VXT Software

On OpenVMS Systems

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VXT Software
On OpenVMS Systems

January, 1994

This section describes VXT software installation and system management tasks on OpenVMS operating systems.

Internet Address for Reader Comments

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Revision/Update Information	This is a revised document.
Operating System & Version:	OpenVMS VAX Version 5.4–2 OpenVMS AXP Version 1.5
Software Version:	VXT Version 2.1

Digital Equipment Corporation
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Related Documents

For information on...	Refer to...
OpenVMS systems	*VMS User Documentation Kit*
	VMS V5.4–2 Upgrade and Installation Manual
	VMS Authorize Utility Manual
	VMS System Generation Utility Manual
	VMS System Messages and Recovery Procedures
VXT software and VXT 2000 windowing terminals	*VXT Software Version 2.1 Release Notes*
	VXT 2000+/VXT 2000 Windowing Terminal Installing and Getting Started
	VXT 2000+/VXT 2000 Windowing Terminal User Information
	VXT 2000+/VXT 2000 Windowing Terminal Release Notes

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1

Installing VXT Software on an OpenVMS System

This chapter provides instructions for installing VXT software on OpenVMS VAX and OpenVMS AXP systems. Read the chapter before starting the installation procedure.

1.1 Preparing for the Installation

This section discusses the preparations and requirements for installing VXT software on an OpenVMS system.

Your bill of materials (BOM) specifies the number and contents of your media. Be sure to verify the contents of your kit with this information. If you find missing or damaged parts in your kit, contact your local Digital representative.

Checking the Media Software Distribution Kit

For installations from media, use the BOM to check the contents of your software distribution kit.

The kit includes this installation guide and the one of following media:

- A CD–ROM, labeled VXT Software V2.1, for systems with a CD–ROM device. The CD–ROM also includes VXT documentation in PostScript format.
- A TK50 tape, labeled VXT Software V2.1, for systems with TK50 or TK70 tape drives.
- A 9-track magnetic tape (MT9), labeled VXT Software V2.1, for systems with magnetic tape drives.

Using the Release Notes

The software kit provides release notes. Digital strongly recommends that you read the release notes before proceeding with the installation.

Operating Environment

VXT Version 2.1 software requires OpenVMS VAX Version 5.4–2 or later, or OpenVMS AXP Version 1.5 or later.

1.2 Installation Procedure Requirements

This section describes VXT software installation requirements.

Installation Time

Installing the software and running the installation verification procedure (IVP) on your target system should take approximately 5 to 20 minutes, depending on the type of media and your system configuration. Loading fonts generally requires more time for installation than other subsets.

Installing VXT Software on an OpenVMS System
1.2 Installation Procedure Requirements

Privileges Needed for Installation

To install the software, you must be logged in to an account that has SETPRV or at least SYSPRV privileges.

Remember, VMSINSTAL turns off the BYPASS privilege at the start of the installation.

1.2.1 Prerequisite Hardware

To perform the installation, you need the following hardware:

- Software distribution device (if installing from media)

  You need a distribution device that corresponds with the software distribution media. For example, if you have a TK50 software kit, you need a TK50 or TK70 tape drive. You must know how to load the media supplied with the software distribution kit on the appropriate drive. The documentation for the tape drive or disk drive that you are using explains how to load the media.

- Terminal or console workstation

  You can use a video terminal, hardcopy terminal, or terminal emulator running on a workstation to communicate with the operating system and respond to prompts from the installation procedure for the software.

1.2.2 Prerequisite Software

Table 1–1 describes the prerequisite software and optional software you can use with the VXT software.

Table 1–1 Prerequisite Software—OpenVMS Systems

Prerequisite and Optional Products	Purpose
OpenVMS VAX Version 5.4–2 or OpenVMS AXP Version 1.5	Provides base system and installation support.
OpenVMS DECwindows Motif Version 1.0 or later	Provides X windows support.
DECnet or DECnet/OSI for OpenVMS	Optional. Provides DECnet X sessions support.
LAT/Master Version 5.4–2	Optional. Improves image transport performance in the LAT environment.
DECprint Supervisor (DCPS) for OpenVMS	Optional. Provides PostScript printing support.

See your system documentation for instructions on how to install OpenVMS software.

1.2.3 Tailoring Classes

VXT Version 2.1 software requires OpenVMS VAX Version 5.4–2 or later, or OpenVMS AXP Version 1.5 or later.

The OpenVMS operating systems come with a variety of support options (or components). To use the terminal, your system should be running a version of the OpenVMS operating system that includes the base component and various other components.

For a complete list of required components, see the Software Support Addendum (SSA), which comes with the VXT Version 2.1 Software Product Description (SPD).

1.2.4 Determining Which Images to Install

Use Table 1–2 to select the VXT system images you want to install.

Table 1–2 VXT System Images

File	Description	Features, Uses, and Memory Requirements
VXT.SYS	VXT software	**Features:** • All VXT software features • VXT local clients • X image extension (XIE) **Uses:** • All VXT 2000 windowing terminals (color, gray scale, and monochrome) **Terminal memory requirements (minimum):** • 10 MB
VXTEX.SYS	VXT EX software	**Features:** • Clientless version of VXT software • Simple user interface for making X connections to hosts **Uses:** • All VXT 2000 windowing terminals (color, gray scale, and monochrome) **Terminal memory requirements:** • 4 MB
VXTLDR.SYS VXTLDR1.SYS	VXT loader	**Features:** • Downloads a VXT system image from an InfoServer system to a terminal. • VXTLDR.SYS and VXTLDR1.SYS are identical. VXTLDR1.SYS is installed for compatibility with an earlier loader name. **Uses:** Not needed, unless you are loading terminals from an InfoServer system on a different Ethernet segment. In this case, install the VXT loader on a host in the same segment as the terminals.

1.2.5 Determining Disk Space Requirements

Installing the software requires a certain amount of free disk storage space during and after the installation. VXT Version 2.1 requires the following approximate space if you install all files provided:

- VAX system—14,300 blocks net and 16,300 blocks peak
- AXP system—14,600 blocks net and 20,500 blocks peak

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

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

1.2.6 Process Account Limits and Quotas

The account you use to install the software must have sufficient limits and quotas to let you perform the installation. Table 1–3 summarizes the process quotas required for the installation account.

Table 1–3 OpenVMS Process Account Limits and Quotas for the Installing Account

Limit or Quota	Minimum Value
AST limit (ASTLM)	24
Buffered I/O limit (BIOLM)	18
Buffered byte quota count (BYTLM)	32768
Direct I/O limit (DIOLM)	18
Enqueue quota (ENQLM)	200
Open file quota (FILLM)	100
Process limit (PRCLM)	10
Work set default (WSDEF)	2048
Page file quota (PGFLQUO)	Equal to the virtual page count

User account quotas are stored in the file SYSUAF.DAT. Use the OpenVMS Authorize Utility (AUTHORIZE) to verify and change user account quotas.

See the the AUTHORIZE section in the *OpenVMS System Management Reference Manual* for a description of how to verify and change account privileges and quotas.

1.2.7 System Parameters

System parameter values do not have to be changed beyond those needed for OpenVMS DECwindows Motif Version 1.0.

1.2.8 VMSINSTAL Requirements

When you invoke VMSINSTAL, it checks whether or not

- You are logged in to a privileged account
- You have adequate quotas for installation
- Any users are logged in to the system

If VMSINSTAL detects any problems during the installation, it notifies you and asks if you want to continue the installation. In some cases, you can enter YES to continue. To stop the installation process and correct the problem, enter NO or press Return. Correct the problem, then restart the installation.

1.2.9 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 do a system disk backup before installing any software. Use the backup procedures that are established at your site.

1.3 Installing VXT Software

This section provides step-by-step instructions for installing VXT software on an OpenVMS system.

The installation procedure consists of a series of questions requiring user responses, as well as informational messages. See Section Section 1.7 for a sample installation on an OpenVMS AXP system.

Stopping the Installation

At appropriate points, the procedure asks you if you want to exit or continue the installation. Answer YES if you want to continue the installation. Answer NO if you want to exit the procedure.

You can also end the installation at any time, by pressing Ctrl Y. When you press Ctrl Y, the installation procedure deletes all files it has created up to that point and exits. You can restart the installation at any time.

Online Help

To display online help information during the installation procedure, press ? . After you read the information, you can continue the installation or exit.

Installation Procedure

To install VXT software:

1. **If installing from CD–ROM, mount the device.**

   Enter a MOUNT command to mount the device. For example:

   ```
   $ MOUNT DKA300: VXT
   %MOUNT-I-WRITELOCK, volume is write locked
   %MOUNT-I-MOUNTED, VXT   mounted on _DVF$DKA300:
   ```

2. **Invoke VMSINSTAL**.

   To start the installation, invoke the VMSINSTAL command procedure from a privileged account, such as the SYSTEM account. VMSINSTAL is in the SYS$UPDATE directory.

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

saveset-name
The installation name for the component. For VXT, use the following installation name:

```
VXT
```

device-name
The name of the device that you plan to mount the media on. For example, MTA0: is the device name for a tape drive and DKA300 is the device name for a CD-ROM disc drive.

