VAX Public Access Communications (VAX PAC)

Installation and Setup Guide

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Preface

Introduction

With VAX Public Access Communications (VAX PAC), you can use your computer system to communicate with other computer systems. The system with which you communicate is called the remote system. Your system uses one or more modems to communicate with a remote system over phone lines.

You can, for example, use VAX PAC to get timely business information from such sources as Dow Jones News/Retrieval Service, The SOURCE, or CompuServe. Or, you may want to communicate with one of your own remote branch offices. In this case, you can use VAX PAC to do work on the remote system from the system in your office, or to transfer files back and forth. You can communicate with any remote system to which you have access that has the industry-standard asynchronous RS–232C, RS–422, or RS–423 interfaces.

VAX PAC is not, however, a communications network. If there are several computers at one site, Digital recommends you use a DECnet system.

Intended Audience

This manual is intended for system managers and those responsible for setting up and maintaining systems that communicate with remote databases. Some knowledge of VMS or A–to–Z systems is helpful.

Organization of This Guide

Chapter 1 contains information on preinstallation and postinstallation requirements. Chapter 1 also contains the installation procedures for VMS and A–to–Z, as well as information on how to install and test modems.

Chapter 2 contains information on managing VAX PAC, and explains how to start VAX PAC and use the options on the Manager's Main menu.

Appendix A contains a sample installation procedure.

Appendix B contains information on VAX PAC function keys.

Appendix C contains information on modem setup.

Appendix D contains information on VAX PAC modem commands.

Appendix E contains information on using VAX PAC with DMF32 communication controllers.

Associated Manuals and Training

The following manuals are useful as references and as guides:

- *VAX Public Access Communications (VAX PAC) User's Guide*
- *VAX Public Access Communications (VAX PAC) Release Notes*
- *Guide to VAX/VMS Software Installation*
- *VMS License Management Utility Reference Manual*
- *Guide to VAX/VMS System Management and Daily Operation*
- *Introduction to VAX/VMS*
- *A–to–Z Operations Guide for MicroVAX*
- *KERMIT: A File Transfer Protocol* by Frank Da Cruz, Digital Press, 1987

VAX PAC also offers online help messages to assist you in using its options.

1
Installation Procedures

This chapter contains installation and postinstallation requirements; information on installation procedures for VMS and A–to–Z systems; and information on modem use, installation, and testing.

1.1 VAX PAC Installation Overview

VAX PAC installation consists of the following steps:

1. Install software
   - Use the procedures described in Section 1.3 for VMS installation, or Section 1.4 for A–to–Z installation of the VAX PAC software.
   - If you are using VMS, update the system startup file SYS$MANAGER:SYSTARTUP_V5.COM as explained in Section 1.3.
2. Install modem
   - Connect telephone lines to the modem; refer to Section 1.5 and Section 1.6.
   - For free-standing modems, connect the modem to a port; refer to Section 1.6.
   - For free-standing modems, plug the power cord into an outlet.
   - Test modem connections; refer to Section 1.7.
3. Set up communications
   - Set up communication lines; refer to Section 2.4.1.
   - Set up groups of communication lines; refer to Section 2.4.2.
   - Define standard connections; refer to Section 2.4.3.

1.2 VAX PAC Installation Requirements

It takes approximately 10 to 20 minutes to install the VAX PAC software. The time varies depending on the distribution medium and the system on which you are installing VAX PAC.

To install VAX PAC, you need the following:

- Any VAX CPU or VAXcluster environment running VMS Version 5.4 or higher
- The Product Authorization Key (PAK) for VAX PAC installed and loaded
- Sufficient disk space
- Distribution media: either one TK50 tape cartridge or one 9-track 1600 bpi magnetic tape
- A modem connected to a phone line
- Modem cables
- The VAX PAC installation kit, which includes the distribution media, the documentation, and the VT200/VT300 keystrip

1.2.1 Product Authorization Key (PAK)

This product supports the License Management Facility (LMF) features provided by VMS, and requires that a Product Authorization Key (PAK), be registered prior to installation. To register your PAK, use the command procedure SYS$UPDATE:VMSLICENSE.COM.

Refer to the *VMS License Management Utility Reference Manual* for information pertaining to this command procedure and to management features of LMF.

The installation procedure checks that the product is licensed before allowing installation to be completed. For an explanation of any LMF messages or errors and of any corresponding user actions required, see the *VMS License Management Utility Reference Manual*.

If VAX PAC is to be used in a VAXcluster environment, then the registered license must be loaded on each node of the cluster from which VAX PAC will be used.

1.2.2 Disk Space

VAX PAC requires the following space on the system disk: 2400 blocks of disk space for installation and 1000 blocks for use.

1.2.3 System Disk Backup

Before you begin installing VAX PAC V1.3, you need to back up (make a copy of) your system disk. Backing up the system disk is a standard precaution before installing any VMS layered product. If you are unsure of how to back up a system disk, see your VMS system management documentation.

1.2.4 Installing in VAXcluster Environments

If you have previously installed VAX PAC in a VAXcluster environment, you should perform the following steps prior to installing VAX PAC V1.3 if you want to preserve any definitions on each member of the cluster.

1. Log in to the system manager's account for each system in the VAXcluster and locate the file SYS$SYSTEM:COMM$SYSTEM.DAT.
2. Rename the file COMM$SYSTEM.DAT:

   ```
   $  RENAME/LOG SYS$SPECIFIC:[SYSEXE[COMM$SYSTEM.DAT
   _To:    SYS$COMMON:[SYSEXE]COMM$SYSTEM.DAT_'f$getsyi(nodename")
   ```

   In the above command, *'f$getsyi(nodename")* is evaluated to the actual node name for the system to which you are currently logged.
3. You can examine the data in this file later by using the logical name COMM$SYSTEM to point to a system file for a particular node. For example:

   ```
   $  DEFINE COMM$SYSTEM SYS$COMMON:[SYSEXE]COMM$SYSTEM.DAT_MYNODE
   ```
4. If you intend to use the system file provided with VAX PAC V1.3, you should make a note of any data you have entered into the system file. Use the following VAX PAC manager's menu options to determine which records you want to preserve:

GRP	SEC	STD
KEY	SET	SYS
MOD	SRV	SFR

5. You can preserve your existing data for one node by copying the file to the shared area. For example:

   ```
   $  COPY SYS$SYSTEM:COMM$SYSTEM.DAT_MYNODE
   _To:  SYS$COMMON:[SYSEXE]COMM$SYSTEM.DAT
   ```

If you follow this procedure, all of the data you have entered will be preserved.

1.3 VMS Installation Procedure

Use the VMS installation procedure VMSINSTAL.COM to install VAX PAC. This is the same procedure used to install all applications for VMS.

The VAX PAC installation kit comes on 9-track magnetic tape or TK50 tape cartridge.

Note

Before proceeding, be certain that you have made a copy of your system disk.

Follow these steps to install VAX PAC:

1. Log in to your system using the system manager's account.
2. Begin the installation by invoking the VMSINSTAL procedure. Specify VAX PAC as the product you are installing; indicate the device on which your distribution medium is mounted (determined in step 2); and specify OPTIONS N to print or display the release notes. For example:

   ```
   $  @SYS$UPDATE:VMSINSTAL VAX PAC MUA0: OPTIONS N
   ```

3. If you have DECnet software installed, the following warning message might be displayed. You will also be warned if other users are logged in.

   ```
   %VMSINSTAL-W-DECNET, Your DECnet network is up and running.
   * Do you want to continue anyway [NO]?
   ```

   Enter Yes to continue.

4. The system displays the following message:

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

   You should back up your system before any major software installation. If you have recently backed up your system, press Return to continue with the installation.

5. You are now prompted to mount the distribution medium on the device you specified. For example:

   ```
   Please mount the first volume of the set on MUA0:.
   * Are you ready?
   ```

   If you have not already done so, mount the tape in the appropriate drive. Then enter Yes to indicate that you are ready to continue.

   A series of messages inform you that the installation is taking place.

6. The installation procedure then prompts you for the release notes option you want:

```
Release Notes Options:

 1.  Display release notes
 2.  Print release notes
 3.  Both 1 and 2
 4.  Copy release notes to SYS$HELP
 5.  Do not display, print or copy release notes

* Select option [2]: 2
```

   If you select option 1, the release notes are immediately displayed on your screen. If you select option 2 or 3, VMSINSTAL prompts you for a queue name:

```
* Queue name [SYS$PRINT]:
```

   Enter a queue name or press Return to select the default print device (SYS$PRINT). Unless you choose option 5, the release notes are also copied to the system help directory and stored in the file SYS$HELP:VAXPAC012.RELEASE_NOTES so that you can display or print them later.

   VMSINSTAL then asks whether or not you want to continue with the installation:

```
* Do you want to continue the installation [NO]?
```

   If you enter No or press Return, VMSINSTAL halts the installation procedure. To continue with the installation, enter Yes.

7. You are then asked if you want to run the Installation Verification Procedure (IVP):

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

   It is recommended that you run the IVP, which ensures that the installation was successful. Press Return to run the IVP when the installation is completed.

   The IVP can also be run at a later time to check that all of the VAX PAC components are correctly installed. See Section 1.5.3.

8. The system displays the following message:

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

   In most cases, you want to remove files associated with an earlier version and replace them with new files. To do so, press Return.

9. If this is your first installation of VAX Public Access Communications, proceed to step 10.

If you have previously installed VAX PAC, the system displays the following message:

```
The Communication system file SYS$SYSTEM:COMM$SYSTEM.DAT already exists.
* Do you want to replace it [NO]?
```

If you replace your communication system file, you must reenter the definitions of communication lines, groups of communication lines, and standard connections, as well as any changes you have made to system definitions.

At this point you need to decide if you want to keep your existing definitions or replace them with new ones.

To keep your existing files, press Return. VAX PAC uses your existing system files.

To replace your VAX Public Access Communications system file, enter Yes.

10. The system displays a series of messages informing you that it is checking the VMS version number and checking that there is sufficient free space on the system disk.

    It then checks that the software is licensed for use on this system. The following message is displayed:

```
%VAX PAC-I-LICENSE, Checking that software is licensed for use on this system

        Product:      PAC
        Producer:     DEC
        Version:      1.3
        Release Date: 1-JAN-1991

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

    The installation does not complete successfully unless the Product Authorization Key (PAK) is installed. If you have already registered the PAK, enter Yes. If you have not obtained a PAK or have not yet registered the PAK, enter No.

    See Section 1.2.1 for more information on installing the PAK.

11. Once the installation of the PAK has been confirmed, the system displays the following message:

```
All the questions regarding the installation have now been asked.
The installation will now continue for another 10 minutes.
```

    As the installation proceeds, a series of messages is displayed as the required modules are created and the target directories are specified for the appropriate files.

The system then displays messages similar to the following:

```
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...

Starting Installation Verification Procedure for VAX PAC V1.3

================================================================================
Checking that all files have been installed in the correct location

All files have been installed correctly
================================================================================
Checking the version numbers of the installed images

Image COMM$DTE.EXE    = VAX PAC V1.3
Image COMM$KERMIT.EXE = VAX PAC V1.3

All the version numbers of the installed images are correct
================================================================================
Testing the operation of the installed images

VAX Public Access Communications V1.3

Comm$Kermit V1.3

All the installed images operated correctly
================================================================================
The installation verification procedure (IVP) for VAX PAC V1.3
has completed successfully.
================================================================================

Installation of VAX PAC V1.3 completed at 13:19

VMSINSTAL procedure done at 13:20
```

VAX PAC installation is now complete.

12. If this is your first installation of VAX PAC, you must edit the system startup file, SYS$MANAGER:SYSTARTUP_V5.COM, to include the following command line:

    ```
    $ @SYS$STARTUP:COMM$STARTUP.COM
    ```

    This ensures that communication lines and modems will be initialized for use with VAX PAC as part of the system startup procedure.

1.4 A–to–Z Installation Procedure

If you are using A–to–Z, you must install VAX PAC with the A–to–Z installation procedures. Refer to the *A–to–Z Operations Guide for MicroVAX* for information on installing A–to–Z.

Once you have logged in to your terminal and performed other preliminary installation procedures as described in the *A–to–Z Operations Guide for MicroVAX*, follow these steps:

1. When you are ready to install VAX PAC on A–to–Z, the system prompts you with the following message:

   ```
   Are you ready?
   ```

Enter Yes. The system then displays a series of messages prompting you to mount the first volume. Mount the distribution medium on the device you specified.

A series of messages is displayed informing you that the product is being installed.

2. You are then asked if you want to run the Installation Verification Procedure (IVP):

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

   It is recommended that you run the IVP, which ensures that the installation was successful. Press Return to run the IVP when the installation is completed.

3. The system then displays the following message:

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

   In most cases, you want to remove files associated with an earlier version and replace them with new files. To do this, press Return.

4. If this is your first VAX PAC installation, proceed to step 5.

   If you have previously installed VAX PAC, the system displays the following message:

   ```
   The Communication system file SYS$SYSTEM:COMM$SYSTEM.DAT already exists.
   Do you want to replace it? [NO]
   ```

   If you replace your communication system file, you must reenter the definitions of communication lines, groups of communication lines, and standard connections, as well as any changes you have made to system definitions.

   At this point you need to decide if you want to keep your existing definitions or replace them with new ones.

   To keep your old files, press Return. The system keeps your old files as part of the new system version.

   To replace your VAX Public Access Communications system file, enter Yes.

5. The system displays a series of messages informing you that it is checking the VMS version number and checking that there is sufficient free space on the system disk.

   It then checks that the software is licensed for use on this system. The following message is displayed:

```
%VAX PAC-I-LICENSE, Checking that software is licensed for use on this system

        Product:      PAC
        Producer:     DEC
        Version:      1.3
        Release Date: 1-JAN-1989

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

The installation will not complete successfully unless the Product Authorization Key (PAK) is installed. If you have already registered the PAK, enter Yes. If you have not obtained a PAK or have not yet registered the PAK, enter No.

See Section 1.2.1 for more information on installing the PAK.

6. Once the installation of the PAK has been confirmed the system displays the following message:

```
All the questions regarding the installation have now been asked.
The installation will now continue for another 10 minutes.
```

As the installation proceeds, a series of messages is displayed as the required modules are created and the target directories are specified for the appropriate files.

The system then displays messages similar to the following:

```
%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...

Starting Installation Verification Procedure for VAX PAC V1.3

================================================================================
Checking that all files have been installed in the correct location

All files have been installed correctly
================================================================================
Checking the version numbers of the installed images

Image COMM$DTE.EXE    = VAX PAC V1.3
Image COMM$KERMIT.EXE = VAX PAC V1.3

All the version numbers of the installed images are correct
================================================================================
Testing the operation of the installed images

VAX Public Access Communications V1.3

Comm$Kermit V1.3

All the installed images operated correctly
================================================================================
The installation verification procedure (IVP) for VAX PAC V1.3
has completed successfully.
================================================================================
```

7. After the installation is completed, go to the A–to–Z Manager's Main menu.
8. Select the Shutdown option on the A–to–Z Manager's Main menu.
9. After shutting down the system, follow the instructions in the *A–to–Z Operations Guide for MicroVAX* to reboot the system.

1.5 Postinstallation Requirements

This section lists the system parameters and the privileges you need to use and manage VAX PAC. It also provides instructions for using the Installation Verification Procedure (IVP).

1.5.1 System Parameters

The SYSGEN parameter TTY_ALTYPAHD must have a value of 512 or greater. If the value is less than 512, data overrun errors may occur; that is, characters from the remote system may be lost, especially if you use high-speed lines.

The following procedure describes how to check this parameter and, if necessary, change it:

1. To check the value of TTY_ALTYPAHD, enter the following at the Digital Command Language (DCL) prompt:

   ```
   $  RUN SYS$SYSTEM:SYSGEN
   SYSGEN>  USE CURRENT
   SYSGEN>  SHOW TTY_ALTYPAHD
   SYSGEN>  EXIT
   ```

2. If the value assigned to TTY_ALTYPAHD is less than 512, you must modify the system parameter file SYS$SYSTEM:MODPARAMS.DAT and add the following line at the end of the file:

   ```
   TTY_ALTYPAHD = 512
   ```

   (You may set a higher value if you want.)

