONE MAST
TANZER      28         SLOOP  ONE MAST
VENTURE     21         SLOOP  ONE MAST
VENTURE     222        SLOOP  ONE MAST
WESTERLY    CENTAUR    SLOOP  ONE MAST
WESTSAIL    32         SLOOP  ONE MAST
WINDPOWER   IMPULSE    SLOOP  ONE MAST
WRIGHT      SEAWIND II SLOOP  ONE MAST

SHOW TABLES
Tables loaded:
       RIG_TABLE
Tables:
       RIG_TABLE
!
! DECLARE A GLOBAL VARIABLE TO SIMPLIFY TABLE LOOK UP
!

DECLARE RIG-DESCRIPTION COMPUTED BY RIG VIA RIG-TABLE
       EDIT-STRING IS X(30).
!
PRINT TYPE, RIG-DESCRIPTION OF FIRST 10 YACHTS

                                    RIG
MANUFACTURER    MODEL           DESCRIPTION

 ALBERG     37 MK II   TWO MASTS, BIG ONE IN FRONT
 ALBIN      79         ONE MAST
 ALBIN      BALLAD     ONE MAST
 ALBIN      VEGA       ONE MAST
 AMERICAN   26         ONE MAST
 AMERICAN   26-MS      SOMETHING ELSE
 BAYFIELD   30/32      ONE MAST
 BLOCK I.   40         ONE MAST
 BOMBAY     CLIPPER    ONE MAST
 BUCCANEER  270        ONE MAST
```

```
!
! RELEASE TABLE AND GLOBAL COMPUTED BY VARIABLE FROM MEMORY
!
RELEASE RIG-TABLE
FINISH
!
! Define Record for PERSONNEL
!
DEFINE RECORD PERSONNEL_REC USING
01  PERSON.
    05 ID                  PIC IS 9(5).
    05 EMPLOYEE_STATUS     PIC IS X(11)
                           QUERY_NAME IS STATUS
                           QUERY_HEADER IS "STATUS"
                           VALID IF STATUS EQ "TRAINEE","EXPERIENCED".
    05 EMPLOYEE_NAME       QUERY_NAME IS NAME.
        10 FIRST_NAME         PIC IS X(10)
                              QUERY_NAME IS F_NAME.
        10 LAST_NAME          PIC IS X(10)
                              QUERY_NAME IS L_NAME.
    05 DEPT                PIC IS XXX.
    05 START_DATE          USAGE IS DATE.
    05 SALARY              PIC IS 9(5)
                           EDIT_STRING IS $$$,$$$.
    05 SUP_ID              PIC IS 9(5).
;
[Record PERSONNEL_REC is 58 bytes long]
!
! Define Record for PERSONNEL_SEQ
!
DEFINE RECORD PERSONNEL_SEQ_REC
 USING
01  PERSON.
    05 ID                  PIC IS 9(5).
    05 EMPLOYEE_STATUS     PIC IS X(11)
                           QUERY_NAME IS STATUS
                           QUERY_HEADER IS "STATUS"
                           VALID IF STATUS EQ "TRAINEE","EXPERIENCED".
    05 EMPLOYEE_NAME       QUERY_NAME IS NAME.
        10 FIRST_NAME         PIC IS X(10)
                              QUERY_NAME IS F_NAME.
        10 LAST_NAME          PIC IS X(10)
                              QUERY_NAME IS L_NAME.
    05 DEPT                PIC IS XXX.
    05 START_DATE          PIC IS X(11).
    05 SALARY              PIC IS 9(5)
                           EDIT_STRING IS $$$,$$$.
    05 SUP_ID              PIC IS 9(5).
;
[Record PERSONNEL_SEQ_REC is 60 bytes long]
!
! Define Domain for PERSONNEL
!
DEFINE DOMAIN PERSONNEL USING PERSONNEL_REC ON PERSON.DAT;
!
! Define Domain for PERSONNEL_SEQ
!
DEFINE DOMAIN PERSONNEL_SEQ USING PERSONNEL_SEQ_REC ON LB:[1,2]PERSON.SEQ;
!
```

```
! Define File for PERSONNEL
!
DEFINE FILE FOR PERSONNEL KEY=ID, SUPERCEDE;
!
! Copy Data from Sequential to Indexed File.
!
READY PERSONNEL WRITE
SHOW FIELDS
PERSONNEL
    PERSON
        ID      [Number, indexed key]
        EMPLOYEE_STATUS (STATUS)      [Character string]
        EMPLOYEE_NAME (NAME)
            FIRST_NAME (F_NAME) [Character string]
            LAST_NAME (L_NAME)  [Character string]
        DEPT   [Character string]
        START_DATE    [Date]
        SALARY [Number]
        SUP_ID [Number]
Global variables:
    RIG_DESCRIPTION  [Computed value]
READY PERSONNEL_SEQ
SHOW READY
Ready domains:
        PERSONNEL_SEQ: RMS SEQUENTIAL, PROTECTED READ
        PERSONNEL: RMS INDEXED, PROTECTED WRITE
!
!
! ************ NOTE  ***********
! *** The following STORE will take about 1/2 minute. ***
! ******************************
!
FOR PERSONNEL_SEQ STORE PERSONNEL USING PERSON=PERSON
!
FINISH PERSONNEL_SEQ;
!
! Check out PERSONNEL
!
READY PERSONNEL
FIND PERSONNEL
[23 records found]
PRINT
No record selected, printing whole collection

                 FIRST      LAST           START            SUP
    ID    STATUS  NAME       NAME    DEPT   DATE    SALARY   ID
```

```
00012 EXPERIENCED CHARLOTTE  SPIVA     TOP  12-Sep-1972 $75,892 00012
00891 EXPERIENCED FRED       HOWL      F11  9-Apr-1976  $59,594 00012
02943 EXPERIENCED CASS       TERRY     D98  2-Jan-1980  $29,908 39485
12643 TRAINEE     JEFF       TASHKENT  C82  4-Apr-1981  $32,918 87465
32432 TRAINEE     THOMAS     SCHWEIK   F11  7-Nov-1981  $26,723 00891
34456 TRAINEE     HANK       MORRISON  T32  1-Mar-1982  $30,000 87289
38462 EXPERIENCED BILL       SWAY      T32  5-May-1980  $54,000 00012
38465 EXPERIENCED JOANNE     FREIBURG  E46  20-Feb-1980 $23,908 48475
39485 EXPERIENCED DEE        TERRICK   D98  2-May-1977  $55,829 00012
48475 EXPERIENCED GAIL       CASSIDY   E46  2-May-1978  $55,407 00012
48573 TRAINEE     SY         KELLER    T32  2-Aug-1981  $31,546 87289
49001 EXPERIENCED DAN        ROBERTS   C82  7-Jul-1979  $41,395 87465
49843 TRAINEE     BART       HAMMER    D98  4-Aug-1981  $26,392 39485
78923 EXPERIENCED LYDIA      HARRISON  F11  19-Jun-1979 $40,747 00891
83764 EXPERIENCED JIM        MEADER    T32  4-Apr-1980  $41,029 87289
84375 EXPERIENCED MARY       NALEVO    D98  3-Jan-1976  $56,847 39485
87289 EXPERIENCED LOUISE     DEPALMA   G20  28-Feb-1979 $57,598 00012
87465 EXPERIENCED ANTHONY    IACOBONE  C82  2-Jan-1973  $58,462 00012
87701 TRAINEE     NATHANIEL  CHONTZ    F11  28-Jan-1982 $24,502 00891
88001 EXPERIENCED DAVID      LITELLA   G20  11-Nov-1980 $34,933 87289
90342 EXPERIENCED BRUNO      DONCHIKOV C82  9-Aug-1978  $35,952 87465
91023 TRAINEE     STAN       WITTGEN   G20  23-Dec-1981 $25,023 87289
99029 EXPERIENCED RANDY      PODERESIAN C82 24-May-1979 $33,738 87465

FINISH
!
! AS A KIND GESTURE, MAKE ALL OF THE EXAMPLES SHARABLE
!
DEFINEP RIG-TABLE 2,UIC,[*,*],RE
DEFINEP FAMILIES 2,UIC,[*,*],R
DEFINEP FAMILY-REC 2,UIC,[*,*],RE
DEFINEP KETCHES 2,UIC,[*,*],R
DEFINEP OWNERS 2,UIC,[*,*],R
DEFINEP OWNER-RECORD 2,UIC,[*,*],RE
DEFINEP LOA-REPORT 2,UIC,[*,*],RE
DEFINEP SAILBOATS 2,UIC,[*,*],R
DEFINEP PERSONNEL 2,UIC,[*,*],R
DEFINEP PERSONNEL_REC 2,UIC,[*,*],RE
!
! Completion of DATATRIEVE-11 V3.3 Installation Test
EXIT

  End of Datatrieve-11 Installation Verification

Installation of DTR (DTR) ending at 02-MAY-89 09:57:50.

Installation of DTR (DTR) successful.

Auto-Install ended on 02-MAY-89 at 09:57:55.
```

Appendix B

Sample RSTS/E Installation Log

```
RSTS/E Auto-Install Procedure V1.0

     25-Apr-89 10:02


Type "?" for help; CTRL/Z to end; or valid input.

Which product(s) do you want to install? DTR

Type "?" for help; CTRL/Z to exit Auto-Install; or valid input.

Where are the update files located <PATCH$:>?

Type "?" for help; CTRL/Z to skip this product; or valid input.

Which device are the distribution files for DTR (DTR) located on (include colon)? MS0:

Products being installed:
    Device      Product Task name
    ------      ------- ---------
    MS0:        DTR     (DTR)

Determining system configuration.

WARNING -- no updates found for configuration data file; procedure continuing.

Do you want to customize DTR (DTR) (Y/N) <N>? Y

Final holding area for kit files after instal <DTR$:>?

Name and location of dictionary <LB:QUERY.DIC>?

Name and location of message file <LB:QUERY.MSG>?

Name and location of startup command file <SY:QUERY.INI>?

Name and location of DDMF.LOG <SY:DDMF.LOG>?

Issue error messages for record too short <1=yes,0=no> <1>?

Interpret input date<1= 1/6 as Jan 6, 0= 1/6 as Jun 1> <1>?

Control spooling <0=send directly to LP:, 1=spool output> <1>?

Divided by 0 warning <-1=yes, 0=no warning given> <-1>?

Terminal type <0=ask terminal at runtime, 1=VT52, 2=VT100> <0>?
```

```
Controls ADT <0=ADT enabled, 1=ADT disabled> <0>?

Set the default COLUMNS-PAGE <80>?

Message file organization <0=Fixed, 1=Variable> <0>?

Default size of dictionaries <200>?

Default protection <-1 [*,*], 0 [grp,*], 1 [grp,prgm]> <0>?

Stack size <minimum 256> <256>?

Link against Supervisor Mode library <NO, YES> <NO>?

Is DECnet available (YES/NO) <YES>?

(1)Flt_pt Softw, (2)FPP Hardw, (3)Machine hardw decides at instal <3>?

Allow future customization of this file <YES>?

Print release notes automatically <NO>?

Print the installation log automatically <NO>?

Do you want to customize DTR (DTR) again (Y/N) <N>?

Installation of DTR (DTR) beginning at 25-Apr-89 10:06

Reading [1,125]DTRDTR.CFG.

Transferring kit files to work area.

Updating kit files.

WARNING -- update file DTR303.DAT not found at PATCH$:.
          Kit files not updated; procedure continuing.

Building product DTR (DTR).

 Run pre_processing for QD

 Determining system configuration


 Building DATATRIEVE-11

 Build the dictionary and message file

 Task-build DATATRIEVE-11

 Task-build the Local Call Interface

 Task-build Remote Call Interface

Copying DATATRIEVE-11 to SY:[1,2]

Copying DDMF to SY:[1,2]

Copying REMDTR to SY:[1,2]

Copying QCPRS to SY:[1,2]
```

B–2 Sample RSTS/E Installation Log

```
Copying QXTR to SY:[1,2]

Copying Local Server to SY:[1,2]

        DATATRIEVE V3.3 is now built.

 DATATRIEVE-11 installation procedure ended
Transferring files from work area.

Running IVP command procedure DTRIVP.COM.