If installing from CD–ROM, specify the directory [VXT021.KIT] after the device name.

You do not need to use the console drive for this installation. However, if you do use the console drive, you should replace any media you removed after the installation is completed.

OPTIONS N
An optional parameter that indicates you want to see the question on release notes. If you do not include the OPTIONS N parameter, VMSINSTAL does not ask you about the release notes. You should review the release notes before proceeding with the installation, in case they contain additional information about the installation. If you are restarting the installation and have already reviewed the release notes, you do not have to specify OPTIONS N.

There are several other options you can select when you invoke VMSINSTAL.

Option	Purpose
Auto_answer option (A)	Initially creates a file that contains your answers to VMSINSTAL questions and prompts. You can use this option (and the answer file) to save time during a reinstallation (typically after upgrading your system).
Get save set option (G)	Lets you store product save sets temporarily on a magnetic tape or in a disk directory.
File log option (L)	Logs all activity to the terminal during installation.
Alternate root option (R)	Lets you install the product to a system root other than the running system.

For details on these options, see the *Upgrade and Installation Manual* for your operating system. If you specify more than one option, separate the options with commas (OPTIONS A,N).

CD–ROM example: The following example invokes VMSINSTAL to install VXT software from disc drive DKA300 and shows the system response:

```
$ @SYS$UPDATE:VMSINSTAL VXT DKA300:[VXT021.KIT] OPTIONS N

        OpenVMS ALPHA Software Product Installation Procedure V1.5

It is 17-NOV-1993 at 16:51.

Enter a question mark (?) at any time for help.
```

Tape drive example: The following example invokes VMSINSTAL to install VXT software from tape drive MTA0: and shows the system response:

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

        OpenVMS ALPHA Software Product Installation Procedure V1.5

It is 17-NOV-1993 at 16:51.

Enter a question mark (?) at any time for help.
```

If you do not supply either the product name or the device name, VMSINSTAL prompts you for this information later in the installation procedure. VMSINSTAL does not prompt you for any options, so be sure to include OPTIONS N on the VMSINSTAL command line to access the release notes during the installation.

You can enter a question mark (?) at any time for help during the installation.

3. **Check your 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. Otherwise, enter NO to discontinue 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]?
   ```

4. **If installing from tape, mount the media.**

   If you are installing from tape, the installation procedure asks you if your are ready to mount the first distribution volume on the device you specified when you invoked VMSINSTAL. If you are ready, respond YES.

   ```
   Please mount the first volume of the set on MTA0:
   * Are you ready?
   ```

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

If you respond YES, VMSINSTAL displays a message that the media containing the VXT has been mounted on the specified device.

```
%MOUNT-I-MOUNTED, VXT MOUNTED ON _$$MTA0:
```

5. **Select a release notes option.**

The installation procedure indicates that the installation has started:

```
The following products will be processed:
  VXT V2.1

        Beginning installation of VXT V2.1 at 16:51
%VMSINSTAL-I-RESTORE, Restoring product save set A ...
```

If you did not specify OPTIONS N when you invoked VMSINSTAL, the installation procedure indicates that the release notes have been installed in the SYS$HELP and VXT$LIBRARY directories:

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

If you did specify OPTIONS N when you invoked VMSINSTAL, you are now asked to choose one of the four options for reviewing the release notes.

```
Release notes included with this kit are always copied to SYS$HELP.

Additional Release Notes Options:

 1.  Display release notes
 2.  Print release notes
 3.  Both 1 and 2
 4.  None of the above

* Select option [2]:
```

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

If you select option 2, VMSINSTAL prompts you for the name of the print queue:

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

You can press Return to send the file to the default output print device, or you can enter another queue name.

If you select option 3, VMSINSTAL displays the release notes immediately on the console terminal and then prompts you for a queue name for the printed version.

The release notes are always copied to the system help (SYS$HELP) directory.

Select option 4 if you reviewed the release notes and are restarting the installation.

Next, VMSINSTAL displays the following question:

```
* Do you want to continue the installation [N]?:
```

To continue the installation, enter YES. Otherwise, press Return. In either case, the installation procedure copies the text and PostScript versions of the release notes to the following directories:

Text version: SYS$HELP:VXT021.RELEASE_NOTES

PostScript version: VXT$LIBRARY:VXT021_RELEASE_NOTES.PS

After the installation, you can print the release notes. To display the text version, enter the following command:

```
$ TYPE VXTX021.RELEASE_NOTES
```

Note

The name of the release notes file installed by VMSINSTAL consists of the current product name and version number. Do not delete release notes for previous versions of the software.

6. **If reinstalling, purge files.**

   If you are reinstalling VXT Version 2.1 software, you can purge previous copies in the directory VXT$LIBRARY. This step does not purge earlier VXT software versions in the directory MOM$SYSTEM. To delete earlier versions, see Section 1.5.

   Purging is recommended to manage your disk space; however, if you need to keep files from an earlier installation, enter NO in response to the question:

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

7. **Choose the Installation Verification Procedure (IVP) option.**

   The installation procedure now asks if you want to run the IVP.

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

   The IVP for the software checks to ensure the installation is successful. Digital recommends that you run the IVP.

   After you install the software, you can run the IVP independently to verify that the software is available on your system. You might need to run the IVP after a system failure to ensure that users can access the software.

8. **Check VXT software installation options.**

   This procedure always installs VXT software for supporting connections to your system. The next message lists the additional software options to be selected:

```
o  DECnet X session support
    o  VXT host-based images for loading terminals from this system
    o  VXT loader images for loading terminals from InfoServers
    o  DECterm fonts

The installation takes between 5 and 20 minutes, depending on the options you
select and the media you use.
```

   Next, VMSINSTAL displays the following question:

```
* Do you want to continue installing VXT Software [YES]?:
```

   To continue the installation, press Return. Otherwise, enter YES.

9. **Install support for DECnet X sessions.**

   The installation procedure now asks if you want to support DECnet X sessions. The installation requires that DECnet be running (DECnet VAX or DECnet/OSI).

```
* Do you want to support DECnet X sessions [YES]
```

   Answer YES if you want to allow terminal users to create DECnet X sessions to this system. The procedure will create the required VXT$SERVER DECnet object, VXT$SERVER DECnet account, and SYS$SYSDEVICE:[VXT$SERVER] directory on this system. The VXT$SERVER account has the default privileges TMPMBX and NETMBX. The [VXT$SERVER] directory is for network log files.

   If you have installed DECnet support for previous versions of VXT software, you should delete earlier versions of VXT$SERVER.COM. See Section 1.5.

   If this host is part of a VAXcluster and you want to support DECnet X sessions on each node in the cluster, see Section 2.2 for postinstallation steps to perform on each node.

   If the VXT$SERVER account already exists, the installation procedure displays a message that the account already exists.

10. **Install the VXT host-based system images.**

    The installation procedure asks if you want to install the host-based images, VXT.SYS and VXTEX.SYS.

```
* Do you want to install the VXT host-based images [YES] ?
```

    To install the VXT system images, answer YES.

    If you plan to load terminals from this system, you must install the VXT host-based images. These images can load terminals configured to boot through either MOP or BOOTP and TFTP.

    Before you use these images to load terminals, you must perform some postinstallation procedures (Chapter 2).

11. **Install the VXT loader images.**

    The installation procedure asks if you want to install the VXT loader images, VXTLDR.SYS and VXTLDR1.SYS.

    ```
    * Do you want to install the VXT loader images [NO]?
    ```

    Answer YES to install the VXT loader images, VXTLDR.SYS and VXTLDR1.SYS. If you do not want to install the VXT loader images, press Return.

    Normally, terminals loaded in server-based mode use a VXT loader image on an InfoServer. If the terminals cannot access an InfoServer directly over the MOP protocol, you must install the VXT loader images on a host system. Then you can use a host-based VXT loader image to load terminals from the InfoServer, using MOP or BOOTP and TFTP.

    Before you use these images to load terminals, you must perform some postinstallation procedures (Chapter 2).

12. **Install the DECterm fonts, if needed.**

    The procedure checks for the presence of DECterm fonts on your system. If you do not have the fonts, the procedure asks if you want to install them.

    ```
    * Do you want to install the DECterm fonts [YES]?
    ```

    Answer YES to install the DECterm fonts in the system font directories:

    - OpenVMS VAX system—[SYSFONT.DECW.*]
    - OpenVMS AXP system—[SYSFONT.PCF.*]

    Answer NO if you do not want to install the DECterm fonts.

    You need the DECterm fonts to use all features of VXT DECterm windows. If you plan to access fonts from this system, install the DECterm fonts.

13. **Create a directory for storing files.**

    The files for this version of VXT software are stored in a directory named [VXT$LIBRARY]. This is different from previous versions of the VXT software. You must enter the name of the device where you want to create this directory.

    ```
    *Device for storing VXT files [SYS$SYSDEVICE]: ?

     Enter the name of the device where you want to create the [VXT$LIBRARY]
     directory for storing VXT Software files.
    ```

    The procedure will display a list of available disk devices that can be used for storing the [VXT$LIBRARY] directory and VXT Software files.