3. You must then run AUTOGEN to recompute your system parameters:

   ```
   $  @SYS$UPDATE:AUTOGEN SAVPARAMS REBOOT
   ```

   AUTOGEN performs an automatic shutdown, and reboots when it has finished. (For more information on AUTOGEN, see the *Guide to VAX/VMS Management and Daily Operation.*)

Note

If you are using VAX PAC in a VAXcluster environment, you need to make this change on each node in the cluster.

1.5.2 Privileges

Users of VAX Public Access Communications V1.3 need the TMPMBX (may create temporary mailbox) privilege.

In order to use the system manager's features of VAX PAC, you need the following privileges:

TMPMBX	May create temporary mailbox
SYSPRV	May access objects via system protection
OPER	Operator privilege
PHY_IO	May do physical I/O

If the spawn feature of VMS has been disabled on your system, you should install COMM$SYSTEM:COMM$DTE.EXE with SYSPRV. If you do not do so, you cannot use VAX PAC file transfer features.

1.5.3 Installation Verification Procedure

VAX PAC provides an Installation Verification Procedure (IVP) that allows you to check that VAX PAC has been installed correctly. This procedure can be run any time after the installation has successfully completed. This procedure can be run only from a privileged account.

To run the IVP, enter the following at the DCL prompt:

```
$ @SYS$TEST:COMM$IVP.COM
```

The IVP checks that all the files required to use VAX PAC have been correctly installed on your VMS system, that the version numbers of the programs are correct, and that these programs will run.

1.5.4 Files

During the installation of VAX PAC, your VMS system is updated to include the new and modified files shown in Table 1–1.

Table 1–1 Files Added and Modified During Installation

Directory	File	Action
SYS$SHARE	DCLTABLES.EXE	Modified
SYS$HELP	HELPLIB.HLB	Modified
SYS$STARTUP	COMM$STARTUP.COM	New
SYS$TEST	COMM$IVP.COM	New
SYS$HELP	VAX PAC012.RELEASE_NOTES	New
SYS$HELP	COMM$KERMIT_HELP.HLB	New
SYS$MESSAGE	COMM$MESSAGE.OFF	New
SYS$UPDATE	COMM$PERSONAL.DAT	New
SYS$SYSTEM	COMM$SYSTEM.DAT	New
SYS$UPDATE	COMM$SYSTEM.DAT	New
SYS$SYSTEM	COMM$DTE.EXE	New
SYS$SYSTEM	COMM$KERMIT.EXE	New
SYS$SYSTEM	COMM$XFR_KERMIT_INIT.COM	New
SYS$SYSTEM	COMM$SRV_KERMIT_INIT.COM	New
SYS$SYSTEM	COMM$SRV_KERMIT_ASCII.COM	New
SYS$SYSTEM	COMM$SRV_KERMIT_BINARY.COM	New
SYS$SYSTEM	COMM$SRV_KERMIT_FIXED.COM	New
SYS$SYSTEM	COMM$SRV_KERMIT_START_LOCAL.DAT	New
SYS$SYSTEM	COMM$ATOZ_MANAGER.MSF	New
SYS$SYSTEM	COMM$ATOZ_USER.MSF	New
SYS$SYSTEM	COMM$ATOZ_INTERRUPT.MSF	New
SYS$HELP	COMM$ATOZ_MANAGER.HLP	New
SYS$HELP	COMM$ATOZ_USER.HLP	New
SYS$HELP	COMM$ATOZ_REMOTE.HLP	New

1.6 Modems

Modems usually require setup before they can be used with VAX PAC.

When you buy a new modem, it is often set up at the factory for operation with a terminal or personal computer. The requirements for operating the modem with a multiuser computer system, such as one supporting VAX PAC, are usually different, particularly with reference to dial-in to the system and breaking the phone connection.

Note

The modem must hang up the phone line when the signal Data Terminal Ready (DTR) is dropped. If you use VAX PAC with a modem that does not do this, VAX PAC will be unable to hang up the phone, which can cause you to incur excessive phone charges.

The setup method varies with the type of modem. Some modems require switches to be set within the modem. Others require you to enter commands from the terminal. In the latter case, some modems require the commands to be entered every time power is turned on, while others allow the settings to be stored permanently. Your modem documentation describes the procedures for changing the setup of your modem.

See Appendix C and Appendix D for additional details on modem setup and commands.

You can use most types of modems to communicate with a remote system. VAX PAC supports the following modems:

- Digital Scholar 2400 (DF224)
- Digital Scholar Plus (DF242)
- Digital DF112
- Digital DFA01
- Digital DF03 and DF03 compatible modems
- Hayes Smart Modem 2400 and Hayes Smart Modem 1200

See Appendix E for information on using a DTE_DF03, DTE_DF112, or DMCL dial module with a DMF32 controller.

If you have a different type of modem, you must use the MOD—Define modems option. See Section 2.5.3 to enter the information for that modem.

Note

For VAX Public Access Communications to work, you must use the correct modem connecting cable. A cable not certified for use with your modem can lead to faulty connections.

1.7 Installing Modems

It is important that you identify the proper port before attaching the modem to the back of your system.

You are already familiar with ports because you used at least two ports to attach your terminal and printer to your system. You can use any of the remaining ports to connect modems.

Each port has a device name. When you use the SET option on the Manager's Main menu to set up communication lines, you must be able to identify the device name assigned to the port to which you attach the modem. The following section helps you determine which device names are assigned to the ports and how you can identify them.

Enter the following DCL command to determine the device name for the ports on your system:

```
$  SHOW DEVICE T
```

The system displays a listing of the device names. Examples of device names are as follows:

```
TXA0 thru TXA7 (1st 8 lines)
TTA0 thru TTA3 (1st 4 lines)
```

To find out which device name is associated with a particular port on your system, follow these steps:

1. Disconnect your terminal cable connection from its port on the system.
2. Temporarily attach your terminal cable connection to the port on the system where you will be attaching the modem.
3. Log in to your system.
4. Enter the following DCL command:

   ```
   $  SHOW TERMINAL
   ```

The system displays a screen showing your terminal characteristics, including Physical Terminal or Terminal followed by a device name. This is the device name of the port to which your terminal is now attached. For example, if your terminal is attached to TXA3, this is the device name that appears next to Physical Terminal or Terminal. Make note of this device name, because you must enter this device name when you use the SET option on the Manager's Main menu to set up communication lines.

5. Log out.
6. Switch your terminal cable connection back to its original port on your terminal.
7. Attach the modem cable to the port on the system you identified when checking for device name. Use a Digital BC22E, BCC04, or equivalent cable to connect the modem to the system. Refer to the documentation for your modem for complete information on connecting the modem.
8. Log in.

If you are using VAX PAC in a VAXcluster environment, you must log in to each system within the cluster that will have a modem attached to it.

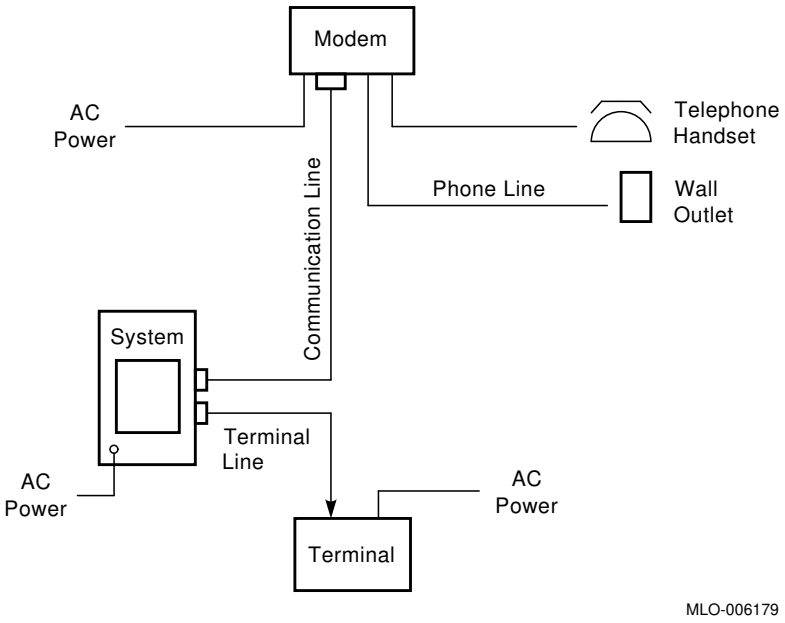
1.8 Testing Modem Connections

Test all connections before attempting to use VAX PAC. It is essential that you be able to communicate between your system and the remote system through the modem.

In most cases, the modem is connected to your system with a special cable. This cable must be connected to the proper port on your system. Check that the cable connecting your modem and system is the proper one. Digital recommends that you use a Digital BC22E or BCC04 cable. Your modem installation guide might list alternatives.

Figure 1–1 shows a typical standalone modem and its connections, including the power outlet, telephone handset, wall outlet connections, and terminal.

Figure 1–1 Standalone Modem and Connections



These connections might differ depending on the type of modem you are using. Refer to your modem installation guide for instructions.

To test modem connections, you need a phone number you can dial. The phone number for the Digital Electronic Store is readily available and can be used for this test. Dial 1–800–DEC–DEMO (800–332–3366).

There are two ways to test modem connections:

- Connect the modem to the communication port on your terminal and test connections at your terminal.
- Use VAX PAC.

The following sections explain how to test connections using each method. Note that testing connections with VAX PAC is usually easier, but it does require some knowledge of VAX PAC.

Note

If you are using a workstation, you must use VAX PAC for testing connections. Tests described in Section 1.8.2 cannot be used with a workstation.

1.8.1 Testing Modem Connections with a Terminal

Follow these steps to test for proper connection of your modem using a VT300, VT200, or VT100 series terminal:

1. Unplug the modem from your system.
2. Temporarily connect the modem to the communications port on your terminal. Read the instructions supplied with your modem and terminal carefully and be sure to plug the modem into the proper terminal port.
3. Set the terminal speed to match the modem speed. Refer to your terminal and modem documentation.
4. Test the power supply for your modem by turning on the modem and the terminal. Lights on the modem blink to indicate the power supply is properly connected.

   An indicator light (TR or DTR) should remain lit. This means your terminal is ready.

   Refer to your modem installation guide for further instructions.
5. Check your phone connections. Refer to your modem installation guide for instructions on checking phone connections.
6. Check that your modem is able to send back data that you type from the terminal. Do this by first pressing the Local Loop Back switch on your modem and then typing something at your terminal. The characters typed should display on the terminal screen.
7. Check that your modem can actually connect to another modem. Use the handset to dial and wait for a high-pitched carrier tone. When you hear the carrier tone, set the Data/Talk switch on the modem to the Data position. For example, dial the Digital Electronic Store (1–800–332–3366) and test your connections. (If your modem does not have a Data/Talk switch, refer to your modem installation guide for further instructions.) The carrier tone should stop when the Data/Talk switch is in the Data position.

8. If your modem has an autodial feature, you can also connect to another modem. Refer to the modem documentation for information on its autodial feature.

   For example, with the Digital DF224, press Ctrl/B. The Ready message is displayed. Type 1–800–332–3366! (include the exclamation point to indicate the end of the dial command). The Attached message is displayed.

9. When testing is complete, reconnect the terminal and modem to the system.

1.8.2 Testing Modem Connections with VAX PAC

Follow these steps to test modem connections using VAX PAC:

1. Before testing a modem using VAX PAC, you must first set up a communication line. Select the SET option from the Main menu to set up a communication line. Section 2.4.1 explains this option.
2. Select the CON option from the Main menu to connect to a remote system. See the *VAX Public Access Communications (VAX PAC) User's Guide* for information about the CON option.
3. Select MAN for a manual connection. The *VAX Public Access Communications (VAX PAC) User's Guide* explains manual connections.
4. Select Expert Dial mode. This allows you to enter modem commands as if your terminal were directly connected to the modem.
5. Select the communication line to which the modem is connected.
6. Test the power supply for your modem by turning on the modem and the terminal. Lights on the modem blink to indicate the power supply is properly connected.

   An indicator light (TR or DTR) should remain lit. This means your terminal is ready.

   Refer to your modem installation guide for further instructions.

7. Check your phone connections. Refer to your modem installation guide for instructions on checking phone connections.
8. Check that your modem is able to send back data that you enter from the terminal. Do this by first pressing the Local Loop Back switch on your modem and then typing something at your terminal. The characters should be displayed on the terminal screen.

9. Check that your modem can actually connect to another modem. Use the handset to dial and wait for a high-pitched carrier tone. When you hear the carrier tone, set the Data/Talk switch on the modem to the Data position. For example, dial the Digital Electronic Store (1–800–332–3366) and test your connections. (If your modem does not have a Data/Talk switch, refer to your modem installation guide for further instructions.) The carrier tone should stop when the Data/Talk switch is in the Data position.

10. If your modem has an autodial feature, you can also connect to another modem. Refer to the modem documentation for information on its autodial feature.

    For example, with the Digital DF224, press Ctrl/B. The Ready message is displayed. Enter 1–800–332–3366! (include the exclamation point to indicate the end of the dial command). The Attached message is displayed.

11. Press the LOCAL key to disconnect from the remote system.

12. Press Exit.

2

Managing VAX Public Access Communications

This chapter explains how to manage VAX PAC.

2.1 Getting Started

VAX PAC runs on a VMS system or an A–to–Z system. Follow the instructions in this section to start VAX PAC on your system.

The minimum requirements for VAX PAC are listed in Chapter 1.

2.1.1 Starting VAX PAC on VMS

If you are using a VMS operating system, do the following:

1. Log in to the system manager's account.
2. Enter the COMMUNICATE command at the Digital Command Language (DCL) prompt ($). You can also enter an abbreviated form of the command, such as COMM or COMMU. After you enter the command, the VAX PAC Manager's Main menu is displayed.

Note

Use the DCL command HELP COMMUNICATE for a full list of options available from the DCL prompt ($).

2.1.2 Starting VAX PAC on A–to–Z

If you are using an A–to–Z system, do the following:

1. Log in to the A–to–Z manager's account.
2. Display the A–to–Z User's Main menu or the A–to–Z Application Management menu.

The A–to–Z User's Main menu contains two entries for VAX Public Access Communications:

COM Public Access Communications
REM Remote File Transfer Server

Both of these entries are also available on the A–to–Z User's Interrupt menu.

The Application Management menu contains an entry for Managing Communications:

COM Managing Communications

Refer to the appropriate A–to–Z documentation and follow the directions to begin using VAX Public Access Communications.

