HEWLETT-PACKARD

Installing Your Operating System

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Installing Your Operating System

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Read This First

This manual contains the instructions for making work copies of the MS-DOS operating system for your Hewlett-Packard Personal Computer.

Requirements

- Know what kind of disc drives you have (refer to the *System Checklist* that came packaged with your computer if your drive(s) were installed at the factory).
- If you **don't** have a hard disc drive, you must have a box of blank flexible discs that match the capacity of drive A:.
- Get the **MS-DOS** master disc located at the back of this binder.

Where to Go

- If you have a **Hard Disc Drive**, go to Chapter 1.
- If you only have **Two Flexible Disc Drives**, go to Chapter 2.
- If you only have **One Disc Drive**, go to Chapter 3.
- If you are **upgrading a previous version of MS-DOS to the new version**, go to Chapter 4.

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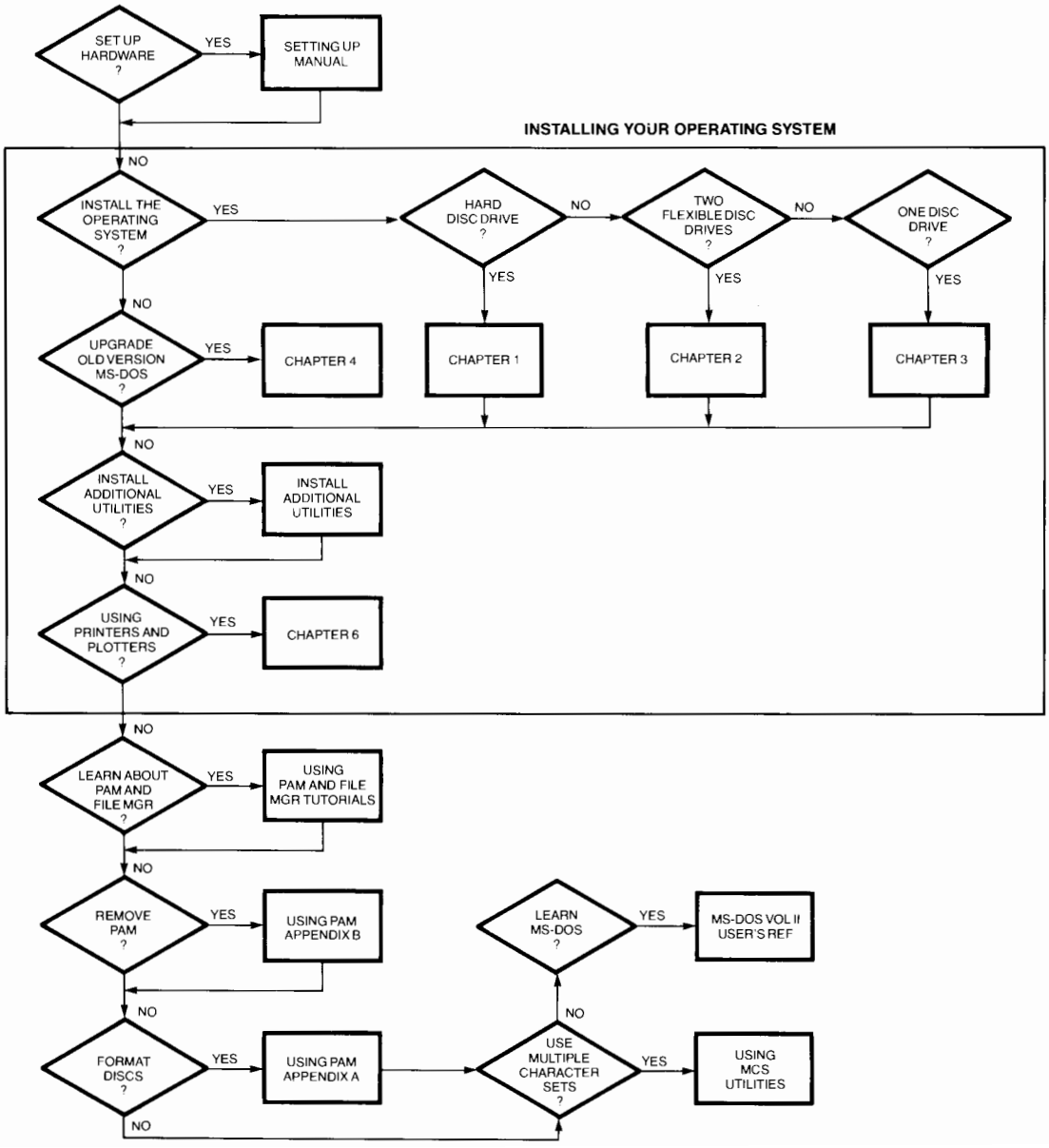
Documentation Map



1 Computers with a Hard Disc Drive

There are two methods for installing the operating system on a hard disc. One for hard discs of *32 Megabytes or less*, and one for hard discs *greater than 32 Megabytes*. Answer the following question:

Do you have a hard disc *greater than 32 Megabytes*?

- **YES.** Skip to Chapter 5: "Hard Disc Multi-Voluming Utility" further on in this booklet, now.
- **NO.** Answer the next question.

Do you have a hard disc of *32 Megabytes or less* that you wish to divide into more than one volume? (Your computer would see each volume as smaller separate disc drives on which different information or operating systems could be placed.)

- **YES.** Skip to Chapter 5: "Hard Disc Multi-Voluming Utility" further on in this booklet, now.
- **NO.** Go to "Instructions for Hard Discs of 32 Mb or Less" in this chapter, now.

