VAX 2780/3780 Protocol Emulator Installation Guide

Order Number: AA-MK30A-TE

This document describes how to install the VAX 2780/3780 Protocol Emulator, Version 1.7. The document also explains how to read the on-line release notes before and after installing the product.

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Preface

The VAX 2780/3780 Protocol Emulator, referred to as the Protocol Emulator, allows a VAX or a MicroVAX system to communicate with other systems that are using the Binary Synchronous Communications protocol.

Manual Objectives

This manual tells you how to install and load the Protocol Emulator software on a VAX or MicroVAX system. Use this manual in conjunction with the *VAX 2780/3780 Protocol Emulator User's Guide* and other Digital Equipment Corporation and IBM documentation.

Intended Audience

This manual is for system managers and network managers responsible for the installation of the Protocol Emulator software.

Document Structure

Chapter 1	Provides introductory information about the Protocol Emulator. Hardware and software requirements are outlined in this chapter.

Chapter 2	Describes the installation process including the Product Authorization Key (PAK) and Installation Verification Procedure (IVP). It also contains a sample installation procedure.

Associated Documents

- *VAX 2780/3780 Protocol Emulator User's Guide*
- *Guide to VAX/VMS Software Installation*
- *VAX/VMS I/O User's Reference Manual*
- *VAX/VMS System Services Reference Manual*
- *VAX/VMS System Messages and Recovery Procedures Reference Manual*
- *DPV11 Serial Synchronous Interface User Guide*
- *DUP11 Serial Synchronous Interface User Guide*
- *DMF32 Technical Manual*
- *DMB32 Technical Description*
- *DMB32 User's Guide*
- *DSV11 User's Guide*
- *Site Management Guide* (a notebook provided by Digital with your VAX or MicroVAX system.)
- *Terminal and Communications Handbook* (a Digital handbook)

Conventions Used in This Manual

Convention	Meaning
`Special type`	This special type indicates an example of system output or user input. In interactive examples, system output is in black type, and user input is in red type.
UPPERCASE	Uppercase letters in command syntax indicate words that you enter. You can enter these words in either uppercase or lowercase.
Lowercase italics	Lowercase italics in command syntax or examples indicate variables for which either the user or the system supplies a value.
[ ]	Square brackets in command syntax statements indicate that the enclosed value(s) are optional. Default values apply for unspecified options. (Do not type the brackets.) In the installation procedure, square brackets enclose the default answer for a question. Simply press RET to choose the default.
( )	In the installation procedure, parentheses enclose the possible options or range of values that you can specify in response to a question.
hh:mm:ss	Indicates hours, minutes, and seconds.
key	This symbol indicates a key that you should press. For example, RET means that you should press the RETURN key.
CTRL/*x*	This notation means that you should hold down the CTRL key and press the key specified by *x* at the same time. (Your screen displays this key combination as ∧*x*.)

You must press RET to enter all commands.

Chapter 1

Preparing for Installation

Before you install the VAX 2780/3780 Protocol Emulator software, referred to as the Protocol Emulator, you should prepare your system, the communication components, and the remote system to ensure proper software operation.

1.1 VAX System Requirements

This section discusses the VAX system features you must have for the Protocol Emulator.

1.1.1 VAX Supported Processors

Refer to the Software Product Description (SPD) for the latest official list of supported processors.

1.1.2 Checking the Distribution Kit

Your bill of materials (BOM) specifies the number and contents of your media. Compare the items listed in the BOM with the items in your distribution list. If your kit is damaged or if parts are missing, contact your Digital Equipment Corporation representative before continuing the installation.

1.1.3 Accessing the On-line Release Notes

On-line release notes are provided with this product. You should review the release notes before installing the product. They contain the latest enhancements to the product, which may include changes to the installation procedure. If you specify OPTIONS N with VMSINSTAL, you are prompted for how you would like to see the release notes. After installing the product, you can read the release notes in the file SYS$HELP:BSCPTP*vvu*.RELEASE_NOTES , where *vv* is the major version number, and *u* is the minor version number. Do not delete release notes for previous versions of the Protocol Emulator.

1.1.4 VAX Communications Device Requirements

Your VAX or MicroVAX system is attached to the IBM environment through a Digital Equipment Corporation communications device, a line, a modem, and an IBM communications controller. Your system must have one or more of the following Digital communications hardware devices installed.

- DMB32

  The DMB32 is an asynchronous/synchronous communications device that supports one synchronous communications line at speeds from 1.2 Kbps to 9.6 Kbps for bisync communication. It supports either half-duplex or full-duplex lines. The Protocol Emulator uses the synchronous port. The DMB32 transmits and receives whole blocks of characters without processor intervention and is based on the VAX BI system.