!
!  Start of DATATRIEVE-11 V3.3 Installation Test
!
!
! **************************** N O T E ***************************************
! *
! * This verification procedure will scroll on the screen for about 7 minutes. *
! *           ( No input is required from you during this time. )
! *
! ***************************************************************************
!
! PRINT TODAY'S DATE
!
PRINT "TODAY" USING DD-MMM-YYYYBBW(9)
25-Apr-1989  Tuesday

!
! CLEAN UP FROM POSSIBLE PREVIOUS RUNS OF TEST
!
DELETE FAMILIES;
DELETE FAMILY-REC;
DELETE KETCHES;
DELETE OWNERS-SEQUENTIAL;
DELETE OWNERS;
DELETE OWNER-RECORD;
DELETE SAILBOATS;
DELETE YACHTS-SEQUENTIAL;
DELETE YACHTS;
DELETE YACHT;
DELETE PRICE-PER-POUND;
DELETE VERIFY;
DELETE LOA-REPORT;
DELETE RIG-TABLE;
DELETE PERSONNEL;
DELETE PERSONNEL_SEQ;
DELETE PERSONNEL_REC;
DELETE PERSONNEL_SEQ_REC;
!
! DEFINE RECORD
!
DEFINE RECORD YACHT USING
01 BOAT.
   03 TYPE.
      06 MANUFACTURER PIC X(10)
         QUERY-NAME IS BUILDER.
      06 MODEL PIC X(10).
   03 SPECIFICATIONS
      QUERY-NAME SPECS.
```

```
      06 RIG PIC X(6)
         VALID IF RIG EQ "SLOOP","KETCH","MS","YAWL".
      06 LENGTH-OVER-ALL PIC XXX
         VALID IF LOA BETWEEN 15 AND 50
         QUERY-NAME IS LOA.
      06 DISPLACEMENT PIC 99999
         QUERY-HEADER IS "WEIGHT"
         EDIT-STRING IS ZZ,ZZ9
         QUERY-NAME IS DISP.
      06 BEAM PIC 99.
      06 PRICE PIC 99999
         VALID IF PRICE>DISP*1.3 OR PRICE EQ 0
         EDIT-STRING IS $$$,$$$.
;
[Record YACHT is 41 bytes long]
!
! DEFINE DOMAINS
!
DEFINE DOMAIN YACHTS-SEQUENTIAL USING YACHT ON LB:[1,2]YACHT.SEQ ;
DEFINE DOMAIN YACHTS USING YACHT ON YACHT.DAT;
!
! DEFINE THE ACTUAL FILE FOR YACHTS
!
DEFINE FILE YACHTS KEY=TYPE(NO DUP),KEY=MODEL(DUP,NO CHANGE),
       ALLOCATION=30, SUPERSEDE
!
! MAKE YACHTS ACCESSABLE BY OTHERS
!
DEFINEP YACHTS 2,PW,"SHHHH",W  ! PASSWORD FOR WRITE
DEFINEP YACHTS 3,UIC,[*,*],R    ! EVERYONE ELSE GETS READ
DEFINEP YACHT  2,UIC,[*,*],RE ! GIVE ACCESS TO RECORD DEFINITION, TOO
SHOWP YACHTS
        1,UIC, [1,*], "RWMEC"
        2,PW, "SHHHH", "W"
        3,UIC, [*,*], "R"
!
! DEFINE PROCEDURES
!
DEFINE PROCEDURE PRICE-PER-POUND
PRICE/DISP ("PRICE"/"PER"/"POUND") USING $$.99
END-PROCEDURE
DEFINEP PRICE-PER-POUND 2,UIC,[*,*],RE
!
DEFINE PROCEDURE VERIFY
VERIFY USING
  BEGIN
     PRINT
     DISPLAY "CONFIRM WITH Y IF OK"
     IF *.CONFIRM NOT CONTAINING "Y" THEN ABORT "UPDATE ABORTED"
  END
END-PROCEDURE
DEFINEP VERIFY 2,UIC,[*,*],RE
!
! COPY DATA FROM SEQUENTIAL TO INDEXED FILE
!
READY YACHTS WRITE
SHOW FIELDS
YACHTS
    BOAT
```

B–4   Sample RSTS/E Installation Log

```
            TYPE [Indexed field]
                MANUFACTURER (BUILDER)      [Character string, indexed key]
                MODEL    [Character string, indexed key]
            SPECIFICATIONS (SPECS)
                RIG [Character string]
                LENGTH_OVER_ALL (LOA)        [Character string]
                DISPLACEMENT (DISP) [Number]
                BEAM        [Number]
                PRICE       [Number]
READY YACHTS-SEQUENTIAL
SHOW READY
Ready domains:
        YACHTS_SEQUENTIAL: RMS SEQUENTIAL, PROTECTED READ
        YACHTS: RMS INDEXED, PROTECTED WRITE
!
! ************ NOTE  ***********
! *** The following STORE will take 1 - 2 minutes. ***
! *****************************
!
FOR YACHTS-SEQUENTIAL STORE YACHTS USING BOAT=BOAT
!
FINISH YACHTS-SEQUENTIAL;
!
! TEST STORE
!
! PLEASE SUPPLY THE FOLLOWING VALUES:
!    MANUFACTURER:      HINKLEY
!    MODEL:             BERMUDA 40
!    RIG:               YAWL
!    LENGTH-OVER-ALL:   140
!    LENGTH-OVER-ALL:   40
!    DISPLACEMENT:      20000
!    BEAM:              12
!    PRICE:             82000 AND XX/100
!    PRICE:             $82,000
!    CONFIRM:           N
!
STORE YACHTS USING BEGIN
        MANUFACTURER= "HINKLEY"
        MODEL = "BERMUDA 40"
        RIG = "YAWL"
        LENGTH-OVER-ALL = 40
        DISPLACEMENT= 20000
        BEAM = 12
        PRICE = 82000
        END
!
!
! CHANGE READY MODE FOR READ ACCESS
!
READY YACHTS
FIND YACHTS WITH PRICE NE 0
[51 records found]
SORT BY LOA,DESC DISPLACEMENT
SHOW ALL
Domains:
        YACHTS            YACHTS_SEQUENTIAL
Records:
        YACHT
```

```
Procedures:
        PRICE_PER_POUND VERIFY
Tables:
The current dictionary is SY:[1,1]QUERY.DIC
Collections:
        CURRENT
Ready domains:
        YACHTS: RMS INDEXED, PROTECTED READ
SHOW CURRENT
Collection CURRENT
        Domain: YACHTS
        Number of records: 51
        No selected record
        Sort order: LENGTH_OVER_ALL,DISPLACEMENT
PRINT ALL

                              LENGTH
                              OVER
MANUFACTURER    MODEL     RIG  ALL   WEIGHT BEAM   PRICE

  WINDPOWER     IMPULSE    SLOOP   16     650   07   $3,500
  CAPE DORY     TYPHOON    SLOOP   19   1,900   06   $4,295
  VENTURE       21         SLOOP   21   1,500   07   $2,823
  VENTURE       222        SLOOP   22   2,000   07   $3,564
  EASTWARD      HO         MS      24   7,000   09  $15,900
  ISLANDER      BAHAMA     SLOOP   24   4,200   08   $6,500
  IRWIN         25         SLOOP   25   5,400   12  $10,950
  CAPE DORY     25         SLOOP   25   4,000   07   $8,995
  SALT          19         SLOOP   25   2,600   07   $6,590
  WESTERLY      CENTAUR    SLOOP   26   6,700   08  $15,245
  GRAMPIAN      26         SLOOP   26   5,600   08  $11,495
  AMERICAN      26-MS      MS      26   5,500   08  $18,895
  TANZER        26         SLOOP   26   4,350   09  $11,750
  ALBIN         79         SLOOP   26   4,200   10  $17,900
  AMERICAN      26         SLOOP   26   4,000   08   $9,895
  HUNTER        27         SLOOP   27   6,500   09  $14,999
  ALBIN         VEGA       SLOOP   27   5,070   08  $18,600
  CAPE DORY     28         SLOOP   28   9,000   09  $21,990
  SABRE         28         SLOOP   28   7,400   09  $22,000
  GRAMPIAN      28         SLOOP   28   6,900   10  $14,475
  TANZER        28         SLOOP   28   6,800   10  $17,500
  ISLANDER      28         SLOOP   28   5,994   10  $15,908
  NORTHERN      29         SLOOP   29   7,250   09  $20,975
  IRWIN         30         SLOOP   30  10,000   10  $19,950
  HUNTER        30         SLOOP   30   9,500   10  $21,500
  GRAMPIAN      30         SLOOP   30   8,600   09  $17,775
  ISLANDER      30         SLOOP   30   8,600   10  $20,990
  ALBIN         BALLAD     SLOOP   30   7,276   10  $27,500
  RYDER         S. CROSS   SLOOP   31  13,600   00  $32,500
  BOMBAY        CLIPPER    SLOOP   31   9,400   11  $23,950
  WRIGHT        SEAWIND II SLOOP   32  14,900   00  $34,480
  CHALLENGER    32         SLOOP   32  12,800   11  $31,835
  O'DAY         32         SLOOP   32  11,000   00  $29,500
  BAYFIELD      30/32      SLOOP   32   9,500   10  $32,875
  GRAMPIAN      34         KETCH   33  12,000   10  $29,675
  GRAMPIAN      2-34       SLOOP   34  11,800   10  $29,675
  CARIBBEAN     35         SLOOP   35  18,000   11  $37,850
  CHRIS-CRAF    CARIBBEAN  SLOOP   35  18,000   11  $37,850
  CHALLENGER    35         SLOOP   35  14,800   12  $39,215
```

B–6 Sample RSTS/E Installation Log

```
    I. TRADER   37          KETCH   36    18,600  12  $39,500
    ISLANDER    36          SLOOP   36    13,450  11  $31,730
    ALBERG      37 MK II    KETCH   37    20,000  12  $36,951
    IRWIN       37 MARK II  KETCH   37    20,000  11  $36,950
    NORTHERN    37          KETCH   37    14,000  11  $50,000
    LINDSEY     39          MS      39    14,500  12  $35,900
    HINKLEY     BERMUDA 40  YAWL    40    20,000  12  $82,000
    CHALLENGER  41          KETCH   41    26,700  13  $51,228
    GULFSTAR    41          KETCH   41    22,000  12  $41,350
    ISLANDER    FREEPORT    KETCH   41    22,000  13  $54,970
    COLUMBIA    41          SLOOP   41    20,700  11  $48,490
    OLYMPIC     ADVENTURE   KETCH   42    24,250  13  $80,500
SELECT FIRST
PRINT

                            LENGTH
                            OVER
MANUFACTURER    MODEL       ALL    WEIGHT BEAM  PRICE

  WINDPOWER     IMPULSE     SLOOP   16      650  07   $3,500

SELECT
PRINT BOAT,:PRICE-PER-POUND

                            LENGTH                    PRICE
                            OVER                      PER
MANUFACTURER    MODEL       ALL    WEIGHT BEAM  PRICE POUND

  CAPE DORY     TYPHOON     SLOOP   19    1,900  06   $4,295 $2.26
!
!
! DEFINE REPORT PROCEDURE
!
DEFINE PROCEDURE LOA-REPORT
REPORT ON TI:
    SET REPORT-NAME="JIM'S VERY OWN LISTING"/"OF"/"INTERESTING SAILBOATS"/
        "(BY LENGTH)"
    SET LINES-PAGE=55, COLUMNS-PAGE=72
    AT TOP OF LOA PRINT LOA("LENGTH")
    PRINT TYPE, RIG, DISP, BEAM USING Z9 , PRICE
    AT BOTTOM OF LOA PRINT SKIP, COL 32, "*** AVERAGE ***",
        AVERAGE DISP, AVERAGE BEAM, AVERAGE PRICE
    AT BOTTOM OF REPORT PRINT SKIP, "REPORT AVERAGES",
        AVERAGE DISP, AVERAGE BEAM, AVERAGE PRICE
    AT BOTTOM OF PAGE PRINT SKIP, COL 20,
        """ANOTHER SERVICE OF QUERY ENTERPRISES"""
END-REPORT
END-PROCEDURE
!
! INVOKE REPORT (SUGGEST OUTPUT ON TI:)
!
:LOA-REPORT


                    JIM'S VERY OWN LISTING
                            OF
                    INTERESTING SAILBOATS          25-Apr-89
                       (BY LENGTH)                 Page 1
```

```
        LENGTH      MANUFACTURER    MODEL       RIG     WEIGHT  BEAM   PRICE

        16          WINDPOWER       IMPULSE     SLOOP      650    7    $3,500

                                *** AVERAGE ***           650   07    $3,500
        19          CAPE DORY       TYPHOON     SLOOP    1,900    6    $4,295

                                *** AVERAGE ***         1,900   06    $4,295
        21          VENTURE         21          SLOOP    1,500    7    $2,823

                                *** AVERAGE ***         1,500   07    $2,823
        22          VENTURE         222         SLOOP    2,000    7    $3,564

                                *** AVERAGE ***         2,000   07    $3,564
        24          EASTWARD        HO          MS       7,000    9   $15,900
                    ISLANDER        BAHAMA      SLOOP    4,200    8    $6,500

                                *** AVERAGE ***         5,600   08   $11,200
        25          IRWIN           25          SLOOP    5,400   12   $10,950
                    CAPE DORY       25          SLOOP    4,000    7    $8,995
                    SALT            19          SLOOP    2,600    7    $6,590

                                *** AVERAGE ***         4,000   08    $8,845
        26          WESTERLY        CENTAUR     SLOOP    6,700    8   $15,245
                    GRAMPIAN        26          SLOOP    5,600    8   $11,495
                    AMERICAN        26-MS       MS       5,500    8   $18,895
                    TANZER          26          SLOOP    4,350    9   $11,750
                    ALBIN           79          SLOOP    4,200   10   $17,900
                    AMERICAN        26          SLOOP    4,000    8    $9,895

                                *** AVERAGE ***         5,058   08   $14,196
        27          HUNTER          27          SLOOP    6,500    9   $14,999
                    ALBIN           VEGA        SLOOP    5,070    8   $18,600

                                *** AVERAGE ***         5,785   08   $16,799
        28          CAPE DORY       28          SLOOP    9,000    9   $21,990
                    SABRE           28          SLOOP    7,400    9   $22,000
                    GRAMPIAN        28          SLOOP    6,900   10   $14,475
                    TANZER          28          SLOOP    6,800   10   $17,500
                    ISLANDER        28          SLOOP    5,994   10   $15,908

                                *** AVERAGE ***         7,218   09   $18,374
        29          NORTHERN        29          SLOOP    7,250    9   $20,975

                                *** AVERAGE ***         7,250   09   $20,975
        30          IRWIN           30          SLOOP   10,000   10   $19,950
                    HUNTER          30          SLOOP    9,500   10   $21,500
                    GRAMPIAN        30          SLOOP    8,600    9   $17,775

                    "ANOTHER SERVICE OF QUERY ENTERPRISES"



                        JIM'S VERY OWN LISTING
                               OF
                        INTERESTING SAILBOATS            25-Apr-89
                           (BY LENGTH)                   Page 2