Instructions for Hard Discs of 32 Mb or Less

Installing your operating system on a new hard disc is a multi-step process. You should have already **initialized** your hard disc as described in your computer's *Setting Up* manual.

Perform each step in the order given below to:

- Run FDISK
- Run FORMAT

Running FDISK

Do the following to run FDISK:

1. Put your MS-DOS master disc in drive A:.
2. If the computer is off, turn it on. If the computer is on, while holding down [CTRL], press [Alt] and [DEL] simultaneously.

   The PAM Main Menu is displayed.
3. Press [Enter] to run the MS-DOS COMMANDS application.
4. Did a disc marked "Supplemental" also come in this binder?

   - **NO.** Skip to step 5.
   - **YES.** Remove the MS-DOS disc and insert the Supplemental disc.

5. Type:

```
FDISK
```

then press Enter.

The FDISK Options menu is displayed.

6. Press Enter at FDISK Options menu. This selects Option 1.

You are asked the following question:

```
Do you wish to use the entire fixed
disk for DOS (Y/N)
```

Answer the question by pressing Enter.

7. If you have another hard disc installed that needs to be prepared, **type 5 ("Select Next Fixed Disk Drive") and press** Enter. Then repeat step 6. When done, go to step 8.

If you do not have another hard disc that needs to be prepared, go to step 8.

8. You will see this message:

```
System will now restart
Insert DOS diskette in drive A:
Press any key when ready...
```

Did you insert the "Supplemental" disc in step 4?

- **NO.** Press Enter to get back to the MS-DOS prompt. Then go to the next section "Running FORMAT."

- **YES.** Remove the MS-DOS disc and insert the Supplemental disc. Press Enter to restart your computer. Then go to the next section "Running FORMAT."

Running FORMAT

1. If the PAM Main Menu displayed, press Enter to start the MS-DOS COMMANDS application.

2. To format your hard disc, type the following:

   ```
   FORMAT C: /S/V
   ```

   then press Enter.

3. A WARNING message is displayed. Press Y and then press Enter to begin formatting.

   Formatting begins. Formatting information is displayed.

4. Label your volume when prompted with an easy to remember name of up to 11 characters. Then press Enter.

5. When formatting is done, if you have another hard disc that needs to be formatted, do that now by typing FORMAT D: /V and pressing Enter. Repeat steps 3 and 4, then go to step 6.

   If you do not have another hard disc that needs to be formatted, go to step 6.

6. When formatting is done, you will see the A> again. Type:

   ```
   XCOPY A: C:
   ```

   then press Enter.

   All the files from the MS-DOS disc are transferred to the hard disc.

7. Type:

   ```
   C:
   ```

   then press Enter.

8. Type:

   ```
   XCOPY A: C:
   ```

   then press Enter.

   All the files from the Supplemental disc are transferred to the hard disc.

9. When done, reinsert the MS-DOS disc.

10. Type:

    ```
    PAMINSTL A: C:
    ```

    then press Enter.

    You see a message telling you that PAM has transferred.

11. Remove the disc in drive A:. Then, while holding down CTRL, press Alt and DEL at the same time.

    The PAM Main Menu should be displayed.

Your hard disc is now ready for use. Put your master disc(s) away and answer the following question:

Did any additional discs containing utilities or drivers come packaged in your computer hardware box(es)?

- **YES.** Install those now using the instructions that come with them. Then go to Chapter 6: "Using Printers and Plotters."
- **NO.** Go to Chapter 6: "Using Printers and Plotters."

2 Computers with Two Flexible Disc Drives

Does drive A: have an "*" on the front?

- **YES.** Skip to the "Instructions for a 360 Kb Drive A:" section in this chapter.
- **NO.** Read on.

Instructions for a Greater than 360 Kb Drive A:

Your flexible disc drive A: is greater than 360 Kb capacity. This means that you can make one work disc with all operating system files on it. Follow the steps below:

1. Put the MS-DOS master disc in drive A:.
2. Turn on your computer. If you computer is already on, hold down [CTRL], and press [Alt] and [DEL] at the same time.
3. When the PAM Main Menu appears, press [Enter] to start the MS-DOS COMMANDS application.
4. At the A> prompt, type:

   ```
   FORMAT A: /S
   ```

   then press [Enter].

5. When told to, place a blank disc in drive A: and press Enter to begin the formatting process.

   Formatting begins. Formatting information is displayed.

6. When formatting is complete, press N when asked to format another. Then press Enter.

7. Put the MS-DOS master disc in drive B:, then type:

   ```
   B:
   ```

   then press Enter.

8. At the B> prompt, type:

   ```
   PAMINSTL B: A:
   ```

   then press Enter.

   You will see a message telling you that PAM has been transferred.

9. At the B> prompt, type:

   ```
   COPY B:*.*  A:
   ```

   then press Enter.

   The rest of the operating system files are listed on the screen as they are copied onto the work disc.

10. Did a disc marked "Supplemental" also come in this binder?

    - **NO.** Skip to step 12.
    - **YES.** Remove the MS-DOS disc from drive B: and insert the Supplemental disc.

11. At the B> prompt, type:

    ```
    COPY B:*.*  A:
    ```

    then press [Enter].

    The files will be listed on the screen as they are copied onto the work disc in drive A:.

12. After all files have copied, get a blank label from your box of discs and write this on it:

    MS-DOS Work Disc

    Also write today's date and the MS-DOS version number.

13. Remove your new work disc from drive A: and affix the label to it.

14. Remove the master disc from drive B: and put your master disc(s) away in a safe place. You will be using the work disc from now on.