- DUP11

  The DUP11 is a character-buffered, synchronous, serial-line interface that supports either half-duplex or full-duplex lines. This device supports one communications line at speeds from 1.2 Kbps to 9.6 Kbps. The DUP11 is based on the VAX UNIBUS system.

- DMF32

  The DMF32 is an asynchronous/synchronous communications device that supports one synchronous communications line at speeds from 1.2 Kbps to 9.6 Kbps. It supports either half-duplex or full-duplex lines. The DMF32 transmits whole blocks of characters without processor intervention. The DMF32 does require some

processor intervention when receiving data. It is based on the VAX UNIBUS system.

- DSV11

  The DSV11 is a block-buffered synchronous communication device that supports two synchronous communications lines at speeds from 1.2 Kbps to 19.2 Kbps. Protocol Emulator communication can occur at speeds up to 9.6 Kbps. The DSV11 supports either half-duplex or full-duplex lines. The DSV11 is based on the VAX Q-bus system.

- DPV11

  The DPV11 is a character-buffered, synchronous, serial-line interface that supports either half-duplex or full-duplex lines. This device supports one communications line at speeds from 1.2 Kbps to 9.6 Kbps. The DPV11 is based on the VAX Q-bus system. Please see the SPD for details.

Transmission characteristics (such as speed and mode of operation) can vary to satisfy different performance requirements. For additional information about supported communications devices, see the SPD for the Protocol Emulator.

1.1.5 VMS Version Support

Refer to the SPD for the minimum VMS version required to run the product.

1.1.6 VAXcluster Considerations

This layered product is fully supported when installed on any valid and licensed VAXcluster configuration with the following restrictions:

- The VAX 2780/3780 Protocol Emulator must be installed and run on each node in the VAXcluster containing a synchronous communications interface connected to an IBM system.
- When you run the Protocol Emulator in interactive mode, you must run it from a node with a synchronous device interface and the product locally installed.

- When you run the Protocol Emulator in shared mode, the batch queue must reside on a node with a synchronous device interface and the product locally installed. However, jobs can be submitted to this queue from any node in the cluster.

Refer to the VMS VAXcluster manual for information on setting up queues across a cluster and using cluster batch queues.

1.1.7 Prerequisite Software Requirements

Wide area communications device driver software is now consolidated in the WAN Device Drivers kit. Table 1–1 shows the driver software you should install on your system before installing the Protocol Emulator and tells you which kit contains it.

Table 1–1: Prerequisite Device Drivers Software

Device	Device Driver	Kit
DUP11	XJDRIVER	provided with this kit
DMF32	XGDRIVER	provided with WAN Device Drivers kit
DMB32	SIDRIVER	provided with WAN Device Drivers kit
DPV11	UFDRIVER	provided with this kit
DSV11	SJDRIVER	provided with WAN Device Drivers kit

If you have not already installed and loaded drivers from the WAN Device Drivers kit, do so at this time. Please refer to the System Software Addendum (SSA) for the required versions of this software. The SSA is part of the SPD.

1.1.8 VMS License Management Facility Requirements

Before you install this product, you should register your Product Authorization Key (PAK) with the License Management Facility (LMF). The PAK, which contains information about the license, is a paper certificate shipped with the product.

During the installation, you are asked if you have registered the Protocol Emulator license and loaded the appropriate authorization key (PAK). If you have not already done so, you can complete the installation and run the Installation Verification Procedure (IVP). The Protocol Emulator will not run if you you have not registered the license or loaded the PAK. Once you perform the license registration and have loaded the PAK, you will be able to run the Protocol Emulator.

To register and load the license, log in to the system manager's account. Then type the following command:

```
@SYS$UPDATE:VMSLICENSE.COM
```

When you are prompted for information, enter the data from your PAK. For more information on LMF, see the *VMS License Management Utility Manual* in the VMS documentation set.

1.1.9 VMS Tailor Requirements

The required classes are: VMS Required Save Set and Utilities. Be certain these classes are installed on your system before installing the product. Refer to VMS Tailor documentation in the VMS documentation set for more information.

1.1.10 VMSINSTAL Requirements

Installing the Protocol Emulator on a VAX/VMS system involves running the VMSINSTAL procedure. The dialogue is self-explanatory. The system tells you to answer questions and waits for you to tell it to continue.
When you invoke VMSINSTAL, it checks that:

- you are logged in to a privileged account
- you have adequate quotas for installation
- DECnet is shut down
- all users are logged off

If VMSINSTAL detects any violations to these conditions at the beginning of the installation, it notifies you and asks if you want to continue the installation. In some instances, you can enter YES to continue. To stop the installation process, enter NO or press RETURN. Then change the condition and restart the installation.

1.1.11 Backing Up Your System Disk

At the beginning of the installation, VMSINSTAL asks if you have backed up your system disk. Digital recommends that you back up your system disk before installing any software on top of the operating system.