        LENGTH      MANUFACTURER    MODEL       RIG     WEIGHT  BEAM   PRICE

                    ISLANDER        30          SLOOP    8,600   10   $20,990
                    ALBIN           BALLAD      SLOOP    7,276   10   $27,500
```

B–8 Sample RSTS/E Installation Log

```
                    *** AVERAGE ***      8,795   09  $21,543
31        RYDER       S. CROSS    SLOOP  13,600    0  $32,500
          BOMBAY      CLIPPER     SLOOP   9,400   11  $23,950

                    *** AVERAGE ***     11,500   05  $28,225
32        WRIGHT      SEAWIND II  SLOOP  14,900    0  $34,480
          CHALLENGER  32          SLOOP  12,800   11  $31,835
          O'DAY       32          SLOOP  11,000    0  $29,500
          BAYFIELD    30/32       SLOOP   9,500   10  $32,875

                    *** AVERAGE ***     12,050   05  $32,172
33        GRAMPIAN    34          KETCH  12,000   10  $29,675

                    *** AVERAGE ***     12,000   10  $29,675
34        GRAMPIAN    2-34        SLOOP  11,800   10  $29,675

                    *** AVERAGE ***     11,800   10  $29,675
35        CARIBBEAN   35          SLOOP  18,000   11  $37,850
          CHRIS-CRAF  CARIBBEAN   SLOOP  18,000   11  $37,850
          CHALLENGER  35          SLOOP  14,800   12  $39,215

                    *** AVERAGE ***     16,933   11  $38,305
36        I. TRADER   37          KETCH  18,600   12  $39,500
          ISLANDER    36          SLOOP  13,450   11  $31,730

                    *** AVERAGE ***     16,025   11  $35,615
37        ALBERG      37 MK II    KETCH  20,000   12  $36,951
          IRWIN       37 MARK II  KETCH  20,000   11  $36,950
          NORTHERN    37          KETCH  14,000   11  $50,000

                    *** AVERAGE ***     18,000   11  $41,300
39        LINDSEY     39          MS     14,500   12  $35,900

                    *** AVERAGE ***     14,500   12  $35,900
40        HINKLEY     BERMUDA 40  YAWL   20,000   12  $82,000

                    *** AVERAGE ***     20,000   12  $82,000
41        CHALLENGER  41          KETCH  26,700   13  $51,228
          GULFSTAR    41          KETCH  22,000   12  $41,350
          ISLANDER    FREEPORT    KETCH  22,000   13  $54,970
          COLUMBIA    41          SLOOP  20,700   11  $48,490

                    *** AVERAGE ***     22,850   12  $49,009

         "ANOTHER SERVICE OF QUERY ENTERPRISES"



                 JIM'S VERY OWN LISTING
                         OF
                 INTERESTING SAILBOATS         25-Apr-89
                    (BY LENGTH)                Page 3


   LENGTH    MANUFACTURER   MODEL     RIG   WEIGHT  BEAM  PRICE

   42        OLYMPIC      ADVENTURE   KETCH  24,250   13  $80,500

                    *** AVERAGE ***     24,250   13  $80,500

REPORT AVERAGES                         10,597   09  $26,498

         "ANOTHER SERVICE OF QUERY ENTERPRISES"
```

```
!
! RATTLE UPDATE
!
FIND YACHTS WITH BEAM=0
[5 records found]
PRINT ALL

                                LENGTH
                                OVER
MANUFACTURER    MODEL      RIG    ALL    WEIGHT BEAM   PRICE

 METALMAST    GALAXY     SLOOP   32     9,500  00
 O'DAY        32         SLOOP   32    11,000  00   $29,500
 RYDER        S. CROSS   SLOOP   31    13,600  00   $32,500
 TA CHIAO     FANTASIA   SLOOP   35    23,200  00
 WRIGHT       SEAWIND II SLOOP   32    14,900  00   $34,480

SELECT FIRST;PRINT

                                LENGTH
                                OVER
MANUFACTURER    MODEL      RIG    ALL    WEIGHT BEAM   PRICE

 METALMAST    GALAXY     SLOOP   32     9,500  00

READY YACHTS MODIFY
!
! RESPOND WITH 47 (OR SOMETHING)
!
MODIFY USING BEAM = 47
PRINT TYPE,BEAM

MANUFACTURER    MODEL     BEAM

 METALMAST    GALAXY      47

!
! RESPOND WITH 48 (OR SOMETHING)
!
MODIFY ALL USING  BEAM = 48
!
PRINT ALL BEAM

BEAM

 48
 48
 48
 48
 48

!
! RESPOND EACH TIME WITH 0 (PLEASE)
!
FOR CURRENT PRINT TYPE THEN MODIFY USING BEAM = 0

MANUFACTURER    MODEL

 METALMAST    GALAXY
 O'DAY        32
 RYDER        S. CROSS
 TA CHIAO     FANTASIA
 WRIGHT       SEAWIND II
```

B–10 Sample RSTS/E Installation Log

```
READY YACHTS READ
PRINT ALL

                         LENGTH
                         OVER
MANUFACTURER   MODEL      RIG    ALL    WEIGHT BEAM   PRICE

 METALMAST     GALAXY     SLOOP  32      9,500 00
 O'DAY         32         SLOOP  32     11,000 00   $29,500
 RYDER         S. CROSS   SLOOP  31     13,600 00   $32,500
 TA CHIAO      FANTASIA   SLOOP  35     23,200 00
 WRIGHT        SEAWIND II SLOOP  32     14,900 00   $34,480

!
! CHECK MULTIPLE COLLECTIONS AND STATISTICAL FUNCTIONS
!
FIND SMALLS IN YACHTS WITH LOA<24 AND PRICE NE 0
[4 records found]
!
FIND BIGGIES IN YACHTS WITH LOA>40 AND PRICE NE 0
[5 records found]
!
SHOW COLLECTIONS
Collections:
        BIGGIES (also CURRENT)
        SMALLS
!
PRINT AVERAGE DISP

WEIGHT

23,130

!
PRINT MAX DISP

WEIGHT

26,700

!
PRINT AVERAGE PRICE OF BIGGIES,AVERAGE PRICE OF SMALLS

 PRICE   PRICE

$55,307  $3,545

!
SORT SMALLS BY LOA,DISP
SORT BIGGIES BY LOA,DISP
SELECT FIRST SMALLS
SELECT LAST BIGGIES
PRINT SMALLS.BOAT,SKIP,BIGGIES.BOAT
                         LENGTH
                         OVER
MANUFACTURER   MODEL      RIG    ALL    WEIGHT BEAM   PRICE

 WINDPOWER     IMPULSE    SLOOP  16        650 07    $3,500
 OLYMPIC       ADVENTURE  KETCH  42     24,250 13   $80,500

!
!
PRINT YACHTS WITH LOA EQ MAX LOA OF YACHTS
```

```
                         LENGTH
                         OVER
MANUFACTURER    MODEL      RIG    ALL    WEIGHT BEAM  PRICE

 OLYMPIC       ADVENTURE  KETCH   42     24,250  13  $80,500
 PEARSON       419        KETCH   42     21,000  13
```

```
!
! TEST OF HIERARCHIES AND VIEW
!
DEFINE DOMAIN FAMILIES
 USING FAMILY-REC ON LB:[1,2]FAMILY.DAT;
DEFINE RECORD FAMILY-REC
01 FAMILY.
   03 PARENTS.
      06 FATHER PIC X(10).
      06 MOTHER PIC X(10).
   03 NUMBER-KIDS PIC 99 EDIT-STRING IS Z9.
   03 KIDS OCCURS 0 TO 10 TIMES DEPENDING ON NUMBER-KIDS.
      06 EACH-KID.
         09 KID-NAME PIC X(10) QUERY-NAME IS KID.
         09 AGE PIC 99 EDIT-STRING IS Z9.
;
[Record FAMILY_REC is 142 bytes long]
!
! PERFORM A FEW NIFTY OPERATIONS ON FAMILIES
!
READY FAMILIES
SHOW FIELDS FOR FAMILIES
 FAMILY
     PARENTS
         FATHER [Character string]
         MOTHER [Character string]
     NUMBER_KIDS    [Number]
     KIDS [List]
         EACH_KID
             KID_NAME (KID)  [Character string]
             AGE             [Number]
PRINT FAMILIES

                  NUMBER    KID
  FATHER    MOTHER  KIDS    NAME     AGE
```

```
JIM         ANN          2    URSULA      7
                              RALPH       3
JIM         LOUISE       5    ANNE       31
                              JIM        29
                              ELLEN      26
                              DAVID      24
                              ROBERT     16
JOHN        JULIE        2    ANN        29
                              JEAN       26
JOHN        ELLEN        1    CHRISTOPHR  0
ARNIE       ANNE         2    SCOTT       2
                              BRIAN       0
SHEARMAN    SARAH        1    DAVID       0
TOM         ANNE         2    PATRICK     4
                              SUZIE       6
BASIL       MERIDETH     6    BEAU       28
                              BROOKS     26
                              ROBIN      24
                              JAY        22
                              WREN       17
                              JILL       20
ROB         DIDI         0
JEROME      RUTH         4    ERIC       32
                              CISSY      24
                              NANCY      22
                              MICHAEL    20
TOM         BETTY        2    MARTHA     30
                              TOM        27
GEORGE      LOIS         3    JEFF       23
                              FRED       26
                              LAURA      21
HAROLD      SARAH        3    CHARLIE    31
                              HAROLD     35
                              SARAH      27
EDWIN       TRINITA      2    ERIC       16
                              SCOTT      11

FIND FAMILIES WITH ANY KIDS WITH AGE>25
[7 records found]
PRINT ALL SKIP, PARENTS, ALL KIDS SORTED BY AGE

                         KID
   FATHER     MOTHER    NAME     AGE


JIM         LOUISE      ROBERT     16
                        DAVID      24
                        ELLEN      26
                        JIM        29
                        ANNE       31

JOHN        JULIE       JEAN       26
                        ANN        29

BASIL       MERIDETH    WREN       17
                        JILL       20
                        JAY        22
                        ROBIN      24
                        BROOKS     26
                        BEAU       28
```

```
JEROME     RUTH       MICHAEL   20
                      NANCY     22
                      CISSY     24
                      ERIC      32

TOM        BETTY      TOM       27
                      MARTHA    30

GEORGE     LOIS       LAURA     21
                      JEFF      23
                      FRED      26

HAROLD     SARAH      SARAH     27
                      CHARLIE   31
                      HAROLD    35

FINISH
!
! DEFINE A VIEW OF THE DOMAIN YACHTS
!
DEFINE DOMAIN KETCHES
 OF YACHTS BY
01 KETCH OCCURS FOR YACHTS WITH RIG EQ "KETCH".
   03 TYPE FROM YACHTS.
   03 LOA FROM YACHTS.
   03 PRICE FROM YACHTS.
;
!
! SHOW OFF KETCHES
!
READY KETCHES
PRINT KETCHES

                       LENGTH
                       OVER
MANUFACTURER    MODEL     ALL    PRICE

 ALBERG       37 MK II    37    $36,951
 CHALLENGER   41          41    $51,228
 FISHER       30          30
 FISHER       37          37
 GRAMPIAN     34          33    $29,675
 GULFSTAR     41          41    $41,350
 I. TRADER    37          36    $39,500
 IRWIN        37 MARK II  37    $36,950
 ISLANDER     FREEPORT    41    $54,970
 NORTHERN     37          37    $50,000
 OLYMPIC      ADVENTURE   42    $80,500
 PEARSON      365         36
 PEARSON      419         42
```

```
FINISH
!
! DEFINE A DOMAIN AND FILE OF SAILBOAT OWNERS
!
DEFINE DOMAIN OWNERS
 USING OWNER-RECORD ON OWNER.DAT;
DEFINE RECORD OWNER-RECORD
01 OWNER.
   03 NAME PIC X(10) QUERY-HEADER IS "OWNER"/"NAME"
      EDIT-STRING IS X(5).
   03 BOAT-NAME PIC X(17) QUERY-HEADER IS "BOAT NAME".
   03 TYPE.
      06 BUILDER PIC X(10).
      06 MODEL PIC X(10).
;
[Record OWNER_RECORD is 47 bytes long]
DEFINE DOMAIN OWNERS-SEQUENTIAL USING OWNER-RECORD ON LB:[1,2]OWNER.SEQ;
DEFINE FILE FOR OWNERS KEY=TYPE(DUP), SUPERSEDE
READY OWNERS WRITE
READY OWNERS-SEQUENTIAL
!
! ************ NOTE  ***********
! *** The following STORE will take about 1/2 minute. ***
! *****************************
!
FOR OWNERS-SEQUENTIAL STORE OWNERS USING OWNER=OWNER
FINISH OWNERS-SEQUENTIAL
!
! PRINT OUT THE OWNERS FILE
!
PRINT OWNERS

OWNER
NAME      BOAT NAME        BUILDER      MODEL

SHERM MILLENNIUM FALCON ALBERG     35
STEVE DELIVERANCE       ALBIN      VEGA
HUGH  IMPULSE           ALBIN      VEGA
JIM   EGRET             C&C        CORVETTE
ANN   EGRET             C&C        CORVETTE
BOB   FIESTA            CAL        28
JIM   REGRET            CHEAP      DINK
NEIL  JARGES PRIDE      CROCKER    33
GERAR KESTREL           ERICSON    39
ARNE  CHIMERA           HINKLEY    BERMUDA 40
JIM   POTEMKIN          ISLANDER   BAHAMA
ANN   POTEMKIN          ISLANDER   BAHAMA
STEVE POTEMKIN          ISLANDER   BAHAMA
HARVE MANANA            ISLANDER   BAHAMA
TOM   LONE TRAVELLER    PEARSON    10M
DICK  PURSUIT           PEARSON    26
CHRIS VANITY            PEARSON    ARIEL
JOHN  STRIDER           RHODES     SWIFTSURE
```