2.2 VAX PAC Manager's Main Menu

The VAX PAC Main menu and the VAX PAC Manager's Main menu are different:

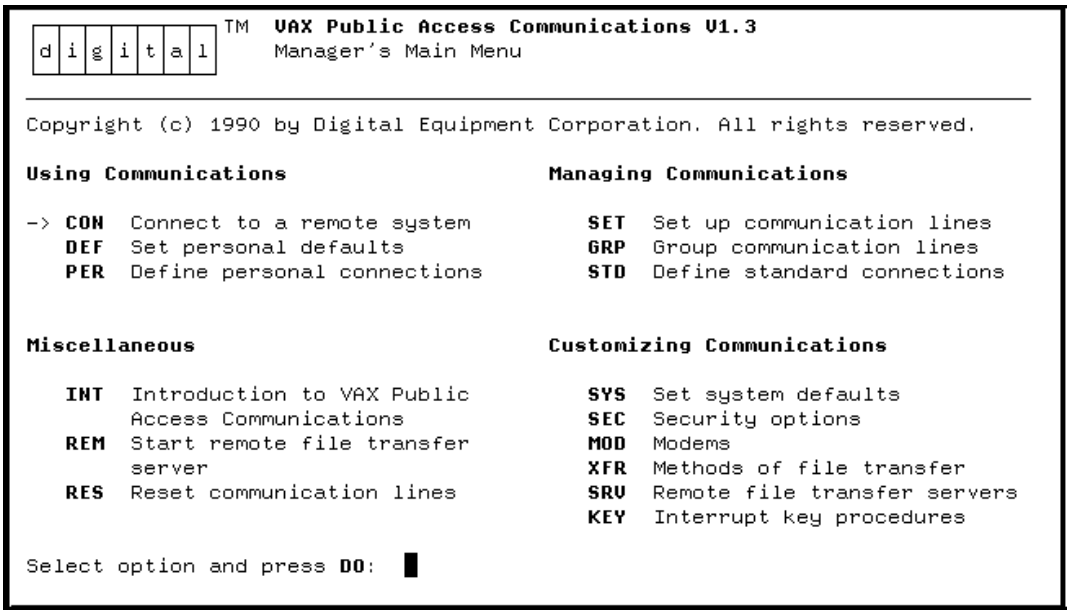
- The Main menu displays only options associated with the Using Communications and Miscellaneous functions.
- The Manager's Main menu displays the same options and options for managing and customizing communications.

When you use VAX Public Access Communications for the first time, select the INT—Introduction to VAX Public Access Communications option from the Manager's Main menu. The INT option gives an overview of the capabilities of VAX Public Access Communications.

In addition to the physical connections you must make, you must also enter information to set up VAX PAC. To do this, enter the COMMUNICATE command at the DCL prompt. If you are using A–to–Z, select the Application Management menu from the Manager's Auxiliary menu, and then choose the Managing Communications option.

Figure 2–1 shows the VAX PAC Manager's Main menu.

Figure 2–1 VAX PAC Manager's Main Menu



The options shown under Using Communications are described in detail in the *VAX Public Access Communications (VAX PAC) User's Guide*. Use these options to communicate with remote systems.

The options shown under Miscellaneous are also described in detail in the *VAX Public Access Communications (VAX PAC) User's Guide*.

Use the options shown under Managing Communications to set up and maintain VAX PAC. These options (SET, GRP, STD) are described in Section 2.4.

Use the options shown under Customizing Communications to tailor VAX PAC to your own requirements. These options (SYS, SEC, MOD, XFR, SRV, KEY) are described in Section 2.5.

2.3 Operating Features

This section explains how to use various keys to set field values, how to edit fields, and the use of the LOCAL key.

2.3.1 Entering Field Values

VAX Public Access Communications uses a variety of field values to operate and configure the system. These values are displayed as fields on screens. To respond to the fields on the screen, use the keys described in this section.

A keystrip for VT200/VT300 terminals is included as part of the VAX PAC installation kit.

- Enter information for any fields that have an underline to the right of the field; for example:

  ```
  Phone number: _____________________
  ```

- Use the left (←) or right (→) arrow keys to change the values enclosed in angle brackets:

  ```
  <Fields like this>
  ```

- Use the Return key, the up arrow (↑) key or the down arrow (↓) key to move between fields.
- When you are not sure how to respond, press the Help key.
- Press the Do key to confirm selections or accept information when all the fields for a screen are complete.
- Press the Exit key or the F10 key to return to the previous menu or screen or to exit from VAX PAC at the Main menu. Changes are saved.
- Press Cancel or the F8 key when you want the system to ignore a selection or disregard information you have entered.
- The PF1 key or GOLD key is used in conjunction with other keys to simulate VT200 or VT300 function keys on VT100 series terminals. The the PF1 key or GOLD key is always pressed first. For example, pressing PF1 and then P on a VT100 keyboard is equivalent to pressing the Prev Screen key on a VT200 or VT300 keyboard.
- Control keys are a combination of Ctrl and another key pressed simultaneously. Control keys are used to simulate the VT200 or VT300 function keys on VT100 series terminals. For example, Ctrl/Y on the VT100 is equivalent to the Interrupt key or the F6 key on the VT200 or VT300 keyboard.
- Press the Find key to display a list of files.

- Press the Insert Here key to add a new record.
- Press the Remove key to delete an existing record.
- Press the Interrupt key or the F6 key to start the interrupt procedure.
- Press the Resume key or the F7 key to continue after receiving an informational message.

See Appendix B for a listing of all function keys available for use with VAX PAC. To get online help on the function keys, press the PF2 key.

2.3.2 Editing Field Values

VAX Public Access Communications allows you to edit existing field values using the SYS—Set system defaults menu option. This option is explained in detail in Section 2.5.1.

The field editing keys are defined as shown in Table 2–1.

Table 2–1 Field Editing Keys

Keys	Definition
Rubout	Erases the character preceding the cursor
Linefeed or F13 or Ctrl/J	Erases the word preceding the cursor
Ctrl/U or Remove	Erases all characters to the beginning of the field
← or Ctrl/D	Moves the cursor backward one character
→ or Ctrl/F	Moves the cursor forward one character
Backspace or F12 or Ctrl/H, or GOLD and ←	Moves the cursor to the beginning of the field
Ctrl/E or GOLD and →	Moves the cursor to the end of the field
Ctrl/A or F14	Switches between overstrike and insert editing modes
PF3	Enables/disables field editing

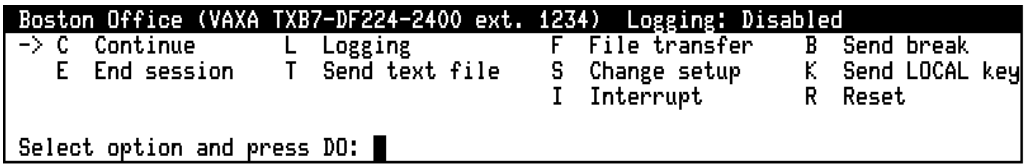
2.3.3 The LOCAL Key

Use the LOCAL key when a connection to a remote system has been established. You use the LOCAL key either to end a session or to access any of the other options available during a connection to a remote system.

The default LOCAL key is actually two keys, Ctrl and \, pressed simultaneously. The system manager can change the default for the LOCAL key.

The Local Options menu (Figure 2–2) is displayed when you press the LOCAL key.

Figure 2–2 Local Options Menu



The *VAX Public Access Communications (VAX PAC) User's Guide* explains the LOCAL key in detail.

Note

If you select option I—Interrupt from the Local Options menu and use the interrupt procedure while connected to a remote system, you do not terminate your link to that system. You continue to incur telephone and access charges while engaged in your interrupt procedure. To discontinue a link to the remote system, you must exit from your interrupt procedure, press the Resume key to return to VAX PAC, and then end the session by selecting option E—End session from the Local Options menu.

2.4 Management Options

The Manager's Main menu allows you to set up communication lines, to set up groups of communication lines, and to define standard connections. These menu options are explained in the following sections.

2.4.1 SET—Set Up Communication Lines

VAX PAC does not allow you to connect to a remote database until you have set up communication lines. Use the SET option to set up communication lines. VAX PAC allows a maximum of 64 communication lines.

Setting up a communication line requires the following information:

- The name of the line
- The node name, if used in a VAXcluster environment
- The device name for the port
- Whether a phone line or a direct connection is used
- The type of modem
- The type of phone service
- The line speed to be used when dialing
- Whether or not to disable the line

You can add, change, delete, or display communication lines. If no communication lines are defined when you select SET from the Main menu, a screen for adding a new communication line is displayed. Thereafter, when you select the SET option, a list of the communication lines you have already set up is displayed.

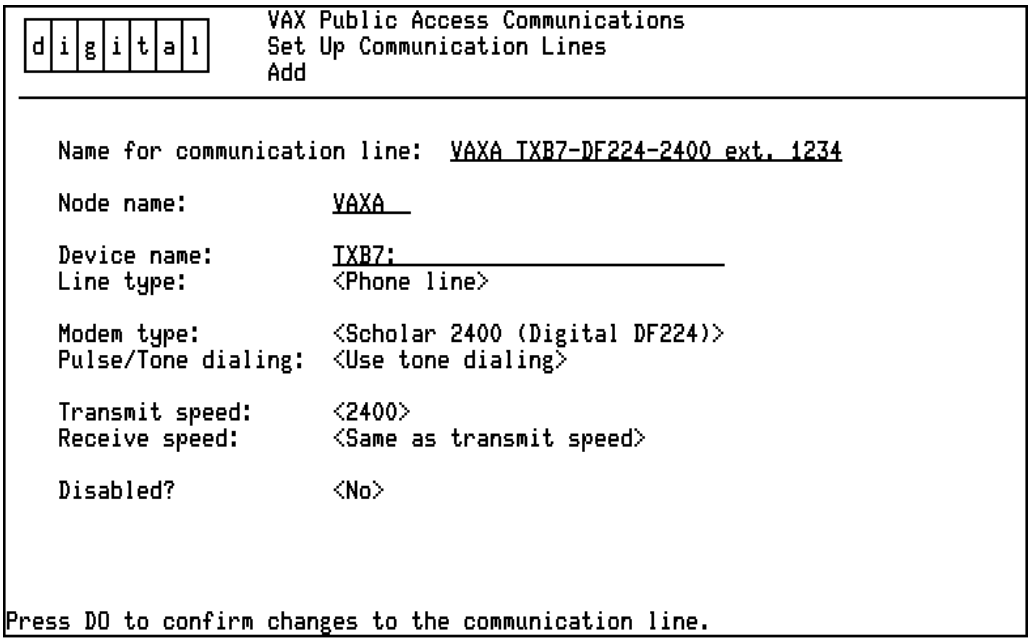
The following list shows the types of modems that are already defined as part of the VAX PAC software. If you are using a modem other than the types listed here, read Section 2.5.3 before proceeding.

- Digital Scholar 2400 (DF224)
- Digital Scholar Plus (DF242)
- Digital DF112
- Digital DFA01
- Digital DF03 compatible modems
- Hayes Smart Modem 2400
- Hayes Smart Modem 1200

(See Appendix E for information on using a DTE_DF03, DTE_DF112, or DMCL dial module with a DMF32 controller.)

Figure 2–3 is the screen used for adding a communication line. Following the sample screen are explanations of each field.

Figure 2–3 Adding a Communication Line



Name for communication line:	Enter a name of up to 30 characters for the communication line. If the communication line uses a modem, it is a good idea to specify the modem's line speed as part of the name. If the name of the communication line includes the line speed for the modem to which the line is attached, you can then know if this is the correct line speed for the connection.
Node name:	If you are using VAX PAC in a VAXcluster environment, enter the node name where the device is located. If you are not using VAX PAC on a cluster, leave this field blank.
Device name:	Enter the device name of the communication port to which the modem or the remote system is directly connected; for example, TXA3:, TTA1:, or TXB4:. If you are not sure of the device name, see Section 1.7 to identify the device name.
Line type:	Specify that the communication line is either a phone line or a direct connection.
Modem type:	Identify the type of modem you are using. As you add and define modems (explained in Section 2.5.3), they are automatically listed on the modem screen.

Pulse/Tone dialing:	Your response to this field depends on the type of telephone service you have (pulse or tone). Push-button phones use tone dialing. Rotary dial phones use pulse dialing. Digital modems are equipped to handle both pulse and tone dialing.
Transmit speed:	Specify the speed at which the modem can receive characters from the local system. This speed is specified in the modem documentation.
Receive speed:	Specify the speed at which the modem will send characters to the local system. This speed is specified in the modem documentation.
Disabled?	Specify Yes if you need to disable the communication line due to a problem with the phone line or modem. When you disable a line, it is available only to the system manager. A disabled line is ignored in all groups of communication lines that reference it.

Note

The transmit and receive speeds you specify are used when dialing the remote system. Depending on the modem type, these speeds can be superseded by the speeds you specify for the connection when the remote system has answered. In other words, the transmit and receive speeds are current only until the remote system answers.

After you enter the information, press Do to set up your first communication line.

To cancel the information just entered, press Cancel.

After you set up a communication line, it is displayed along with all previously defined communication lines.

You can now add, change, delete, or display a communication line.

- To add a communication line, you can copy the values of an existing communication line or enter new values.
  - To copy values, select the line you want to copy and press Insert Here and then press Do. Information for the communication line is displayed.
  - Enter information for Name for communication line and Device name and make any other changes necessary. Press Do to add the new communication line.
  - To use default values instead of values from an existing communication line, press Insert Here and then press Resume.

- To display or change a communication line, select the line and press Do. When the information for the communication line is displayed, make any changes and press Do.
- To delete a communication line, select the line you want to delete and press the Remove key. The definition of the line to be deleted is displayed and you are prompted to confirm the deletion as follows:

  ```
  Press Do to confirm changes to the communication line.
  ```

  Press Do to confirm the deletion, or press Cancel if you want to keep the information as it is.

  Press the Exit key to return to the Main menu. If you have made changes to records, the system prompts you to reset communication lines. Enter Yes to reset communication lines.

2.4.2 GRP—Group Communication Lines

The GRP option lets you combine up to 12 communication lines into one group. This allows VAX PAC to reach a remote system using any communication line in the group. For example, if one communication line in the group is being used by someone else, VAX PAC uses the next available line in the group to reach the remote system.

If you have more than one modem or several direct connections to the same system, use this feature.

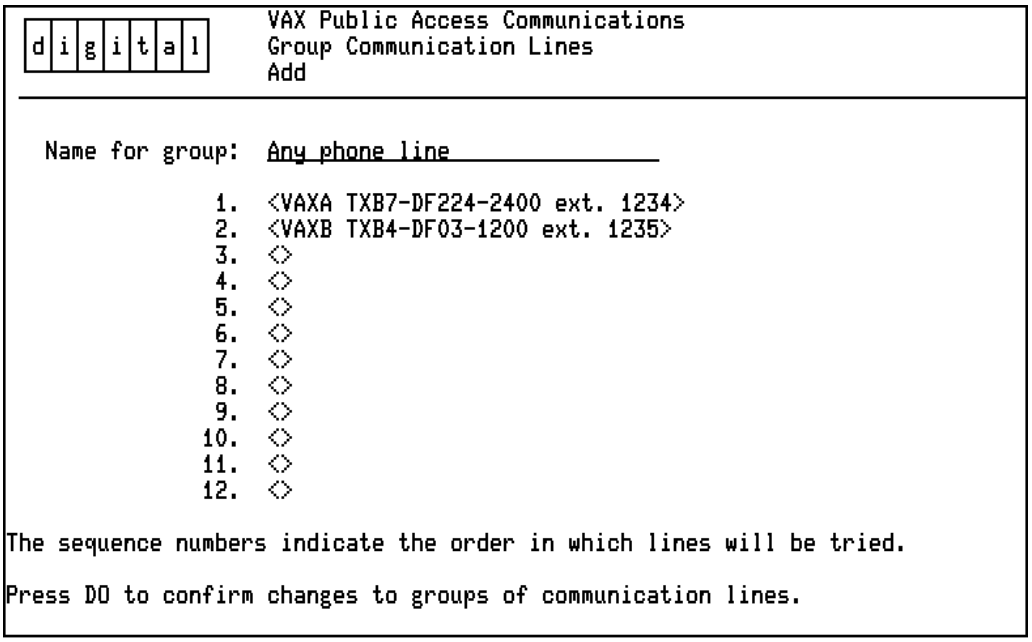
You can add, change, delete, or display communication lines. If no communication lines are defined when you select GRP from the Main menu, a screen for adding a new communication line is displayed. Thereafter, when you select the GRP option, a list of the communication lines you have already set up is displayed.

Note

When you delete a group of communication lines, you do not delete the individual definitions of communication lines in the group. Although the group of communication lines no longer exists, the definitions for the individual communication lines in the group remain.

Figure 2–4 is the screen used for adding group communication lines. Following the sample screen are explanations of each field.

Figure 2–4 Adding Group Communication Lines



Name for group: Enter a name to identify the communication group. This name is displayed as one of the available choices for a communication line when you define a connection. Group names can be up to 30 alphanumeric characters long, but must not start with a space. If field editing is enabled, you can edit this field.