Use the backup procedures that have been established at your site. For details on performing a system disk backup, see the section on the Backup Utility in the VMS documentation set.

1.1.12 Privileges

To install the Protocol Emulator, you must be logged in to an account that has SETPRV or at least the following privileges:

- CMKRNL
- WORLD
- SYSPRV

Note that VMSINSTAL turns off BYPASS privilege at the start of the installation.

1.1.13 Disk Space

Table 1–2 summarizes the storage requirements for the Protocol Emulator.

Table 1–2: Disk Space Requirements

Kit	Blocks Needed During Installation	Blocks Needed After Installation
Protocol Emulator	650	600

To determine the number of free disk blocks on the current system disk, enter the following command at the DCL prompt:

```
$  SHOW DEVICE SYS$SYSDEVICE
```

1.1.14 Preparing DUP11 or DPV11 Configuration

If you are using a DUP11 or DPV11 line interface, make sure you know the following:

- UNIBUS adapter number (DUP11 only)
- Controller designation
- Interrupt vector address
- Command and status register address (CSR address)

Gather the above communications device information for your system, and record it in Table 1–3. You might need to look in your *Site Management Guide* or see your system manager for some of the information. If you cannot find this information, contact your Digital representative for assistance.

Table 1–3: Line Interface Information for Protocol Emulator

Device Information	1st Line	2nd Line	3rd Line	4th Line
Line interface type (DUP11, DPV11, DSV11,DMB32, or DMF32)				
Controller Designation (A-Z)				
DUP11 and DPV11 only: CSR address				
DUP11 and DPV11 only: interrupt vector				
DUP11 only: Nexus number of the UNIBUS adapter				

This information is for node: _____
This is current as of: _____

1.2 Communications Equipment

Each communications link connecting a remote system to the Protocol Emulator consists of the following:

- A pair of synchronous modems with an RS-232-C or CCITT V.24 interface (or hardware performing the function of two modems if the two systems are in close proximity)
- A full- or half-duplex point-to-point communications line running between the modems

The connection can be switched (dial-up) or nonswitched (leased or private). Multipoint (multidrop) operations are not supported.

NOTE

Although the Protocol Emulator does operate in half-duplex mode, a full-duplex line is recommended for faster line turnaround.

Up to four lines can be connected to the Protocol Emulator, depending upon processor type. The transmission characteristics — speed, mode of operation and so on — can vary as necessary among the lines to satisfy different transmission requirements. The Protocol Emulator can support transmission speeds from 1200 bits/second to as high as 9600 bits/second. Depending on the data transfer rate selected, you need a pair of the following modems or equivalent for each line. Table 1–4 shows compatible modems.

Table 1–4: Modems Used by the Protocol Emulator

MODEM	SPEED
Bell 201C	2400 bits/second (half duplex, switched line)
Bell 208A	4800 bits/second (full duplex, leased line)
Bell 208B	4800 bits/second (full duplex, switched line)
Bell 209A	9600 bits/second (full duplex, leased line)

1.2.1 Modem Requirements

If you use modems from manufacturers other than Digital or Bell, be sure that they meet the following "handshaking" requirements.

- When the user issues a command to allocate and activate a line, the line interface sets on the data terminal ready (DTR) signal. It will do this regardless of whether the connection is established by dialing or by auto-answering. The Protocol Emulator looks for data set ready (DSR) and will not consider the line active until the modem presents the DSR signal.

- Before starting to transfer data (either by placing data in a send buffer or by taking data out of a receive buffer) the Protocol Emulator checks DSR to determine whether the line is up. If the DSR signal is not set, the operation is abnormally terminated, and a message is sent to SYS$OUTPUT.
- Whenever a transmission is attempted, request to send (RTS) is set by the Protocol Emulator and pads (hex FFs) are transmitted until the clear to send (CTS) signal is given. If CTS is not set, the transmission times out and appropriate actions (error logging, retries, posting fatal error messages) are taken. If the transmission completes normally, RTS is cleared if the line is half duplex; or if the line is full duplex it is left active to avoid CTS delays.
- Receive operations look for character synchronization; they do not monitor any modem signals except DSR.
- When the user issues a command to shut down a line, DTR is dropped. (See the description of the Protocol Emulator's SET command in Chapter 3 of the *VAX 2780/3780 Protocol Emulator User's Guide*.

1.2.2 Cable Information — DMB32 and DSV11

If you are using a DMB32 or DSV11 with a local modem eliminator designed prior to the EIA RS-232-D standard, you must upgrade the BC19D-02 adapter cable with a BS19D-02 adapter cable kit. Failure to do so can result in the modem eliminator failing to signal CTS, resulting in blocked data. The problem is not known to occur with voiceband (long haul) modems.

