



**HP Vectra Utilities for MS-DOS 3.3  
(Includes Utilities for Installing MS-DOS  
3.3 on Large Hard Disks, Using 3.5-Inch  
Flexible Disks, and Disk Caching)**



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## **HP Vectra Utilities for MS-DOS 3.3**

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This Utilities packet contains the following manuals:

- *HP Vectra Volume Expansion Utility Manual*
- *3.5-Inch Flexible Disc Drive Software Installation Guide*
- *HP Vectra Disc Cache Program*

Place these manuals in the *MS-DOS Volume I* binder behind the tab labeled "Additional Utilities and Drivers."

Use the HP Vectra Utilities for MS-DOS 3.3 disk (included in this packet) to install the HP Vectra Utilities for MS-DOS 3.3. DO NOT use the Vectra Setup and Utilities disk as described in the manuals.

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### **HP Vectra Volume Expansion Utility**

If you have one or more hard disks of greater than 64 MB you can use the Volume Expansion Utility to partition your hard disk. The Volume Expansion Utility allows you to create hard disk partitions larger than 32 MB, which is the maximum size created with MS-DOS 3.3.

If you use the Volume Expansion Utility, follow the instructions in the *HP Vectra Volume Expansion Utility* manual for installing MS-DOS. DO NOT use the installation instructions in the *MS-DOS Volume I* binder.

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## 3.5-Inch Flexible Disc Drive Software Driver

Install the 3.5-Inch Flexible Disc Drive Software if you are using MS-DOS and want to exchange information on double-sided disks used in:

- HP 110
- HP Portable PLUS
- HP 150
- HP 150II
- HP Vectra *external* 3.5-inch flexible disk drives

NOTE: This utility is not necessary for HP Vectra CS computers.

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## HP Vectra Disc Cache Program

Disk caching increases the effective speed at which your computer retrieves data. A disk cache automatically keeps copies of recently used data in memory so that your computer retrieves the data without having to read the hard disk every time.

NOTE: If you have an HP Vectra RS or QS, and you want to use HP Expanded Memory Manager/386, install the Disc Cache Program *after* you have installed HP Expanded Memory Manager/386.

# **HP Vectra Volume Expansion Utility Manual**

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## Volume Expansion Utility Manual

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### About This Manual

This manual contains instructions for:

- Partitioning hard disks
- Installing MS-DOS and PAM onto a partition

Note that the Volume Expansion Utility is compatible with MS-DOS versions 3.2 and 3.3 **only**. If you are using any other version of MS-DOS, you cannot use Volume Expansion or the instructions in this manual.

### Caution



The instructions in this manual replace the utilities FDISK, FORMAT, and MVBUILD, described in your MS-DOS installation manual. Instead, use the instructions in this manual for installing your operating system.

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### Why Do You Need Volume Expansion?

The Volume Expansion Utility partitions and formats your hard disk. Because MS-DOS can start your computer **only** from a partition of 32 MB or less, you must use the Volume Expansion Utility to create a partition of this size. You can make up to eight partitions on each hard disk, including the MS-DOS (first) partition. Volume Expansion also copies the system files onto the first partition, so you can start your system from the hard disk.

**Note**

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For information on using the Volume Expansion Utility with XENIX, turn to the section in Appendix A, "Additional Information."

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**Types of Partitions**

Although the partition containing your MS-DOS operating system must be 32 MB or less, the rest of your hard disk can be divided into larger partitions. Using Volume Expansion, you can create the following types of partitions:

- MS-DOS System partition - a partition of 32 MB or less containing the operating system.
- Compatible partition - can be 32 MB or less, and is fully compatible with MS-DOS and MS-DOS applications.
- Extension partition - can be greater than 32 MB, and is compatible with almost all MS-DOS applications. Although there are a few MS-DOS applications which may not be able to run on an Extension partition, most applications will have no problem. The few applications that are not compatible must reside in either a Compatible partition, or an MS-DOS System partition.
- SpanDrive partition - can be greater than 32 MB, and can span two drives to create a single, contiguous logical drive. A SpanDrive partition offers the same degree of compatibility as an Extension partition. Applications which cannot run on a SpanDrive partition must reside in an MS-DOS System or Compatible partition. If you use SpanDrive to partition two drives, and the first drive fails, the data on both disks in the partition will be lost.

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## Automatic Partitioning: The Recommended Method

The Volume Expansion Utility has an automatic partitioning feature, AUTOPART, that executes the partitioning and formatting of your hard disk(s) for you. We recommend that you use AUTOPART to partition your drives.

### Advanced Method

For the more experienced user, MENUPART provides manual selection menus for custom partitioning. With MENUPART you can also delete, reorder, or change the status of existing partitions. Instructions for using MENUPART are in Chapter 2 of this manual.

### What You Should Have Done Already

You must have initialized 40 MB hard disks. Hard disks greater than 100 MB have been initialized at the factory and you need not initialize them again.

### What You Need to Know

Before you begin AUTOPART, you need to know the following things:

- The number of drives you will be partitioning. In the Volume Expansion program, drive 1 refers to the first *physical* drive on your system. Drive 2 refers to the second *physical* drive on your system.
- The type of partitions you want to create on each drive you will be partitioning. Use the information in the previous section on “Types of Partitions” to help you make this decision.

### What You Will Need

You will need the following disks:

1. The MS-DOS operating system disks located in the back of your operating system binder. Remember, you must have MS-DOS version 3.2 or 3.3 in order to use Volume Expansion.

2. The HP Vectra SETUP and Utilities disk located in the back of your computer's "Setting Up" binder.

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## Using AUTOPART

Use the following instructions to start the automatic partitioning and formatting procedure.

1. Insert the first MS-DOS operating system disk in drive A:.
2. Start your computer. If your computer is already turned on, turn it off and on again. You should now have the PAM Main Menu on your screen.
3. Remove the operating system disk, and insert the HP Vectra SETUP and Utilities disk in drive A:.
4. AUTOPART automatically creates an MS-DOS System partition of 32 MB. The recommended size for the MS-DOS System partition is 32 MB. However, the following instructions are provided for people who want to make their MS-DOS System partition smaller than 32 MB. Do you want to make your MS-DOS partition smaller than 32 MB, even though it is not recommended?
  - NO. Go to step 5 to start AUTOPART the recommended way.
  - YES. Read on.

To create an MS-DOS system partition smaller than the 32 MB default size, use the following command to start AUTOPART. At the MS-DOS prompt, type:

```
AUTOPART /SYSTEMMB:#
```

where # refers to the size in megabytes of the MS-DOS partition. You can use any number up to 32.

This SYSTEMMB command will affect the size of any MS-DOS System partition created when you choose either option 1 of “Partitioning Drive 1,” or options 1 and 2 of “Partitioning Drives 1 and 2 Together.”

**Note**



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If your MS-DOS System partition is the only Compatible type partition you intend to have, you must make it large enough to accommodate any of your applications that need to run in an MS-DOS compatible environment.

---

**NOW go to step 6.**

5. At the MS-DOS A> prompt on the PAM Main Menu, type:

AUTOPART

and press . The first menu appears.

6. You are asked which drives you want to partition. Use the cursor (arrow) keys to highlight the drive(s) you want, and press  to select it. The following options are listed:

- a. Partition drive 1 only. *Explanation:*  
*Select this if you want to partition drive 1 only or if you want to partition drives 1 and 2 separately, and you want to begin partitioning drive 1 first.*
  - If you selected option 1, turn now to the section in this chapter entitled, “Partitioning Drive 1.”
- b. Partition drive 2 only. *Explanation:*  
*Select this if you have two hard disks to partition, and you have already created*

*partitions on drive 1, and you now want to partition drive 2.*

- If you selected option 2, turn now to the section in this chapter entitled, "Partitioning Drive 2."

c. Partition drives 1 and 2. *Explanation: Select this if you have two hard disks, and you want to partition them both in the same process, (either to combine them in one partition, or to create separate partitions).*

- If you selected option 3, turn now to the section in this chapter entitled, "Partitioning Two Hard Disks Together."