15. Put your new MS-DOS work disc in drive A: and, while holding down [CTRL], press [Alt] and [DEL] at the same time.

    The PAM Main Menu should be displayed. Answer the following question:

Did any additional discs with utilities or drivers come packaged in your computer hardware box(es)?

- **YES.** Install those now using the instructions that come with them. Then go to Chapter 6: "Using Printers and Plotters."

- **NO.** Go to Chapter 6: "Using Printers and Plotters."

Instructions for a 360 Kb Drive A:

Your flexible disc drive A: (with an "*" on the front of it) has a 360 Kb capacity. You need to put the operating system files on two work discs. One disc will contain the MS-DOS master disc files, and one disc will contain the Supplemental master disc files.

Do the following:

1. Put the MS-DOS master disc in drive A:.
2. Turn on your computer. If you computer is already on, hold down [CTRL], and press [Alt] and [DEL] at the same time.
3. When the PAM Main Menu appears, press [Enter] to start the MS-DOS COMMANDS application.
4. At the A> prompt, type:

   ```
   FORMAT A: /S
   ```

   then press [Enter].
5. When told to, place a blank disc in drive A: and press [Enter] to begin the formatting process.

   Formatting begins. A table is displayed with formatting information.
6. When formatting is complete, press [N] when asked to format another. Then press [Enter].
7. Put the MS-DOS master disc in drive B:. Type:

   ```
   B:
   ```

   then press [Enter].

8. At the B> prompt, type:

   ```
   PAMINSTL B: A:
   ```

   then press Enter.

   You see a message telling you that PAMINSTL has completed successfully.

9. At the B> prompt, type:

   ```
   COPY B:*.*  A:
   ```

   then press Enter.

   The rest of the operating system files are listed on the screen as they are copied onto the work disc.

10. Get a blank label from your box of blank discs and write this on it:

    MS-DOS Work Disc

    Also write today's date and the MS-DOS version number.

11. Remove the work disc you just created from drive A: and affix the label to it. Put this disc away for now.

12. Get another blank disc from the box and insert it in drive A:. (The MS-DOS master disc should still be in drive B:.)

13. At the B> prompt, type:

    ```
    FORMAT A:
    ```

    then press Enter. GO TO THE NEXT STEP NOW.

14. Since you already have your blank disc in drive A:, just press [Enter] when prompted to insert a disc for drive A: - this will start the formatting process.

    Formatting begins. Formatting information is displayed.

15. When done, you will be asked if you want to format another disc. Press [N]. Then press [Enter].

16. Type:

    ```
    XCOPY B: A:/W
    ```

    and press [Enter]. GO TO THE NEXT STEP NOW.

17. When you are prompted to press any key to begin copying files, remove the MS-DOS master from drive B: and insert the Supplemental master disc.

18. Now press [Enter] to begin copying the supplemental files onto the second work disc.

    The files are listed on the screen as they are copied to the work disc.

19. When all of the files have been copied, get another blank label from your box of discs. Write this on it:

    Supplemental Work Disc

    Also write today's date and the MS-DOS version number.

20. Remove the work disc from drive A: and affix the label to it.

21. Remove the Supplemental master disc from drive B: and put both your MS-DOS and Supplemental master discs away in a safe place. You will use the work discs you just created from now on.

22. Place the MS-DOS work disc in drive A: and, while holding down CTRL, press Alt and DEL at the same time.

    The PAM Main Menu should be displayed. Answer the following question:

Did any additional discs containing utilities or drivers come packaged in your computer hardware box(es)?

- **YES.** Install those now using the instructions that come with them. Then go to Chapter 6: "Using Printers and Plotters."
- **NO.** Go to Chapter 6: "Using Printers and Plotters."

3 Computers with One Disc Drive

Answer the following question:

Do you have a 360 Kb flexible drive? (These drives usually have an "*" on the front of them.)

- **YES.** Skip to the "Instructions for a 360 Kb drive" section in this chapter.
- **NO.** Read on.

Instructions for a Greater than 360 Kb Drive

1. Place the MS-DOS master disc in drive A:.
2. If the computer is off, turn it on. If the computer is on, hold down CTRL, and press Alt and DEL at the same time.
3. When the PAM Main Menu is displayed, press Enter to start the MS-DOS COMMANDS application.

4. At the A> prompt, type:

   ```
   FORMAT A: /S
   ```

   and press Enter.

5. When prompted to insert a disc for drive A:, get a blank disc from your box of blank discs and put it into the drive. Press Enter to begin the formatting process.

   Formatting begins. Formatting information is displayed.

6. When you are asked if you want to format another disc, press N. Then press Enter.

7. Put the MS-DOS master disc back into the drive.

8. Type:

   ```
   PAMINSTL A: B:
   ```

   then press Enter.

Note

In single drive systems, the one drive is used by MS-DOS as if it were two drives: drive A: and drive B:.

---

9. When you are prompted to insert a disc for drive B:, put the disc you just formatted back into the drive. Press any key.

   The system copies all the PAM files onto the disc in the drive. When done, you are told that the operation succeeded.

10. At the A> prompt, type:

    ```
    XCOPY A: B:
    ```

    then press Enter.

11. When prompted to insert a disc for drive A:, put in the MS-DOS master disc. Then press any key.

12. Now, follow the instructions as they appear on the screen. Remember, always use the MS-DOS master disc for drive A: and your work disc for drive B:. Go on to step 13 when you see a message that displays a number and the words: `File(s) copied`.

13. Did a disc marked "Supplemental" also come with this binder?

    - **NO.** Skip to step 18.
    - **YES.** Go to step 14.