    At this point, the installation procedure displays a number of informational messages that report on the progress of creating a system disk directory.

14. **If you chose DECnet X session support, specify a unique UIC for the VXT$SERVER account.**

    If you chose DECnet X session support, the installation creates a DECnet account named VXT$SERVER, with TMPMBX and NETMBX privileges. The account is set up to allow only network access.

    By default, the installation procedure selects a unique default UIC for the VXT$SERVER account. If you want to use a different UIC for that account, specify a unique UIC.

```
*Enter UIC for VXT$SERVER account (include brackets) [[375,200]]: ?
```

    The UIC is the user identification code for the DECnet account VXT$SERVER. The UIC is expressed as a [group,member] number in octal digits (0 to 7). Separate the group and the member numbers with a comma. Enclose the UIC in brackets. The group number must be in the range 1 to 38886 (octal), the member number in the range 0 to 1777776 (octal).

    Digital recommends that you use the default UIC of [375,200]. If you do not use the default, make sure you ue a unique UIC. You should not specify a group number in the system range (normally 1-10 octal).

    The procedure displays the UICs currently in use on your system.

VXT$SERVER Password

If you change the password for the VXT$SERVER account, you must also change the password for the DECnet object VXT$SERVER. (This is not required for DECnet/OSI software.) To change the password, use the following NCP commands:

```
NCP>  SET OBJECT VXT$SERVER PASSWORD new_password
NCP>  DEFINE OBJECT VXT$SERVER PASSWORD new_password
```

15. **Read informational messages.**

    At this point, the installation procedure displays a number of informational messages that report on the progress of the installation.

    No further questions will be asked during the installation procedure.

16. **Observe the IVP.**

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

```
        Beginning verification of VXT Installation...

Beginning the VXT V2.1 Installation Verification Procedure.
.
.
.
The VXT V2.1 Installation Verification Procedure completed
successfully.
```

17. **End the installation procedure.**

The following message indicates that the installation procedure is complete.

```
Installation of VXT V2.1 completed at 16:58

Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY

Creating installation data file: VMI$ROOT:[SYSUPD]VXTO21.VMI_DATA

       VMSINSTAL procedure done at 16:58
```

You can now log out of the privileged account:

```
$ LOGOUT
SYSTEM     logged out at 17-NOV-1993 16:58:44.92
```

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.

1.4 Error Recovery

If errors occur during the installation or when the IVP is running, VMSINSTAL displays failure messages. If the installation fails, the following message is displayed:

```
%VMSINSTAL-E-INSFAIL, The installation of VXT has failed.
```

If the IVP fails, the following message is displayed:

```
The VXT V2.1 Installation Verification Procedure failed.

%VMSINSTAL-E-IVPFAIL, The IVP for VXT V2.1 has failed.
```

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

- Incorrect operating system version
- Incorrect version of prerequisite software
- Insufficient privileges for a successful installation
- Insufficient quotas for a successful installation
- Insufficient system parameter values for a successful installation
- Insufficient disk space in VXT$LIBRARY

For descriptions of the error messages generated by these conditions, see the OpenVMS documentation on system messages, recovery procedures, and OpenVMS software installation. If you are notified that any of these conditions exist, you should take the appropriate action described in the message. For information on installation requirements, see Section 1.2.

1.5 Postinstallation Procedures

See Section 2.1, System Administration Checklist for postinstallation tasks.

You must edit your system startup file to invoke the VXT$STARTUP command file.

Deleting Earlier Versions

To delete earlier versions of VXT system image files, enter the following command:

```
$ DELETE/CONFIRM MOM$SYSTEM:*VXT*.SYS;*
```

To delete earlier versions of the VXT$SERVER.COM file, enter the following command:

```
$ DELETE/CONFIRM SYS$SYSDEVICE: [VXT$SERVER]VXT$SERVER.COM;*
```

Note for a preconfigured boot, each terminal must be modified.

1.6 Verifying the Installation

After installing the software, you should do the following:

- Run the Installation Verification Procedure (IVP), if not already run.
- Perform postinstallation tasks (Chapter 2).
- Try to load the VXT software using MOP (Chapter 2).
- Report any problems.

1.6.1 Running the Installation Verification Procedure

You usually run the IVP during the installation, but you can also run the IVP separately. If you want to ensure the integrity of installed files in case system problems occur, execute the following command procedure:

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

1.6.2 Determining and Reporting Problems

Software Errors

If you encounter a problem while using VXT, report it to Digital. Depending on the nature of the problem and the type of support you have, you can take one of the following actions:

- Call Digital if your software contract or warranty agreement entitles you to telephone support.
- Submit a Software Performance Report (SPR).

Documentation Errors

If you find an error in the VXT documentation, fill out and submit the Reader's Comments form at the back of the document. Please include the section and page number where the error occurred.

You can also send your comments by electronic mail to the Internet address listed on the title page and Reader's Comments form.

1.7 Sample Installation on an OpenVMS AXP System

This section shows a sample installation of VXT software on an OpenVMS AXP system. This sample was run on a system that did not have a previous version of VXT software installed. Depending on which layered products you have on your system, you may see additional messages and questions when you perform your installation.