The function of pin 21 is described differently by the EIA RS-232-C and CCITT V.24 standards. The DMB32 interface implements the pin function as described by EIA RS-232-D and CCITT V.24. The BS19D-02 adapter cable kit opens pin 21 (SQ/RL), avoiding the discrepancy. The same effect can be achieved by using a "breakout box" between the device and the modem eliminator, but this is not a permanent solution. If the BS19D-02 adapter cable kit was not supplied with the hardware, consult your Digital field service representative for information on obtaining the necessary part.

The BS19D-02 is an adapter cable kit option and comprises:

- V.24 adapter cable, Digital option number BC19D-02, Digital part number 17-0110-01
- V.24 to RS-232-C adapter connector, Digital part number 12-27591-01
- Information sheet describing why the adapter connector is required for connecting to some RS-232 equipment. Information sheet document number EK-BS19D-IS-0001

BC19D-02 is the adapter cable; BS19D-02 is a kit including the cable, adapter connector, and information sheet.

1.3 Remote System Requirements

The Protocol Emulator is designed to communicate with IBM or other systems that communicate with IBM 2780/3780 Remote Job Entry Stations. Some examples of these systems are:

- An IBM System/360 or System/370 computer set up to communicate with an IBM 2780 or 3780 Remote Job Entry Station.
- An IBM 2780 or 3780 remote job entry station (RJE station).
- A computer system, other than VAX/VMS, that is operating a standard 2780/3780 point-to-point BSC protocol emulator.

IMPORTANT

The Protocol Emulator is certified against remote systems listed in the SPD only.

Chapter 2
Installing

This chapter describes how to install the VAX 2780/3780 Protocol Emulator, referred to in this chapter as the Protocol Emulator. It contains a step-by-step description of the installation procedure and covers postinstallation considerations. The final section contains an actual system log of an installation using PAK information and VMSINSTAL.

2.1 The Installation Procedure

The Protocol Emulator installation process consists of a series of questions and informational messages; the process takes between 5 and 15 minutes to complete.

2.1.1 Invoking VMSINSTAL

Digital Equipment Corporation recommends that you use a hard-copy terminal for installing the Protocol Emulator if you would like a copy of the installation process. If you do not have a hard-copy terminal, you can produce a copy of the installation procedure in a file by typing:

```
$ SET HOST 0/LOG=filename
```

where *filename* is the name of the file in which you want the log file stored.

To start the installation, invoke the VMSINSTAL command procedure from a privileged account, such as the SYSTEM account. Next, invoke VMSINSTAL. Use the following syntax to invoke VMSINSTAL:

```
@SYS$UPDATE:VMSINSTAL product-name device-name OPTIONS N
```

where:

product-name

The installation name for the component. For the Protocol Emulator, type BSCPTP*vvu*, where BSCPTP is the name of the product you are installing, *vv* is the major version number (2 digits), and *u* is the update number (1 digit). For example:

```
BSCPTP017
```

is the name for Version 1.7 of the product.

device-name

The name of the device on which you plan to mount the media. For example, MTA0: is the device name for a tape drive.

OPTIONS N

An optional parameter that indicates you want to be prompted to display or print the release notes, or copy them to SYS$HELP. If you do not include the OPTIONS N parameter, VMSINSTAL does not prompt you to display, print, or copy the release notes. Please read the release notes before proceeding with this installation.

Command Example

The following example displays the command to invoke VMSINSTAL to install the Protocol Emulator from tape drive MTA0: and the system response. This example uses the OPTIONS N parameter for printing or displaying release notes.

```
$  @SYS$UPDATE:VMSINSTAL BSCPTP017 MTA0: OPTIONS N

      VAX/VMS Software Product Installation Procedure V5.0


It is 27-Sep-1988 at 15:06.
Enter a question mark (?) at any time for help.
```

2.1.2 Installation Questions

This section discusses the questions that appear during the installation. See Section 2.4 for a sample installation procedure.

Each question in the installation is marked with an asterisk (*) at the beginning of the line. Some questions show the default response in brackets, for example, [YES]. If you want the default response, press RETURN. You must press RETURN to enter any response. For help, enter a question mark as your response.

Aborting the Installation

To abort the installation procedure at any time, press CTRL/Y. When you press CTRL/Y, the installation procedure deletes all files it has created up to that point and exits. You can then start the installation again.

1. DECnet status

   VMSINSTAL notifies you only if your DECnet is running and displays a list of all active processes. You should shut down DECnet on your cluster, or install the Protocol Emulator on a standalone system. VMSINSTAL asks if you want to continue the installation; [NO] is the default answer.

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

2. System backup

   VMSINSTAL asks if you are satisfied with your system backup. You should always back up your system disk before performing an installation. If you are satisfied with the backup of your system disk, press RETURN. If not, enter NO to stop the installation. After you back up your system disk, you can restart the installation.