```
FINISH
!
! DEFINE THE MIGHTY, MULTIPLE FILE VIEW OF YACHTS AND OWNERS
!
DEFINE DOMAIN SAILBOATS
 OF YACHTS, OWNERS BY
01 SAILBOAT OCCURS FOR YACHTS.
   03 BOAT FROM YACHTS.
   03 SKIPPERS OCCURS FOR OWNERS WITH TYPE EQ BOAT.TYPE.
      05 NAME FROM OWNERS.
;
!
! EXERCISE SAILBOATS A LITTLE
!
READY SAILBOATS
SHOW FIELDS
SAILBOATS
    SAILBOAT
        BOAT
            TYPE [Indexed field]
                MANUFACTURER (BUILDER) [Character string, indexed key]
                MODEL  [Character string, indexed key]
            SPECIFICATIONS (SPECS)
                RIG     [Character string]
                LENGTH_OVER_ALL (LOA)   [Character string]
                DISPLACEMENT (DISP)     [Number]
                BEAM    [Number]
                PRICE   [Number]
        SKIPPERS [List]
            NAME        [Character string]
PRINT FIRST 5 SAILBOATS

                            LENGTH
                            OVER                      OWNER
MANUFACTURER    MODEL       RIG    ALL    WEIGHT BEAM  PRICE  NAME

 ALBERG     37 MK II   KETCH   37    20,000 12  $36,951
 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 STEVE
                                                        HUGH
 AMERICAN   26         SLOOP   26     4,000 08   $9,895

FIND SAILBOATS WITH ANY SKIPPERS
[7 records found]
PRINT ALL

                            LENGTH
                            OVER                      OWNER
MANUFACTURER    MODEL       RIG    ALL    WEIGHT BEAM  PRICE  NAME
```

```
ALBIN        VEGA         SLOOP   27      5,070  08  $18,600 STEVE
                                                             HUGH
C&C          CORVETTE     SLOOP   31      8,650  09          JIM
                                                             ANN
HINKLEY      BERMUDA 40 YAWL     40     20,000  12  $82,000 ARNE
ISLANDER     BAHAMA       SLOOP   24      4,200  08   $6,500 JIM
                                                             ANN
                                                             STEVE
                                                             HARVE
PEARSON      10M          SLOOP   33     12,441  11          TOM
PEARSON      26           SLOOP   26      5,400  08          DICK
RHODES       SWIFTSURE    SLOOP   33     14,000  10          JOHN

!
! CHECK OUT TABLES
!
DEFINE TABLE RIG-TABLE
"SLOOP" : "ONE MAST",
"KETCH" : "TWO MASTS, BIG ONE IN FRONT",
"YAWL"  : "SIMILAR TO KETCH",
"M/S"   : "SAILS AND BIG MOTOR",
ELSE "SOMETHING ELSE"
END-TABLE
!
READY YACHTS
FIND YACHTS WITH RIG IN RIG-TABLE
[109 records found]
PRINT ALL TYPE, RIG, RIG VIA RIG-TABLE USING X(30)

MANUFACTURER   MODEL     RIG               RIG

 ALBERG       37 MK II   KETCH   TWO MASTS, BIG ONE IN FRONT
 ALBIN        79         SLOOP   ONE MAST
 ALBIN        BALLAD     SLOOP   ONE MAST
 ALBIN        VEGA       SLOOP   ONE MAST
 AMERICAN     26         SLOOP   ONE MAST
 BAYFIELD     30/32      SLOOP   ONE MAST
 BLOCK I.     40         SLOOP   ONE MAST
 BOMBAY       CLIPPER    SLOOP   ONE MAST
 BUCCANEER    270        SLOOP   ONE MAST
 BUCCANEER    320        SLOOP   ONE MAST
 C&C          CORVETTE   SLOOP   ONE MAST
 CABOT        36         SLOOP   ONE MAST
 CAL          2-27       SLOOP   ONE MAST
 CAL          2-34       SLOOP   ONE MAST
 CAL          29         SLOOP   ONE MAST
 CAL          3-30       SLOOP   ONE MAST
 CAL          35         SLOOP   ONE MAST
 CAPE DORY    25         SLOOP   ONE MAST
 CAPE DORY    28         SLOOP   ONE MAST
 CAPE DORY    TYPHOON    SLOOP   ONE MAST
 CAPITAL      NEWPORT    SLOOP   ONE MAST
 CARIBBEAN    35         SLOOP   ONE MAST
 CHALLENGER   32         SLOOP   ONE MAST
 CHALLENGER   35         SLOOP   ONE MAST
 CHALLENGER   41         KETCH   TWO MASTS, BIG ONE IN FRONT
 CHRIS-CRAF   CARIBBEAN  SLOOP   ONE MAST
 COLUMBIA     35         SLOOP   ONE MAST
 COLUMBIA     41         SLOOP   ONE MAST
 COLUMBIA     PAYNE 9.6  SLOOP   ONE MAST
```

```
DOUGLAS     32         SLOOP  ONE MAST
DOWN EAST   32         SLOOP  ONE MAST
DOWN EAST   38         SLOOP  ONE MAST
DUFOUR      25         SLOOP  ONE MAST
ENCHILADA   20         SLOOP  ONE MAST
ENDEAVOUR   32         SLOOP  ONE MAST
ERICSON     23/ SPECIA SLOOP  ONE MAST
ERICSON     CRUISING/3 SLOOP  ONE MAST
FISHER      30         KETCH  TWO MASTS, BIG ONE IN FRONT
FISHER      37         KETCH  TWO MASTS, BIG ONE IN FRONT
GRAMPIAN    2-34       SLOOP  ONE MAST
GRAMPIAN    26         SLOOP  ONE MAST
GRAMPIAN    28         SLOOP  ONE MAST
GRAMPIAN    30         SLOOP  ONE MAST
GRAMPIAN    34         KETCH  TWO MASTS, BIG ONE IN FRONT
GULFSTAR    41         KETCH  TWO MASTS, BIG ONE IN FRONT
HINKLEY     BERMUDA 40 YAWL   SIMILAR TO KETCH
HUNTER      27         SLOOP  ONE MAST
HUNTER      30         SLOOP  ONE MAST
I. TRADER   37         KETCH  TWO MASTS, BIG ONE IN FRONT
IRWIN       25         SLOOP  ONE MAST
IRWIN       30         SLOOP  ONE MAST
IRWIN       37 MARK II KETCH  TWO MASTS, BIG ONE IN FRONT
IRWIN       HALF TON   SLOOP  ONE MAST
ISLANDER    28         SLOOP  ONE MAST
ISLANDER    30         SLOOP  ONE MAST
ISLANDER    36         SLOOP  ONE MAST
ISLANDER    BAHAMA     SLOOP  ONE MAST
ISLANDER    FREEPORT   KETCH  TWO MASTS, BIG ONE IN FRONT
MARIEHOLD   32         SLOOP  ONE MAST
METALMAST   GALAXY     SLOOP  ONE MAST
MOODY       33         SLOOP  ONE MAST
NAUTOR      SWAN 41    SLOOP  ONE MAST
NEWPORT     27S        SLOOP  ONE MAST
NEWPORT     30 II      SLOOP  ONE MAST
NEWPORT     41 S       SLOOP  ONE MAST
NICHOLSON   33         SLOOP  ONE MAST
NORTHERN    29         SLOOP  ONE MAST
NORTHERN    37         KETCH  TWO MASTS, BIG ONE IN FRONT
O'DAY       27         SLOOP  ONE MAST
O'DAY       32         SLOOP  ONE MAST
OLYMPIC     ADVENTURE  KETCH  TWO MASTS, BIG ONE IN FRONT
ONTARIO     32         SLOOP  ONE MAST
ONTARIO     VIKING     SLOOP  ONE MAST
PACESHIP    PY26       SLOOP  ONE MAST
PEARSON     10M        SLOOP  ONE MAST
PEARSON     26         SLOOP  ONE MAST
PEARSON     26W        SLOOP  ONE MAST
PEARSON     28         SLOOP  ONE MAST
PEARSON     30         SLOOP  ONE MAST
PEARSON     35         SLOOP  ONE MAST
PEARSON     36         SLOOP  ONE MAST
PEARSON     365        KETCH  TWO MASTS, BIG ONE IN FRONT
PEARSON     39         SLOOP  ONE MAST
PEARSON     419        KETCH  TWO MASTS, BIG ONE IN FRONT
RANGER      26         SLOOP  ONE MAST
RANGER      28         SLOOP  ONE MAST
RANGER      29         SLOOP  ONE MAST
RANGER      33         SLOOP  ONE MAST
```

B–18 Sample RSTS/E Installation Log

```
RHODES       SWIFTSURE  SLOOP   ONE MAST
ROBERTS      29         SLOOP   ONE MAST
ROBERTS      36         SLOOP   ONE MAST
RYDER        S. CROSS   SLOOP   ONE MAST
S2           8M AFT     SLOOP   ONE MAST
S2           8M MID     SLOOP   ONE MAST
SABRE        28         SLOOP   ONE MAST
SALT         19         SLOOP   ONE MAST
SAN JUAN     21         SLOOP   ONE MAST
SAN JUAN     26         SLOOP   ONE MAST
SCAMPI       30         SLOOP   ONE MAST
SOLNA CORP   SCAMPI     SLOOP   ONE MAST
TA CHIAO     FANTASIA   SLOOP   ONE MAST
TANZER       26         SLOOP   ONE MAST
TANZER       28         SLOOP   ONE MAST
VENTURE      21         SLOOP   ONE MAST
VENTURE      222        SLOOP   ONE MAST
WESTERLY     CENTAUR    SLOOP   ONE MAST
WESTSAIL     32         SLOOP   ONE MAST
WINDPOWER    IMPULSE    SLOOP   ONE MAST
WRIGHT       SEAWIND II SLOOP   ONE MAST

SHOW TABLES
Tables loaded:
       RIG_TABLE
Tables:
       RIG_TABLE
!
! DECLARE A GLOBAL VARIABLE TO SIMPLIFY TABLE LOOK UP
!

DECLARE RIG-DESCRIPTION COMPUTED BY RIG VIA RIG-TABLE
       EDIT-STRING IS X(30).
!
PRINT TYPE, RIG-DESCRIPTION OF FIRST 10 YACHTS

                                 RIG
MANUFACTURER    MODEL            DESCRIPTION

 ALBERG      37 MK II   TWO MASTS, BIG ONE IN FRONT
 ALBIN       79         ONE MAST
 ALBIN       BALLAD     ONE MAST
 ALBIN       VEGA       ONE MAST
 AMERICAN    26         ONE MAST
 AMERICAN    26-MS      SOMETHING ELSE
 BAYFIELD    30/32      ONE MAST
 BLOCK I.    40         ONE MAST
 BOMBAY      CLIPPER    ONE MAST
 BUCCANEER   270        ONE MAST
```

```
!
! RELEASE TABLE AND GLOBAL COMPUTED BY VARIABLE FROM MEMORY
!
RELEASE RIG-TABLE
FINISH
!
! Define Record for PERSONNEL
!
DEFINE RECORD PERSONNEL_REC USING
01  PERSON.
    05 ID                   PIC IS 9(5).
    05 EMPLOYEE_STATUS      PIC IS X(11)
                            QUERY_NAME IS STATUS
                            QUERY_HEADER IS "STATUS"
                            VALID IF STATUS EQ "TRAINEE","EXPERIENCED".
    05 EMPLOYEE_NAME        QUERY_NAME IS NAME.
        10 FIRST_NAME           PIC IS X(10)
                            QUERY_NAME IS F_NAME.
        10 LAST_NAME            PIC IS X(10)
                            QUERY_NAME IS L_NAME.
    05 DEPT                 PIC IS XXX.
    05 START_DATE           USAGE IS DATE.
    05 SALARY               PIC IS 9(5)
                            EDIT_STRING IS $$$,$$$.
    05 SUP_ID               PIC IS 9(5).
;
[Record PERSONNEL_REC is 58 bytes long]
!
! Define Record for PERSONNEL_SEQ
!
DEFINE RECORD PERSONNEL_SEQ_REC
 USING
01  PERSON.
    05 ID                   PIC IS 9(5).
    05 EMPLOYEE_STATUS      PIC IS X(11)
                            QUERY_NAME IS STATUS
                            QUERY_HEADER IS "STATUS"
                            VALID IF STATUS EQ "TRAINEE","EXPERIENCED".
    05 EMPLOYEE_NAME        QUERY_NAME IS NAME.
        10 FIRST_NAME           PIC IS X(10)
                            QUERY_NAME IS F_NAME.
        10 LAST_NAME            PIC IS X(10)
                            QUERY_NAME IS L_NAME.
    05 DEPT                 PIC IS XXX.
    05 START_DATE           PIC IS X(11).
    05 SALARY               PIC IS 9(5)
                            EDIT_STRING IS $$$,$$$.
    05 SUP_ID               PIC IS 9(5).
;
[Record PERSONNEL_SEQ_REC is 60 bytes long]
!
! Define Domain for PERSONNEL
!
DEFINE DOMAIN PERSONNEL USING PERSONNEL_REC ON PERSON.DAT;
!
! Define Domain for PERSONNEL_SEQ
!
DEFINE DOMAIN PERSONNEL_SEQ USING PERSONNEL_SEQ_REC ON LB:[1,2]PERSON.SEQ;
!
```