The example of the installation assumes that DECnet has been shut down and no users are logged on to your system. If you selected the installation verification procedure (IVP), it runs at the end of the installation.

```
Username:  SYSTEM Return
Password:

    Logged onto VXTAXP - OpenVMS V1.5

    Last interactive login on Wednesday, 17-NOV-1993 11:51

$  MOUNT DKA300: VXT
%MOUNT-I-WRITELOCK, volume is write locked
%MOUNT-I-MOUNTED, VXT   mounted on _DVF$DKA300:
$  @SYS$UPDATE:VMSINSTAL VXT DKA300:[VXT021.KIT] OPTIONS N

 OpenVMS ALPHA Software Product Installation Procedure V1.5

It is 17-NOV-1993 at 16:51.

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:
  VXT V2.1

 Beginning installation of VXT V2.1 at 16:51

%VMSINSTAL-I-RESTORE, Restoring product save set A ...

    Release notes included with this kit are always copied to SYS$HELP.

    Additional Release Notes Options:

 1.  Display release notes
 2.  Print release notes
 3.  Both 1 and 2
 4.  None of the above

* Select option [2]: )  4 Return

* Do you want to continue the installation [NO]?  YES Return
%VMSINSTAL-I-RELMOVED, Product's release notes have been moved to SYS$HELP.
* Do you want to purge files replaced by this installation [YES]?  Return
* Do you want to run the IVP after the installation [YES]?  Return

  VXT Software Installation Options
  ---------------------------------
  This procedure always installs VXT Software for supporting connections to
  this system. You can also install

  o  DECnet X session support
  o  VXT host-based images for loading terminals from this system
  o  VXT loader images for loading terminals from InfoServers
  o  DECterm fonts

  The installation takes between 5 and 20 minutes, depending on the options
  you select and the media you use.
```

```
* Do you want to continue installing VXT Software [YES]?  Return

  DECnet X Session Support
  ------------------------
  To allow DECnet X sessions from terminals to this system, you must create a
  network object VXT$SERVER and a network account VXT$SERVER.

  Answer YES to the next question to create the VXT$SERVER object, the
  VXT$SERVER account, and the directory SYS$SYSDEVICE:[VXT$SERVER].

* Do you want to support DECnet X sessions [YES]?  Return

  VXT Host-Based Images
  ---------------------
  To load terminals from this system, you must install the VXT host-based
  images. If you are ONLY using terminals supported by InfoServers, then you
  need not install the VXT host-based images on this system.

  Answer YES to the next question to install the VXT host-based images
  VXT.SYS and VXTEX.SYS.

  These require about 12298 blocks.

* Do you want to install the VXT host-based images [YES]?  Return

  VXT Loader Images
  -----------------
  To load terminals in server-based mode from an InfoServer in another
  Ethernet segment, you must install the VXT loader images, VXTLDR.SYS and
  VXTLDR1.SYS.

  If you are NOT using any terminals supported by InfoServers, then you need
  not install the VXT loader images.

  Answer YES to the next question to install the VXT loader images,
  VXTLDR.SYS and VXTLDR1.SYS.

  These require about 1588 blocks.

* Do you want to install the VXT loader images [NO]?  YES Return

  DECterm Fonts
  -------------
  Checking for the presence of DECterm fonts on your system ...

  You do not have all the fonts needed to use VXT DECterm terminal emulator
  windows. Answer YES to the next question to install the DECterm fonts.

  These require about 7119 free blocks.

* Do you want to install the DECterm fonts [YES]?  Return

  Device for Storing VXT Files
  ----------------------------
  The files for this version of VXT Software are stored in a directory named
  [VXT$LIBRARY]. Enter the name of the device where you want to create this
  directory.

  This device must have at least 14283 free blocks.

* Device for storing VXT files [SYS$SYSDEVICE]:  Return

  VXT Software Installation Options Selected
  ------------------------------------------
  You have selected to install the following:

  o  VXT Software for supporting connections to this system
  o  DECnet X session support
  o  VXT host-based images for loading terminals from this system
  o  VXT loader images for loading terminals from InfoServers
  o  DECterm fonts

  The device that will contain the [VXT$LIBRARY] directory is SYS$SYSDEVICE:
```

```
* Is this correct [YES]?  Return

  Creating the directory SYS$SYSDEVICE:[VXT$LIBRARY] ...
%VMSINSTAL-I-SYSDIR, This product creates system disk directory  SYS$SYSDEVICE:[VXT$LIBRARY].

  UIC for Network Account VXT$SERVER
  ----------------------------------
  This installation will create a network account named VXT$SERVER, with no
  special privileges and set up to allow only network access.

  By default, the installation procedure selects a unique default UIC for the
  VXT$SERVER account. If you want to use a different UIC for that account,
  specify a unique UIC.

  If you change the password for the VXT$SERVER account, you must also change
  the password for the network object VXT$SERVER with the following commands:
  (Note: this is not required if you are running DECnet/OSI)

 $ RUN SYS$SYSTEM:NCP
 NCP> SET OBJECT VXT$SERVER PASSWORD new_password
 NCP> DEFINE OBJECT VXT$SERVER PASSWORD new_password

* Enter UIC for VXT$SERVER account (include brackets) [[375,200]]:  [375,200] Return

  Creating network account VXT$SERVER ...
%VMSINSTAL-I-ACCOUNT, This installation creates an ACCOUNT named VXT$SERVER.
%UAF-I-ADDMSG, user record successfully added
%UAF-I-RDBADDMSGU, identifier VXT$SERVER value: [000375,000200] added to rights data base
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named VXT$SERVER.
%UAF-I-MDFYMSG, user record(s) updated
%VMSINSTAL-I-ACCOUNT, This installation updates an ACCOUNT named VXT$SERVER.
%UAF-I-MDFYMSG, user record(s) updated
  Creating directory SYS$SYSDEVICE:[VXT$SERVER] ...
%VMSINSTAL-I-SYSDIR, This product creates system disk directory  SYS$SYSDEVICE:[VXT$SERVER].

%VXT-I-DONEASK, No further questions will be asked during this installation.

  Defining the network object VXT$SERVER ...
  The network object VXT$SERVER has been defined. If you wish to view this,
  run SYS$SYSTEM:NCP and issue the command

        NCP> LIST OBJECT VXT$SERVER CHAR

  Building VXT application launcher VXT$LAUNCH.EXE ...
  Building VXT utility VXT$WSA.EXE ...
  Updating VXT$STARTUP.COM with installation options ...
  Adding VXT Software for supporting connections ...
%VMSINSTAL-I-RESTORE, Restoring product save set B ...
  Adding VXT loader images ...
%VMSINSTAL-I-RESTORE, Restoring product save set C ...
  Adding VXT host-based images ...
%VMSINSTAL-I-RESTORE, Restoring product save set E ...
  Adding DECterm fonts ...

******************************************************************************
 This installation will add the following files . . .
******************************************************************************
```

```
  VXT$LIBRARY:VXT021_RELEASE_NOTES.PS  (Postscript version of Release Notes)
  SYS$TEST:VXT$IVP.COM
  SYS$STARTUP:VXT$STARTUP.COM
  VXT$LIBRARY:VXT$SERVER.COM
  VXT$LIBRARY:VXT$LAUNCH.EXE
  VXT$LIBRARY:VXT$WSA.EXE
  VXT$LIBRARY:VXTCONFIG.XRM
  VXT$LIBRARY:VXT.SYS
  VXT$LIBRARY:VXTEX.SYS
  VXT$LIBRARY:VXTLDR.SYS
  VXT$LIBRARY:VXTLDR1.SYS
  DECW$SYSCOMMON:[SYSFONT.DECW.75DPI]TERMINAL*.PCF
  DECW$SYSCOMMON:[SYSFONT.DECW.100DPI]TERMINAL*_100DPI.PCF

Please add the following line to your SYS$MANAGER:SYSTARTUP_VMS.COM.

  $ @SYS$STARTUP:VXT$STARTUP

See the VXT Software Installation and System Management guide for
postinstallation procedures.

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

  Beginning verification of VXT Software Installation ...


  Beginning the VXT V2.1 Installation Verification Procedure.

  Verifying VXT Software for supporting connections ...
  Verifying support for DECnet X sessions ...
  Verifying VXT host-based images ...
  Verifying VXT loader images ...
  Verifying DECterm fonts ...

  The VXT V2.1 Installation Verification Procedure completed successfully.

 Installation of VXT V2.1 completed at 16:58

    Adding history entry in VMI$ROOT:[SYSUPD]VMSINSTAL.HISTORY

    Creating installation data file: VMI$ROOT:[SYSUPD]VXT021.VMI_DATA

 VMSINSTAL procedure done at 16:58

$  DISMOUNT DKA300: Return
$  LOGOUT Return
  SYSTEM     logged out at 17-NOV-1993 16:58:44.92
```

1.8 File Names Installed on Your System

Table 1–4 lists possible files installed on your system by the VXT software installation:

Table 1–4 Files Installed

File Name	Approximate Size (Blocks)	Description
SYS$SYSDEVICE:[VXT$LIBRARY] Directory		
VXT$LAUNCH.EXE	15	VXT application launcher for launching remote applications. See Application Launcher in Chapter 2.
VXT$SERVER.COM	12	Starts an X session.
VXT$WSA.EXE	12	Sets and creates a display device. Supports DECnet X sessions.
VXT.SYS	9909	VXT software.
VXT021_ RELEASE_ NOTES.PS	204	Release notes in PostScript format.
VXTCFGTMPL.XRM	81	Host-based resource template file, for configuring terminals from a host using TCP/IP. See Managing Terminal and Group Settings in Chapter 2.
VXTEX.SYS	2382	VXT EX software.
VXTLDR.SYS VXTLDR1.SYS	786 786	VXT loader for InfoServer based VXT terminals. Installed under two names for compatibility with earlier versions.
Total blocks	~14,200	
SYS$COMMON:[SYS$STARTUP] Directory		
VXT$STARTUP.COM	9	Startup command file.
SYS$COMMON:[SYSTEST] Directory		
VXT$IVP.COM	21	Installation verification procedure file.
SYS$COMMON:[SYSHLP] Directory		
VXT021.RELEASE_ NOTES	78	Release notes text file.

1.9 Fonts Used with VXT DECterm

When you install the VXT system image, the installation procedure checks if your system has the fonts used with VXT DECterm. If your system has DECwindows Motif software, you probably have the fonts for VXT DECterm windows. If not, the installation procedure installs the fonts listed in Table 1–5. The total block size for these fonts is

System	Block Size	File Extension
OpenVMS VAX	1,600	.DECW$FONT
OpenVMS AXP	5,600	.PCF

Table 1–5 VXT DECterm Fonts

File Names	File Names	File Names
TERMINAL10_100DPI	TERMINAL_BOLD_ NARROW14_100DPI	TERMINAL_DECTECH18_100DPI
TERMINAL14	TERMINAL_BOLD_ NARROW18	TERMINAL_DECTECH20_100DPI
TERMINAL14_100DPI	TERMINAL_BOLD_ NARROW18_100DPI	TERMINAL_DECTECH28
TERMINAL18	TERMINAL_BOLD_ NARROW20_100DPI	TERMINAL_DECTECH28_100DPI
TERMINAL18_100DPI	TERMINAL_BOLD_ NARROW28	TERMINAL_DECTECH36
TERMINAL20_100DPI	TERMINAL_BOLD_ NARROW28_100DPI	TERMINAL_DECTECH36_100DPI
TERMINAL28	TERMINAL_BOLD_ NARROW36	TERMINAL_GS10_100DPI
TERMINAL28_100DPI	TERMINAL_BOLD_ NARROW36_100DPI	TERMINAL_GS14
TERMINAL36	TERMINAL_BOLD_ NARROW_DECTECH10_ 100DPI	TERMINAL_GS14_100DPI
TERMINAL36_100DPI	TERMINAL_BOLD_ NARROW_DECTECH14	TERMINAL_GS18
TERMINAL_BOLD10_ 100DPI	TERMINAL_BOLD_ NARROW_DECTECH14_ 100DPI	TERMINAL_NARROW10_100DPI
TERMINAL_BOLD14	TERMINAL_BOLD_ NARROW_DECTECH18	TERMINAL_NARROW14
TERMINAL_BOLD14_ 100DPI	TERMINAL_BOLD_ NARROW_DECTECH18_ 100DPI	TERMINAL_NARROW14_100DPI

(continued on next page)