Lines 1–12: Use ← or → to select any of the 12 communication lines you can assign to the group. The communication lines you can group together are the individual communication lines you set up using the SET—Set up communication lines option.

After you enter the information, press Do to set up your first group communication line.

To cancel the information just entered, press Cancel.

After you set up a group communication line, it is displayed along with all previously defined communication lines.

You can now add, change, delete, or display a group communication line.

- To add a communication line to a group, copy the values of an existing communication line or enter new values.
  - To copy values, select the line you want to copy and press Insert Here and then press Do. Information for the communication line is displayed.

    Enter information for Name for group and Device name and make any other changes necessary. Press Do to add the new communication line.
  - To use default values instead of values from an existing group communication line, press Insert Here and then press Resume.
- To display or change a group communication line, select the line and press Do. When the information for the communication line is displayed, make any changes and press Do.
- To delete a group communication line, select the line you want to delete and press the Remove key. The definition of the line to be deleted is displayed and you are prompted to confirm the deletion as follows:

  ```
  Press Do to confirm changes to groups of communication lines.
  ```

  Press Do to confirm the deletion, or press Cancel if you want to keep the information as it is.

  Press the Exit key to return to the Main menu. If you have made changes to records, the system prompts you to reset communication lines. Enter Yes to reset communication lines.

2.4.3 STD—Define Standard Connections

To make any connection available to all users of the system, define it as a standard connection. When you define a connection, all the details required to establish the connection are stored. Standard connections are displayed among the list of connections when the CON option is selected from the Main menu.

As the system manager, you can set up personal and standard connections using the appropriate Main menu options (PER for personal connections, STD for standard connections).

A shortcut to create either type of connection is to use a manual connection. Manual connection is displayed when you select the CON option from the Main menu.

You can do the following if you select manual connection:

- Enter the information required to make the connection to a remote system. This involves identifying the communication line you want to use, the telephone number of the remote system, the transmit and receive speeds, and other information.
- After you enter the information for the connection, you can make the actual connection to the remote system. This is a good way to test whether you have set up the connection properly.
- When you are finished with a manual connection, you are prompted by the system whether to save the definitions for that connection. You can save the connection as either a personal connection or a standard connection.
- The connection you saved is displayed in the list of available connections. You can either select this connection to connect with the remote system or use a manual connection again to connect with a different remote system.

You can add, change, delete, or display standard connections. If no standard connections are defined when you select STD from the Main menu, a screen for adding a standard connection is displayed. Thereafter, when you select the STD option, a list of the communication lines you have already set up is displayed.

Figure 2–5 is the screen used for adding a standard connection. Following the sample screen are explanations of each field.

Figure 2–5 Adding a Standard Definition

```
d i g i t a l     VAX Public Access Communications
                  Define Standard Connections
                  Add

 Name for connection:  Electronic Store

 Phone number:         8-800-332-3366
 Dial method:          <Use computer dialing>
 Communication line:   <Any phone line>
 Session logging:      <Disabled>
 Logging mode:         <Record>
 Timeout (secs):       60
 Transmit speed:       <Same as communication line>
 Receive speed:        <Same as communication line>
 Automatic newline?    <No>
 Character size:       <8>
 Parity:               <None>
 XON/XOFF support?     <Yes>
 Local echo?           <No>
 File transfer:        <KERMIT>
 LOCAL key:            <Ctrl and \>
 Swap BACKSPACE and RUBOUT keys? <No>

Press DO to confirm changes to standard connections.
```

The following sections explain how to respond to each field on the screen.

Name for connection:

Enter a name to identify the connection; for example, ‘‘Dow Jones’’ or ‘‘Branch Office.’’ The name you enter here is displayed among the list of connections that can be made when you select the CON option from the Main menu.

Phone number:

If you are using a modem to reach the remote system, enter the telephone number of the remote system. If necessary, include the area code. You can enter up to 30 numeric characters. Alphabetic characters as they appear on the dialer are not allowed. Use the numeric equivalent. You can enter the number with or without separators. For example, either of the following is correct: (999) 999–9999 or 9999999999.

Sometimes it may be necessary to wait for a secondary dial tone when dialing. To do this, enter %W where you want the pause. Some long distance companies require this feature. For example, you may need to dial 9 for an outside line, pause, and then dial the phone number. To do this, enter the following:

```
9-%W-(123)-999-9999
```

Dial method:

Specify the type of dialing you want to use to reach remote systems. The type of modem you have, your own expertise with your modem's capabilities, and the remote system determine the type of dialing you use. Consider the following possibilities:

- If your modem has autodial capabilities, this means the modem can dial the number for you. In this case, select the Use computer dialing option.
- If your modem does not have autodial capabilities, you must specify the Dial from handset option.
- If someone at the site of the remote system must answer the telephone to allow you to continue, you should also specify the Dial from handset option.
- If you are experienced at using your modem and you want to take advantage of your modem's unique setup and special dial features, select the Use Expert Dial mode option.

Communication line:

Use this field to assign a communication line to your connection. The values enclosed within angle brackets show the name of a communication line or group of communication lines. Use ← or → to select a different communication line (if more than one communication line is available).

Note

You usually do not have to change the following fields. These fields are automatically set by the system.

Session logging:

Use Disabled if you do not want the system to log (save) the information displayed by the remote system. Use Enabled if you want to log this information. You can temporarily enable logging while connected to a remote system by using the Local Options menu. You can also change logging status during a session by using this same menu.

Logging mode:

This field specifies the format of the session logging data you want to save. Use Record if you receive information from the remote system one line at a time. Use Image if the data contains control characters, such as screen displays (for example, a menu screen). Record is the usual setting.

Timeout (secs):

This field shows the number of seconds allowed for VAX PAC to establish a connection with the remote system. If the connection is not made within this time, a message is displayed.

Transmit speed: To set the transmit speed, you must know the receive speed of the remote system. Use this field to match your system's transmit speed with the remote system's receive speed. Use ← or → to change the transmit speed. For example, if the remote system's receive speed is 1200, select 1200 as your transmit speed. Initially, the transmit speed is Same as communication line.

Receive speed: To set the receive speed, you must know the transmit speed of the remote system. Use this field to match your system's receive speed with the remote system's transmit speed. Use ← or → to change the receive speed. For example, if the remote system's transmit speed is 1200, select 1200 as your receive speed. Initially, the receive speed is Same as communication line.

Automatic newline? Use No if you do not want a line feed added to each line displayed on the remote system. Use ← or → to change this field to Yes if you want a line feed added to each new line. Select Yes for this field if the text displayed on the remote system is displayed crowded on the line.

Character size: This field is used to specify the length of the characters you send and receive from a remote system. It can be either 7 or 8 data bits. Use ← or → to change this field.

Parity: Parity can be None, Even, Odd, or Space. Parity is a means of checking that the data sent from one system is received correctly by another system. Use ← or → to change this field.

XON/XOFF support? All Digital terminals and systems support this feature. The XON/XOFF feature is used to recognize when and when not to send characters. Use ← or → to change this field to No if the remote system does not have the XON/XOFF feature.

Local echo? If you select Yes, each character sent to the remote system is displayed on your terminal. If, when you enter text on the remote system, the text is not displayed on your terminal, you should select Yes for this field. However, most systems do not require local echo. If you select No, the remote system displays each character. Use ← or → to select the response.

File transfer: This field specifies the file transfer method you can use to transfer files between your system and the remote system. When VAX PAC is first installed, KERMIT is the only method of file transfer available. If you want to use another file transfer method, you must install it. (Section 2.5.4 explains this procedure.) If you install another file transfer method, use ← or → to select it.

LOCAL key:	This field specifies the key that is used to return control from the remote system to your system. The default LOCAL key is actually two keys, Ctrl and \, pressed simultaneously. Use ← or → to select a different value for the LOCAL key.
Swap Backspace and Rubout keys?	If you select this option, the definitions of the Backspace and Rubout key are reversed. This means when you press the Rubout key, the control character for Backspace, Ctrl/H, is passed to the remote system. If you press either Backspace or Ctrl/H, the control character for Rubout is passed to the remote system.

After you enter the information, press Do to set up your first standard connection.

To cancel the information just entered, press Cancel.

After you set up a standard connection, it is displayed along with all previously defined standard connections.

You can now add, change, delete, or display a standard connection.

- To add a standard connection, you can copy the values of an existing connection or enter new values.
  - To copy values, select the line you want to copy and press Insert Here and then press Do. Information for the standard connection is displayed.
  - Enter information for Name for connection and Phone number and make any other changes necessary. Press Do to add the new communication line.
  - To use default values instead of values from an existing standard connection, press Insert Here and then press Resume.
- To display or change a standard connection, select the line and press Do. When the information for the standard connection is displayed, make any changes and press Do.
- To delete a standard connection, select the line you want to delete and press the Remove key. The definition of the line to be deleted is displayed and you are prompted to confirm the deletion as follows:

  ```
  Press Do to confirm changes to standard connections.
  ```

  Press Do to confirm the deletion, or press Cancel if you want to keep the information as it is.

  Press the Exit key to return to the Main menu.

2.5 Customizing Options

In addition to the management options, the Manager's Main menu provides you with the following options to customize VAX PAC to meet any special requirements of your system:

- Set system defaults
- Choose security options
- Define modems
- Define methods of file transfer
- Define remote file transfer servers
- Define Interrupt key procedures

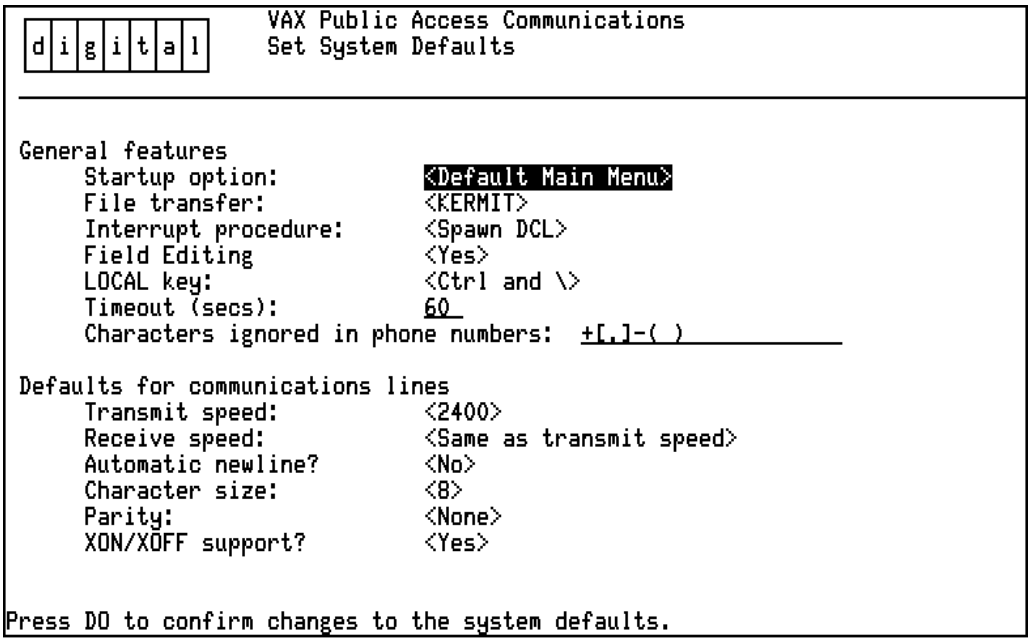
The following sections describe these menu options.

2.5.1 SYS—Set System Defaults

System defaults are used when you first define a new connection. Although the system defaults are already set for general use, you might need to change them. The system defaults include the interrupt procedure, and the transmit and receive speeds.

A screen similar to Figure 2–6 is displayed when you select the SYS option. When VAX PAC is first installed, the system defaults are the same as shown on this screen. Following the sample screen are explanations of each field.

Figure 2–6 Setting System Defaults



Follow these steps to change defaults:

1. Select the default you want to change by positioning the cursor over the existing value. Use ↑ or ↓ to position the cursor.
2. Select a new value by using ← or → to change the values enclosed in angle brackets. If the defaults are not enclosed in angle brackets, enter the values using the keyboard.
3. Press Do to save the new values or press Cancel for the system to ignore any changes. VAX PAC then returns you to the Main menu.

The following sections explain how to respond to each field on the screen. Press Help if you are not sure how to respond.

Startup option:

This field allows you to specify the first screen displayed by VAX PAC. The value you specify is used only when VAX PAC is started using the DCL command COMMUNICATE with no other qualifiers.

If you select User's Main Menu, VAX PAC displays the User's Main menu when you start VAX PAC, even if you are operating from a privileged account. If you select this option and later want to use the Manager's Main menu in a session, you must start VAX PAC with the command COMMUNICATE/SYSTEM.

If you select Default Main Menu, the menu displayed when you start VAX PAC depends on your privileges. Normally, VAX PAC displays the User's Main menu. If you are operating from a privileged account, VAX PAC displays the Manager's Main menu.

If you select Connect to Remote System, VAX PAC bypasses all Main menus and displays the list of available connections. If you select this option and later want to use a Main menu, you must start VAX PAC with the command COMMUNICATE/USER (for the User's Main menu) or COMMUNICATE/SYSTEM (for the Manager's Main menu).

File transfer:

This field specifies the file transfer method you can use to transfer files between your system and the remote system. When VAX PAC is first installed, KERMIT is the only method of file transfer available. If you want to use another file transfer method, you must install it. (Section 2.5.4 explains this procedure.) If you install another file transfer method, use ← or → to select it.

Interrupt procedure:

This field allows you to select the interrupt procedure you can use when you press the interrupt key. VAX PAC comes with the Spawn DCL procedure already installed, although you can define other procedures as described in Section 2.5.6. When you use Spawn DCL, you must log out to get back into VAX PAC.

Field Editing:

If you select No for this field, whenever you enter a value in a field, the previous value is erased. You can, however, use the erase keys when entering a new value.

If you select Yes for this field, you can edit a value for a field that you have previously typed using the cursor movement keys in addition to the erase keys.

Section 2.3.2 explains the function keys to use when field editing is enabled.

LOCAL key:

This field specifies the keys you use to return control from the remote system to your system. The default LOCAL key is actually two keys, Ctrl and \, pressed simultaneously. You can select an alternative LOCAL key (such as Ctrl/P) by using ← or →. Section 2.3.3 explains the LOCAL key.

Timeout (secs):

The value you specify in this field determines how long the system waits for a connection to be established before giving up the attempt to connect.

Characters ignored in phone numbers: When VAX PAC is installed, the following characters are disregarded in a telephone number:

[ ] brackets

( ) parentheses

blank spaces

- hyphen

. period

Alphabetic characters as they appear on the dialer are not allowed. Use the numeric equivalent.

Use this field to enter any additional characters you want the system to disregard.

Transmit speed: This field specifies the speed at which your modem can send characters over the telephone lines. This depends entirely on the speed at which your modem is capable of sending characters. The value here is used as the default when you define a new connection.

Receive speed: This field specifies the speed at which your modem can receive characters from the remote system. This depends entirely on your modem, but the receive speed is almost always the same as the transmit speed. The value here is used as the default when defining a new connection.

Automatic newline? Use No if you do not want a line feed added to each line displayed on the remote system. Use ← or → to change this field to Yes if you want a line feed added to each new line. Select Yes for this field if the text displayed from the remote system is displayed crowded on the line.

Character size: You should know the character size (either 7 or 8 data bits) used by the remote systems with which you want to communicate. This field is used to specify the length of the characters you send and receive from a remote system. Use ← or → to change this field.

Parity: You should know the type of parity that is being used by the remote systems with which you want to connect. Parity can be either None, Even, Odd, or Space. Parity is a means of checking that the data sent from one system is received correctly by another system. Use ← or → to change this field.