## Partitioning Drive 1

After you have selected option 1 indicating that you want to partition drive 1, you see the following list of partitioning options:

1. One MS-DOS System partition (32 MB, unless otherwise specified) and a LARGE Extension partition. *Explanation: Create one 32 MB partition to contain the operating system files, and use all the rest of the disk space to create one large Extension type partition, (compatible with almost all MS-DOS applications).*
2. EQUAL SIZED Partitions, where all partitions are 32 MB or less. *Explanation: Create up to eight equal sized Compatible partitions of 32 MB or less.*

### Note



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For hard disks larger than 256 MB: because there is a limit of eight partitions per hard disk, creating all partitions of 32 MB or smaller will result in some disk space being unavailable to MS-DOS.

---

3. As many 32 MB partitions as possible, and one partition using the remainder. *Explanation: Create as many Compatible partitions of 32 MB as possible and one small Compatible partition with whatever is left over (up to eight partitions altogether).*
4. MANUAL SELECTION—exit automatic partitioning procedure to create custom partitions. *Explanation: Exit the automatic procedure and use the MENUPART of Volume Expansion to manually specify exactly the sizes and types of partitions. Not recommended for novice users.*

**Note**



---

If you have selected “Manual” to manually create partitions, be sure to read the instructions in Chapter 2 entitled, “Steps for Starting MS-DOS from Your Hard Disk.”

---

Select the option you want using the cursor keys, and press **Enter**. If you want to exit the procedure without creating partitions, press **ESC** to exit the Volume Expansion Utility.

Press **Enter** or any other key to proceed with the partitioning process.

You see a message that the partition(s) are being created and formatted.

**Now go to the last section in this chapter entitled, “Finishing the Partitioning Process.”**



## Partitioning Drive 2

After you selected option 2 indicating that you want to partition drive 2, you see the following list of options:

1. One LARGE Extension partition using ALL of drive 2. *Explanation: Because you have already created the 32 MB MS-DOS System partition on drive 1, you can create one Extension type partition, (compatible with almost all MS-DOS applications) using all of drive 2.*
2. EQUAL SIZED Partitions, where all partitions are 32 MB or less. *Explanation: Create up to eight equal sized Compatible partitions of 32 MB or less.*

### Note



---

For hard disks larger than 256 MB: because there is a limit of eight partitions per hard disk, creating all partitions of 32 MB or smaller will result in some disk space being unavailable to MS-DOS.

---

3. As many 32 MB partitions as possible, and one partition using the remainder. *Explanation: Create as many Compatible partitions of 32 MB as possible and one small Compatible partition with whatever is left over (up to eight partitions altogether).*
4. MANUAL SELECTION—exit automatic partitioning procedure to create custom partitions. *Explanation: Exit the automatic procedure and use the **MENUPART** of Volume Expansion to manually specify exactly the sizes and types of partitions. Not recommended for novice users.*

### Note



---

If you have selected “Manual” to manually create partitions, be sure to read the instructions in Chapter 2 entitled, “Steps for Starting MS-DOS from Your Hard Disk.”

---

Select the option you want using the cursor keys, and press **Enter**. If you want to exit the procedure without creating partitions, press **ESC** to exit the Volume Expansion Utility.

Press **Enter** or any other key to proceed with the partitioning process.

You will see a message that the partition(s) are being created and formatted.

If you are partitioning drive 2 only, you are now finished with the partitioning process, and may exit the program.

### **Partitioning Drives 1 and 2 Together**

If you indicated that you want to partition BOTH drives 1 and 2, you see the following list of partitioning options:

1. One MS-DOS System partition (32 MB, unless otherwise specified) on drive 1, and a LARGE Extension partition on each drive. *Explanation: Create the MS-DOS System partition on drive 1, and create one large Extension partition using the remaining space on drive 1, and a second large Extension partition using all of drive 2.* Extension partitions are compatible with almost all MS-DOS applications.
2. One MS-DOS System partition (32 MB, unless otherwise specified) on drive 1, and ONE LARGE partition SPANNING BOTH DRIVES. *Explanation: Create an MS-DOS System partition to contain the operating system on drive 1, and create one SpanDrive type partition using all the remaining space on drive 1 and all of drive 2.*
3. EQUAL SIZE Partitions on each drive, where all partitions are 32 MB or less. *Explanation: Create equal sized Compatible partitions of 32 MB or less (up to sixteen partitions altogether).*

**Note**



---

For hard disks larger than 256 MB: because there is a limit of eight partitions per hard disk, creating all partitions of 32 MB or smaller will result in some disk space being unavailable to MS-DOS.

---

4. As many 32 MB partitions as possible, and one partition using the remainder on each drive. *Explanation: Create as many Compatible partitions of 32 MB as possible, and one small Compatible partition with whatever is left over on each drive (up to sixteen partitions altogether).*
5. MANUAL SELECTION—Exit automatic partitioning procedure to create custom partitioning. *Explanation: Exit the automatic procedure and use the MENUPART of Volume Expansion to specify exactly the sizes and types of partitions. Not recommended for novice users.*

**Note**



---

If you have selected “Manual” to manually create partitions, be sure to read the instructions in Chapter 2 entitled, “Steps for Starting MS-DOS from Your Hard Disk.”

---

Select the option you want using the cursor keys, and press **Enter**. If you want to exit the procedure without creating partitions, press **ESC** to exit the Volume Expansion Utility.

Press **Enter** or any other key to proceed with the partitioning process.

You see a message that the partition(s) are being created and formatted.

**Now go to the last section in this chapter, "Finishing the Partitioning Process."**



## Finishing the Partitioning Process

After the partitions are created and formatted, you must complete the following steps to finish the partitioning process.

### Note



You do not need to do this process if you have partitioned drive 2 only. This process need only be done on the drive containing the MS-DOS System partition.

1. You are prompted on the screen to insert the operating system disk, so the system files can be copied. Insert the first operating system disk (the disk you use to start-up your computer) into drive A: and press any key.
2. Follow the instructions on the screen and press any key to restart your computer.

### Copying the Operating System

After you have restarted the computer, do the following steps to finish copying the operating system and PAM onto your newly partitioned hard disk.

1. Press **Enter** to start MS-DOS COMMANDS.
2. At the A> prompt, type:

XCOPY A: C:

and press **Enter**.

After a few seconds, the files that are copied are listed on your screen.

3. With the first disk still in drive A:, at the A> prompt, type:

PAMINSTL A: C:

and press **Enter**.

This copies the PAM files to your hard disk.

4. At the A> prompt, type:

C:

and press **Enter**.

5. Remove the first operating system disk and insert the second operating system disk. At the C> prompt, type:

XCOPY A: C:

and press **Enter**.

After a few seconds, the files that are copied are listed on your screen.

6. Remove this disk from drive A:. Some operating systems come with three disks. If your operating system has only two disks, go ahead now to step 7. If you have a third operating system disk, insert it into drive A:. At the C> prompt type:

XCOPY A: C:

and press **Enter**. After a few seconds the files that are copied are listed on your screen. When you see the message that the files have been copied, remove the third disk from drive A:.

7. Insert the SETUP and Utilities disk again. At the C> prompt type:

A:

and press **Enter**.

8. At the A> prompt type:

ADDEVICE

and press **Enter**.

This command copies three lines of information to your CONFIG.SYS file. It also copies

the Volume Expansion Device Driver, "HARDRIVE.SYS," to the MS-DOS System partition.

**Caution**



---

When the Volume Expansion Utility modifies the CONFIG.SYS file, the buffer value is set to `BUFFERS = 8`. These 8 buffers will be more effective than 8 conventional buffers if you have created a large partition. Because of the way Volume Expansion is implemented, and because of the way MS-DOS manages memory, a larger value may substantially increase the amount of memory used by your computer. Changing the buffer value to a number larger than 8 to improve performance will work only if you have enough available memory. For more complete information on how Volume Expansion changes the amount of memory used by each buffer, refer to the section entitled "Buffers" in Appendix A, "Additional Information."