```
! Define File for PERSONNEL
!
DEFINE FILE FOR PERSONNEL KEY=ID, SUPERCEDE;
!
! Copy Data from Sequential to Indexed File.
!
READY PERSONNEL WRITE
SHOW FIELDS
PERSONNEL
    PERSON
        ID     [Number, indexed key]
        EMPLOYEE_STATUS (STATUS)    [Character string]
        EMPLOYEE_NAME (NAME)
            FIRST_NAME (F_NAME)  [Character string]
            LAST_NAME (L_NAME)   [Character string]
        DEPT    [Character string]
        START_DATE      [Date]
        SALARY  [Number]
        SUP_ID  [Number]
Global variables:
    RIG_DESCRIPTION   [Computed value]
READY PERSONNEL_SEQ
SHOW READY
Ready domains:
        PERSONNEL_SEQ: RMS SEQUENTIAL, PROTECTED READ
        PERSONNEL: RMS INDEXED, PROTECTED WRITE
!
!
! ************ NOTE  ***********
! *** The following STORE will take about 1/2 minute. ***
! *****************************
!
FOR PERSONNEL_SEQ STORE PERSONNEL USING PERSON=PERSON
!
FINISH PERSONNEL_SEQ;
!
! Check out PERSONNEL
!
READY PERSONNEL
FIND PERSONNEL
[23 records found]
PRINT
No record selected, printing whole collection

                  FIRST      LAST          START           SUP
   ID     STATUS   NAME       NAME   DEPT   DATE    SALARY   ID
```

```
00012 EXPERIENCED CHARLOTTE  SPIVA      TOP  12-Sep-1972 $75,892 00012
00891 EXPERIENCED FRED       HOWL       F11   9-Apr-1976 $59,594 00012
02943 EXPERIENCED CASS       TERRY      D98   2-Jan-1980 $29,908 39485
12643 TRAINEE     JEFF       TASHKENT   C82   4-Apr-1981 $32,918 87465
32432 TRAINEE     THOMAS     SCHWEIK    F11   7-Nov-1981 $26,723 00891
34456 TRAINEE     HANK       MORRISON   T32   1-Mar-1982 $30,000 87289
38462 EXPERIENCED BILL       SWAY       T32   5-May-1980 $54,000 00012
38465 EXPERIENCED JOANNE     FREIBURG   E46  20-Feb-1980 $23,908 48475
39485 EXPERIENCED DEE        TERRICK    D98   2-May-1977 $55,829 00012
48475 EXPERIENCED GAIL       CASSIDY    E46   2-May-1978 $55,407 00012
48573 TRAINEE     SY         KELLER     T32   2-Aug-1981 $31,546 87289
49001 EXPERIENCED DAN        ROBERTS    C82   7-Jul-1979 $41,395 87465
49843 TRAINEE     BART       HAMMER     D98   4-Aug-1981 $26,392 39485
78923 EXPERIENCED LYDIA      HARRISON   F11  19-Jun-1979 $40,747 00891
83764 EXPERIENCED JIM        MEADER     T32   4-Apr-1980 $41,029 87289
84375 EXPERIENCED MARY       NALEVO     D98   3-Jan-1976 $56,847 39485
87289 EXPERIENCED LOUISE     DEPALMA    G20  28-Feb-1979 $57,598 00012
87465 EXPERIENCED ANTHONY    IACOBONE   C82   2-Jan-1973 $58,462 00012
87701 TRAINEE     NATHANIEL  CHONTZ     F11  28-Jan-1982 $24,502 00891
88001 EXPERIENCED DAVID      LITELLA    G20  11-Nov-1980 $34,933 87289
90342 EXPERIENCED BRUNO      DONCHIKOV  C82   9-Aug-1978 $35,952 87465
91023 TRAINEE     STAN       WITTGEN    G20  23-Dec-1981 $25,023 87289
99029 EXPERIENCED RANDY      PODERESIAN C82  24-May-1979 $33,738 87465

FINISH
!
! AS A KIND GESTURE, MAKE ALL OF THE EXAMPLES SHARABLE
!
DEFINEP RIG-TABLE 2,UIC,[*,*],RE
DEFINEP FAMILIES 2,UIC,[*,*],R
DEFINEP FAMILY-REC 2,UIC,[*,*],RE
DEFINEP KETCHES 2,UIC,[*,*],R
DEFINEP OWNERS 2,UIC,[*,*],R
DEFINEP OWNER-RECORD 2,UIC,[*,*],RE
DEFINEP LOA-REPORT 2,UIC,[*,*],RE
DEFINEP SAILBOATS 2,UIC,[*,*],R
DEFINEP PERSONNEL 2,UIC,[*,*],R
DEFINEP PERSONNEL_REC 2,UIC,[*,*],RE
!
! Completion of DATATRIEVE-11 V3.3 Installation Test
!
EXIT
 End of Datatrieve Installation Verification

Installation of DTR (DTR) ending at 25-Apr-89 10:50

Installation of DTR (DTR) successful.

Auto-Install ended at 25-Apr-89 10:50   .
```

Sample VAX–11 RSX Installation Log

```
Username: SYSTEM
Password:

      MSD Languages and Tools

    Last interactive login on Wednesday, 10-MAY-1989 16:00
    Last non-interactive login on Friday, 14-APR-1989 12:39

                      --------------------------------
                      - MSD LANGUAGES CLUSTER NOTICES -
                      --------------------------------


%CMS-I-LIBIS, library is DISK$USER6:[DTR11.CMS.SOURCE]
%CMS-S-LIBSET, library set

$ set def sys$update
$ @vmsinstal dtr11033 pdp$mua1:

 VAX/VMS Software Product Installation Procedure V5.1

It is 10-MAY-1989 at 16:06.
Enter a question mark (?) at any time for help.

%VMSINSTAL-W-NOTSYSTEM, You are not logged in to the SYSTEM account.
%VMSINSTAL-W-LOWQUOTA, The following account quotas may be too low.
        BIOLM
        DIOLM
%VMSINSTAL-W-DECNET, Your DECnet network is up and running.

* Do you want to continue anyway [NO]? yes
* Are you satisfied with the backup of your system disk [YES]?

Please mount the first volume of the set on  PDP$MUA1:.
* Are you ready? y

%MOUNT-I-MOUNTED, DTR11 mounted on _PDP$MUA1:
The following products will be processed:

  DTR11 V3.3

 Beginning installation of DTR11 V3.3 at 16:07
```

```
%VMSINSTAL-I-RESTORE, Restoring product saveset A ...
%VMSINSTAL-I-RELMOVED , The product's release notes have been successfully
 moved to SYS$HELP.

        Product:      PDP11-DTR
        Producer:     DEC
        Version:      3.3
        Release Date: 17-MAY-1989

* Does this product have an authorization key registered and loaded? yes

This kit contains the file, DTR11033.RELEASE_NOTES, which is the release
notes for PDP-11 DATATRIEVE/VAX V3.3.  This file is placed in SYS$HELP after
the installation.

* Do you wish to Edit QD.MAC ? [YES]? no
* Do you want to run the IVP after the installation [YES]?
* Do you want to purge files replaced by this installation [YES]?
Module "QD    " replaced

 Building QUERY.DIC AND QUERY.MSG.  If this procedure fails
 try renaming your QUERY.DIC file.


UNABLE TO CREATE NEW QUERY DICTIONARY.  FILE ALREADY EXISTS.
CREATING MESSAGE FILE
POPULATING MESSAGE FILE
SUCCESSFUL COMPLETION
   Building DATATRIEVE-11...
   Building QCPRS...
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...
!
!  Start of DATATRIEVE-11 V3.3 Installation Test
!
!
! **************************** N O T E ***************************************
! *
! * This verification procedure will scroll on the screen for about 7 minutes. *
! *         ( No input is required from you during this time. )
! *
! ***************************************************************************
!
! PRINT TODAY'S DATE
!
PRINT "TODAY" USING DD-MMM-YYYYBBW(9)
10-May-1989  Wednesday
```

```
!
! CLEAN UP FROM POSSIBLE PREVIOUS RUNS OF TEST
!
DELETE FAMILIES;
DELETE FAMILY-REC;
DELETE KETCHES;
DELETE OWNERS-SEQUENTIAL;
DELETE OWNERS;
DELETE OWNER-RECORD;
DELETE SAILBOATS;
DELETE YACHTS-SEQUENTIAL;
DELETE YACHTS;
DELETE YACHT;
DELETE PRICE-PER-POUND;
DELETE VERIFY;
DELETE LOA-REPORT;
DELETE RIG-TABLE;
DELETE PERSONNEL;
DELETE PERSONNEL_SEQ;
DELETE PERSONNEL_REC;
DELETE PERSONNEL_SEQ_REC;
!
! DEFINE RECORD
!
DEFINE RECORD YACHT USING
01 BOAT.
  03 TYPE.
     06 MANUFACTURER PIC X(10)
        QUERY-NAME IS BUILDER.
     06 MODEL PIC X(10).
  03 SPECIFICATIONS
     QUERY-NAME SPECS.
     06 RIG PIC X(6)
        VALID IF RIG EQ "SLOOP","KETCH","MS","YAWL".
     06 LENGTH-OVER-ALL PIC XXX
        VALID IF LOA BETWEEN 15 AND 50
        QUERY-NAME IS LOA.
     06 DISPLACEMENT PIC 99999
        QUERY-HEADER IS "WEIGHT"
        EDIT-STRING IS ZZ,ZZ9
        QUERY-NAME IS DISP.
     06 BEAM PIC 99.
     06 PRICE PIC 99999
        VALID IF PRICE>DISP*1.3 OR PRICE EQ 0
        EDIT-STRING IS $$$,$$$.
;
[Record YACHT is 41 bytes long]
!
! DEFINE DOMAINS
!
DEFINE DOMAIN YACHTS-SEQUENTIAL USING YACHT ON LB:[1,2]YACHT.SEQ ;
DEFINE DOMAIN YACHTS USING YACHT ON YACHT.DAT;
!
! DEFINE THE ACTUAL FILE FOR YACHTS
!
DEFINE FILE YACHTS KEY=TYPE(NO DUP),KEY=MODEL(DUP,NO CHANGE),
       ALLOCATION=30, SUPERSEDE
!
! MAKE YACHTS ACCESSABLE BY OTHERS
```

```
!
DEFINEP YACHTS 2,PW,"SHHHH",W    ! PASSWORD FOR WRITE
DEFINEP YACHTS 3,UIC,[*,*],R     ! EVERYONE ELSE GETS READ
DEFINEP YACHT  2,UIC,[*,*],RE    ! GIVE ACCESS TO RECORD DEFINITION, TOO
SHOWP YACHTS
 1,UIC, [1,*], "RWMEC"
 2,PW, "SHHHH", "W"
 3,UIC, [*,*], "R"
!
! DEFINE PROCEDURES
!
DEFINE PROCEDURE PRICE-PER-POUND
PRICE/DISP ("PRICE"/"PER"/"POUND") USING $$.99
END-PROCEDURE
DEFINEP PRICE-PER-POUND 2,UIC,[*,*],RE
!
DEFINE PROCEDURE VERIFY
VERIFY USING
  BEGIN
    PRINT
    DISPLAY "CONFIRM WITH Y IF OK"
    IF *.CONFIRM NOT CONTAINING "Y" THEN ABORT "UPDATE ABORTED"
  END
END-PROCEDURE
DEFINEP VERIFY 2,UIC,[*,*],RE
!
! COPY DATA FROM SEQUENTIAL TO INDEXED FILE
!
READY YACHTS WRITE
SHOW FIELDS
YACHTS
    BOAT
        TYPE [Indexed field]
            MANUFACTURER (BUILDER)      [Character string, indexed key]
            MODEL       [Character string, indexed key]
        SPECIFICATIONS (SPECS)
            RIG [Character string]
            LENGTH_OVER_ALL (LOA)       [Character string]
            DISPLACEMENT (DISP) [Number]
            BEAM        [Number]
            PRICE       [Number]
READY YACHTS-SEQUENTIAL
SHOW READY
Ready domains:
        YACHTS_SEQUENTIAL: RMS SEQUENTIAL, PROTECTED READ
        YACHTS: RMS INDEXED, PROTECTED WRITE
!
! ************ NOTE  ***********
! *** The following STORE will take 1 - 2 minutes. ***
! *****************************
!
FOR YACHTS-SEQUENTIAL STORE YACHTS USING BOAT=BOAT
!
FINISH YACHTS-SEQUENTIAL;
!
! TEST STORE
!
! PLEASE SUPPLY THE FOLLOWING VALUES:
!    MANUFACTURER:      HINKLEY
```

```
!     MODEL:              BERMUDA 40
!     RIG:                YAWL
!     LENGTH-OVER-ALL:    140
!     LENGTH-OVER-ALL:    40
!     DISPLACEMENT:       20000
!     BEAM:               12
!     PRICE:              82000 AND XX/100
!     PRICE:              $82,000
!     CONFIRM:            N
!
STORE YACHTS USING BEGIN
       MANUFACTURER= "HINKLEY"
       MODEL = "BERMUDA 40"
       RIG = "YAWL"
       LENGTH-OVER-ALL = 40
       DISPLACEMENT= 20000
       BEAM = 12
       PRICE = 82000
       END
!
!
! CHANGE READY MODE FOR READ ACCESS
!
READY YACHTS
FIND YACHTS WITH PRICE NE 0
[51 records found]
SORT BY LOA,DESC DISPLACEMENT
SHOW ALL
Domains:
       OCC             YACHTS             YACHTS_SEQUENTIAL
Records:
       OCC_REC         YACHT
Procedures:
       FOO             KEN_RPT         OCC_TEST         PRICE_PER_POUND
       VERIFY          X               Y
Tables:
The current dictionary is SYS$COMMON:[1,2]QUERY.DIC;
Collections:
 CURRENT
Ready domains:
       YACHTS: RMS INDEXED, PROTECTED READ
SHOW CURRENT
Collection CURRENT
       Domain: YACHTS
       Number of records: 51
       No selected record
       Sort order: LENGTH_OVER_ALL,DISPLACEMENT
PRINT ALL