Table 1–5 (Cont.) VXT DECterm Fonts

File Names	File Names	File Names
TERMINAL_BOLD18	TERMINAL_BOLD_ NARROW_DECTECH20_ 100DPI	TERMINAL_NARROW18
TERMINAL_BOLD18_ 100DPI	TERMINAL_BOLD_ NARROW_DECTECH28	TERMINAL_NARROW18_100DPI
TERMINAL_BOLD20_ 100DPI	TERMINAL_BOLD_ NARROW_DECTECH28_ 100DPI	TERMINAL_NARROW20_100DPI
TERMINAL_BOLD28	TERMINAL_BOLD_ NARROW_DECTECH36	TERMINAL_NARROW28
TERMINAL_BOLD28_ 100DPI	TERMINAL_BOLD_ NARROW_DECTECH36_ 100DPI	TERMINAL_NARROW28_100DPI
TERMINAL_BOLD36	TERMINAL_BOLD_ WIDE10_100DPI	TERMINAL_NARROW36
TERMINAL_BOLD36_ 100DPI	TERMINAL_BOLD_ WIDE14	TERMINAL_NARROW36_100DPI
TERMINAL_BOLD_ DBLWIDE10_100DPI	TERMINAL_BOLD_ WIDE14_100DPI	TERMINAL_NARROW_DECTECH10_100DPI
TERMINAL_BOLD_ DBLWIDE14	TERMINAL_BOLD_ WIDE18	TERMINAL_NARROW_DECTECH14
TERMINAL_BOLD_ DBLWIDE14_100DPI	TERMINAL_BOLD_ WIDE18_100DPI	TERMINAL_NARROW_DECTECH14_100DPI
TERMINAL_BOLD_ DBLWIDE18	TERMINAL_BOLD_ WIDE_DECTECH10_ 100DPI	TERMINAL_NARROW_DECTECH18
TERMINAL_BOLD_ DBLWIDE18_100DPI	TERMINAL_BOLD_ WIDE_DECTECH14	TERMINAL_NARROW_DECTECH18_100DPI
TERMINAL_BOLD_ DBLWIDE_DECTECH10_ 100DPI	TERMINAL_BOLD_ WIDE_DECTECH14_ 100DPI	TERMINAL_NARROW_DECTECH20_100DPI
TERMINAL_BOLD_ DBLWIDE_DECTECH14	TERMINAL_BOLD_ WIDE_DECTECH18	TERMINAL_NARROW_DECTECH28
TERMINAL_BOLD_ DBLWIDE_DECTECH14_ 100DPI	TERMINAL_BOLD_ WIDE_DECTECH18_ 100DPI	TERMINAL_NARROW_DECTECH28_100DPI
TERMINAL_BOLD_ DBLWIDE_DECTECH18	TERMINAL_ DBLWIDE10_100DPI	TERMINAL_NARROW_DECTECH36
TERMINAL_BOLD_ DBLWIDE_DECTECH18_ 100DPI	TERMINAL_DBLWIDE14	TERMINAL_NARROW_DECTECH36_100DPI

(continued on next page)

Table 1–5 (Cont.) VXT DECterm Fonts

File Names	File Names	File Names
TERMINAL_BOLD_ DECTECH10_100DPI	TERMINAL_ DBLWIDE14_100DPI	TERMINAL_WIDE10_100DPI
TERMINAL_BOLD_ DECTECH14	TERMINAL_DBLWIDE18	TERMINAL_WIDE14
TERMINAL_BOLD_ DECTECH14_100DPI	TERMINAL_ DBLWIDE18_100DPI	TERMINAL_WIDE14_100DPI
TERMINAL_BOLD_ DECTECH18	TERMINAL_DBLWIDE_ DECTECH10_100DPI	TERMINAL_WIDE18
TERMINAL_BOLD_ DECTECH18_100DPI	TERMINAL_DBLWIDE_ DECTECH14	TERMINAL_WIDE18_100DPI
TERMINAL_BOLD_ DECTECH20_100DPI	TERMINAL_DBLWIDE_ DECTECH14_100DPI	TERMINAL_WIDE_DECTECH10_100DPI
TERMINAL_BOLD_ DECTECH28	TERMINAL_DBLWIDE_ DECTECH18	TERMINAL_WIDE_DECTECH14
TERMINAL_BOLD_ DECTECH28_100DPI	TERMINAL_DBLWIDE_ DECTECH18_100DPI	TERMINAL_WIDE_DECTECH14_100DPI
TERMINAL_BOLD_ DECTECH36	TERMINAL_ DECTECH10_100DPI	TERMINAL_WIDE_DECTECH18
TERMINAL_BOLD_ DECTECH36_100DPI	TERMINAL_DECTECH14	TERMINAL_WIDE_DECTECH18_100DPI
TERMINAL_BOLD_ NARROW10_100DPI	TERMINAL_ DECTECH10_100DPI	TERMINAL_BOLD_NARROW14
TERMINAL_BOLD_ NARROW14	TERMINAL_DECTECH18	–

1.10 CD–ROM Files

If you have the VXT CD–ROM for OpenVMS systems, the VXT files are in the [VXT021.*] directories.

Directory	Files	
[VXT021.KIT]	Installation kit savesets:	
	VXT021.A	Software for supporting connections
	VXT021.B	VXT loader for server-based operation
	VXT021.C	VXT images and resource template file
	VXT021.D	DECterm fonts for OpenVMS VAX
	VXT021.E	DECterm fonts for OpenVMS AXP
[VXT021.LINE_DOCS]	Release notes in text format: VXT021.RELEASE_NOTES	
[VXT021.POST_DOCS]	VXT documentation in PostScript format: VXT021_RELEASE_NOTES.PS VXT_GETTING_STARTED_DE.PS VXT_GETTING_STARTED_EN.PS VXT_GETTING_STARTED_ES.PS VXT_GETTING_STARTED_FR.PS VXT_GETTING_STARTED_IT.PS VXT_GETTING_STARTED_NL.PS VXT_SYSMAN_INSTALL_APPENDIX.PS VXT_SYSMAN_INSTALL_DEC_OSF1_AXP.PS VXT_SYSMAN_INSTALL_HP-UX.PS VXT_SYSMAN_INSTALL_IBM_AIX.PS VXT_SYSMAN_INSTALL_INDEX.PS VXT_SYSMAN_INSTALL_INFOSERVER.PS VXT_SYSMAN_INSTALL_OPENVMS.PS VXT_SYSMAN_INSTALL_OVERVIEW.PS VXT_SYSMAN_INSTALL_SCO_ODT.PS VXT_SYSMAN_INSTALL_SUNOS.PS VXT_SYSMAN_INSTALL_ULTRIX.PS VXT_SYSMAN_INSTALL_USING_CONFIG_MANAGER.PS VXT_USER_GUIDE.PS	

2

OpenVMS System Management Tasks

This chapter describes VXT system management tasks for OpenVMS host systems.

2.1 System Administration Checklist

The OpenVMS operating system is a supported boot host for VXT 2000 and VT1300 terminals. Before you use an OpenVMS system as a boot host for these terminals, you must perform some minor reconfiguration steps on the host system.

VXT Version 2.1 software includes significant changes to simplify system management and provide more options.

Checklist

Use the following checklist to ensure that you complete the system management tasks:

☐ **Booting and Downloading**

☐ **VXT system images**	Install the VXT system images before starting with system management tasks (Chapter 1).
☐ **System startup**	Revise your system startup file to execute the VXT$STARTUP command file. If needed, you can use special symbols to customize the VXT startup process (Section 2.2).
☐ **DECnet X session support**	You install support for DECnet X sessions as part of the VXT Version 2.1 software installation. If you previously installed DECnet X session support for earlier VXT software versions, you should delete the old VXT$SERVER.COM file in SYS$SYSDEVICE:[VXT$SERVER]. See Chapter 1. For more information on DECnet X session support, see Section 2.11. If you are using DECnet/OSI, see the DECnet/OSI manuals.
☐ **MOP loading support**	VXT Version 2.1 images for MOP loading are placed in the [VXT$LIBRARY] directory. Earlier VXT versions used another location. You must reconfigure the terminals to load VXT images from [VXT$LIBRARY]. See the Booting and Downloading section in this chapter.
☐ **MOP by address**	If you want to load terminals by their Ethernet address, see Section 2.4.
☐ **MOP by file name**	If you want to load terminals by specifying a VXT software image name, you must either add the logical name VXT$LIBRARY to the MOM$LOAD search list or copy the VXT images to MOM$SYSTEM. See Section 2.5.
☐ **MOP trigger**	If you want to boot terminals remotely, see Section 2.6.

OpenVMS System Management Tasks
2.1 System Administration Checklist

☐ **Fonts**	OpenVMS VAX systems support SNF fonts. OpenVMS AXP systems support SNF and portable compiled fonts (PCF), but you should use only PCF fonts on AXP systems. Use the OpenVMS font compiler to convert other fonts. (Section 2.7).
☐ **X Services**	If you plan to use X sessions on terminals, make sure your host is set up correctly to support X sessions over the LAT, DECnet, or IP transport (Sections 2.9 to 2.11).
☐ **Character Cell Services**	If you plan to use terminal windows, make sure your host system is configured for LAT, Telnet, or DECnet access. (Sections 2.12 to 2.14).
☐ **Managing Terminal Settings**	You can use the configuration manager or your own host-based resource files to manage terminal customizations. See the *Managing Terminals and Work Groups* section of this guide for details.
☐ **Printing**	OpenVMS hosts can use the LAT transport to access a serial or parallel printer connected to a VXT 2000 windowing terminal. To set up the LAT printer port, see Section 2.15.
☐ **VXT Application launcher**	VXT Version 2.1 software provides an application launcher that lets terminal users send commands to a host to display host X applications on the terminal. For setup procedures, see the Application Launcher section in this chapter.