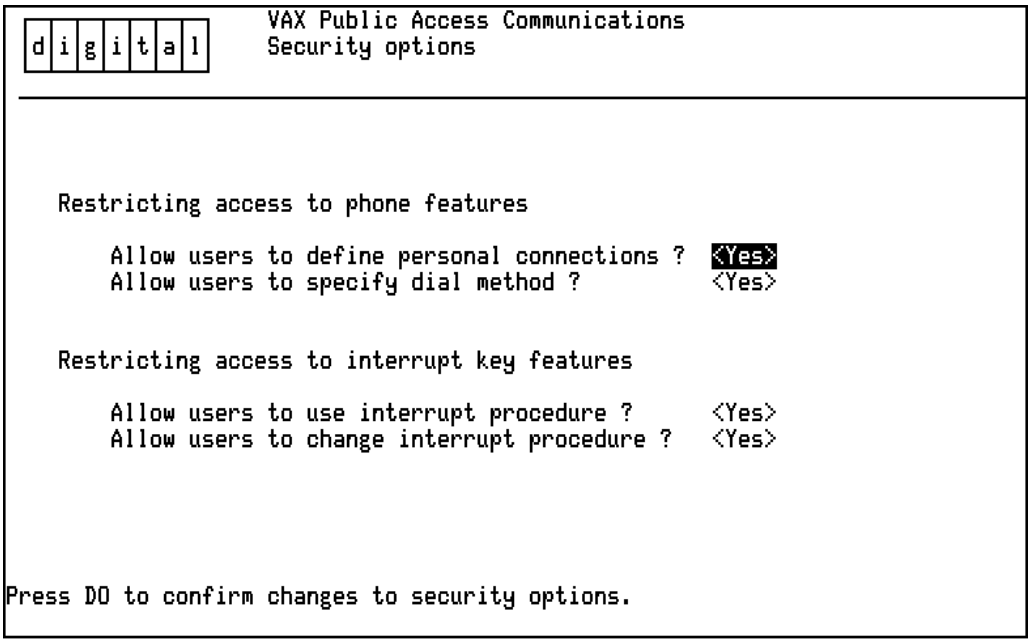
XON/XOFF support? You should know if the remote system has the XON/XOFF feature. All Digital terminals and systems support this feature. The XON/XOFF feature is used to recognize when and when not to send characters. Use ← or → to change this field to No if the remote system does not have the XON/XOFF feature.

2.5.2 SEC—Security Options

The VAX PAC system manager can set security options that restrict access to phone features and Interrupt key features.

When you select the SEC option from the Manager's Main menu, a screen similar to Figure 2–7 is displayed.

Figure 2–7 Adding Security Options



2.5.2.1 Restricting Access to Phone Features

Use the following security options to restrict access to phone features:

- Allow Users to Define Personal Connections?

  The default Yes allows users to define personal connections. Users can then define their own connections when accessing a remote database.

  If you select No, users can use only standard connections when accessing a remote database. Users cannot use the PER option to define personal connections, and cannot choose manual connections from the CON option.

  This option is useful in restricting the number and type of personal connections that you allow users.

- Allow Users to Specify Dial Method?

  The default Yes allows users to select the method of dialing when defining a connection.

  If you select No, you restrict users to computer dialing when defining the connections. Users cannot dial from the handset (telephone) or use expert mode dialing.

  This option is useful in restricting the number and type of dialing methods that you allow users.

2.5.2.2 Restricting Access to Interrupt Key Features

Use the following security options to restrict access to Interrupt key features:

- Allow Users to Use Interrupt Procedure?

  The default Yes allows users to press the Interrupt key to suspend the VAX PAC session and start their own interrupt procedure.

  If you select No, the use of the Interrupt key is disabled.

  This option is useful in preventing users from suspending their connection to the remote database in favor of other activities.

- Allow Users to Change Interrupt Procedure?

  The default Yes allows users to choose any procedure from the available interrupt procedures.

  If you select No, users cannot change the defined interrupt procedure invoked by pressing the Interrupt key.

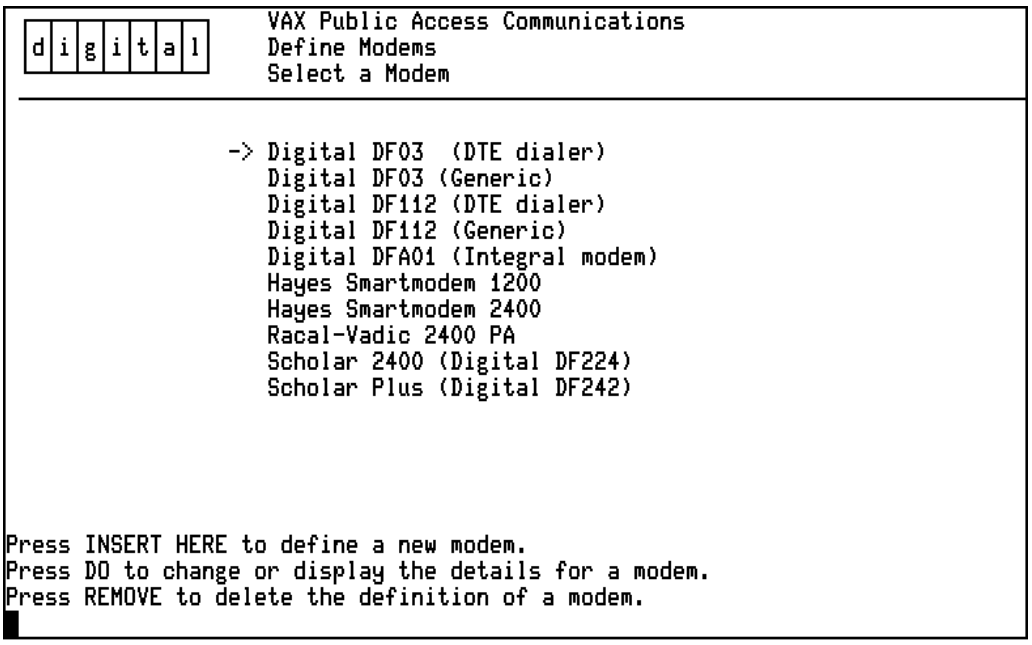
  This option is useful for defining the interrupt procedure to which individual users have access. For example, you may want to restrict A–to–Z users to the A–to–Z Interrupt menu.

2.5.3 MOD—Define Modems

You need not use this option if you intend to use any of the modems already defined for VAX PAC. Section 1.5 lists those modems already defined for VAX PAC.

To use a modem other than one defined for VAX PAC, you must use the MOD option to enter the information for the new modem. When you select MOD, a screen similar to Figure 2–8 is displayed:

Figure 2–8 Defining Modems



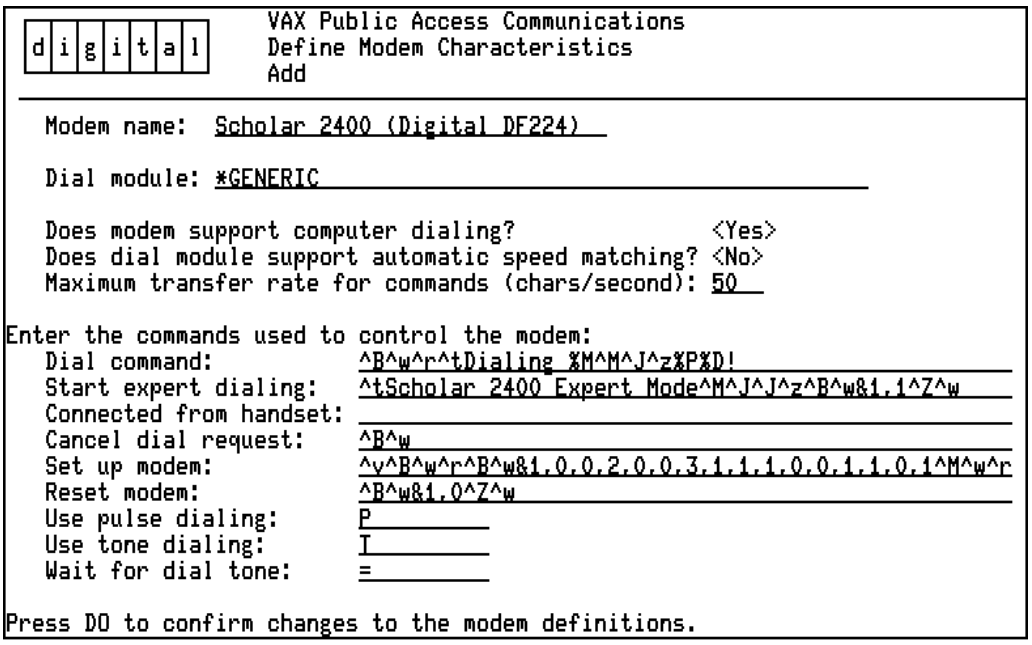
The modems shown on the screen are those that have been tested for use with VAX PAC. To add a new modem to the list, you must press Insert Here. Later, you can press Do to display or change the information for any modem, or Remove to delete the information for any modem.

You can add, display, change, or delete modem definitions. If no modems are defined when you select MOD from the Main menu, VAX PAC displays a screen for adding a new modem. Thereafter, when you select the MOD option, VAX PAC displays a list of the modems you have already set up.

Refer to your modem setup guide for information on defining modem characteristics. The Software Product Description (SPD) supplied as part of the VAX PAC installation kit lists the modems supported by VAX PAC.

Figure 2–9 is an example of the screen used for adding a modem. Following the sample screen are explanations of each field.

Figure 2–9 Adding a Modem



The following sections explain how to respond to each field on the screen. Press Help if you are not sure how to respond.

Modem name: Give each modem a unique name of up to 30 characters. When you set up a communication line, the name you give the modem is displayed in the list of available modems.

Dial module:

A dial module is a type of software that can communicate with a modem. VAX PAC has two built-in dial modules. They are:

- GENERIC—The most flexible of the dial modules. A connection is treated as successful when the carrier is detected. An unsuccessful connection occurs when you press Cancel before the carrier is detected or when the carrier is not detected within the time allowed for the connection. Select the GENERIC dial module if you are using a DMF32 controller (see Appendix E).
- DMCL—This dial module supports Digital's Modem Command Language (DMCL) and is specific to the DFA01 and the Digital Scholar Plus (DF242) modems. The module can take advantage of the special features of Digital modems supporting DMCL, such as automatic speed matching.

In addition to the dial modules listed here, VAX PAC can use the dial modules supplied with VMS for the DCL command SET HOST/DTE (for example, DTE_DF03 for the DF03 modem). The source program file SYS$EXAMPLES:DTE_DF03.MAR is provided with VMS as an example of such a dial module.

Does modem support computer dialing?

The ability to support computer dialing is commonly known as autodial. Most modems allow autodialing from either a terminal or a computer. Some older modems do not allow this feature and require the use of a telephone handset.

If your modem supports computer dialing, select Yes. Otherwise, select No.

Does dial module support automatic speed matching?

Some modems can match transmission speeds with the modem on the remote system. Not all dial modules can support this feature automatically.

If you select Yes for this option, the speed of the connection is determined by the dial module. Any values you have selected for the connection are ignored.

If you select No, then the speed you specify for the connection is used once a connection has been established. It is important that this be the actual speed for the connection. You can change the speed once a connection has been established by using the Change Setup option on the Local Options menu displayed when you press the LOCAL key.

The DMCL dial module supports speed matching. When using the GENERIC dial module, DTE_DF03 or DTE_DF112, you must specify the speed for the connection when the connection speed is different from the speed set for the communication line.

Maximum transfer rate for commands (chars/second):

It is usually necessary to keep the rate at which commands are passed to the modem low so that the modem does not lose data. Some modems can accept commands at 100 characters per second, but others require 10 characters per second.

The value you enter here is the maximum number of characters per second that your modem can accept without losing data. A value of zero is treated as 20 characters per second.

If you have problems losing data when sending commands such as setup or when dialing, you can either reduce the transfer rate specified here, or you can add the characters ^w to introduce pauses of half a second.

Dial command:

The dial command is used to dial the remote system when you select computer dialing. The information you enter here depends on the dial module you are using. The GENERIC dial module allows you to use VAX PAC commands within the dial command. The DMCL dial module requires only the VAX PAC codes %P and %D, which represent the dial type (tone or pulse) and phone number to be dialed.

The dial command requires special values that you need to understand. These are explained in Appendix D.

The following example shows the dial command for the Scholar 2400 using the GENERIC dial module:

```
^B^w^r^tDialing %M^M^J^z%P%D!
```

- ^B—The control sequence Ctrl/B lets you enter Scholar command mode
- ^w—Wait 1/2 second for modem to respond
- ^r—Wait for modem response
- ^tDialing %M^M^J^z—Displays the message containing the unedited phone number followed by a carriage return and a line feed
- %P—Selects either tone dialing or pulse dialing, depending on what you have specified
- %D—The phone number with any redundant characters removed
- !—End of dial command

Start expert dialing:

You may need to enter commands directly to the modem. Use expert dialing for this.

The modem is usually set up to allow computer dialing for outgoing calls and automatic answering of incoming calls. This setup often means that commands typed to the modem are not displayed on the terminal.

To use expert dial mode, specify any commands needed to allow you to interact with the modem. Typical commands are enable echo and display full responses.

The following example for the Digital Scholar 2400 could be used to enable character echo:

```
^tScholar 2400 Expert Mode^M^J^J^z^B^w&1,1^Z^w
```

- ^tScholar 2400 Expert Mode^M^J^J^z—Displays the message Scholar 2400 Expert Mode followed by a carriage return and two line feeds
- ^B—The control sequence Ctrl/B lets you enter Scholar command mode
- ^w—Wait 1/2 second for modem to respond
- &1,1^Z—The Scholar 2400 commands that enable echo for the characters you type in expert mode
- ^w—Wait 1/2 second for modem to respond

Connected from handset:

Use this option when you want to talk by telephone with someone at the remote site before establishing the connection.

It is sufficient with some modems to set the Data/Talk switch on the modem to confirm a successful connection. However, some new modems no longer have this switch and it is necessary to send a command to the modem to go off hook.

When you specify a command to confirm connected from handset, each time you make a connection using the handset you are prompted to press a key when you hear the high-pitched carrier tone. When you do this, the system will try for 5 seconds to establish a connection.

The documentation for your modem explains how to make connections using a handset. For example, the Racal-Vadic 2400PA requires the following command:

```
^E^M^w^G^M
```

- ^E—The wakeup character for the Racal-Vadic modem
- ^M—Carriage return to complete command
- ^w—Wait 1/2 second to give modem time to respond
- ^G—Go off hook
- ^M—Carriage return to complete command

Cancel dial request: This is the control sequence that must be sent to the modem when you want to stop the dialing sequence after it has started.

Some modems continue to dial, even though the system has effectively hung up. Your modem documentation explains whether this is required. If your modem resets when Data Terminal Ready is set to OFF, then you need not define a sequence to cancel the dial request.

For example, the control sequence to cancel a dial request on the Digital Scholar 2400 is the following:

```
^B^w
```

- ^B—The control sequence Ctrl/B tells the Scholar 2400 to cancel the dial command
- ^w—Wait 1/2 second for modem to respond

Set up modem: Modems usually require some setup before they can operate with a computer. Some modems require internal switches to be set; others can be set up using commands. Some modems need to be set up each time the power is turned on; others need to be set up only once. Refer to Appendix C and your modem documentation.

The setup commands you enter here are used each time the system starts and whenever the option Reset Communication Lines is selected.

When you define the setup command, it is worthwhile to include the characters ^v at the start of the command. This causes the interaction between the modem and the system to be displayed on the terminal. This is useful for confirming the correct functioning of the modem.