14. With the MS-DOS master disc in the drive, type at the A> prompt:

    ```
    XCOPY A: B: /W
    ```

    then press Enter. GO TO THE NEXT STEP NOW.

15. Before you press a key to begin copying files, put the Supplemental master disc in the drive. Then press Enter.

16. When you are prompted to insert disc for drive B:, insert the work disc and press Enter.

17. Now, follow the messages on the screen to copy all of the Supplemental disc files to your work disc. Remember, always insert the Supplemental master disc for drive A: and the work disc for drive B:. Go to step 18 when you see message that displays a number and the words: `File(s) copied`.

18. When all the files have been copied, you're finished. Get a blank label from your box of discs and write this on it:

    MS-DOS Work Disc

    Also write today's date and the MS-DOS version number.

19. Affix the label to the work disc you just created.

20. Put your master disc(s) away in a safe place. You will use the work disc you just created from now on.

21. Place your MS-DOS work disc into the drive. Then, while holding down CTRL, press Alt and DEL at the same time. The operating system will restart from this work disc.

    The PAM Main Menu should be displayed. Answer the following question:

Did any additional discs with utilities or drivers come packaged in your computer hardware box(es)?

- **YES.** Install those now using the instructions that come with them. Then go to Chapter 6: "Using Printers and Plotters."
- **NO.** Go to Chapter 6: "Using Printers and Plotters."

Instructions for a 360 Kb Drive

You have only one 360 Kb flexible drive (with an "*" on the front of it). Follow the instructions below:

1. Place the MS-DOS master disc in drive A:.

2. If the computer is off, turn it on. If the computer is on, hold down [CTRL], and press [Alt] and [DEL] at the same time.

3. When the PAM Main Menu is displayed, press [Enter] to start the MS-DOS COMMANDS application.

4. At the A> prompt, type:

   ```
   FORMAT A: /S
   ```

   and press [Enter].

5. When prompted to insert a disc for drive A:, put a blank, unformatted disc in the drive and press [Enter] to begin the formatting process.

   Formatting begins. Formatting information is displayed.

6. When you are asked if you want to format another disc, press [N]. Then press [Enter].

7. Put the MS-DOS master disc back into the drive.

8. Type:

   ```
   PAMINSTL A: B:
   ```

   then press Enter.

Note

In single drive systems, the one drive is used by MS-DOS as if it were two drives: drive A: and drive B:.

9. When you are prompted to insert a disc for drive B:, put the disc you just formatted back into the drive. Press any key.

   The system copies all the PAM files onto the disc in the drive. When done, you are told that the operation succeeded.

10. At the A> prompt, type:

    ```
    XCOPY A: B:
    ```

    then press Enter.

11. When prompted to insert a disc for drive A:, put in the MS-DOS master disc. Then press any key.

12. Now, follow the instructions as they appear on the screen. Remember, always use the MS-DOS master disc for drive A: and your work disc for drive B:. Go on to step 13 when you see a message that displays a number and the words: `File(s) copied`.

13. Get a blank label from your box of discs and write something similar to this on it:

    MS-DOS Work Disc

    Also write today's date and the MS-DOS version number.

14. Affix this label to the work disc you just created.

15. With the MS-DOS master disc in the drive, type at the A> prompt:

    ```
    FORMAT A:
    ```

    then press Enter.

16. When prompted to insert a disc for drive A:, put a blank disc into the drive and press Enter.

    Formatting begins. Formatting information is displayed.

17. When you are asked if you want to format another disc, press N. Then press Enter.

18. Put the MS-DOS master disc back into the drive and type:

    ```
    XCOPY A: B: /W
    ```

    then press Enter. GO TO THE NEXT STEP NOW.

19. Before you press a key to begin copying files, put the Supplemental master disc in the drive. Then press Enter.

20. When you are prompted to insert disc for drive B:, insert the work disc and press Enter.

21. Now, follow the messages on the screen to copy all of the Supplemental disc files to your work disc. Remember, always insert the Supplemental master disc for drive A: and the work disc for drive B:. Go to step 21 when you see message that displays a number and the words: `File(s) copied`.

22. When all the files have been copied, get a blank label from your box of discs and write this on it:

    Supplemental Work Disc

    Also write today's date and the MS-DOS version number.

23. Affix the label to the work disc you just created. Put your new Supplemental work disc away in a safe place.

24. Put your MS-DOS and Supplemental master discs away in a safe place.

25. Place your MS-DOS work disc into the drive. Then, while holding down CTRL, press Alt and DEL at the same time. The operating system will restart from this work disc.

    The PAM Main Menu should be displayed. Answer the following question:

Did any additional discs with utilities or drivers come packaged in your computer hardware box(es)?

- **YES.** Install those now using the instructions that come with them. Then go to Chapter 6: "Using Printers and Plotters."
- **NO.** Go to Chapter 6: "Using Printers and Plotters."

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4 Upgrading a Previous Version of MS-DOS

These instructions are for upgrading a computer that currently uses a previous version of MS-DOS to the new version. The steps listed here are for upgrading a **hard disc**.

If you **don't** have a hard disc, make new work discs following the instructions listed in chapter 2 (if you have two flexible disc drives), or chapter 3 (if you only have one flexible disc drive).

Perform the following steps.

1. Insert the MS-DOS master disc in drive A:.

2. If the computer is off, turn it on. If it is on, while holding down Ctrl, press Alt and Del at the same time.

3. When the PAM Main Menu appears, press Enter to start the MS-DOS COMMANDS application.

4. At the A> prompt, type:

   ```
   C:
   ```

   then press Enter.