If in the future you install an application that creates another CONFIG.SYS file, or changes the buffer value, you may have to reedit the CONFIG.SYS and change the buffers back to the original value. If you notice the computer has a shortage of memory when you do not think it should, check the buffer value and make sure it has not been altered by the installation of an application.

---

9. Remove the SETUP and Utilities disk. Hold the **CTRL** key down, and press **Alt** and **DEL** simultaneously to restart your computer from your hard disk.

Congratulations! You have successfully partitioned your hard disk, installed your operating system onto it, and your computer is now ready for use. Now go to the HP Utilities packet and continue installing the rest of your utilities.



## MENUPART

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MENUPART provides a means by which a more advanced user can create and format partitions of any size and type (up to eight partitions per hard disk). If you have already used AUTOPART to partition your hard disk drive, you do not need to read this chapter.

---

### Starting MENUPART

To start MENUPART, do the following:

1. Insert the first operating system disk in drive A:.
2. Start your computer. You should now have the PAM Main Menu on your screen.
3. Remove the operating system disk from drive A:, and insert the SETUP and Utilities disk in drive A:.
4. At the A> prompt, type:

MENUPART

and press .



## MENUPART Options

The following table briefly explains the options offered by the MENUPART process. For more information on using each of the options listed below, read the section "Explanation of Options" further on in this chapter.

**Table 2-1. Menupart Options**

OPTION	FUNCTION
Automatic	Provides the same function as AUTOPART (creates and formats partition(s) automatically. Does NOT copy the system files.
Create	Creates a partition of any size by specifying exact size in MB, or giving location of beginning and ending cylinder numbers.
NextDrive	For use with two hard disks, gives you partition options for drive 2.
Status	Allows you to specify or change whether a partition is accessible (usable,) or non-accessible (not usable.) An MS-DOS System partition, which is by default active, can be made non-active, so the operating system will not start from it, but data can still be accessed.

**Table 2-1. Menupart Options  
(continued)**

OPTION	FUNCTION
Type	Specifies or changes partition type: MS-DOS System and Compatible. Characteristics of types are explained in Chapter 1. Also allows you to make a partition Read Only, or Read/Write.
Reorder	Changes logical-drive assignments, with the exception of the MS-DOS System partition, which MUST be C:.
Format	Formats a partition after it has been created.
Delete	Deletes an existing partition.
Quit	Exits you from the Volume Expansion Utility.

## Selecting Options

Use the MENUPART Main Menu to select a partitioning option. Each option you select generates another menu specific to that option. Listed below are some of the features of MENUPART that help you use the menus.

- Use the arrow (cursor) keys to move the highlight until it is on the option you want to select.
- If you cannot highlight an option, that indicates that it is not possible for you to use that option.
- If you wish to cancel your last option selection, press **ESC** to return to the MENUPART Main Menu.
- Selecting **Quit** from the Main Menu exits you from the Volume Expansion Utility. Selecting **Quit** from an option menu takes you back to the Volume Expansion Main Menu.
- The Partition Table on the lower half of the screen displays the existing partitions, and their current characteristics.
- When you select an option, a brief explanation appears below the options, explaining the highlighted option.
- Error messages appear at the bottom of the screen.

---

## Explanation of Options

Read this section to find an explanation for any of the MENUPART options.

### Automatic Option

The **Automatic** option creates and formats a partition automatically.

---

#### Note



If you are going to use **Automatic**, and want to create an MS-DOS partition smaller than 32 MB, refer to Appendix A, “Additional Information” at the back of this manual **BEFORE** beginning to use MENUPART.

---

To use **Automatic**, do the following:

1. From the MENUPART Main Menu, use the cursor keys to highlight **Automatic**, and press **Enter**.
2. Select the drive you want to partition:  
EveryDrive, CurrentDrive, SelectedArea, and then press **Enter**.
  - If you select **SelectedArea**, you are asked to enter the position of the area to be partitioned by giving beginning and ending cylinder number.
3. Select the size of partitions you want to create: **EqualSize**, **Max32MB**, **LargeExtension**, **SpanDrive**, and then press **Enter**.
  - **EqualSize** creates as many equal sized partitions as possible, (up to eight per drive) of 32 MB or less.

---

#### Note



For hard disks larger than 256 MB: because there is a limit of eight partitions per hard disk, creating all

partitions of 32 MB or smaller may result in some disk space being unavailable to MS-DOS.

---

- Max32MB creates as many 32 MB Compatible partitions as possible, and one small partition with the remainder. Up to eight partitions can be created on one drive.
  - LargeExtension creates an MS-DOS System partition, (32 MB, unless otherwise specified) and a large Extension type partition with the remainder.
- 

**Note**



If you select LargeExtension, you create different types of partitions depending on what drive you selected to partition. If you selected CurrentDrive, and drive 1 is the drive you are partitioning, it will create an MS-DOS System partition and an extension partition. If drive 2 is the drive you are partitioning, only the large extension is created.

If you are partitioning 2 drives, and selected EveryDrive as the drive to partition, an MS-DOS System partition will be created on drive 1, and extension partitions on drives 1 and 2.

---

- SpanDrive creates one MS-DOS System partition (32 MB, unless otherwise specified) and one large partition spanning all drives, using all the rest of the disk space. To create a SpanDrive partition, you must have selected EveryDrive as the drive you want to partition.

4. Go to the section “Finishing the Partitioning Process” now.

## Create Option

The **Create** option lets you manually create partitions. To use **Create**, do the following:

1. From the **MENUPART** Main Menu, select **Create** and press **Enter**.
2. Select the type of partition (MS-DOS System, Compatible, Extension, SpanDrive) that you want to create. For information about the characteristics of each type, refer to the section in Chapter 1, "Types of Partitions."
  - If you select **Expansion** or **SpanDrive**, you see the list of MS-DOS file structure default values. We recommend that you use these. If you do not want to use these values for the file structure for your partition, you must enter new values. You will be prompted to select a value from a list provided. Changing default values should only be attempted by an experienced computer user.
3. Select the size of the partition(s) you want to create.
  - If you select **Size**, you are asked to specify a size in MB. Enter the number of MB that you want the partition to be.
  - If you select **Manual**, you are asked to enter a number for the starting and ending cylinder for the partition. After you select an option and press **Enter**, the partition is created.

**You MUST use the Format option now to manually format the partition before it is ready for use.**

## Note



---

If you create an MS-DOS partition, be aware of the following restriction: the MS-DOS partition must be one of the first four partitions, and it must be entirely within the first 32 megabytes of the first physical drive.

---

## NextDrive Option

NextDrive is the option you use to manually select the second hard disk drive after you have created partitions on a first hard disk drive. You then use the same options to create partitions on the second hard disk.

You also select NextDrive when deleting a SpanDrive partition, after deleting the portion of the partition on drive 1.

## Status Option

The Status option makes a Compatible, Extension, or SpanDrive partition either accessible or non-accessible. The default is accessible. An MS-DOS System partition can be made non-active, which means you cannot start the operating system from the partition, but you can access data on it. You can change the status back again at any time.

To change the status of an existing partition, do the following:

1. Select **Status** on the MENUPART Main Menu. The Partition Table for the drive you are partitioning appears on the bottom of the screen displaying the current status of existing partitions.
2. Select the number of the partition whose Status you want to change, and press **Enter**. The Status changes on the Partition Table, and you are returned to the Main Menu.

---

**Note**

Active and non-active status applies to MS-DOS System partitions. Accessible and non-accessible status applies to Compatible, Extension, and SpanDrive partitions.

---

**Type Option**

The **Type** option lets you change the type (MS-DOS System, Compatible, Read/Write, Read Only) of a partition.



To change the type of partition, do the following:

1. Select **Type** on the MENUPART Main Menu, and press **Enter**.
2. Select the partition whose type you want to change, and press **Enter**.
3. Select the type you want to change it to, and press **Enter**. You are returned to the Main Menu.

---

**Note**

The default is Read/Write. If the partition type is changed to Read Only, the data in the partition can be read by the computer, but not added to or altered. The partition is thereby protected from accidental erasure. An MS-DOS System partition **MUST** be Read/Write.