The following example shows the command to set up the Scholar 2400 modem:

```
^v^B^w^r&1,0,0,2,0,0,3,1,1,1,0,0,1,1,0,1^M^w^r
```

- ^v—Tells VAX PAC to display modem responses
- ^B—The control sequence Ctrl/B lets you enter Scholar command mode
- ^w—Wait 1/2 second for modem to respond
- ^r—Wait for modem response
- &1,0,0,2,0,0,3,1,1,1,0,0,1,1,0,1^M—The setup command for the Scholar 2400
- ^w—Wait 1/2 second for modem to respond
- ^r—Wait for modem response

Reset modem:

When you break a connection to a remote system, many modems immediately return to an idle state. Some modems, however, require commands to return them to the idle state. When a modem requires reset commands, it can often take an extra 5 seconds to break a connection and continue normal functions.

Use the reset command to display the modem commands during computer dialing. Although this is a good indication of the correct performance of the modem, the modem will usually have to be reset to a quiet mode of operation; otherwise you might have problems with incoming calls.

The following example for the Digital Scholar 2400 could be used to disable character echo. The Digital Scholar 2400 requires that you disable echo and select abbreviated responses if you want to support incoming calls. The characters ^w specify a half-second wait to give the modem time to respond.

The following example shows the command to set up the Scholar 2400 modem:

```
^B^w&1,0^Z^w
```

- ^B—The control sequence Ctrl/B enters the Scholar 2400 command mode
- ^w—Wait 1/2 second for modem to respond
- &1,0^Z—Tells the modem not to echo commands
- ^w—Wait 1/2 second for modem to respond

Use pulse dialing:

Many modems allow you to choose between tone dialing and pulse/universal dialing. For some modems you can select the option as part of the modem setup, while others require that you specify the option each time you dial.

You select either tone dialing or pulse dialing when you set up your communication lines.

Enter the sequence of characters you must specify in the modem commands when you want to specify pulse dialing.

For example, the Digital DF112 and Digital Scholar 2400 modems require the letter P to indicate the need for pulse dialing.

To use this feature, type the characters %P as part of the modem commands for dialing or setup, or in the phone number you specify when defining a connection. VAX PAC replaces each occurrence of %P with the value you enter here whenever pulse dialing is specified for the communication line.

Use tone dialing:

Many modems allow you to choose between tone dialing and pulse/universal dialing. For some modems you can select the option as part of the modem setup, while others require that you specify tone or pulse each time you dial.

You select either tone dialing or pulse dialing when you set up your communication lines.

Enter the sequence of characters you must specify in the modem commands when you want to specify tone dialing.

For example, the Digital DF112 and Digital Scholar 2400 modems require the letter T to indicate the need for tone dialing.

To use this feature, type the characters %P as part of the modem commands for dialing or setup or in the phone number you specify when defining a connection. VAX PAC replaces each occurrence of %P with the value you enter here whenever tone dialing is specified for the communication line.

Wait for dial tone:

Many modems with the autodial feature allow you to enter a character that denotes wait for a secondary dial tone. Some long distance companies require this feature. Enter the sequence of characters you must specify in the dial command when you want the modem to wait for a second dial tone.

For example, the equal sign (=) is used by the Digital Scholar 2400 to indicate wait for a secondary dial tone. To use this feature, enter the sequence %W in the phone number when defining a connection.

When you call the remote system, each occurrence of %W is replaced by the value you enter here.

After you enter the information, press Do to set up your first modem.

To cancel the information just entered, press Cancel.

After you define a modem, its definitions are displayed along with all previously defined modems.

You can now add, change, delete, or display a modem definition.

- To add a modem definition, you can copy the values of an existing modem or enter new values.
  - To copy values, select the line you want to copy and press Insert Here and then Do. Information for the modem is displayed.
  - To add the new modem definition, enter information for Modem name and make any other changes necessary. Press Do.
  - To use default values instead of values from an existing modem, press Insert Here and then press Resume.
- To display or change a modem definition, select the line and press Do. When the information for the modem is displayed, make any changes and press Do.
- To delete a modem definition, select the line you want to delete and press the Remove key. The definition of the line to be deleted is displayed and you are prompted to confirm the deletion as follows:

  ```
  Press Do to confirm changes to the modem definitions.
  ```

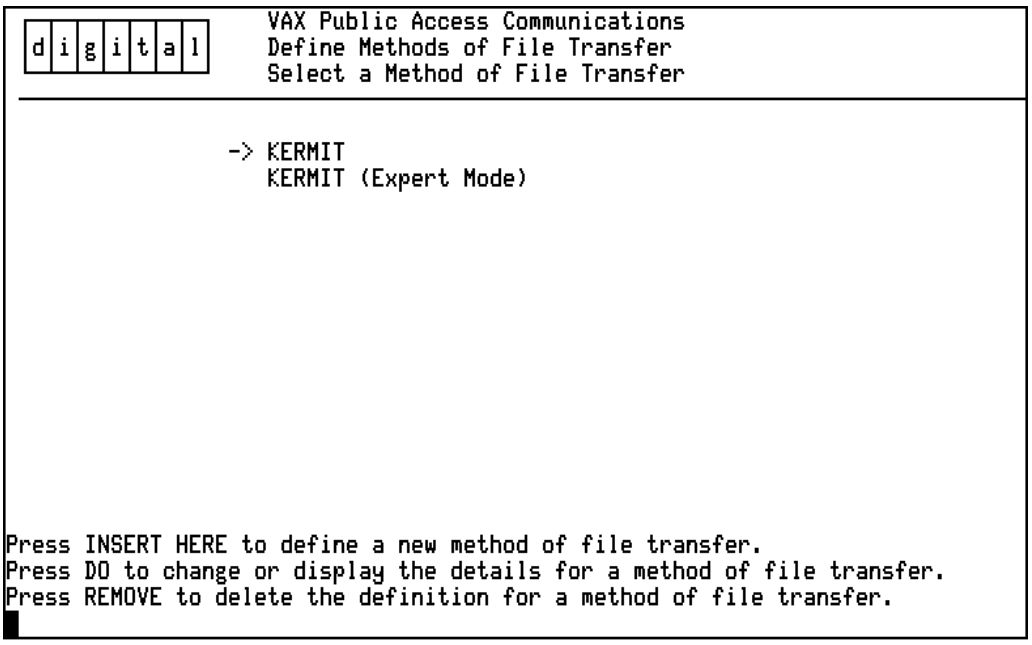
  Press Do to confirm the deletion, or press Cancel if you want to keep the information as it is.

  Press the Exit key to return to the Main menu. If you have made changes to records, the system prompts you to reset communication lines. Enter Yes to reset communication lines.

2.5.4 XFR—Define Methods of File Transfer

When VAX PAC is first installed, KERMIT is the only method of file transfer available. This means that when you want to transfer files between your system and a remote system, the remote system must also use the KERMIT file transfer method. If you intend to use XMODEM or some other file transfer method, use the XFR option to define the new file transfer method. When you select XFR, the screen in Figure 2–10 is displayed.

Figure 2–10 Defining Transfer Methods

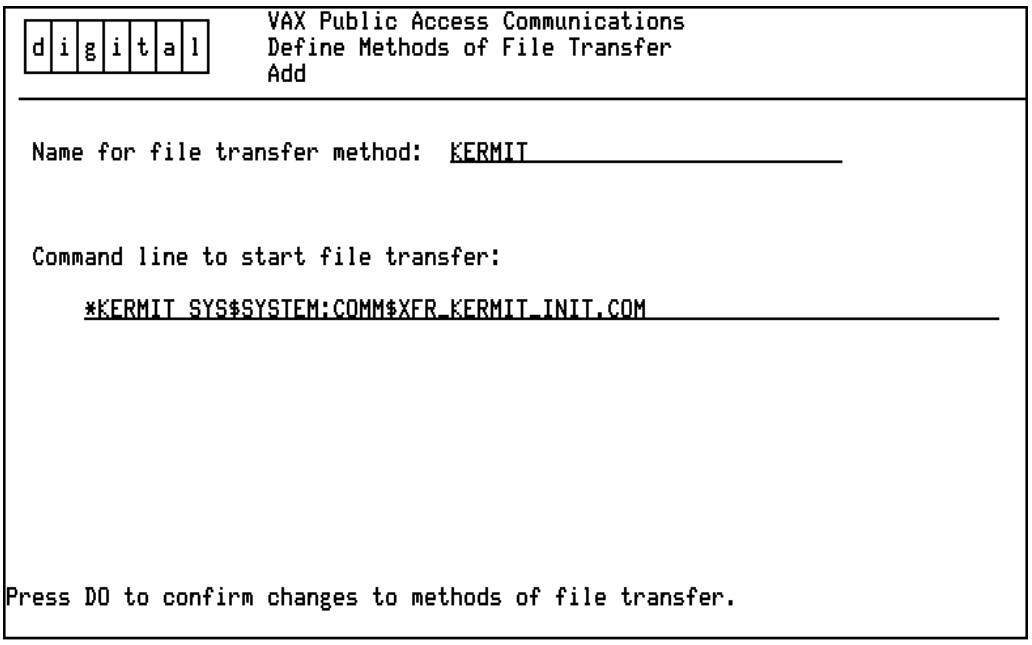


If you want to use a file transfer method other than KERMIT (such as XMODEM), or a version of KERMIT other than the one supplied with VAX PAC, you must install the new file transfer method on your system.

You can add, change, delete, or display file transfer methods. If no file transfer methods are defined when you select XFR from the Main menu, a screen for adding a new file transfer method is displayed. Thereafter, when you select the XFR option, a list of the file transfer methods you have already set up is displayed.

Figure 2–11 is an example of the screen used for adding a file transfer method. Following the sample screen are explanations of each field.

Figure 2–11 Adding a File Transfer Method



Use the following information to complete these fields.

Name for file transfer method:	Enter the name for the new file transfer method; for example, XMODEM.
Command line to start file transfer:	Enter the command line that will execute the file transfer; for example, MCR XMODEM %T. Type the characters %T in the command line when you require the device name for the communication line in use for the connection.

After you enter the information, press Do to set up your first file transfer method.

To cancel the information just entered, press Cancel.

After you set up a file transfer method, it is displayed along with all previously defined file transfer methods.

You can now add, change, delete, or display a file transfer method.

- To add a file transfer method, either copy the values of an existing file transfer method or enter new values.
  - To copy values, select the line you want to copy, press the Insert Here key, and then press Do. Information for the file transfer method is displayed.
  - Enter information for Name for file transfer method and make any other changes necessary. Press Do to add the new file transfer method.
  - To use default values instead of values from an existing file transfer method, press Insert Here and then press Resume.
- To display or change a file transfer method, select the line and press Do. When the information for the file transfer method is displayed, make any changes and press Do.
- To delete a file transfer method, select the line you want to delete and press the Remove key. The definition of the line to be deleted is displayed and you are prompted to confirm the deletion as follows:

  ```
  Press Do to confirm changes to method of file transfer.
  ```

  Press Do to confirm the deletion, or press Cancel if you want to keep the information as it is.

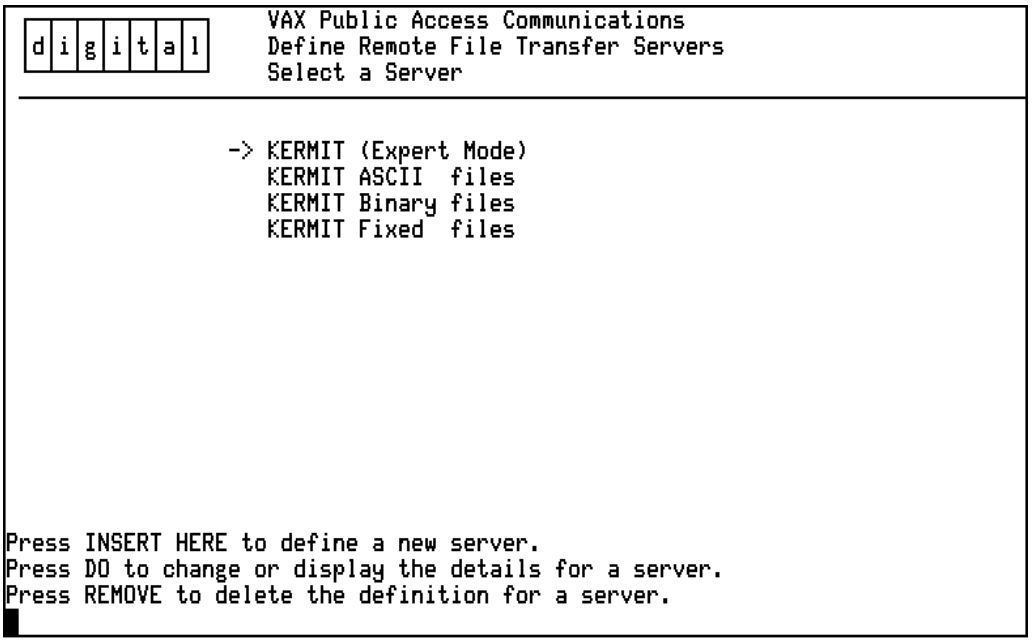
  Press the Exit key to return to the Main menu.

2.5.5 SRV—Define Remote File Transfer Servers

The default file transfer server for Communications is KERMIT. If you intend to use XMODEM or some other file transfer server, use the SRV option to specify the new file transfer server.

When you select SRV, the screen in Figure 2–12 is displayed.

Figure 2–12 Defining Remote File Transfer Servers



Initially, KERMIT is the only file transfer server available.

There are four ways of starting the KERMIT file transfer server: ASCII, Binary, Fixed, and Expert Mode.

- Use ASCII for simple text files. All versions of KERMIT support ASCII, which is suitable for transferring files with variable-length records between VMS systems or for files containing special characters.
- Use Binary for transferring binary files from a personal computer (such as CP/M COM files) that need to be kept in a format that allows the file to be returned without any change. Binary is not suitable for transferring Record Management Services (RMS) files between VMS systems.
- Use Fixed for transferring EXE files between VMS systems. These files are stored as fixed-length, 512-character records.
- Expert Mode allows you to use KERMIT commands interactively. If you specify this mode, you see the following prompt:

  ```
  COMM$KERMIT>
  ```

Enter the HELP command for instructions on using KERMIT in Expert Mode.

Press Ctrl/Z to return to VAX PAC.

KERMIT: A File Transfer Protocol, a Digital Press book, offers more information on this subject.

You can add, change, delete, or display remote file transfer servers. If no remote file transfer servers are defined when you select SRV from the Main menu, a screen for adding a new remote file transfer server is displayed. Thereafter, when you select the SRV option, a list of the remote file transfer servers you have already set up is displayed.

Figure 2–13 is an example of the screen used for adding remote file transfer servers. Following the sample screen are explanations of each field.

Figure 2–13 Adding Remote File Transfer Servers

```
d i g i t a l     VAX Public Access Communications
                  Define Remote File Transfer Servers
                  Add

 Name for server:  KERMIT ASCII  files

 Command line to start server:

     MCR COMM$KERMIT @SYS$SYSTEM:COMM$SRV_KERMIT_ASCII.COM

Press DO to confirm changes to file transfer servers.
```

Use the following information to respond to these fields.

Name for server:	Enter the name for the new file transfer server; for example, XMODEM.
Command line to start server:	Enter the command line that will start the file transfer server; for example, MCR XMODEM_SERVER.

After you enter the information, press Do to set up your first remote file transfer server.

To cancel the information just entered, press Cancel.

After you set up a remote file transfer server, it is displayed along with all previously defined remote file transfer servers.

You can now add, change, delete, or display a remote file transfer server.

- To add a remote file transfer server, either copy the values of an existing remote file transfer server or enter new values.
  - To copy values, select the line you want to copy and press the Insert Here key and then press Do. Information for the remote file transfer server is displayed.

    Enter information for Name for server and make any other changes necessary. Press Do to add the new remote file transfer server.
  - To use default values instead of values from an existing remote file transfer server, press Insert Here and then press Resume.
- To display or change a remote file transfer server, select the line and press Do. When the information for the remote file transfer server is displayed, make any changes and press Do.
- To delete a remote file transfer server, select the line you want to delete and press the Remove key. The definition of the line to be deleted is displayed and you are prompted to confirm the deletion as follows:

  ```
  Press Do to confirm changes to file transfer servers.
  ```

  Press Do to confirm the deletion, or press Cancel if you want to keep the information as it is.