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

3. Mounting the media

   You should now mount the first distribution volume on the device you specified when you invoked VMSINSTAL. The device name appears in the line preceding the question. VMSINSTAL then asks you if you are ready to continue with the installation. If you respond YES to indicate that you are ready, VMSINSTAL displays a message that the media containing the Protocol Emulator has been mounted on the specified device and that the installation has begun. For example:

```
Please mount the first volume of the set on MTA0:.
* Are you ready?  YES
%MOUNT-I-MOUNTED, BSCPTP017 MOUNTED ON _MTA0:

The following products will be processed:

  BSCPTP V1.7

    Beginning installation of BSCPTP V1.7 at 15:07

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

   If you entered the wrong device name when you invoked VMSINSTAL and need to restart the installation, enter NO in response to ''Are you ready?''. To abort the installation for other reasons, press CTRL/Y.

4. Release Notes

   If you specified OPTIONS N when you invoked VMSINSTAL, the installation procedure prompts you for a release notes option.

```
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]:
```

   If you select option 1, VMSINSTAL displays the release notes immediately on your terminal. You can terminate the display at any time by pressing CTRL/C.

   If you select option 2 or 3, VMSINSTAL prompts you for a print queue name:

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

Enter a queue name or press RETURN to send the file to the default output print device, SYS$PRINT.

No matter which option you selected, VMSINSTAL then asks you if you want to continue the installation. Answer YES to continue or NO to exit VMSINSTAL.

```
* Do you want to continue the installation ?:  YES
%VMSINSTAL-I-RELMOVED, The product's release notes have been
successfully moved to SYS$HELP.
```

5. License registration

   The installation procedure prints out information specific to the particular license and asks if you have registered and loaded your PAK for the Protocol Emulator, for example:

```
Product:             VAX-2780-3780PE
Producer:            DEC
Version:             1.7
Release Date:        01-OCT-88

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

   If you have not registered and loaded your PAK, answer NO to this question. The installation reminds you to register the PAK before you run the product. The installation continues.

6. Choosing to purge files

   You have the option to purge files from previous versions of the Protocol Emulator that are superseded by this installation. Purging is recommended because it will save disk space.

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

7. Deleting old device drivers

   Previous versions of the Protocol Emulator drivers must be deleted because they are incompatible with this release. Because XJDRIVER and UFDRIVER are installed to SYS$LOADABLE_IMAGES in this release, these files will be automatically deleted from SYS$SYSTEM. When NYDRIVER and NYACP are installed to SYS$SYSTEM, old files are first deleted from SYS$SYSTEM (if they exist), and then current ones are installed.

```
Do you want to delete drivers replaced by this installation [YES]?
```

If you do not need the device drivers prior to this version, simply answer with the default. If you do need these drivers, enter NO. The installation procedure aborts, and you are free to move the drivers out of the system area and start again with the installation procedure.

8. Choosing to run the Installation Verification Procedure (IVP)

   The system now asks if you want to have the IVP run automatically at the end of the installation. The IVP for the Protocol Emulator checks to be sure that the installation is successful. You should run the IVP immediately after installation.

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

9. Creating a log file directory

   The system needs a directory to store detached process log files. Either specify a directory, or press RETURN for the default. A directory is created if it does not already exist, and the logical BSC$MANAGER is defined to point to it.

```
* Directory for log files [SYS$COMMON:[BSC$MGR]]:
```

10. Selecting the alternative translation table

    If you answer NO, the Protocol Emulator uses the standard VMS translation table. If you answer YES, the Protocol Emulator uses the alternative translation table. See Appendix H of the *VAX 2780/3780 Protocol Emulator User's Guide* for more information on the translation table supplied with the Protocol Emulator.

```
* Do you want the alternative translation table [NO]?
```

11. Altering the default timeout

    When the Protocol Emulator is receiving a file, it waits a specified time for successive blocks of data to arrive. If no data is received within that time, it assumes that the connection with the remote system is lost, and exits. If the remote system frequently pauses for longer than 50 seconds (the default value), you can change the default value. The system prompts you with the following:

```
* Do you want to alter the default timeout value of 50 seconds [NO]?
```

    If you enter yes, specify one of the following to change the default timeout value:

    - 5M — for 5 minutes

- 1H — for 1 hour
- 1D — for 1 day
- NONE — if you want the Protocol Emulator to wait as long as necessary for the next block of data.