5. At the C> prompt, type:

   ```
   RENAME CONFIG.SYS CONFIG.TWO
   ```

   then press Enter.

This saves a copy of your current CONFIG.SYS file. If you don't have a CONFIG.SYS file, you'll get a message saying:

```
Duplicate file name or File not found
```

Go ahead and proceed to step 6.

6. Type:

   ```
   A:
   ```

   then press Enter.

7. At the A> prompt, type:

   ```
   SYS C:
   ```

   then press Enter.

   The message "System transferred" appears on the screen.

Caution

The following steps use the REPLACE command to replace previous version MS-DOS files with new MS-DOS files. **All files with the same names as the new MS-DOS files will be replaced, including files in subdirectories.**

---

8. Type:

   ```
   REPLACE A:\*.*  C:\ /S /R
   ```

   then press Enter.

9. In this step you will copy new MS-DOS files into the root directory of your hard disc. Type:

```
REPLACE A:\*.*  C:\ /A
```

then press Enter.

10. Type:

```
C:
```

then press Enter. Next type:

```
DEL CONFIG.SYS
```

then press Enter.

11. At the MS-DOS prompt, type:

```
RENAME CONFIG.TWO CONFIG.SYS
```

then press Enter. If you don't have a CONFIG.TWO file, you'll get a message saying:

```
Duplicate file name or File not found
```

Go ahead and proceed to step 12.

12. Did a disc marked "Supplemental" come with this binder?

- **NO.** Skip to step 15.
- **YES.** Remove the MS-DOS disc and insert the Supplemental disc.

13. At the MS-DOS prompt, type:

```
REPLACE A:\*.*  C:\ /S /R
```

then press Enter.

14. In this step you will copy new MS-DOS supplemental files into the root directory of the hard disc. Type:

```
REPLACE A:\*.*  C:\ /A
```

then press [Enter].

15. Remove and put your master disc(s) away in a safe place. Your hard disc now contains a completely upgraded MS-DOS operating system. Restart your computer by holding down [CTRL] and pressing [Alt] and [DEL] at the same time.

This completes the upgrade procedure. Refer to the other manuals in this binder set for more information on the new MS-DOS version features.

Don't Use Previous Version MS-DOS Utilities!

After upgrading your computer, only use the new version MS-DOS utilities (FORMAT, FDISK, etc.). This can be especially important if you are connected to a Local Area Network and there are computers on the network that have not been upgraded. Using previous version MS-DOS utilities on an upgraded computer may cause problems.

Keep a Backup Copy of SETUP

There is NO copy of the SETUP program on the new version MS-DOS master disc! If you have SETUP.COM on your previous version master disc, keep it to ensure you have a backup copy of the SETUP program. Since SETUP is not an MS-DOS utility, this should not cause a problem.

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5 Hard Disc Multi-Voluming Utility

IMPORTANT QUESTIONS AND ANSWERS:

Who must run the MV Utility?

If you have a hard disc over 32 Mb (Megabytes), you MUST use this utility. Since MS-DOS can only access up to 32 Mb of a hard disc, a hard disc over 32 Mb needs to be divided in such a way that MS-DOS sees it as more than one hard disc. The MV Utility does this by dividing a hard disc into multiple **volumes**.

If your hard disc is 32 Mb or less, you also have the option of using this utility to divide your hard disc into smaller **volumes**.

What is a Volume?

A **volume** is a storage area for files. Each volume acts like a separate (also called "logical") hard disc. The MV Utility allows you to create up to ten volumes in the MV **partition**.

What is a Partition?

A **partition** is a storage area for volumes on a hard disc. It is a way of organizing your hard disc. In this chapter, you will create two partitions: an **MS-DOS Partition**, and an **MV Partition**.

What are the MS-DOS and MV Partitions?

The **MS-DOS Partition** is a partition that must be created on all hard discs to store MS-DOS programs. The MS-DOS Partition contains a single volume that can have up to 32 Mb in it. This means that you must do something extra for hard discs greater than 32 Mb to use the entire disc. The volume contained in the MS-DOS Partition is seen by your computer as drive C:.

With the MV Utility, you can create an **MV Partition** which can contain the rest of a hard disc above 32 Megabytes that the MS-DOS partition can't. Also, the MV partition can contain as many as ten additional volumes of *up to 32 Mb each* to enable you to use larger capacity hard discs. Look at a typical example of multi-voluming:

EXAMPLE: Let's say that you want to divide your hard disc into three volumes. After using the MV Utility to do so, the three volumes would include:

> **First Volume** - This volume is inside of the MS-DOS partition and is seen by the computer as drive C:.
>
> **Second and Third Volumes** - These volumes are inside of the MV partition and are seen by the computer as drive D:, and drive E:.

An illustration of the above example is shown in the next figure.

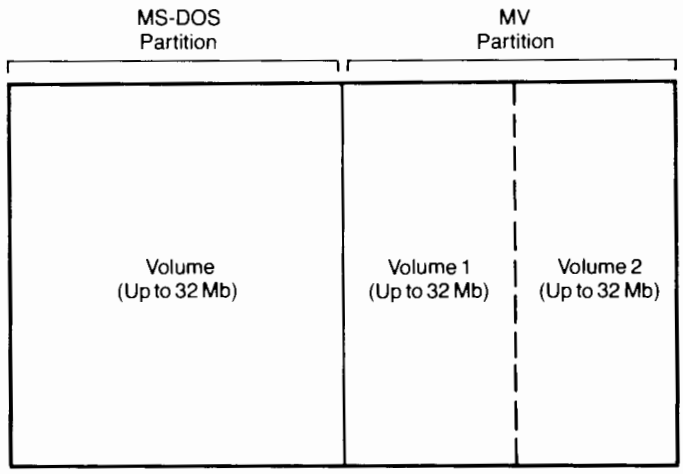

Figure 5-1. Example Hard Disc Divided into Three Volumes

Is the MV Partition compatible with my programs?