  Press the Exit key to return to the Main menu.

2.5.6 KEY—Interrupt Key Procedures

Interrupt key procedures allow you to suspend a connection to a remote system and perform another activity. When VAX PAC is installed, there are two interrupt procedures defined: Spawn DCL and A–to–Z Interrupt Menu.

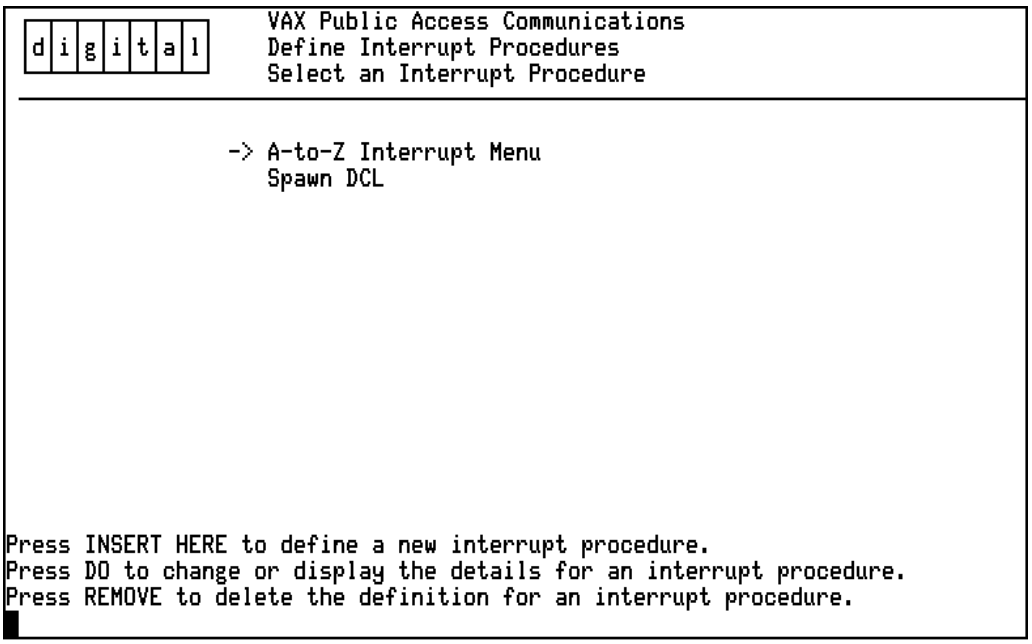
The VMS default interrupt procedure, Spawn DCL, returns you to the DCL command level (the $ prompt) after you press the Interrupt key. You can then enter DCL commands. When you have finished, log out and press Resume to continue using VAX PAC.

On A–to–Z systems, the A–to–Z Interrupt Menu is displayed when you press the Interrupt key.

You can make changes to the interrupt procedure by using the SYS—Set system defaults menu option.

When you select the KEY option, a screen similar to Figure 2–14 is displayed.

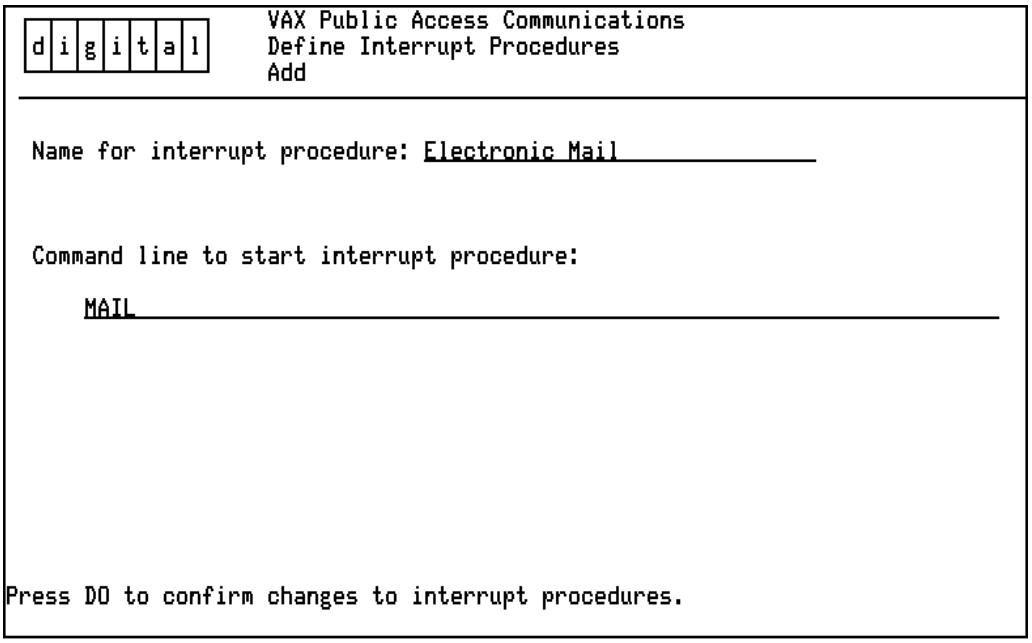
Figure 2–14 Selecting Interrupt Key Procedures



You can add, change, delete, or display interrupt procedures. If no interrupt procedures are defined when you select KEY from the Main menu, a screen for adding a new interrupt procedure is displayed. Thereafter, when you select the KEY option, VAX PAC displays a list of the interrupt procedures you have already set up.

Figure 2–15 is an example of the screen used for adding an interrupt procedure. Following the sample screen are explanations of each field.

Figure 2–15 Adding an Interrupt Procedure



Use the following information to respond to these fields.

Name for interrupt procedure:	Enter the name for the new interrupt procedure; for example, Electronic Mail.
Command line to start interrupt procedure:	Enter the command line to start the new interrupt procedure; for example, Mail.

After you enter the information, press Do to set up your first interrupt procedure.

To cancel the information just entered, press Cancel.

After you define an interrupt procedure, it is displayed along with all previously defined interrupt procedures.

You can now add, change, delete, or display an interrupt procedure.

- To add an interrupt procedure, either copy the values of an existing interrupt procedure or enter new values.
  - To copy values, select the line you want to copy and press the Insert Here key and then press Do. Information for the interrupt procedure is displayed.

    Enter information for Name for interrupt procedure and make any other changes necessary. Press Do to add the new interrupt procedure.
  - To use default values instead of values from an existing interrupt procedure, press Insert Here and then press Resume.
- To display or change an interrupt procedure, select the line and press Do. When the information for the interrupt procedure is displayed, make any changes and press Do.
- To delete an interrupt procedure, select the line you want to delete and press the Remove key. The definition of the line to be deleted is displayed and you are prompted to confirm the deletion as follows:

  ```
  Press Do to confirm changes to interrupt procedure.
  ```

  Press Do to confirm the deletion, or press Cancel if you want to keep the information as it is.

  Press the Exit key to return to the Main menu.

A

Sample VMS Installation Procedure

Example A–1 is a sample VMS installation of VAX PAC.

Example A–1 Sample VMS Installation

```
$  @SYS$UPDATE:VMSINSTAL VAX PAC  MUA0: OPTIONS N

        VAX/VMS Software Product Installation Procedure V5.4

It is 2-MAR-1991 at 13:12.
Enter a question mark (?) at any time for help.

%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]?  Return

Please mount the first volume of the set on MUA0:.
* Are you ready?  YES

%MOUNT-I-MOUNTED, VAX PAC  mounted on MUA0:

The following products will be processed:

  VAX PAC  V1.3

        Beginning installation of VAX PAC  V1.3 at 13:13

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

    Release Notes Options:

        1.  Display release notes
        2.  Print release notes
        3.  Both 1 and 2
        4.  Copy release notes to SYS$HELP
        5.  Do not display, print or copy release notes

* Select option [2]:  2
* Queue name [SYS$PRINT]:  Return

Job VAX PAC012 (queue SYS$PRINT, entry 465) started on SYS$PRINT
* Do you want to continue the installation?  YES

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

(continued on next page)

Example A–1 (Cont.) Sample VMS Installation

```
       VAX PAC  V1.3 Installation is commencing ...

       VAX PAC has an installation verification procedure (IVP) which can be
       run automatically after the installation has complete. It can also
       be run at a later date with the command @SYS$TEST:COMM$IVP.COM.

* Do you want to run the IVP after the installation [YES]?  Return
* Do you want to purge files replaced by this installation [YES]?  Return


The Communication system file SYS$SYSTEM:COMM$SYSTEM.DAT already exists.
* Do you want to replace it [NO]?  Return

%VAX PAC-I-FREE, Checking for 1000 free blocks
%VAX PAC-I-LICENSE, Checking that software is licensed for use on this system


       Product:      PAC
       Producer:     DEC
       Version:      1.3
       Release Date: 1-JAN-1989


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

       All the questions regarding the installation have now been asked.
       The installation will now continue for another 10 minutes.

%VAX PAC-I-DIRECTORY, Creating the necessary modules
%VAX PAC-I-SPECIFY, Specifying target directories for the appropriate files

       System Manager:

       Upon completion of this installation, you must edit the system
       start-up file SYS$MANAGER:SYSTARTUP_V5.COM and include the
       following line:

               $ @SYS$STARTUP:COMM$STARTUP.COM

       Please refer to Chapter 1 of the VAX Public Access Communications
       Installation and Setup Guide for further information.

       Your VMS system will now be updated to include the following new
       and modified files:

 SYS$SHARE:DCLTABLES.EXE                SYS$HELP:HELPLIB.HLB
 SYS$STARTUP:COMM$STARTUP.COM           SYS$TEST:COMM$IVP.COM
 SYS$HELP:VAX PAC012.RELEASE_NOTES       SYS$HELP:COMM$KERMIT_HELP.HLB
 SYS$MESSAGE:COMM$MESSAGE.OFF           SYS$UPDATE:COMM$PERSONAL.DAT
 SYS$SYSTEM:COMM$SYSTEM.DAT             SYS$UPDATE:COMM$SYSTEM.DAT
 SYS$SYSTEM:COMM$DTE.EXE                SYS$SYSTEM:COMM$KERMIT.EXE
 SYS$SYSTEM:COMM$ATOZ_MANAGER.MSF       SYS$HELP:COMM$ATOZ_MANAGER.HLP
 SYS$SYSTEM:COMM$ATOZ_USER.MSF          SYS$HELP:COMM$ATOZ_USER.HLP
 SYS$SYSTEM:COMM$ATOZ_INTERRUPT.MSF     SYS$HELP:COMM$ATOZ_REMOTE.HLP
 SYS$SYSTEM:COMM$XFR_KERMIT_INIT.COM    SYS$SYSTEM:COMM$SRV_KERMIT_INIT.COM
 SYS$SYSTEM:COMM$SRV_KERMIT_ASCII.COM   SYS$SYSTEM:COMM$SRV_KERMIT_BINARY.COM
 SYS$SYSTEM:COMM$SRV_KERMIT_FIXED.COM
 SYS$SYSTEM:COMM$SRV_KERMIT_START_LOCAL.DAT

%VMSINSTAL-I-MOVEFILES, Files will now be moved to their target directories...

       Starting Installation Verification Procedure for VAX PAC  V1.3
```

(continued on next page)

Example A–1 (Cont.) Sample VMS Installation

```
================================================================================

        Checking that all files have been installed in the correct location
        All files have been installed correctly

================================================================================

        Checking the version numbers of the installed images

        Image COMM$DTE.EXE    = VAX PAC  V1.3
        Image COMM$KERMIT.EXE = VAX PAC  V1.3

        All the version numbers of the installed images are correct

================================================================================

        Testing the operation of the installed images

VAX Public Access Communications V1.3


Comm$Kermit V1.3

        All the installed images operated correctly

================================================================================

        The installation verification procedure (IVP) for VAX PAC  V1.3
        has completed successfully.