                             LENGTH
                              OVER
MANUFACTURER    MODEL    RIG   ALL   WEIGHT BEAM  PRICE
```

```
WINDPOWER    IMPULSE     SLOOP     16      650   07   $3,500
CAPE DORY    TYPHOON     SLOOP     19    1,900   06   $4,295
VENTURE      21          SLOOP     21    1,500   07   $2,823
VENTURE      222         SLOOP     22    2,000   07   $3,564
EASTWARD     HO          MS        24    7,000   09  $15,900
ISLANDER     BAHAMA      SLOOP     24    4,200   08   $6,500
IRWIN        25          SLOOP     25    5,400   12  $10,950
CAPE DORY    25          SLOOP     25    4,000   07   $8,995
SALT         19          SLOOP     25    2,600   07   $6,590
WESTERLY     CENTAUR     SLOOP     26    6,700   08  $15,245
GRAMPIAN     26          SLOOP     26    5,600   08  $11,495
AMERICAN     26-MS       MS        26    5,500   08  $18,895
TANZER       26          SLOOP     26    4,350   09  $11,750
ALBIN        79          SLOOP     26    4,200   10  $17,900
AMERICAN     26          SLOOP     26    4,000   08   $9,895
HUNTER       27          SLOOP     27    6,500   09  $14,999
ALBIN        VEGA        SLOOP     27    5,070   08  $18,600
CAPE DORY    28          SLOOP     28    9,000   09  $21,990
SABRE        28          SLOOP     28    7,400   09  $22,000
GRAMPIAN     28          SLOOP     28    6,900   10  $14,475
TANZER       28          SLOOP     28    6,800   10  $17,500
ISLANDER     28          SLOOP     28    5,994   10  $15,908
NORTHERN     29          SLOOP     29    7,250   09  $20,975
IRWIN        30          SLOOP     30   10,000   10  $19,950
HUNTER       30          SLOOP     30    9,500   10  $21,500
GRAMPIAN     30          SLOOP     30    8,600   09  $17,775
ISLANDER     30          SLOOP     30    8,600   10  $20,990
ALBIN        BALLAD      SLOOP     30    7,276   10  $27,500
RYDER        S. CROSS    SLOOP     31   13,600   00  $32,500
BOMBAY       CLIPPER     SLOOP     31    9,400   11  $23,950
WRIGHT       SEAWIND II  SLOOP     32   14,900   00  $34,480
CHALLENGER   32          SLOOP     32   12,800   11  $31,835
O'DAY        32          SLOOP     32   11,000   00  $29,500
BAYFIELD     30/32       SLOOP     32    9,500   10  $32,875
GRAMPIAN     34          KETCH     33   12,000   10  $29,675
GRAMPIAN     2-34        SLOOP     34   11,800   10  $29,675
CARIBBEAN    35          SLOOP     35   18,000   11  $37,850
CHRIS-CRAF   CARIBBEAN   SLOOP     35   18,000   11  $37,850
CHALLENGER   35          SLOOP     35   14,800   12  $39,215
I. TRADER    37          KETCH     36   18,600   12  $39,500
ISLANDER     36          SLOOP     36   13,450   11  $31,730
ALBERG       37 MK II    KETCH     37   20,000   12  $36,951
IRWIN        37 MARK II  KETCH     37   20,000   11  $36,950
NORTHERN     37          KETCH     37   14,000   11  $50,000
LINDSEY      39          MS        39   14,500   12  $35,900
HINKLEY      BERMUDA 40  YAWL      40   20,000   12  $82,000
CHALLENGER   41          KETCH     41   26,700   13  $51,228
GULFSTAR     41          KETCH     41   22,000   12  $41,350
ISLANDER     FREEPORT    KETCH     41   22,000   13  $54,970
COLUMBIA     41          SLOOP     41   20,700   11  $48,490
OLYMPIC      ADVENTURE   KETCH     42   24,250   13  $80,500

SELECT FIRST
PRINT

                            LENGTH
                            OVER
MANUFACTURER   MODEL      RIG     ALL   WEIGHT BEAM  PRICE

  WINDPOWER    IMPULSE    SLOOP    16      650   07   $3,500
```

C–6 Sample VAX–11 RSX Installation Log

```
SELECT
PRINT BOAT,:PRICE-PER-POUND

                          LENGTH                      PRICE
                          OVER                         PER
MANUFACTURER   MODEL     RIG    ALL    WEIGHT BEAM  PRICE  POUND

 CAPE DORY   TYPHOON   SLOOP    19    1,900  06   $4,295 $2.26

!
!
! DEFINE REPORT PROCEDURE
!
DEFINE PROCEDURE LOA-REPORT
REPORT ON TI:
    SET REPORT-NAME="JIM'S VERY OWN LISTING"/"OF"/"INTERESTING SAILBOATS"/
      "(BY LENGTH)"
    SET LINES-PAGE=55, COLUMNS-PAGE=72
    AT TOP OF LOA PRINT LOA("LENGTH")
    PRINT TYPE, RIG, DISP, BEAM USING Z9 , PRICE
    AT BOTTOM OF LOA PRINT SKIP, COL 32, "*** AVERAGE ***",
      AVERAGE DISP, AVERAGE BEAM, AVERAGE PRICE
    AT BOTTOM OF REPORT PRINT SKIP, "REPORT AVERAGES",
      AVERAGE DISP, AVERAGE BEAM, AVERAGE PRICE
    AT BOTTOM OF PAGE PRINT SKIP, COL 20,
      """ANOTHER SERVICE OF QUERY ENTERPRISES"""
END-REPORT
END-PROCEDURE
!
! INVOKE REPORT (SUGGEST OUTPUT ON TI:)
!
:LOA-REPORT
                      JIM'S VERY OWN LISTING
                              OF
                      INTERESTING SAILBOATS           10-May-89
                         (BY LENGTH)                  Page 1


      LENGTH     MANUFACTURER    MODEL     RIG    WEIGHT  BEAM   PRICE

        16       WINDPOWER      IMPULSE   SLOOP     650    7    $3,500

                                *** AVERAGE ***     650    07   $3,500
        19       CAPE DORY      TYPHOON   SLOOP   1,900    6    $4,295

                                *** AVERAGE ***   1,900    06   $4,295
        21       VENTURE        21        SLOOP   1,500    7    $2,823

                                *** AVERAGE ***   1,500    07   $2,823
        22       VENTURE        222       SLOOP   2,000    7    $3,564

                                *** AVERAGE ***   2,000    07   $3,564
        24       EASTWARD       HO        MS      7,000    9   $15,900
                 ISLANDER       BAHAMA    SLOOP   4,200    8    $6,500

                                *** AVERAGE ***   5,600    08  $11,200
        25       IRWIN          25        SLOOP   5,400   12  $10,950
                 CAPE DORY      25        SLOOP   4,000    7    $8,995
                 SALT           19        SLOOP   2,600    7    $6,590
```

```
                    *** AVERAGE ***      4,000   08   $8,845
26      WESTERLY   CENTAUR   SLOOP       6,700    8  $15,245
        GRAMPIAN   26        SLOOP       5,600    8  $11,495
        AMERICAN   26-MS     MS          5,500    8  $18,895
        TANZER     26        SLOOP       4,350    9  $11,750
        ALBIN      79        SLOOP       4,200   10  $17,900
        AMERICAN   26        SLOOP       4,000    8   $9,895

                    *** AVERAGE ***      5,058   08  $14,196
27      HUNTER     27        SLOOP       6,500    9  $14,999
        ALBIN      VEGA      SLOOP       5,070    8  $18,600

                    *** AVERAGE ***      5,785   08  $16,799
28      CAPE DORY  28        SLOOP       9,000    9  $21,990
        SABRE      28        SLOOP       7,400    9  $22,000
        GRAMPIAN   28        SLOOP       6,900   10  $14,475
        TANZER     28        SLOOP       6,800   10  $17,500
        ISLANDER   28        SLOOP       5,994   10  $15,908

                    *** AVERAGE ***      7,218   09  $18,374
29      NORTHERN   29        SLOOP       7,250    9  $20,975

                    *** AVERAGE ***      7,250   09  $20,975
30      IRWIN      30        SLOOP      10,000   10  $19,950
        HUNTER     30        SLOOP       9,500   10  $21,500
        GRAMPIAN   30        SLOOP       8,600    9  $17,775

        "ANOTHER SERVICE OF QUERY ENTERPRISES"

             JIM'S VERY OWN LISTING
                    OF
             INTERESTING SAILBOATS          10-May-89
                (BY LENGTH)                 Page 2


LENGTH    MANUFACTURER    MODEL     RIG    WEIGHT  BEAM  PRICE

        ISLANDER   30        SLOOP       8,600   10  $20,990
        ALBIN      BALLAD    SLOOP       7,276   10  $27,500

                    *** AVERAGE ***      8,795   09  $21,543
31      RYDER      S. CROSS  SLOOP      13,600    0  $32,500
        BOMBAY     CLIPPER   SLOOP       9,400   11  $23,950

                    *** AVERAGE ***     11,500   05  $28,225
32      WRIGHT     SEAWIND II SLOOP     14,900    0  $34,480
        CHALLENGER 32        SLOOP      12,800   11  $31,835
        O'DAY      32        SLOOP      11,000    0  $29,500
        BAYFIELD   30/32     SLOOP       9,500   10  $32,875

                    *** AVERAGE ***     12,050   05  $32,172
33      GRAMPIAN   34        KETCH      12,000   10  $29,675

                    *** AVERAGE ***     12,000   10  $29,675
34      GRAMPIAN   2-34      SLOOP      11,800   10  $29,675

                    *** AVERAGE ***     11,800   10  $29,675
35      CARIBBEAN  35        SLOOP      18,000   11  $37,850
        CHRIS-CRAF CARIBBEAN SLOOP      18,000   11  $37,850
        CHALLENGER 35        SLOOP      14,800   12  $39,215

                    *** AVERAGE ***     16,933   11  $38,305
36      I. TRADER  37        KETCH      18,600   12  $39,500
        ISLANDER   36        SLOOP      13,450   11  $31,730
```

C–8 Sample VAX–11 RSX Installation Log

```
                         *** AVERAGE ***       16,025   11  $35,615
37          ALBERG      37 MK II   KETCH      20,000   12  $36,951
            IRWIN       37 MARK II KETCH      20,000   11  $36,950
            NORTHERN    37         KETCH      14,000   11  $50,000

                         *** AVERAGE ***       18,000   11  $41,300
39          LINDSEY     39         MS         14,500   12  $35,900

                         *** AVERAGE ***       14,500   12  $35,900
40          HINKLEY     BERMUDA 40 YAWL       20,000   12  $82,000

                         *** AVERAGE ***       20,000   12  $82,000
41          CHALLENGER  41         KETCH      26,700   13  $51,228
            GULFSTAR    41         KETCH      22,000   12  $41,350
            ISLANDER    FREEPORT   KETCH      22,000   13  $54,970
            COLUMBIA    41         SLOOP      20,700   11  $48,490

                         *** AVERAGE ***       22,850   12  $49,009
```

          "ANOTHER SERVICE OF QUERY ENTERPRISES"

                    JIM'S VERY OWN LISTING
                             OF
                   INTERESTING SAILBOATS   10-May-89
                        (BY LENGTH)   Page 3

```
      LENGTH      MANUFACTURER    MODEL     RIG     WEIGHT  BEAM  PRICE

       42         OLYMPIC       ADVENTURE  KETCH    24,250   13  $80,500

                                *** AVERAGE ***     24,250   13  $80,500

   REPORT AVERAGES                                  10,597   09  $26,498
```

          "ANOTHER SERVICE OF QUERY ENTERPRISES"
```
!
! RATTLE UPDATE
!
FIND YACHTS WITH BEAM=0
[5 records found]
PRINT ALL

                          LENGTH
                          OVER
MANUFACTURER    MODEL      RIG   ALL    WEIGHT BEAM  PRICE

 METALMAST    GALAXY      SLOOP   32     9,500  00
 O'DAY        32          SLOOP   32    11,000  00   $29,500
 RYDER        S. CROSS    SLOOP   31    13,600  00   $32,500
 TA CHIAO     FANTASIA    SLOOP   35    23,200  00
 WRIGHT       SEAWIND II  SLOOP   32    14,900  00   $34,480

SELECT FIRST;PRINT
                          LENGTH
                          OVER
MANUFACTURER    MODEL      RIG   ALL    WEIGHT BEAM  PRICE

 METALMAST    GALAXY      SLOOP   32     9,500  00
```

```
READY YACHTS MODIFY
!
! RESPOND WITH 47 (OR SOMETHING)
!
MODIFY USING BEAM = 47
PRINT TYPE,BEAM

MANUFACTURER   MODEL     BEAM

 METALMAST   GALAXY      47

!
! RESPOND WITH 48 (OR SOMETHING)
!
MODIFY ALL USING  BEAM = 48
!
PRINT ALL BEAM

BEAM

 48
 48
 48
 48
 48

!
! RESPOND EACH TIME WITH 0 (PLEASE)
!
FOR CURRENT PRINT TYPE THEN MODIFY USING BEAM = 0

MANUFACTURER   MODEL

 METALMAST   GALAXY
 O'DAY       32
 RYDER       S. CROSS
 TA CHIAO    FANTASIA
 WRIGHT      SEAWIND II

READY YACHTS READ
PRINT ALL

                            LENGTH
                            OVER
MANUFACTURER   MODEL     RIG     ALL   WEIGHT BEAM  PRICE

 METALMAST   GALAXY     SLOOP   32    9,500  00
 O'DAY       32         SLOOP   32   11,000  00  $29,500
 RYDER       S. CROSS   SLOOP   31   13,600  00  $32,500
 TA CHIAO    FANTASIA   SLOOP   35   23,200  00
 WRIGHT      SEAWIND II SLOOP   32   14,900  00  $34,480
```