Not all types are listed. The types listed depend on the types and sizes of existing partitions. Extension and SpanDrive types cannot be changed to MS-DOS System or Compatible type.

---

**Reorder Option**

The **Reorder** option lets you change the partition order on the hard disk. Logical drive assignments (D: to Z:) are given when the partitions are created, in the order in which they are created.

To reorder partitions, do the following:

1. From the MENUPART Main Menu, select **Reorder** and press **Enter**.



2. Select the number of the partition that you want to be moved. The partition will also be highlighted on the Partition Table on the lower half of the screen. Press **Enter**.
3. Select the new position where you want the partition to be. The Partition Table changes as you select the new position number. Press **Enter**. You are returned to the Main Menu.

### **Format Options**

You **MUST** use the Format option to format any partitions you have made using the Create Option. (Partitions created with Automatic are formatted automatically.) To use format, do the following:

1. Select **Format** on the MENUPART Main Menu, and press **Enter**.
2. Select the number of the partition that you want to format, and press **Enter**.

You will see a message that any data on the partition will be destroyed during the formatting process. If you wish to proceed, move the highlight to **Yes** and press **Enter**.

3. You see information on the screen during the formatting process, and a message informing you when formatting is complete. Press **Enter** to return to the MENUPART Main Menu.
4. Go to the section “Finishing the Partitioning Process” now.

## Delete Option

To delete a partition that you have previously created, do the following:

1. From the MENUPART Main Menu, select **Delete**, and press **Enter**.
2. Select the number of the partition that you want to delete, and press **Enter**.

You see a message that any data on the partition will be lost. To delete the partition (and any data on it) use the cursor keys to move the highlight to **Yes** and press **Enter**. The partition is deleted, and is not listed on the Partition Table.

## Note



---

When deleting a SpanDrive partition, you must delete the partition from each drive it is spanning.

---

---

## Finishing the Partitioning Process

After creating and formatting partitions, do the following steps so that you can start your computer from the hard disk.

1. Select **Quit** from the Main Menu to exit from the Volume Expansion Utility.
2. In order for your computer to recognize new partitions, or any changes you may have made to existing partitions, you must restart the operating system. Insert the first operating system disk (the disk you use to start-up your computer) into drive A:, and press any key.
3. Go to the section “Steps for Starting MS-DOS from Your Hard Disk” now.

### Steps for Starting MS-DOS from Your Hard Disk

Your computer now knows that the hard disk has been partitioned. You must now copy the operating system files that are necessary to start your computer from the hard disk. Follow the steps below:

#### Note



---

You do not need to do this process if you have partitioned drive 2 only. This need only be done on the drive containing the MS-DOS System partition.

---

1. At the PAM Main Menu, press [Enter] to start **MS-DOS Commands**.
2. At the A> prompt, type:

SYS C:

and press **Enter**. You will see a message saying “System transferred.”

3. At the A> prompt, type:

XCOPY A: C:

and press .

After a few seconds, the files that are copied are listed on your screen.

4. At the A> prompt, type:

PAMINSTL A: C:

and press .

This copies the PAM files to your hard disk.

5. At the A> prompt, type:

C:

and press .

6. Remove the first operating system disk and insert the second operating system disk. At the C> prompt, type:

XCOPY A: C:

and press .

After a few seconds, the files that are copied are listed on your screen.

7. Remove this disk from drive A:. Some operating systems come with three disks. If your operating system has only two disks, go ahead now to step 8. If you have a third disk, insert it into drive A:. At the C> prompt type:

XCOPY A: C:

and press . After a few seconds, the files that are copied are listed on the screen. When you see the message that the files have been copied, remove the third disk from drive A:.

8. Insert the SETUP and Utilities disk in drive A:.

At the C> prompt type:

A:

and press **Enter**.

9. At the A> prompt, type:

ADDEVICE

and press **Enter**.

This command copies three lines of information to your CONFIG.SYS file. It also copies the Volume Expansion Device Driver, "HARDRIVE.SYS,," to the MS-DOS System partition.

### Caution



---

When the Volume Expansion Utility modifies the CONFIG.SYS file, the buffer value is set to `BUFFERS = 8`. These 8 buffers will be more effective than 8 conventional buffers if you have created a large partition. Because of the way Volume Expansion is implemented, and because of the way MS-DOS manages memory, a larger buffer value may substantially increase the amount of memory used by your computer. Changing the buffer value to an number larger than 8 to increase performance will work only if you have enough available memory. For more information about how Volume Expansion changes the amount of memory used by each buffer, refer to the section entitled "Buffers" in Appendix A, "Additional Information."

If in the future you install an application that creates another CONFIG.SYS file, or changes the buffer value, you may have to reedit the CONFIG.SYS and change the buffers back to the original value. If you notice the computer has a shortage of memory when you do not think it should, check the buffers value and make

sure it has not been altered by the installation of an application.

---

10. Remove the disk from drive A:. While holding the **CTRL** key down, press **Alt** and **DEL** simultaneously. Your computer will restart from the hard disk.

Congratulations! You have successfully partitioned your hard disk, installed your operating system onto it, and your computer is now ready for use. Now go to the HP Utilities packet and continue installing your utilities.



## Additional Information

---

### Looking at Your Partitions

To see a list of the partitions on your hard disk(s), start `MENUPART` following the instructions in Chapter 2. `MENUPART`'s Main Menu has a Partition Table showing all the existing partitions and their sizes.

---

### XENIX Command Line

XENIX users should use the following command line to start the Volume Expansion Utility:

```
AUTOPART /MAX4PARTS
```

or

```
MENUPART /MAX4PARTS
```

This command limits the number of partitions to four, which is necessary if you are using XENIX. After using this command to start `MENUPART`, continue with the rest of the partitioning process using the instructions in the `MENUPART` section of this manual.



---

## Creating a Smaller MS-DOS Partition

If you use the Automatic option of MENUPART, and want an MS-DOS smaller than 32 MB, use the following command line to start MENUPART:

```
MENUPART /SYSTEMMB:#
```

where # refers to the size in megabytes of the MS-DOS partition. You can use any number up to 32.

This command line will effect the size of the MS-DOS System partition with any partitioning option you select that creates an MS-DOS System partition with Extension or SpanDrive partitions.

---

## Buffers

The Volume Expansion Utility changes the logical sector size. The logical sector size becomes larger, depending on the size of the largest partition. The amount of memory used by one buffer is approximately the size of one logical sector.

To figure out how much memory will be used by each of the buffers in your system, refer to the table below.

Partition Size (MB)	Logical Sector Size (bytes)
0-32	512
33-63	1024
64-128	2048
129-255	4096
256-512	8192
513-1023	16384

This table gives you the logical sector size in bytes (approximately one buffer) for various partition sizes. You multiply the logical sector size in bytes by the buffer value you set in the CONFIG.SYS file. Using this table, you can determine how you should set your buffers, depending on how much available memory you have on your system. Increasing the buffer value to larger than eight will improve performance, but you must have enough available memory.

**Example**

For example, if you have a 278 MB partition, your logical sector size is 8192 bytes. Thus, each buffer is approximately 8192 bytes. The approximate amount of memory used if you have the buffer value set to "BUFFERS = 8" in your CONFIG.SYS file would be 65,536 bytes. You can use the MS-DOS CHKDSK command to check the amount of free available memory on your hard disk with various numbers of buffers selected.

**Note**



---

After changing your buffer value number, restart your computer to enable the new buffer value.

---

---

**Novell Server  
Information**

If you are using your Vectra RS as a LAN fileserver using Novell Netware, and use Volume Expansion to create partitions, the partitions will be read by Novell as "Other" and labeled as "Other" in the Novell partition table. This is correct. Do not change it from being labeled "Other." If you change it to "DOS" the Volume Expansion Utility will no longer recognize the types as being Compatible, Extension or SpanDrive types. It will see them all as MS-DOS System type partitions.