================================================================================


        Installation of VAX PAC  V1.3 completed at 13:19


        VMSINSTAL procedure done at 13:20
```

B

VAX PAC Function Keys

The following keys are used in VAX PAC operations:

- Interrupt: Interrupts VAX PAC and starts the interrupt procedure
- Resume: Allows you to continue after receiving an informational message
- Cancel: Ignores any changes and returns to previous screen
- Main Screen: Where appropriate, returns to the Main menu; otherwise functions as Cancel
- Exit: Exits from the current screen and returns to the previous screen—changes are saved
- Refresh: Redisplays the current screen
- Rub Word: Erases all characters to the beginning of previous word
- Erase Field: Deletes characters from cursor to beginning of field
- Subject Help: Displays help on the current menu option, field, or list
- Function Key Help: Displays a diagram of the function keys and explains each key
- Do: Confirms selections or changes to values when all the fields on a screen are complete
- Return: Completes command line; can be used in most places instead of Do or Resume
- Arrow Keys: Position the cursor on menu items and options—use ← or → to change the values enclosed in angle brackets
- Find: Displays a list of files
- Insert Here: Adds a new record
- Remove: Deletes an existing record or erases current field
- Select: Allows you to review, copy, or change the details of a connection

- Prev Screen: Displays the previous related screen or message
- Next Screen: Displays the next related screen or message
- PF1 and ↑: Moves the cursor to the top of the list
- PF1 and ↓: Moves the cursor to the bottom of the list
- Backspace or PF1 and ←: Moves the cursor to the beginning of the field
- Ctrl\E or PF1 →: Moves the cursor to the end of the field

Table B–1 lists the function keys on the VT-series keyboards.

Table B–1 VT200/300 and VT100 Series Keyboards

Key	VT200/300	VT100
Interrupt	F6	Ctrl/Y
Resume	F7	Return
Cancel	F8	Ctrl/C
Main Screen	F9	PF1/M
Exit	F10	Ctrl/Z
Refresh	F11	Ctrl/W
Rub Word	F13	Line Feed or Ctrl/J
Erase Field	Remove	Ctrl/U
Subject Help	Help	PF1 and H
Function Key Help	PF2	PF2
Do	Do	PF4 or PF1 and Return
Find	Find	PF1 and S
Insert Here	Insert Here	PF1 and ,
Remove	Remove	PF1 and –
Select	Select	PF1 and .
Prev Screen	Prev Screen	PF1 and P
Next Screen	Next Screen	PF1 and N
Top of list	PF1 and ↑	PF1 and ↑
Bottom of list	PF1 and ↓	PF1 and ↓
Beginning of line	PF1 and ← or F12	Ctrl/H or PF1 and ←
End of line	PF1 and →	Ctrl/E or PF1 and →

C
Modem Setup

This appendix discusses how to set up modems for use with VAX PAC.

The requirements for operation with VAX PAC might differ from the factory setup in two ways:

- The way the modem accepts and responds to commands from the system
- The way in which certain modem control signals are handled

Section C.1 outlines setting up modems. Section C.2 details the particular requirements for the following modems:

- Digital DFA01
- Digital DF03
- Digital DF112
- Digital Scholar 2400 (DF224)
- Digital Scholar Plus (DF242)
- Hayes Smart Modem 2400
- Hayes Smart Modem 1200
- Other modems supporting the AT command set

See Appendix E for information on using a DTE_DF03, DTE_DF112, or DMCL dial module with a DMF32 controller.

C.1 VAX PAC Modem Requirements

The following sections contain general information on setting up a modem for use with VAX PAC.

C.1.1 Guidelines for Using Modems with VAX PAC

The following list contains guidelines for using a modem with VAX PAC:

- Set the modem character size to 8 data bits, 2 stop bits, and no parity.

  VAX PAC uses 8-bit, no parity when sending commands to the modem.

- Set the modem for quiet operation for incoming calls.

  Many modems send a response to the local system when an incoming call is received. On a system with VAX PAC, this can interfere with the system's ability to detect the line speed for the incoming call.

  On a VAX PAC system, the modem must be set up so this feature is disabled. That is, the modem must not send a message to the system when it receives an incoming call.

- Enable autoanswer.

  If you allow incoming calls to your system, you must set up your modem to support autoanswer.

- Disable the speaker.

  Some modems have loudspeakers for monitoring calls. Unlike terminal operation, with VAX PAC the modem is not usually located near the person making the connection. In this case, there is little value in enabling the modem's speaker.

C.1.2 Modem Control Signals on the RS–232C Connector

In general, VAX PAC requires that modems conform to the EIA RS–232C specification.

Modems intended for operation with a terminal usually do not have the following signals correctly set for use with VAX PAC:

- DTR—VAX PAC uses Data Terminal Ready (DTR) to control the modem. DTR is normally set to ON. VAX PAC switches DTR to OFF for 5 seconds in order to end a connection.

  Some modems are initially set up to operate as if DTR were set to ON. This is incorrect for operation with VAX PAC.

  VAX PAC requires that the modem be set up so that the modem returns to its initial state when DTR goes from ON to OFF. Otherwise, VAX PAC will be unable to hang up the phone, and you will continue to incur phone charges after terminating the connection.

- DCD—Data Carrier Detect (RS–232C pin 8)

  VAX PAC uses Data Carrier Detect (DCD) to determine the state of the remote connection. When DCD is set to ON, VAX PAC operates as if it were successfully connected to a remote system. When DCD goes from ON to OFF, VAX PAC operates as if the connection were lost.

  Some modems initially are set up so that the modem always sends the ON condition for DCD. This is incorrect for operation with VAX PAC.

  VAX PAC requires that the modem be set up so that the modem sets DCD to ON only when data carrier is present.

C.2 Modem-Specific Setup Requirements

The following sections contain information on setting up specific modems for use with VAX PAC.

C.2.1 Setup for Digital DFA01 Modem

The factory-installed settings for the Digital DFA01 modems are correct for operation with VAX PAC. The DFA01 accepts Digital Modem Command Language (DMCL) and uses the DMCL dial module.

C.2.2 Setup for Digital DF03 Modem

The factory-installed settings for the Digital DF03 series modems are correct for operation with VAX PAC. The factory-installed settings are shown in the *DF03 Modem User Guide*.

C.2.3 Setup for Digital DF112 Modem

The factory-installed settings for the Digital DF112 series modems are correct for operation with VAX PAC. The factory-installed settings are shown in the *DF112 Modem Family User Guide*.

C.2.4 Setup for Scholar 2400 (Digital DF224) Modem

The Digital Scholar 2400 modem (DF224) has switches inside that modify its operation. The switches inside the modem should be set for normal operation as shown in Table C–1 and Table C–2:

Table C–1 Switchpack 1 Selections for Scholar 2400

Option	Selection	Switch position
Input character echo	Disabled	S1 OFF
Answer mode	Auto	S2 ON
Modem response	Abbreviated	S3 OFF
Terminal timing	Internal	S4 ON and S5 ON
Transmission mode	Asynch	S6 ON
Configuration mode	V.22 BIS	S7 ON and S8 ON

Table C–2 Switchpack 2 Selections for Scholar 2400

Option	Selection	Switch position
Force DTR ON	Disabled	S1 OFF and S2 ON
MI/MIC Ground	Disabled	S3 OFF
Interface speed	Disabled	S4 OFF

See the *Scholar 2400 Modem Owner's Manual* for a further explanation on how to set the inside switches.

C.2.5 Setup for Scholar Plus (Digital DF242) Modem

The Digital Scholar Plus modem uses commands from the terminal to modify its operation. There are two command modes: the Digital Modem Command Language (DMCL) or the AT command processor, which is, as much as possible, compatible with the HAYES AT command set found in the Hayes Smart Modem 2400. This section deals only with the DMCL command mode. For information on the AT command set and the Scholar Plus, see the *Scholar Plus User's Guide*.

You can use VAX PAC when setting up the modem, or you can connect the modem to the communication port on your terminal. Either way, the commands are the same.

The factory-installed settings for the Digital Scholar Plus modems are correct for operation with VAX PAC. There is a four-position DIP switch mounted on the rear panel of the Scholar Plus modem; this switch is accessible from the outside. To select the Scholar Plus factory defaults, you must set the back panel option switches to the correct setting (see Table C–3) and turn power off and then on to cause factory defaults for all software-settable options to be read.

Note

Option switches and jumpers on the Scholar Plus modem are read during the following operations:

- Power-up reset
- A mode switch between AT and DMCL, or between DMCL and AT
- An ATZ command in AT mode
- An ENABLE SELF-TEST command in DMCL mode

The back panel option switches should be set as shown in Table C–3.

Table C–3 Digital Scholar Plus Back-Panel DIP Switch Settings

Switch	Setting	Function
SW1	ON	Enable FACTORY defaults
SW2	OFF	Disable USER defaults
SW3	OFF	Disable remote diagnostic
SW4	OFF	Disable callback security

The following procedure describes how to use VAX PAC to set up the Scholar Plus modem.

Note

While performing this procedure, you may receive an error message from the modem (for example, ''Error:1 Invalid Syntax''). If you receive such an error message, press Ctrl/B to wake up the modem. The modem should respond with a Ready message before you can give it another command.

1. Set your back panel modem switches as described in Table C–3.
2. Set up the communication line using the SET option on the VAX PAC Manager's Main menu.
3. After you have set up the communication line, select the CON option from the Manager's Main menu.
4. Select the Manual connection option from the Select a Connection menu.

5. Use the left and right arrow keys to select the following fields on the Manual Connection menu:

```
Dial method:           <Use expert dialing mode>
Communication line:    <Digital SCHOLAR PLUS line>
```

6. Press the Do key to connect to the modem. You should get the ''You are now connected . . . '' message followed by:

```
DMCL: Expert Mode

Ready
```

7. Disable the Scholar Plus speaker by issuing the following command to the modem:

```
SET P12:0/OPE
```

8. Change ring to answer on 2 to 1 with the following command:

```
SET P14:1/OPE
```

9. The default for Local Baud Rate is 2400 bps. Optionally, you may want to use the following command to change the Local Baud Rate:

```
SET P4:x/SBU
```

   Where *x* is:

   0 for 1200 bps
   1 for 2400 bps
   2 for 4800 bps
   3 for 9600 bps

Note

At this point you can set other Scholar Plus parameters. See the *Scholar Plus User's Guide* for a complete list of settable parameters.

10. After you have set the modem setup parameters, issue the WRITE command to the modem to save them:

```
WRITE
```

11. Finally, turn off SW1 on the back panel of the modem and power on the modem. Unless you redo the above procedure, change a setting, and issue a WRITE command, the modem will always power up with factory default parameters and the changes you have made.

C.2.6 Setup for Hayes Smart Modem 2400

The Hayes Smart Modem 2400 uses commands from the terminal to modify its operation. These commands are often referred to as the AT command set.

You can use VAX PAC when setting up the modem, or you can connect the modem to the communication port on your terminal. Either way, the commands are the same.

In order to use VAX PAC to set up the modem, you must first set up the communication line using the SET option on the VAX PAC Manager's Main menu. Once you have set up the communication line, choose the CON option from the Manager's Main menu and then select the Manual connection option. Finally, choose Expert dial mode. This allows you to enter modem commands as if your terminal were connected directly to the modem.

The commands listed in Table C–4 are used to set up your Hayes Smart Modem 2400 and save the settings as the default configuration. Press Return after each command.

Table C–4 Setup Commands for Hayes Smart Modem 2400

Command	Description
AT&F	Load factory configuration
ATM0	Disable speaker
AT&C1	DCD ON indicates presence of data carrier
AT&D3	Modem assumes initialization state upon detecting an ON-to-OFF transition on DTR
AT&S1	DSR operates in accordance with EIA RS–232C specification
ATS0=1	Answer on first ring
ATS2=128	Disable escape code detection
ATQ1	Modem does not return result codes
ATE0	Modem does not echo commands back to terminal
AT&V	Show all configurations
AT&W0	Write active configuration to nonvolatile memory

The settings are now saved in nonvolatile memory. This means the settings you have chosen are used automatically each time the power to the modem is switched on.

You can verify the settings with the following command:

```
AT&V
```

If you have been using VAX PAC to set up the modem, press the LOCAL key and end the communication session.

See the *Hayes Smart Modem 2400 User's Guide* for a complete explanation of the available commands.

C.2.7 Setup for Hayes Smart Modem 1200

The Hayes Smart Modem 1200 has configuration switches inside that modify its operation. The configuration switches should be set as shown in Table C–5 for normal operation:

Table C–5 Hayes Smart Modem 1200 Configuration Switches

Switch	Position	Function
1	UP	Supports RS–232C DTR lead
2	UP	Word result codes
3	UP	Result codes not displayed
4	DOWN	No echo
5	UP	Autoanswer on first ring
6	UP	Reads status of the Carrier Detect lead
7	UP	Setting for RJ11 jack
8	DOWN	Enables Smart Modem 1200 command recognition
9	UP	Compatible with Bell 103/212A modems
10	UP	Modem hangs up and returns to command state when DTR goes low

See the *Hayes Smart Modem 1200 User's Guide* for a further explanation of how to set the configuration switches.

C.2.8 Other Modems Supporting the AT Command Set

Many modems offer compatibility with the AT command set used by Hayes. Be aware that implementations of the AT command set vary among manufacturers. Some are closely compatible with the Hayes Smart Modem 2400; others are either closely compatible with the Hayes Smart Modem 1200 or offer a subset of the AT command set. Read your modem documentation before proceeding with the modem setup.

Some modems lose their current settings when the power supply is interrupted.

D

Modem Commands for VAX PAC

VAX PAC uses codes for building modem commands. These allow you to send special characters and to monitor the progress of each command. There are three types of codes:

- Codes used for accessing VAX PAC fields
- Codes used for sending special characters
- Command codes that control VAX PAC

This appendix explains and lists these codes.

D.1 Codes for Accessing VAX PAC Fields

You need to access values for certain VAX PAC fields in the modem dial command. You do this with special codes in the dial command. Each code is replaced by the current value for the field.

Table D–1 lists the codes for accessing VAX PAC fields.

Table D–1 Codes for Accessing VAX PAC Fields

Code	Field	Definition
%D	Edited phone number	This is the phone number you specify for the connection with unnecessary characters removed. The characters removed are those specified in the system defaults. Use %D in the dial command. For example, for a Hayes compatible modem you could enter the dial command ATD %D^M.

%M	Unedited phone number	This is the complete phone number you specify for the connection. This can be useful for display purposes. For example, to display the following message:
		`* Dialing 8-800-332-3366 *.`
		You would enter the following:
		`^t* Dialing %M *^M^J^z`

%P	Tone/Pulse dialing	The value for this field is determined by the dialing method you specify for the communication line. Use this in the dial command to specify tone/pulse dialing. Most dial commands contain the sequence %P%D.
%W	Wait for secondary dial	Use this in either the phone number or the dial command when you want the modem to wait for secondary dial tone. For example, to dial out from your office you might have to pause after dialing the exchange. You would use this command: `9-%W-800-332-3366.`

D.2 Codes for Control Characters

You can send any character to the modem. However, some characters require a code in order to be recognized by VAX PAC. The codes for specifying control characters can be used in all modem commands.

The most commonly used control characters can be represented using alphabetic characters. Codes used to represent control characters are always in uppercase.

Sometimes you might need to send control characters that cannot be represented by an alphabetic character. In this case, you will have to use the numeric codes. These are the octal values and not the decimal values for the control character. (Octal is a number that is based on 8 rather than on 10.) Octal codes are often used to represent characters in the ASCII character set.

VAX PAC uses the following codes to represent control characters.

- ^A–^Z: character codes 1–26 (decimal)
- ^001–^377 (octal): character codes 1–255 (decimal)

If you need to use the control character NUL, you should use the VAX PAC command ^a. (Section D.3 explains the codes used for VAX PAC commands.)

The codes ^201–^232 (decimal 129–154) must be preceded by the VAX PAC command ^q, except when used in the dial command for the DMCL dial module.

Table D–2 lists the codes used by VAX PAC for sending the most commonly used control characters.

Table D–2 Codes for Commonly Used Control Characters

Code	Control Character	Definition
^A	Ctrl/A	Used by Scholar modems in burst mode dialing
^B	Ctrl/B	Used by all Digital modems to enter command mode
^E	Ctrl/E	Used by Racal-Vadic modems to enter command mode
^J	Line feed	Useful when displaying text
^M	Carriage return	Normal command terminator
^Q	XOFF	Used to clear XON condition
^S	XON	Sets XON condition, preventing some modems from sending responses
^033	ESC	Escape character (decimal 27)
^177	DEL	Delete or rubout character (decimal 127)

D.3 Codes for VAX PAC Commands

In addition to sending characters to the modem, you might sometimes need to perform special functions. To do this, use VAX PAC commands. The codes for VAX PAC commands always use lowercase letters.

You can use the codes for VAX PAC fields and the control characters in all modem commands. However, under some circumstances, the codes for VAX PAC commands would be interpreted incorrectly.

The dial commands for DMCL, DTE_DF03, and DTE_DF112 do not support VAX PAC commands. If you use them in the dial commands for these dial modules, they send 8-bit control characters that might give you an error.

VAX PAC command codes are acceptable in all other modem commands, as well as in the dial command for the GENERIC dial module.

Table D–3 Codes for VAX PAC Commands

Code	Command Type	Definition
^a	Send	Send char code 0 (NULL).
^b	Control	Send short break. Sends a break signal for between 250 and 300 milliseconds.
^c	Control	Pause for 1 second before clearing the response indicator for ^g and ^r commands. Use ^c when you intend to use ^g or ^r and you want to ignore all responses received from earlier commands.
^e	Display	Echo commands. Useful for monitoring the command to the modem.
^g	Control	Wait 2 seconds for a response from the modem; if none is received, continue processing the modem command. Use ^g to precede ^r when you are required to wait more than 1 second for a response from the modem.
^l	Control	Send long break. Sends a break signal for 5 seconds.
^n	Display	Disable echo.

(continued on next page)

Table D–3 (Cont.) Codes for VAX PAC Commands

Code	Command Type	Definition
^q	Send	Use next character literally. This must precede the control characters ^201–^232 (decimal 129–154) except in the dial command for the DMCL dial module.
^r	Control	Wait 2 seconds for a response from the modem; if none is received, abort the modem command.
^s	Control	Wait 2 seconds, then continue processing the modem command.
^t	Display	Display text on terminal. Allows you to display short messages.
^v	Display	Verify modem responses. This is useful for monitoring modem commands. All responses from the modem are displayed.
^w	Control	Wait for 1/2 second. Controls the rate at which commands are passed to the modem.
^x	Display	Disable verify. Responses from the modem are not displayed.
^z	Display	End of displayed text.
^^	Send	Send the caret character (^).

E

Using the DMF32 Controller with VAX PAC

If you plan to attach a modem to one of the two modem ports (ports 0 and 1) on a DMF32 controller on your VAX system, you should be aware that the DMF32 does not allow messages from the modem to be received until it senses carrier from the modem. This means that any message sent by the modem while dialing a remote system is not returned.

Because of this limitation, the following restrictions apply when using DMF32 controllers:

- While in Expert Mode dialing, VAX PAC will display only the characters that you enter from the keyboard. Because the DMF32 does not display the modem responses, you will not see the messages from the modem documented in your modem documentation.

  Also, note that the connection is set for local echo and automatic newline until the connection has been established.

- The DTE_DF03, DTE_DF112, and DMCL dial modules rely on messages from the modem to determine a successful connection. Because these messages are not returned, you cannot select these dial modules for communication lines using the DMF32 controller.

- You should use the GENERIC dialer when using a DMF32. Note that the following modem commands work differently when you dial out using a DMF32. This allows existing GENERIC modem definitions to work with the DMF32.

Existing Definition:	Becomes:
^r—Wait for response	^s—Wait for 2 seconds
^v—Display modem responses	^e—Echo commands
^x—Disable modem responses	^n—Disable echo

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