Booting and Downloading

This section describes the methods for booting terminals from an OpenVMS system. Before you boot terminals, you must revise your OpenVMS system startup file.

2.2 VXT Startup

After you install VXT software, you must revise your OpenVMS system startup file to include the following command:

```
$ @SYS$STARTUP:VXT$STARTUP
```

VAXcluster Support

If you installed VXT software in a VAXcluster, you should execute the preceding command on each member of the cluster. This step ensures that the logical name VXT$LIBRARY is defined and the two images SYS$SYSTEM:DECW$STARTLOGIN.EXE and VXT$LIBRARY:VXT$WSA.EXE are installed with the correct privileges. If you have special requirements, you can use DCL symbols in your system startup procedure to tailor the behavior of VXT$STARTUP.COM.

If you are also supporting DECnet X sessions in a VAXcluster, you must ensure that the network object on each member of the cluster is current. To do this, enter the following command on each cluster member:

```
NCP> SET OBJECT VXT$SERVER ALL
```

VXT$STARTUP.COM

The VXT software installation places VXT$STARTUP.COM in the SYS$STARTUP directory. This command file defines the system-wide logical name VXT$LIBRARY and installs the images VXT$WSA.EXE and DECW$STARTLOGIN.EXE as known files. You should not revise this command file, because you will lose your revisions if you install a later version of VXT software.

Customizing VXT$STARTUP.COM

You can customize the behavior of VXT$STARTUP by setting DCL symbols before invoking @SYS$STARTUP:VXT$STARTUP.

- **VXT$LIBRARY_PATH**

  If you want to move the [VXT$LIBRARY] directory to another location, set this symbol to the new path.

  Example:

  ```
  $ VXT$LIBRARY_PATH := DKA200:[VXT$LIBRARY]
  ```

- **VXT$BOOT_BY_NAME**

  Set the VXT$BOOT_BY_NAME symbol to TRUE if you want to support loading of VXT images from [VXT$LIBRARY] using MOP by name. When this symbol is set to TRUE, it adds the logical name VXT$LIBRARY to the front of the MOM$LOAD search list.

Example:

```
$ VXT$BOOT_BY_NAME := TRUE
```

- **VXT$INSTALL_WSA**

  Normally, the VXT software installation procedure installs the image VXT$LIBRARY:VXT$WSA.EXE as a known file with privileges CMKRNL and SYSNAM. VXT$WSA.EXE supports DECnet X sessions. VXT$WSA.EXE must be installed as a known file with privileges so it can create a permanent display device.

  For security issues, set VXT$INSTALL_WSA to FALSE if you do not want VXT$WSA.EXE installed as a known file with privileges CMKRNL and SYSNAM.

  Example:

  ```
  $ VXT$INSTALL_WSA := FALSE
  ```

- **VXT$INSTALL_STARTLOGIN**

  Normally, the VXT software installation procedure installs the SYS$SYSTEM:DECW$STARTLOGIN.EXE image as a known file with privileges CMKRNL and SYSNAM. This setting provides the Cancel button on OpenVMS login windows.

  Set VXT$INSTALL_STARTLOGIN to FALSE if you do not want to have the image SYS$SYSTEM:DECW$STARTLOGIN.EXE installed as a known file with privileges CMKRNL and SYSNAM.

  Example:

  ```
  $ VXT$INSTALL_STARTLOGIN := FALSE
  ```

2.3 Booting Methods

The following sections describe three ways to download VXT software from an OpenVMS host system to a VXT 2000 windowing terminal:

- MOP by Ethernet address (DECnet address required)
- MOP by file name
- MOP trigger to boot a remote node

If your system has TCP/IP for OpenVMS software, you can use BOOTP/TFTP.

When you download VXT software from an OpenVMS system, the terminal operates in host-based mode.

VXT Loader for InfoServer

If you are loading server-based terminals from an InfoServer system in another Ethernet segment, you can download the VXT loader (VXTLDR.SYS) from an OpenVMS system. The VXT loader then downloads a VXT system image from an InfoServer system to the terminal. If you do not have an InfoServer system, you should not make the VXTLDR.SYS image available for MOP downloading.

2.4 MOP Configured by Ethernet Address

DECnet Address Needed

To set up terminals to load MOP configured by Ethernet address, you need an end-node LAN area DECnet address. If you use DECnet X session or DECnet terminal window sessions on the terminal, you must use the terminal's same DECnet address for downloading. This step is a site-specific network management activity.

Configuration

To load VXT software using MOP by Ethernet address, each terminal must be preconfigured to boot a VXT system image. The OpenVMS host system that downloads the VXT system images must be preconfigured to respond to the MOP request from each terminal. A terminal's Ethernet address identifies the source of the MOP request.

2.4.1 Using NCP Commands to Preconfigure Terminals

To preconfigure a terminal, use the following NCP commands. The SET command updates the volatile NCP database. Use the DEFINE command to update the permanent NCP database; otherwise, the volatile database will be lost when the host reboots.

```
$ RUN SYS$SYSTEM:NCP

NCP> SET NODE node-name ADDRESS DECnet-address HARDWARE ADDRESS -
    _08-00-2B-xx-xx-xx LOAD FILE SYS$SYSDEVICE:[VXT$LIBRARY]vxt-image

NCP> DEFINE NODE node-name ADDRESS DECnet-address HARDWARE ADDRESS -
     _08-00-2B-xx-xx-xx LOAD FILE SYS$SYSDEVICE:[VXT$LIBRARY]vxt-image
```

08-00-2B-xx-xx-xx is the Ethernet address. Each terminal must be assigned a unique DECnet *node-name* and *DECnet-address*.

vxt-image must be one of the following system images:

Image	For Booting . . .
VXT.SYS	VXT software
VXTEX.SYS	VXT EX software
VXTLDR.SYS or VXTLDR1.SYS	VXT loader, for server-based operation (VXTLDR1.SYS is a duplicate file provided for name compatibility with an earlier version.)

MOP Service

You must enable the MOP service on the Ethernet circuit, to allow the OpenVMS system to download the VXT system image file when the MOP request is received from the VXT 2000 windowing terminal. To see if MOP service is enabled on the Ethernet circuit, enter the following NCP command:

```
NCP> SHOW CHAR KNOWN CIRCUITS
```

Here is a typical response from this command:

```
Known Circuit Volatile Characteristics as of  15-NOV-1993 08:44:23

Circuit                       BNA-0
State                         on
❶ Service                     enabled
Designated router             55.151 (DGGGR1)
Cost                          4
Maximum routers allowed       33
Router priority               64
Hello timer                   15
Type                          Ethernet
Adjacent node                 55.151 (DGGGR1)
Listen timer                  45
```

❶ In this example, MOP service is enabled. If MOP service is disabled, you should enable the MOP service on the Ethernet circuit. Enter the following commands in order:

```
NCP>  SET CIRCUIT BNA-0 STATE OFF
NCP>  SET CIRCUIT BNA-0 SERVICE ENABLED
NCP>  SET CIRCUIT BNA-0 STATE ON
NCP>  DEFINE CIRCUIT BNA-0 SERVICE ENABLED
```

After you complete all the steps in this section, you can load the terminal from the configured OpenVMS system. At the terminal's >>> prompt, enter the following command:

```
>>> B/10000   Return
```

This command clears the previous boot setting and initiates the MOP request.

2.5 MOP by File Name

If no system is configured to respond to the terminal by Ethernet address, the terminal uses MOP to request a file by name.

Setup

To support MOP loading of VXT host-based images by name, you must perform one of the following steps:

- Add the logical name VXT$LIBRARY to the MOM$LOAD search list.

  If you set the value VXT$BOOT_BY_NAME to TRUE, VXT$STARTUP will automatically add VXT$LIBRARY to the MOM$LOAD search list at system startup (Section 2.2).

  Alternatively, you can define the logical name in your system startup procedure:

  ```
  $ DEFINE/EXEC/SYSTEM/NAME=NO_ALIAS MOM$LOAD
  _$ VXT$LIBRARY:, MOM$SYSTEM:
  ```

- Copy the VXT images you want to load by name to MOM$SYSTEM.

  In this case, it is a good idea to include either the node name or cluster name in the name of the image.

Example:

```
$ COPY VXT$LIBRARY:VXT.SYS SYS$COMMON:[MOM$SYSTEM]VXT_MYNODE.SYS
```

Adding the node name ensures that only terminals configured to load this image name will be loaded from this host or cluster.

Loading an Image

To load a VXT image by name, the terminal must explicitly request the VXT image to load. At the terminal's >>> prompt, enter the following commands:

```
>>> B/100  Return
Bootfile:  IMAGE_NAME
```

IMAGE_NAME is the desired VXT image, VXT or VXTEX.

Server-Based Images

If you have an InfoServer in your environment that has support for VXT server-based images, the OpenVMS host can download the VXT loader for booting the server-based images from the InfoServer.