The MV Partition will work with most IBM PC/AT compatible software packages.

Can the partitions or volumes be changed later?

Yes, however, adding or changing **volumes** inside of a partition affects *all* of the data in the partition. Changing the size of a **partition** affects the *entire hard disc*. To alter a partition or a volume with data in it, copy all the data in the partition, or on your hard disc, to a separate disc first.

How are Drive Designators assigned?

In the procedures that follow, the device statement for the MV Utility is in the first line of the CONFIG.SYS file. In this case, the volumes created by the MV Utility will be assigned labels starting with "D:". The assignment of logical drive designator letters (D:, E:, etc.) of either a hard disc or virtual disc (VDISK or RAM Disc) depends on the order of the device statement(s) in the CONFIG.SYS file.

Note

If you have two hard disc drives installed, the assignment of logical drive designator labels for volumes created by the MV Utility will start with "E:".

How do I install the Operating System?

You must have first Initialized your hard disc with the SETUP program.

Next, read the following sections to:

1. Decide how to Divide your hard disc
2. Run FDISK
3. Run FORMAT
4. Run MVBUILD
5. Copy MS-DOS and PAM files
6. Alter CONFIG.SYS

Dividing Your Hard Disc

Before you begin, you must decide how you want to divide your hard disc.

1. Determine the size of your hard disc drive in megabytes (Mb).

2. Decide how you want to divide the hard disc.

   If you have a hard disc drive over 32 Mb, you MUST divide the disc into two partitions: an MS-DOS Partition that can have a volume of up to 32 Mb, and an MV Partition that can have up to 10 volumes of up to 32 Mb each.

   Here are the most common divisions of a 40 Mb disc drive:

   - 32/8: an MS-DOS Partition with a volume of 32 Mb, and an MV Partition with one volume of 8 Mb. (Recommended)

     OR,

   - 20/20: an MS-DOS Partition with a volume of 20 Mb, and an MV Partition with one volume of 20 Mb.

   If you had a hard disc of let's say 100 Mb, you would have to divide it into more volumes, for example:

   - 32/32/32/4: an MS-DOS Partition with a volume of 32 Mb, and an MV Partition with two volumes of 32 Mb and one volume of 4 Mb. (Recommended)

     OR,

- 20/20/20/20/20: an MS-DOS Partition with a volume of 20 Mb, and an MV Partition with four volumes of 20 Mb each.

Note

Dividing a hard disc into more than the minimum number of volumes required to use the disc may reduce size and overall usefullnes of each volume. Therefore, when dividing any hard disc, we recommend that you divide it into as many 32 Mb volumes as possible.

After deciding how you want to divide you hard disc, proceed to the section "Creating MS-DOS and MV Partitions and Volumes."

Creating MS-DOS and MV Partitions and Volumes

You must have already Initialized your hard disc using the SETUP Program.

Caution

Follow each step completely and in the order given.

Running FDISK

1. Insert your MS-DOS disc in drive A:.
2. If your computer is off, turn it on. If your computer is on, hold down [CTRL], and press [Alt] and [DEL] at the same time.

   The PAM Main Menu is displayed.
3. Did a disc marked "Supplemental" also come with this binder?

   - **NO.** Skip to step 4.
   - **YES.** Remove the MS-DOS disc and insert the Supplemental disc.
4. Type:

   ```
   FDISK
   ```

   then press [Enter].

5. Press [Enter] at FDISK Options menu. This selects Option 1.

   You are asked the following question:

   ```
   Do you wish to use the entire fixed
   disk for DOS (Y/N)
   ```

   GO ON TO STEP 6 TO DECIDE WHAT TO DO.

6. Choose the correct response:

   - If you want an MS-DOS Partition volume of 32 Mb (this is recommended), press [Enter] for the default (Y). Then skip to step 12.
   - If you want an MS-DOS Partition volume of less than 32 Mb, press [N] and then press [Enter]. Go to step 7.

7. The total disc space in cylinders will be displayed. Answer the menu prompt for partition size and press [Enter]. (HINT: If you are, for example, dividing a 40 Mb hard disc into two 20 Mb volumes, then approximately half the *total* number of cylinders would equal 20 Mb.)

8. Enter the starting cylinder. **It is recommended that you leave the starting cylinder as the default number (0).** Press [Enter].

9. When you see the message "DOS partition created" near the bottom of the screen, press [ESC] to exit to the FDISK Options menu.

10. You must now activate the partition by doing the following:

    - Type 2 at FDISK Options menu and press Enter. The Change Active Partition menu is displayed.
    - Type 1 to activate your MS-DOS Partition, then press Enter.

11. When you see the message "Partition made active" near the bottom of the screen, press ESC to get back to the FDISK Options menu.

12. Do you have a second hard disc drive installed?

    - **YES.** Type 5 ("Select Next Fixed Disk Drive") and press Enter. Next, go back to step 5 and work through the steps that apply to you. Then go to step 13.
    - **NO.** Go to step 13.

13. Did you insert the "Supplemental" disc in step 3.

    - **NO.** Press Enter to return to the MS-DOS prompt. Then proceed to "Running FORMAT."
    - **YES.** Remove the Supplemental disc and insert the MS-DOS disc. Press Enter to restart your computer. Then proceed to "Running FORMAT."