## Error Messages

---

MESSAGE:	Bad sector(s) in system data area.
Cause:	Bad sector(s) were encountered on the system area of the partition.
Remedy:	Recreate and reformat the partition using a higher starting cylinder number.
MESSAGE:	BAD SYSTEM SECTOR - partition unusable.
Cause:	A bad sector was found on the system area of the partition while formatting.
Remedy:	Recreate and reformat the partition using a higher starting cylinder number.
MESSAGE:	Batch Processor error. Need 192 KB of available memory.
Cause:	An error was detected in the macro program that is currently being executed.
Remedy:	Make sure there is at least 192 KB of available memory in your computer before running AUTOPART.
MESSAGE:	CANNOT INITIALIZE DIRECTORY—unusable. Recreate partition.
Cause:	An error was encountered when MENU PART attempted to initialize the directory area of the partition.

Remedy: Recreate and reformat the partition using a higher starting cylinder number, or use Automatic instead of Create.

MESSAGE: Cannot write to disk. Remove write protection.

Cause: This error occurs on a disk drive that has a write-protect switch on or on removable disks that have a write-protect notch. MENUPART is thus prevented from writing to the media.

Remedy: Remove or deactivate write protection.

MESSAGE: CANNOT WRITE TO FAT SECTORS—unusable. Recreate partition.

Cause: An error was encountered when MENUPART attempted to initialize the File Allocation Table (FAT) area of the partition.

Remedy: Recreate and reformat the partition or use Automatic instead of Create option of MENUPART.

MESSAGE: CANNOT WRITE TO BOOT SECTOR—unusable. Recreate partition.

Cause: An error was encountered when MENUPART attempted to initialize the boot sector area of the partition.

Remedy: Recreate and reformat the partition using a higher starting cylinder number, or use Automatic instead of Create.

MESSAGE: Disk/Controller error.

Cause: Indicates that the hard disk drive or controller may be bad.

## B-2 Error Messages

Remedy: Make sure the drive is installed correctly. Run SETUP and make sure the drive type is correct. Initialize the hard disk before running MENUPART.

MESSAGE: Drive failure. Create stopped. Retry.

Cause: A drive error was encountered while creating a SpanDrive partition.

Remedy: Restart the operating, and if it still fails, the disk drive may be bad.

MESSAGE: \*\* ERROR \*\* Boot sector not defined properly.

Cause: HARDRIVE.SYS has found that the information contained in the boot sector of a partition conflicts with the intended characteristics of that type of partition. For example, a Compatible partition must be less than 32 MB, and if the values in this partition's boot sector indicate that it is more than 32 MB, this error is displayed.

Remedy: Delete and recreate partition without reformatting. If this does not solve the problem, reformat the partition as well.

MESSAGE: \*\* ERROR \*\* closing the file(s). Check drive.

Cause: The target drive may be full.

Remedy: Check hard disk drive.

MESSAGE: \*\* ERROR \*\* Not enough memory buffers.

Cause: MENUPART requires a minimum of 192 KB of available memory in order to run.

Remedy: Restart you computer without any terminate and stay resident programs, then rerun MENUPART.

MESSAGE: \*\* ERROR \*\* NO HARD DISK FOUND.

Cause: This message is displayed if the operating system indicates that your computer does not have a hard disk installed.

Remedy: Make sure all cables are installed correctly. Run SETUP. Make sure the disk drive type is correct.

MESSAGE: \*\* ERROR \*\* Partition is unusable.

Cause: HARDRIVE.SYS could not read the boot sector of one or more partitions.

OR

The boot sector information of one or more partitions is corrupted.

Remedy: Check the hard disk drive.

MESSAGE: \*\* ERROR \*\* reading XX line of C:CONFIG.SYS

Cause: An error was encountered while reading the XXth line of the CONFIG.SYS file.

Remedy: Recreate the CONFIG.SYS file.

MESSAGE: \*\* ERROR \*\* Correct OEM name not found.

Cause: HARDRIVE.SYS did not recognize the OEM name in the boot sector of a partition.

#### **B-4 Error Messages**



Remedy: Make sure you are using MS-DOS operating system. If you are using MS-DOS, reformat the partition.

MESSAGE: \*\* ERROR \*\* Unable to load partition sector.

Cause: HARDRIVE.SYS could not read the Master Boot Sector of the hard disk drive.

Remedy: Check hard disk drive.

MESSAGE: \*\* ERROR \*\* MENUPART.INI. not found.

Cause: MENUPART needs to read the configuration file MENUPART.INI before it can run. It searches for this file in the same directory from which MENUPART.EXE was loaded.

Remedy: Copy the file MENUPART.INI from the SETUP and Utilities disk into the directory that contains MENUPART.EXE.

MESSAGE: \*\* ERROR \*\* Unable to read partition data.

Cause: HARDRIVE.SYS could not obtain the hard disk drive parameters from the system.

Remedy: Check hard disk drive.

MESSAGE: \*\* ERROR \*\* writing to file. Check drive.

Cause: The disk may be write protected, or the target drive may be full.

Remedy: Check hard disk drive.



MESSAGE: Hard disk did not retain the partition change. Retry.

Cause: The program was not able to successfully create or delete the specified partition. There may be a problem with the disk drive.

Remedy: Retry the operation.

MESSAGE: Missing drive in SpanDrive partition. Ensure drive is installed.

Cause: The program could not find one or more of a SpanDrive partition's segments.

Remedy: Ensure that all the drive(s) used in creating the SpanDrive partition are installed.

MESSAGE: << NO DRIVE PARAMETERS AVAILABLE - RUN SETUP &>>

Cause: MENUPART was not able to find the hard disk drive's characteristics from the system.

Remedy: Run SETUP and make sure the disk drive type is correct.

MESSAGE: << No partition available. Initialize hard disk.&>>

Cause: MENUPART could not read the Master Boot Sector of the hard disk drive.

Remedy: Initialize the hard disk.

MESSAGE: \*\* One or more free blocks cannot fit on screen.\*\*

Cause: This is not an error message. It indicates that there are so many fragmented blocks of free space, it is not possible to show all of them on the screen.

## B-6 Error Messages

MESSAGE: There must be some free space on all drives.

Cause: You attempted to create a SpanDrive partition, but one of the drives does not have any free blocks.

Remedy: Create a non-spanned drive partition, or clear space.

MESSAGE: Too many SpanDrive links needed.

Cause: This error occurs if you attempt to create a SpanDrive partition, but there are too many fragmented free blocks on the hard disk(s).

Remedy: Reduce the amount of fragmented free blocks by creating partitions that are as contiguous with respect to each other as possible. Maximum number of SpanDrive links is 8.

MESSAGE: Unable to read MS-DOS structure. Recreate partition.

Cause: An error was encountered while reading the boot sector of the partition.

Remedy: Delete and re-create the specified partition.

MESSAGE: \*\* WARNING \*\* No hard disk found. Check drive connections.

Cause: Upon startup, the operating system does not indicate that there is a hard disk installed on the system.

Remedy: Make sure the drive is installed correctly. Run SETUP to make sure drive type is correct.

MESSAGE: \*\* WARNING \*\* Physical size does not match logical size on drive.

Cause: HARDDrive.SYS found that the partition size indicated in the boot sector of a partition does not match the size indicated in the master boot sector.

Remedy: Ensure that all drives used to create a SpanDrive partition are installed correctly.

# **3.5-Inch Flexible Disc Drive Software Installation Guide**



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---

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## 3.5-Inch Disc Drive Software Driver Installation

---

### Do I Need this Driver?

If you are using the MS-DOS operating system and want to be able to exchange information on double-sided discs used in the **HP 110**, the **HP Portable PLUS**, the **HP 150**, the **HP 150II** or HP Vectra **external** 3.5-inch flexible disc drives, you need to install the driver.

If you do not wish to exchange data on discs used in the above devices, then you do not need to install the driver and may skip these instructions.

---

### Requirements

- These instructions apply to those users that have an HP Vectra system with a factory-installed 3.5-inch internal flexible disc drive installed in either the computer's top drive slot (called Drive A:), or the second drive slot down (called Drive B:).
- You must have already installed the MS-DOS operating system on your computer's hard disc.