2.6 MOP Trigger To Boot a Remote Node

The MOP protocol provides a trigger mechanism for rebooting a remote node. The VXT 2000 terminal can accept these trigger messages and reboot at a remote node's request.

By default, the VXT 2000 terminal is configured to ignore these trigger messages. You can customize a terminal or work group of terminals to enable MOP triggering. You can also supply a password to restrict access for remote rebooting of your terminals. The MOP trigger password can be from 1 to 16 hexadecimal characters (0 to 9 and A to F characters). If you do not supply a password, a default value of 0 is used (equivalent to no password).

See your host system's NCP manual or online help for more information on the syntax for triggering remote nodes.

2.6.1 Preparing a VT1300 Terminal for VXT Software (Server-Based Only)

There are two ways to load server-based VXT software on a VT1300 terminal.

- Conversational boot
- Automatic boot

Conversational Boot

If you choose this method, you need to boot conversationally every time.

```
>>> b/101
Bootfile:  VXTLDR
VXTLDR>  IMAGE_NAME.SYS
```

The *IMAGE_NAME.SYS* is the VXT system image name. The VT1300 terminal requires that you enter information in uppercase. For example, to boot the VXT Version 2.1 system image, enter the following:

```
VXTLDR>  VXT.SYS
```

Booting and Downloading

Automatic Boot

If you want to automatically load VXT software on a VT1300 terminal at power-up, you must install the VXT loader on the host you are using for downloading EWS software. Modify the network configuration database on the host accordingly. If you are using MOP to download EWS, you must

- Use the network control program NCP to remove the configuration data entered for EWS
- Add the entries for downloading VXTLDR.SYS

```
$ RUN SYS$SYSTEM:NCP
NCP> PURGE NODE node_name ALL
NCP> CLEAR NODE node_name ALL
NCP> SET NODE node_name ADDRESS DECnet_address HARDWARE ADDRESS -
  _xx-xx-xx-xx-xx-xx LOAD FILE SYS$SYSDEVICE:[VXT$LIBRARY]VXTLDR.SYS
NCP> DEFINE NODE node_name ADDRESS DECnet_address HARDWARE ADDRESS -
  _xx-xx-xx-xx-xx-xx LOAD FILE SYS$SYSDEVICE:[VXT$LIBRARY]VXTLDR.SYS
```

node_name is the VT1300 node name.

DECnet_address is the VT1300 DECnet address.

xx-xx-xx-xx-xx-xx is the VT1300 hardware address.

These commands update the temporary and the permanent NCP database. The next time the VT1300 sends the boot request, the terminal loads the VXT system image.

Service Circuit

If you have not used EWS for the VT1300 terminal, you need a service circuit associated with the VT1300. You can use NCP commands to set up a service circuit. For example:

```
NCP>  SET NODE node_name SERVICE CIRCUIT BNA-0
```

Enable MOP service on the Ethernet circuit by using the following commands:

```
NCP> SET KNOWN CIRCUIT STATE OFF
NCP> SET KNOWN CIRCUIT SERVICE ENABLED
NCP> DEFINE KNOWN CIRCUIT SERVICE ENABLED
NCP> SET KNOWN CIRCUIT STATE ON
NCP> EXIT
```

Fonts

2.7 Font Access

The OpenVMS system provides access to fonts through the LAT font process, which uses the LAT protocol. OpenVMS VAX systems support SNF fonts. OpenVMS AXP systems support SNF and portable compiled fonts (PCF), but you should use only PCF fonts on AXP systems.

2.7.1 LAT Font Process

Font Daemon

The font daemon runs in a single process. Only one copy of the font daemon can run at a time. The font daemon supports multiple terminal connections simultaneously. The number of connections is limited only by system resources.

The font daemon is normally started as part of the DECwindows startup procedure DECW$STARTUP.COM. The default font path is defined by the system-wide logical name DECW$XTERMINAL_FONT, which is a search list of the directories where the fonts are located.

The font daemon runs as a detached process with the following parameters:

Process Name	DECW$FD
Privileges	SYSNAM, NETMBX, TMPMBX
IO_BUF	60
IO_DIR	100
FILE	92
AST_LIM	100
BUFFER	50000
PRIORITY	6
TIME_LIMIT	0
NOSWAP	

2.8 Font Compilation and Conversion

If your host-based applications need other fonts, you can use the OpenVMS font compiler.

2.8.1 OpenVMS Font Compiler

BDF to SNF or PCF

The OpenVMS font compiler is part of the DECwindows installation kit. Use the OpenVMS font compiler to convert fonts from the bitmap distribution font (BDF) format to

- SNF format for OpenVMS VAX systems
- PCF for OpenVMS AXP systems

To invoke the font compiler, use the following DCL command:

```
$ FONT file-spec /OUTPUT=DECW$XTERMINAL_FONT:[filename]
```

This command converts the specified BDF font file to the compiled font. See the *DECwindows Xlib Programming Guide* for more details on using the font compiler.

X Services

The following sections describe using the LAT, IP, or DECnet transport for X services.

2.9 X Services Using the LAT Transport

Startup

If the OpenVMS host system does not support LAT services, use the SYS$STARTUP:LAT$STARTUP.COM file. This procedure loads the LTDRIVER on the OpenVMS system. For more information, see the LATCP manual.

Host Support Services

After the LTDRIVER is running, you can start the LAT host support services for the terminal. The LAT host support services are normally started by the DECwindows startup procedure DECW$STARTUP.COM.

To start up all the LAT host support services, enter the following commands interactively:

```
$ DEFINE/SYSTEM/EXEC DECW$INSTALL_XTERMINAL  TRUE
$ @SYS$STARTUP:DECW$STARTUP  XTERMINAL
```

To start the LAT host support services each time the OpenVMS system starts, add the following line to SYS$SYSTEM:SYSTARTUP_V5.COM for OpenVMS VAX Version 5.5 or earlier and SYS$SYSTEM:SYSTARTUP_VMS.COM for OpenVMS VAX Version 6.0 or later and OpenVMS AXP.

```
$ DEFINE/SYSTEM/EXEC DECW$INSTALL_XTERMINAL TRUE
```

The startup procedure is responsible for the following:

- Loading the class driver XTDRIVER.EXE
- Installing the LAT transport module DECW$TRANSPORT_LAT.EXE
- Starting the LAT font daemon with the appropriate default font path

When the system boots, DECW$STARTUP.COM invokes DECW$STARTXTERMINAL.COM to start the XTDRIVER.

DECnet Access

The DECnet access option provides X clients on DECnet nodes with access to the terminal connected to the LAT host. The DECnet access option runs on the LAT host node and looks like a DECwindows server to the X client on the remote node. Access to the DECW$DWT_DECNET.EXE image requires the SYSNAM privilege. The DECnet access option is normally installed when starting the LAT host support services.

The X client on a remote node identifies the DECnet access option by its server number. You can select the server number when running the DECnet access option; otherwise, the first available

server number is automatically assigned, starting at number 10. The DECnet access option supports up to 20 remote clients simultaneously.

2.10 X Services Using the IP Transport

DECwindows Motif supports TCP/IP as an X transport. You must have OpenVMS ULTRIX Connection (UCX) Version 1.3 or later installed on your OpenVMS system. To start an X client on OpenVMS using the X transport, the user must

1. Log in using LAT or Telnet.
2. Enter the following command:

```
$ SET DISPLAY/CREATE/TRANSPORT=TCPIP/NODE=[terminal_ip_address]
```

3. Run the application.

OpenVMS does not currently support the Create an IP X Session menu item in the Terminal Manager window's Create menu.

2.11 X Services Using the DECnet Transport

DECwindows Motif supports DECnet as an X transport. To create a DECnet X session, the VXT 2000 windowing terminal must invoke the command file VXT$SERVER.COM on the host system. VXT$SERVER.COM makes use of the VXT$WSA.EXE image to create a permanent display.

VXT$WSA.EXE

The VXT$WSA.EXE image creates WSAnn: devices for VXT$SERVER.COM. Using this image is equivalent to performing the following command:

```
$ SET DISPLAY/CREATE/PERMANENT
```

VXT$WSA.EXE is installed as a known file with SYSNAM and CMKRNL privileges by VXT$STARTUP.COM.

Creating a Session

When you create a DECnet X session from the Terminal Manager window's Create menu, the VXT 2000 windowing terminal tries to connect to the VXT$SERVER object.

VXT$SERVER.COM

This procedure can also be used interactively to start an X Session to any node over any transport. Here is an example that starts the DECwindows session manager on node MYNODE, using the TCPIP transport:

```
$ @VXT$LIBRARY:VXT$SERVER MYNODE TCPIP
```

The VXT$SERVER.COM procedure uses the installed image VXT$LIBRARY:VXT$WSA.EXE to create the display.

2.11.1 DECnet X Session Connection Logic

When you create a DECnet X session from the Terminal Manager window's Create menu, the VXT 2000 terminal performs the following operations:

1. **Resolves the DECnet address.**

If the user specifies...	The terminal...
A node number	Translates the number to a DECnet address.
A node name (contains at least one alphabetic character)	Tries to translate the node name to a DECnet address, searching its cache of previously translated node names. If it fails to translate the node name, the terminal tries to connect first to the primary and then to the secondary DECnet name translator.