```
!
! CHECK MULTIPLE COLLECTIONS AND STATISTICAL FUNCTIONS
!
FIND SMALLS IN YACHTS WITH LOA<24 AND PRICE NE 0
[4 records found]
!
FIND BIGGIES IN YACHTS WITH LOA>40 AND PRICE NE 0
[5 records found]
!
SHOW COLLECTIONS
Collections:
        BIGGIES (also CURRENT)
        SMALLS
!
PRINT AVERAGE DISP

WEIGHT

23,130

!
PRINT MAX DISP

WEIGHT

26,700

!
PRINT AVERAGE PRICE OF BIGGIES,AVERAGE PRICE OF SMALLS

 PRICE    PRICE

$55,307  $3,545

!
SORT SMALLS BY LOA,DISP
SORT BIGGIES BY LOA,DISP
SELECT FIRST SMALLS
SELECT LAST BIGGIES
PRINT SMALLS.BOAT,SKIP,BIGGIES.BOAT
```

			LENGTH OVER			
MANUFACTURER	MODEL	RIG	ALL	WEIGHT	BEAM	PRICE
WINDPOWER	IMPULSE	SLOOP	16	650	07	$3,500
OLYMPIC	ADVENTURE	KETCH	42	24,250	13	$80,500

```
!
!
PRINT YACHTS WITH LOA EQ MAX LOA OF YACHTS
```

			LENGTH OVER			
MANUFACTURER	MODEL	RIG	ALL	WEIGHT	BEAM	PRICE
OLYMPIC	ADVENTURE	KETCH	42	24,250	13	$80,500
PEARSON	419	KETCH	42	21,000	13	

```
!
! TEST OF HIERARCHIES AND VIEW
!
DEFINE DOMAIN FAMILIES
 USING FAMILY-REC ON LB:[1,2]FAMILY.DAT;
DEFINE RECORD FAMILY-REC
01 FAMILY.
   03 PARENTS.
      06 FATHER PIC X(10).
      06 MOTHER PIC X(10).
   03 NUMBER-KIDS PIC 99 EDIT-STRING IS Z9.
   03 KIDS OCCURS 0 TO 10 TIMES DEPENDING ON NUMBER-KIDS.
      06 EACH-KID.
         09 KID-NAME PIC X(10) QUERY-NAME IS KID.
         09 AGE PIC 99 EDIT-STRING IS Z9.
;
[Record FAMILY_REC is 142 bytes long]
!
! PERFORM A FEW NIFTY OPERATIONS ON FAMILIES
!
READY FAMILIES
SHOW FIELDS FOR FAMILIES
 FAMILY
     PARENTS
         FATHER [Character string]
         MOTHER [Character string]
     NUMBER_KIDS      [Number]
     KIDS [List]
         EACH_KID
             KID_NAME (KID)    [Character string]
             AGE      [Number]
PRINT FAMILIES

                     NUMBER    KID
   FATHER     MOTHER   KIDS     NAME     AGE
```

```
JIM          ANN           2   URSULA      7
                               RALPH       3
JIM          LOUISE        5   ANNE       31
                               JIM        29
                               ELLEN      26
                               DAVID      24
                               ROBERT     16
JOHN         JULIE         2   ANN        29
                               JEAN       26
JOHN         ELLEN         1   CHRISTOPHR  0
ARNIE        ANNE          2   SCOTT       2
                               BRIAN       0
SHEARMAN     SARAH         1   DAVID       0
TOM          ANNE          2   PATRICK     4
                               SUZIE       6
BASIL        MERIDETH      6   BEAU       28
                               BROOKS     26
                               ROBIN      24
                               JAY        22
                               WREN       17
                               JILL       20
ROB          DIDI          0
JEROME       RUTH          4   ERIC       32
                               CISSY      24
                               NANCY      22
                               MICHAEL    20
TOM          BETTY         2   MARTHA     30
                               TOM        27
GEORGE       LOIS          3   JEFF       23
                               FRED       26
                               LAURA      21
HAROLD       SARAH         3   CHARLIE    31
                               HAROLD     35
                               SARAH      27
EDWIN        TRINITA       2   ERIC       16
                               SCOTT      11

FIND FAMILIES WITH ANY KIDS WITH AGE>25
[7 records found]
PRINT ALL SKIP, PARENTS, ALL KIDS SORTED BY AGE

                         KID
   FATHER    MOTHER      NAME     AGE


JIM          LOUISE      ROBERT    16
                         DAVID     24
                         ELLEN     26
                         JIM       29
                         ANNE      31

JOHN         JULIE       JEAN      26
                         ANN       29

BASIL        MERIDETH    WREN      17
                         JILL      20
                         JAY       22
                         ROBIN     24
                         BROOKS    26
                         BEAU      28
```

```
JEROME      RUTH        MICHAEL   20
                        NANCY     22
                        CISSY     24
                        ERIC      32

TOM         BETTY       TOM       27
                        MARTHA    30

GEORGE      LOIS        LAURA     21
                        JEFF      23
                        FRED      26

HAROLD      SARAH       SARAH     27
                        CHARLIE   31
                        HAROLD    35

FINISH
!
! DEFINE A VIEW OF THE DOMAIN YACHTS
!
DEFINE DOMAIN KETCHES
 OF YACHTS BY
01 KETCH OCCURS FOR YACHTS WITH RIG EQ "KETCH".
  03 TYPE FROM YACHTS.
  03 LOA FROM YACHTS.
  03 PRICE FROM YACHTS.
;
!
! SHOW OFF KETCHES
!
READY KETCHES
PRINT KETCHES

                        LENGTH
                        OVER
MANUFACTURER    MODEL   ALL     PRICE

 ALBERG     37 MK II    37      $36,951
 CHALLENGER 41          41      $51,228
 FISHER     30          30
 FISHER     37          37
 GRAMPIAN   34          33      $29,675
 GULFSTAR   41          41      $41,350
 I. TRADER  37          36      $39,500
 IRWIN      37 MARK II  37      $36,950
 ISLANDER   FREEPORT    41      $54,970
 NORTHERN   37          37      $50,000
 OLYMPIC    ADVENTURE   42      $80,500
 PEARSON    365         36
 PEARSON    419         42
```

```
FINISH
!
! DEFINE A DOMAIN AND FILE OF SAILBOAT OWNERS
!
DEFINE DOMAIN OWNERS
 USING OWNER-RECORD ON OWNER.DAT;
DEFINE RECORD OWNER-RECORD
01 OWNER.
   03 NAME PIC X(10) QUERY-HEADER IS "OWNER"/"NAME"
      EDIT-STRING IS X(5).
   03 BOAT-NAME PIC X(17) QUERY-HEADER IS "BOAT NAME".
   03 TYPE.
      06 BUILDER PIC X(10).
      06 MODEL PIC X(10).
;
[Record OWNER_RECORD is 47 bytes long]
DEFINE DOMAIN OWNERS-SEQUENTIAL USING OWNER-RECORD ON LB:[1,2]OWNER.SEQ;
DEFINE FILE FOR OWNERS KEY=TYPE(DUP), SUPERSEDE
READY OWNERS WRITE
READY OWNERS-SEQUENTIAL
!
! ************ NOTE  ***********
! *** The following STORE will take about 1/2 minute. ***
! *****************************
!
FOR OWNERS-SEQUENTIAL STORE OWNERS USING OWNER=OWNER
FINISH OWNERS-SEQUENTIAL
!
! PRINT OUT THE OWNERS FILE
!
PRINT OWNERS

OWNER
NAME        BOAT NAME        BUILDER      MODEL

SHERM MILLENNIUM FALCON ALBERG     35
STEVE DELIVERANCE       ALBIN      VEGA
HUGH  IMPULSE           ALBIN      VEGA
JIM   EGRET             C&C        CORVETTE
ANN   EGRET             C&C        CORVETTE
BOB   FIESTA            CAL        28
JIM   REGRET            CHEAP      DINK
NEIL  JARGES PRIDE      CROCKER    33
GERAR KESTREL           ERICSON    39
ARNE  CHIMERA           HINKLEY    BERMUDA 40
JIM   POTEMKIN          ISLANDER   BAHAMA
ANN   POTEMKIN          ISLANDER   BAHAMA
STEVE POTEMKIN          ISLANDER   BAHAMA
HARVE MANANA            ISLANDER   BAHAMA
TOM   LONE TRAVELLER    PEARSON    10M
DICK  PURSUIT           PEARSON    26
CHRIS VANITY            PEARSON    ARIEL
JOHN  STRIDER           RHODES     SWIFTSURE
```

```
FINISH
!
! DEFINE THE MIGHTY, MULTIPLE FILE VIEW OF YACHTS AND OWNERS
!
DEFINE DOMAIN SAILBOATS
 OF YACHTS, OWNERS BY
01 SAILBOAT OCCURS FOR YACHTS.
   03 BOAT FROM YACHTS.
   03 SKIPPERS OCCURS FOR OWNERS WITH TYPE EQ BOAT.TYPE.
      05 NAME FROM OWNERS.
;
!
! EXERCISE SAILBOATS A LITTLE
!
READY SAILBOATS
SHOW FIELDS
SAILBOATS
     SAILBOAT
         BOAT
              TYPE [Indexed field]
                  MANUFACTURER (BUILDER) [Character string, indexed key]
                  MODEL  [Character string, indexed key]
              SPECIFICATIONS (SPECS)
                  RIG    [Character string]
                  LENGTH_OVER_ALL (LOA)    [Character string]
                  DISPLACEMENT (DISP)      [Number]
                  BEAM    [Number]
                  PRICE   [Number]
         SKIPPERS [List]
              NAME         [Character string]
PRINT FIRST 5 SAILBOATS

                              LENGTH
                              OVER                          OWNER
MANUFACTURER    MODEL      RIG    ALL    WEIGHT BEAM   PRICE  NAME

  ALBERG       37 MK II   KETCH   37     20,000  12   $36,951
  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 STEVE
                                                              HUGH
  AMERICAN     26         SLOOP   26      4,000  08    $9,895

FIND SAILBOATS WITH ANY SKIPPERS
[7 records found]
PRINT ALL

                              LENGTH
                              OVER                          OWNER
MANUFACTURER    MODEL      RIG    ALL    WEIGHT BEAM   PRICE  NAME
```

```
ALBIN       VEGA       SLOOP   27    5,070  08  $18,600 STEVE
                                                        HUGH
C&C         CORVETTE   SLOOP   31    8,650  09          JIM
                                                        ANN
HINKLEY     BERMUDA 40 YAWL    40   20,000  12  $82,000 ARNE
ISLANDER    BAHAMA     SLOOP   24    4,200  08   $6,500 JIM
                                                        ANN
                                                        STEVE
                                                        HARVE
PEARSON     10M        SLOOP   33   12,441  11          TOM
PEARSON     26         SLOOP   26    5,400  08          DICK
RHODES      SWIFTSURE  SLOOP   33   14,000  10          JOHN

!
! CHECK OUT TABLES
!
DEFINE TABLE RIG-TABLE
"SLOOP" : "ONE MAST",
"KETCH" : "TWO MASTS, BIG ONE IN FRONT",
"YAWL"  : "SIMILAR TO KETCH",
"M/S"   : "SAILS AND BIG MOTOR",
ELSE "SOMETHING ELSE"
END-TABLE
!
READY YACHTS
FIND YACHTS WITH RIG IN RIG-TABLE
[109 records found]
PRINT ALL TYPE, RIG, RIG VIA RIG-TABLE USING X(30)

MANUFACTURER   MODEL     RIG                 RIG

 ALBERG      37 MK II  KETCH  TWO MASTS, BIG ONE IN FRONT
 ALBIN       79        SLOOP  ONE MAST
 ALBIN       BALLAD    SLOOP  ONE MAST
 ALBIN       VEGA      SLOOP  ONE MAST
 AMERICAN    26        SLOOP  ONE MAST
 BAYFIELD    30/32     SLOOP  ONE MAST
 BLOCK I.    40        SLOOP  ONE MAST
 BOMBAY      CLIPPER   SLOOP  ONE MAST
 BUCCANEER   270       SLOOP  ONE MAST
 BUCCANEER   320       SLOOP  ONE MAST
 C&C         CORVETTE  SLOOP  ONE MAST
 CABOT       36        SLOOP  ONE MAST
 CAL         2-27      SLOOP  ONE MAST
 CAL         2-34      SLOOP  ONE MAST
 CAL         29        SLOOP  ONE MAST
 CAL         3-30      SLOOP  ONE MAST
 CAL         35        SLOOP  ONE MAST
 CAPE DORY   25        SLOOP  ONE MAST
 CAPE DORY   28        SLOOP  ONE MAST
 CAPE DORY   TYPHOON   SLOOP  ONE MAST
 CAPITAL     NEWPORT   SLOOP  ONE MAST
 CARIBBEAN   35        SLOOP  ONE MAST
 CHALLENGER  32        SLOOP  ONE MAST
 CHALLENGER  35        SLOOP  ONE MAST
 CHALLENGER  41        KETCH  TWO MASTS, BIG ONE IN FRONT
 CHRIS-CRAF  CARIBBEAN SLOOP  ONE MAST
 COLUMBIA    35        SLOOP  ONE MAST
 COLUMBIA    41        SLOOP  ONE MAST
 COLUMBIA    PAYNE 9.6 SLOOP  ONE MAST
```