---

## Installation

There are two ways to install the driver for the 3.5-inch flexible disc drive.

**If your 3.5-inch flexible disc drive is in the topmost drive slot of your computer,** go to the section “Instructions for a 3.5-inch Drive A:” and begin reading.

**If your 3.5-inch flexible disc drive is in the second drive slot down in your computer,** go to the section “Instructions for a 3.5-inch Drive B:” and begin reading.

### Instructions for a 3.5-inch Drive A:

If your drive is installed in the topmost drive slot of your computer (as Drive A:), follow these steps to install the driver on your hard disc.

1. Turn on the display and the computer. Make sure the MS-DOS prompt or the PAM (Personal Applications Manager) main menu is displayed.
2. Insert the disc labeled *SETUP and Utilities Disc* into drive A:.
3. At the MS-DOS prompt, type

```
COPY A:INDSKBIO.* C:\
```

and press **Enter**.

4. Remove the *SETUP and Utilities Disc*.
5. For your own protection, if you have a CONFIG.SYS file, make a backup copy of your CONFIG.SYS file called CONFIG.OLD.

Type

```
COPY CONFIG.SYS CONFIG.OLD
```

and press **Enter**.

6. At the MS-DOS prompt, type:

```
COPY CONFIG.SYS + CON CONFIG.SYS
```

and press **Enter**. The following will be displayed.

```
CONFIG.SYS  
CON
```

7. Type:

```
DRIVPARM=/D:0 /F:7 /T:80 /S:18 /H:2 /C  
DEVICE=\INDSKBIO.SYS /D:0
```

8. When you have finished entering the lines, hold down **Ctrl** and press **Z** once. You will see ^Z also displayed on the screen.
9. Then press **Enter**. You should see the message:

```
1 File(s) copied
```

Your new CONFIG.SYS file has been created.

10. Reset your computer by holding down **Ctrl** and pressing **Alt** and **Del** at the same. After you have used your drive successfully, delete the CONFIG.OLD file you created.
11. Refer to your MS-DOS *User's Reference* for information on how to format your flexible discs.

#### Note



---

To exchange data on discs formatted in the **HP 110** and **HP Portable PLUS** computers, change the `DEVICE=\INDSKBIO.SYS /D:0` line in your CONFIG.SYS file to:

```
DEVICE=\INDSKBIO.SYS /D:0 /HP110
```

---

## Instructions for a 3.5-inch Drive B:

If your drive is installed in the second drive slot down (as Drive B:), follow these instructions to install the driver on your hard disc.

1. Turn on the display and the computer. Make sure the MS-DOS prompt or the PAM (Personal Applications Manager) main menu is displayed.
2. Insert the disc labeled *SETUP and Utilities Disc* into drive A: and turn the drive lever down.
3. At the MS-DOS prompt, type

A:35INSTAL



and press **Enter**.

4. Press the appropriate key for your language.
5. Follow the instructions on your screen. When the installation is complete continue with step 6.
6. Remove the *SETUP and Utilities Disc*.
7. Hold down **Ctrl** and **Alt**, and press **Del** to reset your computer and install the 3.5-inch flexible disc driver.
8. Refer to your MS-DOS *User's Reference* for information on how to format your flexible discs.

### Note



---

To exchange data on discs formatted in the **HP 110** and **HP Portable PLUS** computers, change the `DEVICE=\INDSKBIO.SYS /D:1` line in your `CONFIG.SYS` file to:

```
DEVICE=\INDSKBIO.SYS /D:1 /HP110
```

---



## Sharing Data with Computers that Use 3.5-Inch Discs

---

With the HP 3.5-inch internal flexible disc drive and its software driver installed in an HP Vectra personal computer using MS-DOS 3.2 version B.01.02 or later, you can share data with 3.5-inch discs of other HP and IBM personal computers as indicated in Table 2-1.

**Note**

---

You may not use single-sided discs, or discs formatted as single-sided in the 3.5-inch internal flexible disc drive for any reason.

---

**Table 2-1. 3.5-inch Disc Exchange Chart**

<b>Computer</b>	<b>Black HP Discs 1.44 MB Format</b>	<b>Gray HP Discs 720 KB IBM Format</b>	<b>Gray HP Discs 710 KB HP Format</b>
<b>HP 110</b>	NO	NO	YES <sup>1</sup>
<b>HP Portable PLUS</b>	NO	YES	YES <sup>1</sup>
<b>HP 150 and HP 150II</b>	YES <sup>2</sup>	YES	YES <sup>3</sup>
<b>HP Vectra using 3.5-inch internal drive</b>	YES	YES <sup>4</sup>	YES <sup>1,3</sup>
<b>HP Vectra using 3.5-inch external drives</b>	YES <sup>2</sup>	YES <sup>5</sup>	YES <sup>6</sup>
<b>IBM PC, XT or AT</b>	YES	YES	NO
<b>IBM PS/2</b>	YES	YES	NO

1. For HP 110 and Portable PLUS data exchange, /HP110 parameter must be in HP Vectra's CONFIG.SYS file.
2. You must have either an HP 9122C or HP 9153C external disc drive.
3. To format these discs in an HP Vectra, use the FOR150 command.
4. /n:9 and /t:80 parameters must be specified in format command.
5. The HP 9122D will read and write, but CANNOT format discs to this format.
6. To format these discs, use HPFORMAT utility that came with external disc drive.

**2-2 Sharing Data with Computers that Use 3.5-Inch Discs**

# **HP Vectra Disc Cache Program**





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---

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## HP Vectra Disc Cache Program

---

Your computer comes with the HP Vectra Disc Cache Program that is designed to give you optimal system performance with your Hewlett-Packard Vectra computer.

---

### What is Disc Caching?

Disc caching is a process that increases the effective speed at which your computer reads a hard disc. A disc cache automatically keeps copies of recently used data in memory. Your computer retrieves this information from the cache more quickly without having to read the hard disc every time.

### When Will Disc Caching Help?

Disc caching will improve your computer's performance. Many applications such as accounting packages, spelling checkers, and data base programs, run faster and more efficiently using disc caching. The improvement you get depends on the way your application accesses the disc, how much data is accessed, and how often.

### In What Situations Is Disc Cache Not Appropriate?

There is no disc caching support for computers with only flexible disc drives.

For information about software restrictions (Windows, StarLAN, and PageMaker) refer to the section, "Usage Tips for Specific Situations," in this chapter.

---

## What You Need to Know

To start HP Vectra Disc Cache, you should know the type of memory where you want the cache located, and the size you want the cache to be.

### Types of Memory Disc Caching Can Use

The three types of memory where the cache can be located are explained below.

- **Base** memory, also called conventional memory, is memory directly addressable by MS-DOS, maximum 640 KB.
- **Expanded** memory is memory above the 640 KB limit of MS-DOS. This memory is accessed using the LIM (Lotus/Intel/Microsoft) Specification, or the Enhanced Expanded Memory Specification.
- **Extended** memory is memory above 1 MB. It is not directly addressable by applications using MS-DOS. It can be used by HP Vectra Disc Cache, and by programs such as VDISK.

---

### Note



If your HP PC has an 80386 or equivalent microprocessor, (for example, HP Vectra RS) then your system includes memory manager software which can allocate all or part of the **extended** memory as **expanded** memory. We recommend placing HP Vectra Disc Cache in simulated expanded memory in this case.

---

---

## Copying HP Vectra Disc Cache to Your Hard Disc

If you have an internal hard disc, copy the HP Vectra Disc Cache program onto it. Find the HP Vectra Disc Cache Program Disc, or, if you don't have a separate disc, look on the SETUP and Utilities disc for the HP Vectra Disc Cache Program. Follow the steps below.

1. Insert the disc containing the HP Vectra Disc Cache Program into drive A:. (You may use any of your flexible disc drives. In our example we use drive A:.)
2. At the MS-DOS prompt, type:

```
COPY A:HPCACHE.COM C:\
```

and press **Enter**. This will copy the HP Vectra Disc Cache into the root directory of your hard disc.