When resolving DECnet addresses, the VXT 2000 terminal uses the DECnet Network Management Listener (NML) object (object 19) on a host as its name translator. This feature provides users with transparent node name resolution, without the need to maintain a node name database in the terminal.

The terminal connects to an NML object and issues a Network Information and Control Exchange (NICE) protocol message, which conveys the NCP command SHOW NODE *nodename* to the host. The host responds with the DECnet address associated with the supplied node name.

2. **Adds the target node address to the terminal's security database.**

   All incoming X connections are checked against this database. If the remote node is not registered, the connection is rejected. The terminal automatically gives proxy access to all targeted host nodes.

3. **Connects to the VXT$SERVER object.**

   The terminal initiates a connection to the object, creating a process on the remote node. The process accepts the connection, disconnects, creates the appropriate logical names to redirect displays, and starts a session that the user can log in to.

   The process then initiates a connection to the terminal, and the log-in dialog box appears on the screen.

   VXT 2000 terminals can coexist with VT1300 terminals with no additional system management.

2.11.2 Troubleshooting DECnet Connections

If you are unable to create a DECnet X Session or DECnet terminal window, or if a terminal behaves erratically, check the following:

At the terminal:

- DECnet is enabled. The User Specified DECnet address button must be enabled in the Customize DECnet dialog box.
- The correct DECnet address for the terminal is specified in the Customize DECnet dialog box.
- A valid Name Translator is specified in the Customize DECnet Name Translator dialog box.

At the host:

- The VXT$SERVER object is installed (Section 2.11).
- Terminals are not using the same DECnet address. A typical symptom is erratic terminal behavior. After powering off the problem terminal, enter the NCP LOOP NODE command, specifying the terminal's node name or address. If the test succeeds, another terminal is using the same address.
- The host and terminal are physically connected. From the host, enter the NCP LOOP CIRCUIT command, specifying the Active Enet Address displayed in the terminal's System Configuration dialog box (Terminal Manager window's Session menu, Status menu item). For example:

  ```
  NCP> LOOP CIRCUIT circuit-id PHYSICAL ADDRESS -
  _ terminal-active-Enet-address
  ```

- The host and terminal are logically connected. If the LOOP CIRCUIT test succeeds, you should also perform a node loop test to the terminal's DECnet MIRROR object. For example, enter a command in the following format:

  ```
  NCP> LOOP NODE terminal-node-name or terminal-address
  ```

  This test exercises the entire DECnet protocol stack.

  Finally, the terminal supports several network management requests to the DECnet Network Management Listener (NML) object and should respond to an NCP SHOW EXECUTOR command. For example, to test terminal 61.714, enter the following command:

  ```
  NCP> TELL 61.714 SHOW EXECUTOR

  Node Volatile Summary as of  15-NOV-1993 10:59:58

  Executor node = 61.714

  State                     = on
  Identification            = VXT V2.1
  ```

Character Cell Terminal Services

Depending on your environment, there are several methods for accessing character cell terminal services. For the OpenVMS environment, LAT, Telnet over TCP/IP, and Cterm over DECnet are the methods.

2.12 Setting Up the LAT Transport

For an OpenVMS system to support local LAT terminal windows, it needs to run the LTDRIVER. See the *VMS System Management Setup* documentation for details.

2.13 Setting Up Telnet Over TCP/IP

OpenVMS systems do not provide any IP X services by default. You need to install OpenVMS ULTRIX Connection (UCX) Version 1.3 or later to provide IP Telnet service. See the *OpenVMS ULTRIX Connection (UCX) System Manager's Guide* for details.

2.14 Setting Up Cterm Over the DECnet Transport

OpenVMS systems come with DECnet support. Start DECnet to create Cterm connections to OpenVMS.

Managing Terminal and Group Settings

When a terminal uses a host-based VXT system image, the terminal stores its customizations in a native resource file in the terminal's nonvolatile memory (NVRAM). You have two options for centrally managing terminals on your network:

- Use your terminal's configuration manager to manage the settings in the native resource file of each terminal.
- Create your own resource files on a host system and configure terminals to access the files. This method requires TCP/IP on the host system. The terminal can use the NFS or TFTP protocols to access the resource files. VXT Version 2.1 software provides a sample template file, VXTCONFIG.XRM.

See the *Managing Terminals and Work Groups* section of this guide for details.

Printing

2.15 Setting Up the LAT Printer Port

OpenVMS hosts can use the LAT transport to access a serial printer connected to a VXT 2000 windowing terminal. You can use ANSI or PostScript format printers.

You need the DECprint Supervisor (DCPS) layered product available from your OpenVMS distribution kit to create print queues. See the DECprint Supervisor documentation for more information. See your host system documentation for information on setting up and using remote LAT printer devices and queues.

Although LAT-accessible ports are typically used for printers, you can connect other devices to the printer port. You can use the serial port to read data from and send data to the attached device. However, VXT 2000 hardware restricts the parallel port to sending data only.

2.16 Customizing the Terminal's Serial and Parallel Ports

You must customize the printer port settings on the terminal to match the port and printer in use.

1. In the Terminal Manager window, pull down the Customize menu.
2. In the menu, choose the Communications submenu.
3. In the submenu, choose the Customize Serial and Parallel Ports dialog box.
4. Enter the appropriate settings for the printer and port you are using. Make sure that the Host Accessible Printer Port button is enabled.

For more information on using the dialog box, see *VXT 2000+/VXT 2000 Windowing Terminal User Information*.

2.17 Printing from the OpenVMS System

To print from an OpenVMS system to a VXT 2000 windowing terminal's printer, use the DCL PRINT command and specify the printer's queue.

Syntax

Enter PRINT commands as follows:

```
$ PRINT/QUEUE=vxt_printer myfile.EXT
```

- *vxt_printer* is the name of the terminal's printer queue. Use the queue name that was created when initializing the printer port.
- *myfile.ext* is the file you wish to print.

Application Launcher

Overview

VXT Version 2.1 software provides a VXT$LAUNCH.EXE application launcher that lets users issue commands to the host from the terminal to display remote X applications on the terminal.

Users can enter the commands through the VXT Terminal Manager window. Advanced users can use the local window manager to bind commands to mouse buttons, keyboard keys, or terminal menus; this method allows users to start remote X applications without running the terminal manager or a remote session manager.

Installation

The application launcher is part of the VXT software kit. See Chapter 1 for installation instructions.

The host system must have DECwindows Motif X Window System link libraries to build the application launcher.

Security

Users must be authorized to access the terminal from the host system. You can enter authorized hosts and users in the Customize Security dialog box of the Terminal Manger window. You can centrally manage these security settings by using the terminal's configuration manager or a host-based resource file. See the *Managing Terminals and Work Groups* section.

Setup and Use

After installing VXT software, notify users of the launcher's name and location. The executable image name is VXT$LAUNCH.EXE, and the default location is in the VXT$LIBRARY directory.

To launch an application, a terminal user must

1. Log in to the host.
2. Run the application launcher. The application launcher runs as its own process.
3. Enter a command to launch the desired remote application.

See *VXT 2000+/VXT 2000 Windowing Terminal User Information* for details on running the application launcher and entering commands to launch applications.

Running the Application Launcher

After logging in to the host, the user must start the application launcher. There are several methods to start the launcher:

- Interactively
- In the user's LOGIN.COM file
- In the DECW$LOGIN.COM file

If a user starts the launcher from a login file, the launcher will run each time the user logs in and consume process space.

Entering Remote Launching Commands

Users can enter launch commands from the Terminal Manager window (Create dialog box). Advanced users can use the local window manager to bind commands to buttons, keys, or menus (Workspace: Customize Resource Configuration dialog box).

Other Considerations

This section describes additional considerations for VXT system management on OpenVMS systems.

2.18 Paged Memory Requirements

The OpenVMS operating system does not currently support the VXT paging feature.

2.19 LAT/Master

Digital recommends that you use LAT/Master to provide services to X terminals from OpenVMS systems. LAT/Master is optimized for X terminal traffic. Running LAT/Master on your OpenVMS host

- Reduces the amount of LAT traffic on your local area network (LAN)
- Reduces the load imposed on your OpenVMS host by X terminals, allowing your host to support more X terminal users

If LAT/Master is not available on a host system, the time to start a LAT session can take as long as 2 minutes. You can reduce this delay in the following ways:

- Have the host system manager reduce the LAT multicast timer interval.
- Have the system manager enable LAT service responder on another OpenVMS system or an InfoServer system.

2.19.1 LAT Service Responder

If you are running OpenVMS VAX Version 5.4–2 or later in the LAN, you can enable LAT service responder. To enable LAT service responder, enter the following commands:

```
$ RUN SYS$SYSTEM:LATCP
LATCP> SET NODE /SERVICE_RESPONDER
```

To enable the LAT service responder for all future startups of LAT, edit the SYS$MANAGER:LAT$SYSTARTUP.COM file and add the following line after the command to start the LAT protocol:

```
$ LCP SET NODE /SERVICE_RESPONDER
```

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