12. Please note the differences between installing on VAX and MicroVAX systems. This documentation shows you the messages you see while installing on a VAX system. When installing the kit on a MicroVAX, wherever the documentation refers to the DUP11, substitute DPV11. The equivalent of XJDRIVER on a VAX system is UFDRIVER on a MicroVAX system. The installation procedure prints the correct device or driver name. The system displays the following at this point:

```
To load the Protocol Emulator you will need to invoke the command
file SYS$STARTUP:RJELOAD.COM.  To set up this file, you must specify
the maximum number of communications lines the Protocol Emulator will
use, and how many of these will be DUP synchronous line interfaces.

* How many communications lines will the Protocol Emulator use [1]:
* How many of these will be DUP11 synchronous line interfaces [0]
```

If the DMF32, DMB32, and DSV11 are installed properly, the device drivers will be loaded automatically at system startup. If they are not automatically loaded, consult the WAN Device Drivers kit for information on loading these devices manually.

If you are using the DUP11 (VAX) or DPV11 (MicroVAX), answer the following questions for each DUP11 or DPV11 you are using. You will need to know the controller designation, the interrupt vector, and the CSR address for each DUP11 or DPV11 you are using. Additionally, you will need to know the nexus number of the UNIBUS for the DUP11. You can find these values in your system's *Site Management Guide*.

The system displays the following if a DUP or DPV is selected:

```
AUTOCONFIGURE does not load the XJDRIVER used by the Protocol
Emulator to access a DUP11.  Therefore you must specify some
configuration details for each DUP11 you intend to use with
the Protocol Emulator.  You need to specify:

 o  nexus number of the UNIBUS adapter
 o  controller designation
 o  interrupt vector address
 o  CSR address
```

```
Be sure the information you specify is correct, otherwise
fatal system errors will occur when the Protocol Emulator
is loaded.

 Configuration details for the first DUP11

 * What is the controller designation of this DUP11 (A-Z):

 * What is the UNIBUS adapter number (0-48):

 * What is the interrupt vector address (0300-770):

 * What is the control & status register address (760010-764770):
```

13. The screen displays the values you entered, along with the question:

```
 * Do you want to alter the information for this DUP11 [NO]?
```

If you answer YES, you are prompted for the DUP11 (or DPV11) configuration details again. If you specified more than one DUP11 or DPV11 device, then the questions are repeated for each of those devices. The system displays the following messages while the installation is completing:

```
Support for x DUP devices and y non-DUP devices will be included.
You are now done answering questions for this installation.

      Installation continuing, please wait....

             VAX 2780/3780 Protocol Emulator V1.7
      Installation Successful (pending successful IVP)

    The DMB32, DMF32, and DSV11 device drivers are shipped in the
    WAN Device Drivers kit.  Please install this software before
    loading the product if you are using any of these devices.

    If a previous copy of the VAX 2780/3780 Protocol Emulator is
    already loaded, then reboot the system before running the
    load procedure SYS$STARTUP:RJELOAD.COM

    See the VAX 2780/3780 Protocol Emulator User's Guide
    for details of tests you should run to check the physical
    communications links and verify that lines and modems are
    working correctly.
```

2.1.3 Informational Messages

At this point, the installation procedure displays a number of informational messages that report on the progress of the installation. There are no further questions, except for any that apply to the IVP. If the installation procedure has been successful up to this point, VMSINSTAL moves the new or modified files to their target directories and updates the help files. If you asked for files to be purged, that is done now. The following messages are displayed:

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

2.1.4 Installation Verification Procedure Message

If you chose to run the IVP, VMSINSTAL runs it now. When the IVP runs successfully, you see the following display:

```
Starting the VAX 2780/3780 PE V1.7 IVP
VAX 2780/3780 PE V1.7 IVP Successful
```

2.1.5 Completing the Installation Procedure

The following messages indicate that the entire installation procedure is complete:

```
Installation of BSCPTP V1.7 completed at 15:20

VMSINSTAL procedure done at 15:20
```

Note that VMSINSTAL deletes or changes entries in the process symbol tables during the installation. Therefore, if you are going to continue using the system manager's account and you want to restore these symbols, you should log out and log in again. At this point, you should load the Protocol Emulator and test the communication link.

2.2 Postinstallation Considerations

This section shows files and logical names added to the system, information on loading the Protocol Emulator, running the IVP, and configuring for cluster operation.

2.2.1 Running the Installation Verification Procedure

The Installation Verification Procedure (IVP) verifies the success of the installation. It checks that the new files were transferred to their proper locations and that files are not in the wrong location. If you encounter problems using the Protocol Emulator, you should run the IVP as a first step in finding a solution. The IVP is designed to catch problems with missing and old files left on your system. If a problem develops with the Protocol Emulator, run the IVP first. To run the IVP after you install the product, invoke the command:

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

If the IVP fails, correct the situation, and run the IVP again. Section Section 2.3.1 describes IVP failures in more detail.