3. Remove the HP Vectra Disc Cache program disc and put it away.
4. Now, type C: and press **Enter**.

---

### Note



If you have only an **external** hard disc, refer to the instructions in the section, "Usage Tips for Specific Situations."

---

The HP Vectra Disc Cache program is now on your hard disc. When you are ready to run HP Vectra Disc Cache, go to the next section, "Starting Disc Cache" for instructions on using disc caching.

---

## Starting Disc Cache

The following instructions explain the easiest way to set up a disc cache in base, expanded, or extended memory. Read the instructions that apply to the type of memory you intend to use. For best performance, use expanded memory if you have it available.

The instructions below will set up a disc cache which will remain in effect until you turn off your computer.

### Setting Up a Disc Cache in Base Memory

To set up a cache in base memory (using the default size of 96 KB), type the following at the MS-DOS prompt:

```
HPCACHE
```

and press **Enter**.

### Setting Up a Disc Cache in Expanded Memory

To easily set up a cache in **expanded** memory (using the default size of 256 KB), type the following at the MS-DOS prompt:

```
HPCACHE /A
```

and press **Enter**. The /A parameter after the command sets up the disc cache in expanded memory.

### Setting Up a Disc Cache in Extended Memory

To easily set up a cache in **extended** memory (using the default size of 256 KB), type the following at the MS-DOS prompt:

```
HPCACHE /E
```

and press **Enter**. The /E parameter after the command sets up the disc cache in extended memory.

## **After Setting Up Disc Cache**

Once the disc cache has been set up, the computer will perform disc caching without your having to do anything. If you want to change the disc cache size, or have it start automatically when you turn on your computer, read on.

---

## **Changing the Cache Size**

Because the HP Vectra Disc Cache program does require a certain amount of your computer's memory, there are some cases where your HP Vectra may not have enough memory to use disc caching and still run your applications. In these cases, you will need to adjust the amount of memory allocated for disc caching. If your application does not have enough memory to run, it will display a message on the screen telling you that there is insufficient memory.

For maximum performance, you should make your cache size as large as possible, while still allowing enough memory space for your applications.

- Base memory - if the cache is in base memory, you may specify a size up to 512 KB.
- Expanded or extended memory - if the cache is in expanded or extended memory, you may specify a size up to 1024 KB (1 MB).



## How to Specify Cache Size

To specify a cache size different from the default, add the /S parameter to the command line, followed by a colon and the number of KB you want for the cache.

**For example**, if you want to specify a cache size of 384 KB of expanded memory, your command line would have the following information in it:

```
HPCACHE /S:384 /A
|           | | |
|           | | |  |--Specifies expanded memory
|           | | |
|           | | |  '-----Sets up cache of 384 KB
|           | | |
|           | | |  '-----Parameter to specify size
|           | | |
|           | | |  '-----Command to set up disc cache
```

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## Automatically Starting Disc Cache

A file named AUTOEXEC.BAT (which stands for auto-execution batch) is executed every time you start your computer. If you include the command that starts HP Vectra Disc Cache in your AUTOEXEC.BAT file, it will be automatically started each time you start your computer.

For specific instructions on how to create or edit your AUTOEXEC.BAT file, refer to the “Batch Processing” chapter in the *User’s Reference* manual.

If you wish to have a different set of parameters for each of your often used applications, you may wish to create different batch files to customize the cache to run with each application. The batch file would set up the appropriate size cache before loading the application itself. Refer to the “Batch Processing” chapter in the *User’s Reference* manual.

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## Usage Tips for Specific Situations

This section provides information which may apply to your specific situation.

### Using External Hard Discs

External hard disc drives can be used with HP Vectra Disc Cache program. Should you want to use an external hard disc drive, use the following instructions to place a special driver in the CONFIG.SYS file. To install the driver, follow these steps:

1. Copy the file HPCACHE.SYS from the original disc to the root directory of the disc containing your operating system files.
2. Identify the line in your CONFIG.SYS file that specifies the external disc driver (such as HPDISC.SYS) and place the following line directly after it:

```
DEVICE=HPCACHE.SYS
```

3. Restart your system.
4. Start HP Vectra Disc Cache as described previously.

### Using Disc Cache with Windows

In the following two situations, if your system has only base memory, HP Vectra Disc Cache may not improve your system's performance:

- if you are using Microsoft<sup>R</sup> Windows<sup>TM</sup> 2.0 (or later)
- if you are using any version of Microsoft Windows with networking software.

HP recommends using additional memory in these situations. Additional memory offers the best solution because it allows you to take full advantage of the benefits of disc caching with all your application software.

**Using Disc Cache  
with PageMaker**

If you are using Aldus PageMaker™ and have only base memory, we do not recommend using HP Vectra Disc Cache unless you purchase additional memory.

**Using Disc Cache  
with Networking**

If you are using HP OfficeShare (StarLAN, ThinLAN, or SERIAL Network) and have only base memory, we do not recommend using HP Vectra Disc Cache unless you purchase additional memory.

## Parameters

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The parameters are pre-set to optimize disc cache performance on your HP Vectra Personal Computer for most applications and work loads. However, in some situations additional performance may be achieved by modifying the default parameters. The parameters are explained in the following tables.

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### How to Specify Parameters

To specify one or more of these parameters, add them to the command line that starts the HP Vectra Disc Cache program. The order of the parameters does not matter.

**For example**, to set up the cache in expanded memory using all the expanded memory except 512 KB, and prevent HP Vectra Disc Cache from checking for redundant writes, you would type the following command line.

```
HPCACHE /R:512 /A /W-
```

#### Note



To turn an option “on” specify the letter for that parameter or the letter with a “+” (plus) after it. To turn an option off, specify the letter with a “-” (minus) after it. For some parameters such as /R, you specify a number value.

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The following table lists operating parameters that are intended to be used **after** HP Vectra Disc Cache has been set up.

### Operating Parameters

Parameter	What it Does
/F	Flushes the cache and resets measurements to values in effect when program is started. This is useful when making tests of cache performance.
/M	Displays the measurements of the cache. This option displays the number of disc transfer requests made by the system and applications, the number of actual physical transfers from the disc, the number of disc transfers saved by the cache, and the percentage of overall transfer requests saved by the cache.
/P	Displays all parameters in effect when HP Vectra Disc Cache is started.
/U	Un-installs HP Vectra Disc Cache. MS-DOS allows only the last-installed memory resident program to be un-installed. This option may be used after any programs loaded after Disc Cache have been un-installed.

The following table lists the parameters available with HP Vectra Disc Cache and what the default parameter settings are.

### Advanced Parameters

Parameter	What it Does
/A	Specifies that the cache should be in expanded memory.
/B	Copies data to and from the cache in batches of sectors. The default for base and expanded memory is B+. For extended memory, which turns interrupts off, the default is B-, which transfers data one sector at a time.
/E	Specifies that the cache should be in extended memory.
/E:XXX	Prevents the cache from allocating memory below E:XXX. This allows HP Vectra Disc Cache to coexist with programs that allocate extended memory in a way that HP Vectra Disc Cache cannot detect. Disc Cache allocates from the top-most memory limit down. This parameter sets the bottom-most limit, below which the cache will not go. For example, if you have one 512 KB RAM disc which cannot be detected, the correct value for E:XXX would be $1024 + 512 = 1536$ . The parameter would be: /E:1536.
/H	Enhances performance of writing to the hard disc. This option is compatible with all HP hard disc drives, but may be incompatible with some third-party hard disc subsystems. The default is H+.

(Continued on next page.)

**Advanced Parameters  
Continued**

Parameter	What it Does
/R:XXX	Allows you to allocate XXX KB of memory (of the type already specified) for programs loaded after HP Vectra Disc Cache. Allocates the rest of available memory to the cache. This option should not be used with /S.
/S:XXX	Allows you to allocate XXX KB of memory for the cache. The default cache size is 96 KB for base memory, and 256 KB for expanded and extended memory. This option should not be used with the /R parameter.
/T	When a disc read is requested, part or all of the track is also read into cache memory. The amount read is the track buffer size. If no /T parameter is specified, there is a 4 sector track buffer. If /T is specified, the track buffer amount is one full track. This number could be 17 or 32 sectors, depending on your hard disc.
/T:XX	Allows you to specify the number of sectors in the track buffer size.
/W	Checks data being written to the cache to see if it already has identical data. If there is no change to the data, nothing is written to the disc. The default is W+. If extended memory is specified, the default is W-.
/-X	Does not provide caching function for drive X. For example, if you have two hard disc drives and do not wish to cache drive D:, specify: HPCACHE /-D.