Running FORMAT

1. If the PAM Main Menu is displayed, press [Enter] to start the MS-DOS COMMANDS application.

2. At the A> prompt, type:

   ```
   FORMAT C: /S/V
   ```

   then press [Enter].

3. A WARNING message is then displayed. Press [Y] and then press [Enter] to begin formatting.

   Formatting begins. Formatting information is displayed.

4. Label your volume when prompted with an easy to remember name of up to 11 characters. Then press [Enter].

5. When done, the MS-DOS prompt will be displayed. You now have an MS-DOS MS-DOS Partition volume on your hard disc. Do you have a second hard disc drive installed?

   - **YES.** Now format drive D: by typing: FORMAT D: /V and pressing [Enter].

     Then go back to step 3 in this section and continue from there. When done, you will be ready to create an MV Partition and should proceed to the next section "Running MVBUILD" to do so.

   - **NO.** You are now ready to create an MV Partition. Proceed to the next section "Running MVBUILD."

Running MVBUILD

1. Did a disc marked "Supplemental" come with this binder?

- **NO.** Skip to step 2.
- **YES.** Remove the MS-DOS disc and insert the Supplemental disc.

2. At the MS-DOS prompt, type:

   ```
   MVBUILD
   ```

   then press Enter.

   The MV Utility main menu is displayed.

3. Press Enter to select Option 1.

   You are now prompted to answer some questions about the volume(s) to be created for your **MV Partition**. (Remember, you have already created your MS-DOS partition.)

   You should already know how many volumes you want to have in the MV partition, and how many megabytes (Mb) in size each volume will be. If not, you may choose the recommended settings (the ones that are displayed for you) by simply pressing Enter when prompted.

   After you have confirmed the number of volumes, and the size of each, the Volume Table menu will be displayed listing more information on your MV partition volume(s) such as Volume Size, Cluster Size, Directory Size, etc. GO TO STEP 4 NOW.

4. The Volume Table menu lists all the volumes and their statistics. You have the choice to change the values before continuing. DO NOT change these values unless you know what they mean. All options are described in the section, "MV Utility Option Descriptions" further on in this chapter.

   If all is correct, press [Enter] to select Option 5: "Alterations Completed."

5. Press [Enter] to create volume labels. As each volume comes up, you may type an easy to remember or informative title of up to 11 characters, or press [Enter] to select the default titles (default volume titles are created sequentially starting with "Volume 1"). When done, go to step 6.

6. Since nothing has been written to the disc yet, you will see the message:

```
Until now nothing has been written to the disk
  Do you wish to continue (N)
```

   Choose the correct response:

   - If you are not satisfied, press [Enter] to go back to the Volume Table menu.

   - If you are satisfied, press [Y] and then press [Enter] to create the MV Partition and format the volume(s) in it.

7. Formatting and partitioning begins. When finished, the media defects are displayed. When you are prompted to "Hit any key to continue", press [Enter].

Note

The Media Defects Table is for information only. The MV Partition automatically avoids the defects and your data is safely written to the disc.

---

8. The MV Utility main menu is displayed. Do you have a second hard disc installed?

- **YES. Type 3 ("Select next fixed disk") and press** Enter. Then go back to step 3 in this section and follow the steps as they apply to you. When done, proceed to the next section "Return to MS-DOS."

- **NO.** If you are satisfied, proceed to the next section "Return to MS-DOS." If you want to make any other changes, go to the section "MV Utility Option Descriptions" for a complete explanation of all the options.

Return to MS-DOS

When you are finished with the MV Utility, return to MS-DOS by following these steps:

1. Press the ESC key.

2. Did you insert a "Supplemental" disc in step 1 of the previous section "Running MVBUILD"?

- **NO.** Skip to step 3.

- **YES.** Remove the Supplemental disc and insert the MS-DOS disc.

3. Press Enter.

4. If the PAM Main Menu is displayed, press Enter to start the MS-DOS COMMANDS application. Proceed to the next section "Copying MS-DOS and PAM to the Hard Disc."

Copying MS-DOS and PAM to the Hard Disc

Follow these steps to copy all the files from your master disc(s) to your hard disc.

1. At the A> prompt, type:

   ```
   XCOPY A: C:
   ```

   then press Enter.

   All the files from the MS-DOS disc are transferred to the hard disc.

2. Did a disc marked "Supplemental" come with this binder?

- **NO.** Skip to step 6.
- **YES.** Remove the MS-DOS disc and insert the Supplemental disc.

3. Type:

   ```
   C:
   ```

   then press Enter.

4. Type:

   ```
   XCOPY A: C:
   ```

   then press Enter.

   All the files from the Supplemental disc are transferred to the hard disc.

5. Remove the Supplemental disc and reinsert the MS-DOS disc.

6. Type:

   ```
   PAMINSTL A: C:
   ```

   then press [Enter].

This will copy PAM files to your hard disc. When done, proceed to the next section "Altering CONFIG.SYS."

Altering CONFIG.SYS

You must now add a line to your CONFIG.SYS file.

1. Remove all flexible discs from your system. Put your master disc(s) away in a safe place.

2. Restart your system by holding down [CTRL] and pressing [Alt] and [DEL] simultaneously.

   The PAM Menu should be displayed.

3. Press [Enter] to start the MS-DOS COMMANDS application.

4. At the C> prompt, type:

   ```
   TYPE CONFIG.SYS
   ```

   then press [Enter].

5. Write down the line(s) in the CONFIG.SYS file. The line(s) should be copied *exactly* (include blank spaces). Correct spacing and punctuation is critical.

6. Save the present file in case of errors by typing:

   ```
   COPY CONFIG.SYS CONFIG.SAV
   ```

   then press [Enter].