2.2.2 Loading the Protocol Emulator

This section discusses loading the Protocol Emulator into the VAX/VMS system. Before loading, you should have completed the following:

- installed any drivers from the WAN Device Drivers Kit if needed.
- installed this product
- run the IVP successfully
- rebooted the system if the drivers or product had already been installed

To make the Protocol Emulator available to users, you must invoke the RJELOAD command procedure each time the VAX/VMS system is set in operation. This can be done automatically by adding the command:

```
@SYS$STARTUP:RJELOAD
```

to the file SYS$MANAGER:SYSTARTUP_V5.COM. This file is executed each time the VAX/VMS system is set in operation.

2.2.3 Cluster Setups

Install and load the product on each node that has communications devices; then test the physical links to each communications device. Refer to Section 1.1.4 of this manual for specific information on how to set up your cluster for Protocol Emulator use.

2.2.4 Diagnostic Loopback Tests

After installing and initializing (loading) the Protocol Emulator, refer to Chapter 4 of the *VAX 2780/3780 Protocol Emulator User's Guide* for the procedure to test the physical links.

2.2.5 Files and Logical Names Added to the System

Table 2–1 lists files added during the installation and their directories.

Table 2–1: Files Added by the Installation

File Name	Location
BSCPTP$IVP.COM	SYS$COMMON:[SYSTEST]
BSCPTP017.RELEASE_NOTES	SYS$HELP
BSCPTPDET.EXE	SYS$COMMON:[SYSEXE]
BSCPTPGBL.EXE	SYS$COMMON:[SYSEXE]
BSCTRAN.COM	SYS$COMMON:[SYSLIB]
EBCDEF.MAR	SYS$COMMON:[SYSLIB]
NYACP.EXE[1]	SYS$COMMON:[SYSEXE]
NYDRIVER.EXE[1]	SYS$COMMON:[SYSEXE]
REMOTE.EXE	SYS$COMMON:[SYSEXE]
RJEDEF.FOR	SYS$COMMON:[SYSLIB]
RJEDEF.MAR	SYS$COMMON:[SYSLIB]
RJELOAD.COM	SYS$SPECIFIC:[SYS$STARTUP]

[1]Provided only when non-DUP or non-DPV device selected

Table 2–1 (Cont.): Files Added by the Installation

File Name	Location
RJEGLOBAL.EXE	SYS$COMMON:[SYSLIB]
SETDEF.FOR	SYS$COMMON:[SYSLIB]
SETDEF.MAR	SYS$COMMON:[SYSLIB]
UFDRIVER.EXE[2]	SYS$COMMON:[SYS$LDR]
XJDEF.FOR	SYS$COMMON:[SYSLIB]
XJDEF.MAR	SYS$COMMON:[SYSLIB]
XJDRIVER.EXE	SYS$COMMON:[SYS$LDR]
XJTEST.EXE[3]	SYS$COMMON:[SYSEXE]

[2]Provided only when DPV device selected

[3]Provided only when DUP device selected

The system logical names added during installation are BSC$MANAGER, which points to a detached process log files directory, and RJEGLOBAL, which points to SYS$LIBRARY:RJEGLOBAL.EXE. These files are defined when RJELOAD is run.

2.3 Error Recovery

If errors occur during the installation itself or when the IVP is running, VMSINSTAL displays error messages.

Errors can occur during the installation if any of the following conditions exist:

- The operating system version is incorrect.
- A prerequisite software version is incorrect.
- Quotas necessary for successful installation are insufficient.
- System parameter values for successful installation are insufficient.
- The VMS help library is currently in use.
- The product is not properly licensed.
- Your system has insufficient disk space.

For descriptions of the error messages generated by these conditions, see the VMS documentation on system messages, recovery procedures, and VMS software installation. If any of these conditions exist, you should take the appropriate action as described in the message. (You might need to change a system parameter or increase an authorized quota value.) These requirements are part of the installation requirements in Chapter 1 of this manual.

2.3.1 Installation Verification Procedure Errors

This section is designed to help you if your IVP fails. When an error is detected, a message will be displayed telling you how to correct the situation.

IVP error messages can be divided into these categories:

File is in the wrong directory

In this case, a file or files are in the wrong directories. To avoid problems where incompatible versions of the same file reside in different directories, delete the file specified in the error message and rerun the IVP. Be sure you delete the specified file; note the directory specification, such as SYS$COMMON: or SYS$SPECIFIC. After deleting the file, run the IVP again to check for further errors.

The format for these error messages is:

```
BSCPTP$IVP-E, filename is in directory.  Please
delete this file and rerun the IVP.
```

The following is an example of these messages:

```
BSCPTP$IVP-E, NYDRIVER.EXE is in SYS$SPECIFIC:[SYSEXE].  Please delete
this file and rerun the IVP.
```

File does not exist

In this case, a file or files do not exist. You must reinstall the product to correct the situation.