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## Command Line Examples

The following are examples of sample command lines for HP Vectra Disc Cache:

1. `HPCACHE /A /R:256`

Meaning: Set up HP Vectra Disc Cache in expanded memory and reserve 256 KB for applications that will be loaded later. The `/R` parameter specifies the amount of working memory you want to remain after the cache is set up. The rest of expanded memory is allocated to the HP Vectra Disc Cache program and its cache.

2. `HPCACHE /E /S:384`

Meaning: Set up HP Vectra Disc Cache in extended memory, and set up the cache to be 384 KB in size.

3. `HPCACHE /S:256 /T:8`

Meaning: Set up a cache of 256 KB in base memory, and read sectors off the disc 8 at a time (instead of the default of 4.)

4. `HPCACHE /-D`

Meaning: Set up a cache of 96 KB in base memory, but do not cache drive D:. Drive C: will still be cached.





## Troubleshooting Guide

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### Suggested Solutions

Following are some suggested steps to take if you have problems using Disc Cache.

#### Remove the Disc Cache

It is possible that the problem you have is not related to Disc Cache. Start your system without Disc Cache, or use the /U parameter to un-install Disc Cache, and see if the problem persists.

#### Change Some of Disc Cache's Parameters

Review the table in Chapter 2, "Parameters," to determine if you should change any of the programs parameters. If you did specify changed parameters in your command line, check to make sure that you did so correctly.

#### Simplify the AUTOEXEC.BAT File

Check the root directory of your hard disc for the AUTOEXEC.BAT file. To display the file, do the following:

At the MS-DOS prompt, type:

```
TYPE \AUTOEXEC.BAT
```

and press **Enter**.

This will display your AUTOEXEC.BAT file on your screen. Do you have other resident programs that are being started by command lines in your AUTOEXEC.BAT file? If so, make a copy of the file, and then modify it so it contains only the Disc Cache command line. Save the modified file. Start your system

with the modified AUTOEXEC.BAT file. If the problem has disappeared, add the other resident programs back to the AUTOEXEC.BAT file, one at a time, until you are able to determine which one is causing the problem.

### **Simplify the CONFIG.SYS File**

Use the same procedure described above to display your CONFIG.SYS file. This file may contain one or more device drivers. You do need an expanded memory driver to use the /A parameter, but other device drivers may not be required for the basic operation of your computer. Delete the extra device drivers, save the new CONFIG.SYS, and restart your computer. If the problem has disappeared, add the device drivers back one at a time until you are able to determine which one is causing the problem.

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### **Support Information**

Support for this product is provided through the world-wide Hewlett-Packard support network—along with support for the other HP components of your system. Depending on how you purchased your HP Vectra Personal Computer, the best source of assistance may be your own organization, your dealer, or Hewlett-Packard.

## Error Messages

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This appendix lists error messages in alphabetical order that the HP Vectra Disc Cache program may display in response to error situations.

**MESSAGE:** /A+ parameter ignored -- conflicts with /E+.

**Explanation:** You may not select both expanded (/A) and extended (/E) memory, re-enter the HPCACHE command with the correct parameter(s).

**MESSAGE:** Advanced support request ignored for Drive x.

**Explanation:** You have requested advanced support (/H), but your hard disc controller is not industry standard compatible. Basic support will be used.

**MESSAGE:** Cache size requested too small.

**Explanation:** You have requested a cache size less than the minimum supported by HP Vectra Disc Cache.

**MESSAGE:** /E+ parameter ignored -- not 80286 system.

**Explanation:** Use of extended memory is not supported on the HP Vectra CS.

**MESSAGE:** Expanded Memory Failure; Function = x; Error Code = y.

**Explanation:** The Expanded Memory Manager returned error indicated. Restart your computer and look for a message with more explanation.

**MESSAGE:** /F Flush request ignored.

**Explanation:** You have requested that the cache be flushed at the time the disc cache program is started. This parameter is used to flush the program **after** you have started the program.

**MESSAGE:** HP Vectra Disc Cache Program already installed. You must un-install before reinstalling with different parameters.

**Explanation:** You have tried to start the HP Vectra Disc Cache program after it has already installed a disc cache.

**MESSAGE:** /M parameter ignored -- no measurements available.

**Explanation:** You have requested measurements when the disc cache program is started. Measurements will be available once you have executed other commands after the disc cache is installed.

## **B-2 Error Messages**

**MESSAGE:** No drives found to cache.

**Explanation:** No hard discs were found to cache, therefore no disc cache was started. If you have an external hard disc, refer to the “Usage Tips for Specific Situations” section in Chapter 1 before starting the disc cache program.

**MESSAGE:** No Expanded Memory Manager found; Check CONFIG.SYS file.

**Explanation:** The Expanded Memory Manager was not installed successfully. Refer to the documentation that came with your expanded memory board for information on installing the Expanded Memory hardware and software.

**MESSAGE:** Not enough memory for HP Vectra Disc Cache program.

**Explanation:** There is not enough free memory in your system to start the HP Vectra Disc Cache program.

**MESSAGE:** Problem with drive x. Correct and then press any key.

**Explanation:** There may be bad sectors on your hard disc. If you suspect this to be true, you have the following options:

1. If you have a test utility that detects (and removes from use) bad sectors on the hard disc, run it.

OR,

2. Backup all files on the hard disc, reformat the hard disc, then restore all files back on to the hard disc. Reformatting the hard disc should detect (and remove from use) bad sectors.

If you are sure that your hard disc has no bad sectors, specify the /H-parameter to instruct HP Vectra Disc Cache to use basic support for your hard disc.

**MESSAGE:** There is not enough free memory in your system Your system has xxxK bytes of free memory.

**Explanation:** You have selected a cache or reserve size that exceeds the memory capacity of your system. Try a different value for the /S or /R parameter. If you are also using a RAM disc, you may wish to reduce its size or eliminate it altogether.

If you have requested the cache to be installed in conventional memory, try instead to install the cache in expanded or extended memory if you have it.

## B-4 Error Messages

**MESSAGE:** /U Cannot un-install -- Other programs above.

**Explanation:** You have requested that your disc cache be un-installed after loading one or more programs after it. You will need to exit or un-install these programs before un-installing the disc cache.

**MESSAGE:** /U parameter ignored -- HP Vectra Disc Cache is not installed.

**Explanation:** You have requested that a disc cache to be un-installed when it currently is not installed.

**MESSAGE:** Warning: HPCACHE.SYS placed after non-disk driver.

**Explanation:** Either your external hard disc is not turned on, or the HPCACHE.SYS driver has not been placed after the external hard disc driver in your CONFIG.SYS file.

**MESSAGE:** /x parameter ignored.

**Explanation:** You have selected on option that is not recognized by the HP Vectra Disc Cache Program.

**MESSAGE:** /-x Drive x cannot be cached -- sector size incompatible.

**Explanation:** Drive x has a sector size which is not a multiple of 512 bytes.



**MESSAGE:** /-x Drive x cannot be cached --  
physical unit unknown

**Explanation:** If drive x is a RAM disc, HP Vectra Disc Cache is simply informing you that it cannot cache a RAM disc. This is not a problem since there is no point in caching a RAM disc.

Another possibility is that drive x is a remote drive in a network. In this case, it is inappropriate to cache a remote drive. (You may want to install a disc cache on the system where the remote drive resides.)

You may also see this message if drive x is installed in your system in such a way that MS-DOS accesses it without using the BIOS (Basic Input Output System). In the case of external hard disc drives, you should follow the steps outlined in the "Usage Tips for Specific Situations" section in Chapter 1.