```
DOUGLAS     32          SLOOP  ONE MAST
DOWN EAST   32          SLOOP  ONE MAST
DOWN EAST   38          SLOOP  ONE MAST
DUFOUR      25          SLOOP  ONE MAST
ENCHILADA   20          SLOOP  ONE MAST
ENDEAVOUR   32          SLOOP  ONE MAST
ERICSON     23/ SPECIA  SLOOP  ONE MAST
ERICSON     CRUISING/3  SLOOP  ONE MAST
FISHER      30          KETCH  TWO MASTS, BIG ONE IN FRONT
FISHER      37          KETCH  TWO MASTS, BIG ONE IN FRONT
GRAMPIAN    2-34        SLOOP  ONE MAST
GRAMPIAN    26          SLOOP  ONE MAST
GRAMPIAN    28          SLOOP  ONE MAST
GRAMPIAN    30          SLOOP  ONE MAST
GRAMPIAN    34          KETCH  TWO MASTS, BIG ONE IN FRONT
GULFSTAR    41          KETCH  TWO MASTS, BIG ONE IN FRONT
HINKLEY     BERMUDA 40  YAWL   SIMILAR TO KETCH
HUNTER      27          SLOOP  ONE MAST
HUNTER      30          SLOOP  ONE MAST
I. TRADER   37          KETCH  TWO MASTS, BIG ONE IN FRONT
IRWIN       25          SLOOP  ONE MAST
IRWIN       30          SLOOP  ONE MAST
IRWIN       37 MARK II  KETCH  TWO MASTS, BIG ONE IN FRONT
IRWIN       HALF TON    SLOOP  ONE MAST
ISLANDER    28          SLOOP  ONE MAST
ISLANDER    30          SLOOP  ONE MAST
ISLANDER    36          SLOOP  ONE MAST
ISLANDER    BAHAMA      SLOOP  ONE MAST
ISLANDER    FREEPORT    KETCH  TWO MASTS, BIG ONE IN FRONT
MARIEHOLD   32          SLOOP  ONE MAST
METALMAST   GALAXY      SLOOP  ONE MAST
MOODY       33          SLOOP  ONE MAST
NAUTOR      SWAN 41     SLOOP  ONE MAST
NEWPORT     27S         SLOOP  ONE MAST
NEWPORT     30 II       SLOOP  ONE MAST
NEWPORT     41 S        SLOOP  ONE MAST
NICHOLSON   33          SLOOP  ONE MAST
NORTHERN    29          SLOOP  ONE MAST
NORTHERN    37          KETCH  TWO MASTS, BIG ONE IN FRONT
O'DAY       27          SLOOP  ONE MAST
O'DAY       32          SLOOP  ONE MAST
OLYMPIC     ADVENTURE   KETCH  TWO MASTS, BIG ONE IN FRONT
ONTARIO     32          SLOOP  ONE MAST
ONTARIO     VIKING      SLOOP  ONE MAST
PACESHIP    PY26        SLOOP  ONE MAST
PEARSON     10M         SLOOP  ONE MAST
PEARSON     26          SLOOP  ONE MAST
PEARSON     26W         SLOOP  ONE MAST
PEARSON     28          SLOOP  ONE MAST
PEARSON     30          SLOOP  ONE MAST
PEARSON     35          SLOOP  ONE MAST
PEARSON     36          SLOOP  ONE MAST
PEARSON     365         KETCH  TWO MASTS, BIG ONE IN FRONT
PEARSON     39          SLOOP  ONE MAST
PEARSON     419         KETCH  TWO MASTS, BIG ONE IN FRONT
RANGER      26          SLOOP  ONE MAST
RANGER      28          SLOOP  ONE MAST
RANGER      29          SLOOP  ONE MAST
RANGER      33          SLOOP  ONE MAST
```

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```
RHODES       SWIFTSURE  SLOOP   ONE MAST
ROBERTS      29         SLOOP   ONE MAST
ROBERTS      36         SLOOP   ONE MAST
RYDER        S. CROSS   SLOOP   ONE MAST
S2           8M AFT     SLOOP   ONE MAST
S2           8M MID     SLOOP   ONE MAST
SABRE        28         SLOOP   ONE MAST
SALT         19         SLOOP   ONE MAST
SAN JUAN     21         SLOOP   ONE MAST
SAN JUAN     26         SLOOP   ONE MAST
SCAMPI       30         SLOOP   ONE MAST
SOLNA CORP   SCAMPI     SLOOP   ONE MAST
TA CHIAO     FANTASIA   SLOOP   ONE MAST
TANZER       26         SLOOP   ONE MAST
TANZER       28         SLOOP   ONE MAST
VENTURE      21         SLOOP   ONE MAST
VENTURE      222        SLOOP   ONE MAST
WESTERLY     CENTAUR    SLOOP   ONE MAST
WESTSAIL     32         SLOOP   ONE MAST
WINDPOWER    IMPULSE    SLOOP   ONE MAST
WRIGHT       SEAWIND II SLOOP   ONE MAST

SHOW TABLES
Tables loaded:
       RIG_TABLE
Tables:
       RIG_TABLE
!
! DECLARE A GLOBAL VARIABLE TO SIMPLIFY TABLE LOOK UP
!

DECLARE RIG-DESCRIPTION COMPUTED BY RIG VIA RIG-TABLE
       EDIT-STRING IS X(30).
!
PRINT TYPE, RIG-DESCRIPTION OF FIRST 10 YACHTS

                                    RIG
MANUFACTURER    MODEL            DESCRIPTION

  ALBERG     37 MK II   TWO MASTS, BIG ONE IN FRONT
  ALBIN      79         ONE MAST
  ALBIN      BALLAD     ONE MAST
  ALBIN      VEGA       ONE MAST
  AMERICAN   26         ONE MAST
  AMERICAN   26-MS      SOMETHING ELSE
  BAYFIELD   30/32      ONE MAST
  BLOCK I.   40         ONE MAST
  BOMBAY     CLIPPER    ONE MAST
  BUCCANEER  270        ONE MAST
```

```
!
! RELEASE TABLE AND GLOBAL COMPUTED BY VARIABLE FROM MEMORY
!
RELEASE RIG-TABLE
FINISH
!
! Define Record for PERSONNEL
!
DEFINE RECORD PERSONNEL_REC USING
01  PERSON.
    05 ID                   PIC IS 9(5).
    05 EMPLOYEE_STATUS      PIC IS X(11)
                            QUERY_NAME IS STATUS
                            QUERY_HEADER IS "STATUS"
                            VALID IF STATUS EQ "TRAINEE","EXPERIENCED".
    05 EMPLOYEE_NAME        QUERY_NAME IS NAME.
        10 FIRST_NAME           PIC IS X(10)
                                QUERY_NAME IS F_NAME.
        10 LAST_NAME            PIC IS X(10)
                                QUERY_NAME IS L_NAME.
    05 DEPT                 PIC IS XXX.
    05 START_DATE           USAGE IS DATE.
    05 SALARY               PIC IS 9(5)
                            EDIT_STRING IS $$$,$$$.
    05 SUP_ID               PIC IS 9(5).
;
[Record PERSONNEL_REC is 58 bytes long]
!
! Define Record for PERSONNEL_SEQ
!
DEFINE RECORD PERSONNEL_SEQ_REC
 USING
01  PERSON.
    05 ID                   PIC IS 9(5).
    05 EMPLOYEE_STATUS      PIC IS X(11)
                            QUERY_NAME IS STATUS
                            QUERY_HEADER IS "STATUS"
                            VALID IF STATUS EQ "TRAINEE","EXPERIENCED".
    05 EMPLOYEE_NAME        QUERY_NAME IS NAME.
        10 FIRST_NAME           PIC IS X(10)
                                QUERY_NAME IS F_NAME.
        10 LAST_NAME            PIC IS X(10)
                                QUERY_NAME IS L_NAME.
    05 DEPT                 PIC IS XXX.
    05 START_DATE           PIC IS X(11).
    05 SALARY               PIC IS 9(5)
                            EDIT_STRING IS $$$,$$$.
    05 SUP_ID               PIC IS 9(5).
;
[Record PERSONNEL_SEQ_REC is 60 bytes long]
!
! Define Domain for PERSONNEL
!
DEFINE DOMAIN PERSONNEL USING PERSONNEL_REC ON PERSON.DAT;
!
! Define Domain for PERSONNEL_SEQ
!
DEFINE DOMAIN PERSONNEL_SEQ USING PERSONNEL_SEQ_REC ON LB:[1,2]PERSON.SEQ;
!
```

```
! Define File for PERSONNEL
!
DEFINE FILE FOR PERSONNEL KEY=ID, SUPERCEDE;
!
! Copy Data from Sequential to Indexed File.
!
READY PERSONNEL WRITE
SHOW FIELDS
PERSONNEL
    PERSON
        ID      [Number, indexed key]
        EMPLOYEE_STATUS (STATUS)      [Character string]
        EMPLOYEE_NAME (NAME)
            FIRST_NAME (F_NAME)       [Character string]
            LAST_NAME (L_NAME)        [Character string]
        DEPT    [Character string]
        START_DATE      [Date]
        SALARY  [Number]
        SUP_ID  [Number]
Global variables:
    RIG_DESCRIPTION      [Computed value]
READY PERSONNEL_SEQ
SHOW READY
Ready domains:
        PERSONNEL_SEQ: RMS SEQUENTIAL, PROTECTED READ
        PERSONNEL: RMS INDEXED, PROTECTED WRITE
!
!
! ************ NOTE  ***********
! *** The following STORE will take about 1/2 minute. ***
! ******************************
!
FOR PERSONNEL_SEQ STORE PERSONNEL USING PERSON=PERSON
!
FINISH PERSONNEL_SEQ;
!
! Check out PERSONNEL
!
READY PERSONNEL
FIND PERSONNEL
[23 records found]
PRINT
No record selected, printing whole collection

                   FIRST      LAST              START              SUP
    ID     STATUS   NAME      NAME    DEPT      DATE      SALARY   ID
```

```
00012 EXPERIENCED CHARLOTTE SPIVA     TOP 12-Sep-1972 $75,892 00012
00891 EXPERIENCED FRED      HOWL      F11  9-Apr-1976 $59,594 00012
02943 EXPERIENCED CASS      TERRY     D98  2-Jan-1980 $29,908 39485
12643 TRAINEE     JEFF      TASHKENT  C82  4-Apr-1981 $32,918 87465
32432 TRAINEE     THOMAS    SCHWEIK   F11  7-Nov-1981 $26,723 00891
34456 TRAINEE     HANK      MORRISON  T32  1-Mar-1982 $30,000 87289
38462 EXPERIENCED BILL      SWAY      T32  5-May-1980 $54,000 00012
38465 EXPERIENCED JOANNE    FREIBURG  E46 20-Feb-1980 $23,908 48475
39485 EXPERIENCED DEE       TERRICK   D98  2-May-1977 $55,829 00012
48475 EXPERIENCED GAIL      CASSIDY   E46  2-May-1978 $55,407 00012
48573 TRAINEE     SY        KELLER    T32  2-Aug-1981 $31,546 87289
49001 EXPERIENCED DAN       ROBERTS   C82  7-Jul-1979 $41,395 87465
49843 TRAINEE     BART      HAMMER    D98  4-Aug-1981 $26,392 39485
78923 EXPERIENCED LYDIA     HARRISON  F11 19-Jun-1979 $40,747 00891
83764 EXPERIENCED JIM       MEADER    T32  4-Apr-1980 $41,029 87289
84375 EXPERIENCED MARY      NALEVO    D98  3-Jan-1976 $56,847 39485
87289 EXPERIENCED LOUISE    DEPALMA   G20 28-Feb-1979 $57,598 00012
87465 EXPERIENCED ANTHONY   IACOBONE  C82  2-Jan-1973 $58,462 00012
87701 TRAINEE     NATHANIEL CHONTZ    F11 28-Jan-1982 $24,502 00891
88001 EXPERIENCED DAVID     LITELLA   G20 11-Nov-1980 $34,933 87289
90342 EXPERIENCED BRUNO     DONCHIKOV C82  9-Aug-1978 $35,952 87465
91023 TRAINEE     STAN      WITTGEN   G20 23-Dec-1981 $25,023 87289
99029 EXPERIENCED RANDY     PODERESIAN C82 24-May-1979 $33,738 87465

FINISH
!
! AS A KIND GESTURE, MAKE ALL OF THE EXAMPLES SHARABLE
!
DEFINEP RIG-TABLE 2,UIC,[*,*],RE
DEFINEP FAMILIES 2,UIC,[*,*],R
DEFINEP FAMILY-REC 2,UIC,[*,*],RE
DEFINEP KETCHES 2,UIC,[*,*],R
DEFINEP OWNERS 2,UIC,[*,*],R
DEFINEP OWNER-RECORD 2,UIC,[*,*],RE
DEFINEP LOA-REPORT 2,UIC,[*,*],RE
DEFINEP SAILBOATS 2,UIC,[*,*],R
DEFINEP PERSONNEL 2,UIC,[*,*],R
DEFINEP PERSONNEL_REC 2,UIC,[*,*],RE
!
! Completion of DATATRIEVE-11 V3.3 Installation Test
!
EXIT
 Installation of DTR11 V3.3 completed at 16:41

 VMSINSTAL procedure done at 16:42
```