The format for these error messages is:

```
BSCPTP$IVP-E, filename does not exist.  Please reinstall the product.
```

The following is an example these messages:

```
BSCPTP$IVP-E, SYS$COMMON:[SYSEXE]XJTEST.EXE does not exist.  Please
reinstall the product.
```

Console output of IVP that failed

The following is a sample of an IVP that shows errors.

```
$ @sys$test:bscptp$ivp

BSCPTP$IVP-S, Starting VAX 2780/3780 PE V1.7 IVP
BSCPTP$IVP-E, SYS$COMMON:[SYSEXE]BSCPTPDET.EXE does not exist.  Please
reinstall the product.
BSCPTP$IVP-E, SYS$COMMON:[SYSEXE]BSCPTPGBL.EXE does not exist.  Please
reinstall the product.
BSCPTP$IVP-E, SYS$COMMON:[SYSEXE]REMOTE.EXE does not exist.  Please
reinstall the product.
BSCPTP$IVP-E, SYS$COMMON:[SYSEXE]RJEGLOBAL.EXE does not exist.  Please
reinstall the product.
BSCPTP$IVP-E, SYS$SPECIFIC:[SYS$STARTUP]RJELOAD.COM does not exist.  Please
reinstall the product.
BSCPTP$IVP-E, SYS$COMMON:[SYSEXE]XJTEST.EXE does not exist.  Please
reinstall the product.
BSCPTP$IVP-E, NYDRIVER, XJDRIVER, AND UFDRIVER do not exist.  Please
reinstall the product.
BSCPTP$IVP-E, VAX 2780/3780 PE V1.7 IVP Failed with 7 errors.

$
```

2.4 Sample Installation on a MicroVAX System

This section contains a sample installation of the VAX 2780/3780 Protocol Emulator Version 1.7 on a MicroVAX system equipped with a DPV11.

```
$ @sys$update:vmsinstal bscptp017 SYS$MANAGER: OPTIONS N
 VAX/VMS Software Product Installation Procedure V5.0
It is 12-OCT-1988 at 14:06.
Enter a question mark (?) at any time for help.

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

The following products will be processed:

  BSCPTP V1.7

 Beginning installation of BSCPTP V1.7 at 14:07

%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]: 4
* Do you want to continue the installation? Y
%VMSINSTAL-I-RELMOVED , The product's release notes have been successfully
moved to SYS$HELP.

     Product:      VAX-2780-3780PE
     Producer:     DEC
     Version:      1.7
     Release Date: 01-OCT-88

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

* Do you want to purge files replaced by this installation [YES]?
* Do you want to delete drivers replaced by this installation  [YES]?
* Do you want to run the IVP after the installation [YES]?
* Directory for log files [SYS$COMMON:[BSC$MGR]]:
* Do you want the alternative translation table [NO]?
* Do you want to alter the default receive timeout of 50 seconds [NO]?

    To load the Protocol Emulator you will need to invoke the command file
    SYS$STARTUP:RJELOAD.COM. To set up this file, you must specify
    the maximum number of communication lines the Protocol Emulator will
    use, and how many of these will be DPV11 synchronous line
    interfaces.

* How many communication lines will the Protocol Emulator use [1]:
* How many of these will be DPV11 synchronous line interfaces [0]: 1

    AUTOCONFIGURE does not load the UFDRIVER used by the Protocol
    Emulator to access a DPV11.  Therefore, you must specify some
    configuration details for each DPV11 you intend to use with
    the Protocol Emulator. You need to specify:

     o controller designation
     o interrupt vector address
     o CSR address.

    The information you specify must be correct; otherwise, fatal
    system errors will occur when the Protocol Emulator is loaded.


    Configuration details for the first DPV11


* What is the controller designation of this DPV11  (A-Z): A

* What is the interrupt vector address (300-770): 300

* What is the control & status register address (760010-764770): 760270

Controller A,  adapter number 0,  vector 300,  CSR address = 760270

* Do you want to alter the information for this DPV11 [NO]?
```

```
Support for 1 DPV device and 0 non-DPV devices will be included.
You are now done answering questions for this installation.

    Installation continuing, please wait ...

                VAX 2780/3780 Protocol Emulator V1.7
          Installation Successful (pending successful IVP)

    The DMB32, DMF32, and DSV11 device drivers are shipped in the
    WAN Device Drivers kit.  Please install this software before
    loading the product if you are using any of these devices.

    If a previous copy of the VAX 2780/3780 Protocol Emulator is
    already loaded, then reboot the system before running the
    load procedure SYS$STARTUP:RJELOAD.COM.

    See the VAX 2780/3780 Protocol Emulator User's Guide for
    details of tests that should be run to check the physical
    communications links and verify that the lines and modems
    are working correctly.

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

        Starting VAX 2780 PE V1.7 IVP
        VAX 2780 PE V1.7 IVP Successful

 Installation of BSCPTP V1.7 completed at 14:18

 VMSINSTAL procedure done at 14:19
```

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