7. Create a new CONFIG.SYS file by typing:

   ```
   COPY CON CONFIG.SYS
   ```

   then press [Enter].

   The cursor moves to the bottom of the screen.

8. Type the following device statement:

   ```
   DEVICE=MULTIVOL.SYS
   ```

   then press [Enter].

9. Now type the line(s) exactly as you wrote them in step 5. Press [Enter] after each line.

10. Hold the [CTRL] key down, and press [Z] once.

    Then press [Enter].

    If you've made any errors, you can always copy the contents of CONFIG.SAV back to CONFIG.SYS and start this procedure over.

Now, while holding down [CTRL], press [Alt] and [DEL] at the same time. The PAM Main Menu should be displayed. Your hard disc is now ready for use. Your MS-DOS Partition volume is drive C: (and drive D: if you have two physical hard disc drives installed). Your MV Partition volumes are identified alphabetically starting with drive D: (or drive E: if you have two physical hard disc drives installed). Answer the following question:

Did any additional discs with utilities or drivers come packaged in your computer hardware box(es)?

- **YES.** Install those now using the instructions that come with them. Then go to Chapter 6: "Using Printers and Plotters."

- **NO.** Go to Chapter 6: "Using Printers and Plotters."

MV Utility Option Descriptions

This section explains all the options in more detail. These options enable you to change all the parameters of your MV Partition. You can also completely delete the MV Partition and start over.

Caution

You are not able to add new volumes or change the size of a volume without affecting the whole partition and losing data. If you decide to restructure a volume with data in it, copy the whole partition to a separate disc first.

MV Utility Main Menu

After first entering the MV Utility (using the MVBUILD command), the Main Menu is displayed. Explanations for the different options you see from this menu are explained below.

Option 1: Create a Multi-Vol Partition

Option 1 is described in detail in the section following the options 2, 3, and 4 descriptions.

Option 2: Delete a Multi-Vol Partition

This option deletes the MV Partition.

Caution

If you select and implement this option, you erase all files in your MV Partition. You should ONLY use this option:

- If you have no data in your MV Partition.
- If you have first copied all of your MV Partition files on flexible discs, tape, or another hard disc drive.

Option 3: Select Next Fixed Disk

This option selects the next **physical** hard disc drive mechanism installed in your computer to divided into multiple volumes with the Multi-Voluming Utility. The MV utility refers to physical hard disc drives in the following manner: drive 0 = drive C:, drive 1 = drive D:.

Option 4: Format (Reconfigure) Volume

Use this option to reconfigure a volume to better accommodate your file sizes. This option requires a technical understanding of hard disc drive operation. Don't adjust these options unless you understand how they will affect your disc drive's performance. In Option 4 you can adjust the cluster size, number of directory entries, and number of FATs (File Allocation Tables).

Caution

If you select and implement this option, you will destroy volume data. Use this option only:

- If you have no data in your selected volume
- If you have first backed up the volume's data on flexible discs.

Option 1: Create a Multi-Vol Partition

This option is used to create an MV Partition on your disc. If you are creating an MV Partition for the first time, use procedure described in the previous section "Creating MS-DOS and MV Partitions and Volumes." The following is a detailed description of each Option 1 menu.

After pressing [Enter] to select the default (1), the Partition Parameter menu will be displayed. The table on top gives you the available space and starting cylinder of the available space.

```
Enter starting cylinder:
```

Starting Cylinder:

Enter the cylinder number where you want the MV Partition to start. Normally this will be the default number. To choose the default number just press [Enter]. To choose another starting cylinder, type that number and press [Enter]. **Selecting a non-default starting cylinder is done in special cases only.**

The next question will be displayed

```
Enter size in cylinders:
```

Size in Cylinders:

Cylinder size is the number of contiguous (adjacent) cylinders from the starting cylinder. If the MV Partition is the only other partition you want on the disc, the

default value is recommended. **Selecting a number other than the default value should be done in special cases only.**

The next question will be displayed:

```
Enter number of volumes:
```

Volume Number:

You can have up to 10 volumes. If the volume number is too high, the space in each volume will be too small to properly handle application programs and files. **If you have a 40 Mb hard disc, one volume is recommended.**

The Volume Table Menu

The Volume Table Menu displays a table of the volumes and their statistics. There is also a list of features you can alter on the table. This is the place to customize your volumes to exactly the way you want.

Carefully look over the information in the Volume Table. If the values for any volume need to be changed, see the following menu descriptions. If the information is correct, press [Enter] to select Option 5: Alterations Complete.

Option 1: Volume Size

Unless you specify otherwise, the partition's cylinders are divided evenly among the volumes. If there are an uneven number of cylinders, they will be placed in the last volume.

Note

Because there is a set number of cylinders within a partition, changing the size of one volume will change the size of the other volumes. **If you are going to change more than one volume, you MUST start from the lowest number volume and work up.** The program will automatically readjust the higher numbered volumes to make up for the changes in lower numbered volumes.

Option 2: Cluster Size

A cluster is the amount of data that MS-DOS can add or subtract from a file at one time. A cluster equals one or more sectors (512 bytes) and provides a convenient way to help group and track the large number of sectors on a hard disc.

Unless otherwise specified, default cluster sizes are distributed according to volume size. This size is sufficient for most applications, but if you are working with very large files, you may want to increase it.

To change cluster size enter a value which is in a multiple of two (such as 2, 4, 8 or 16). If you enter an incorrect value, it will be rounded to the nearest correct value.

Note

The FAT size will grow or shrink to accommodate the cluster size of each volume. For example, if you increase the cluster size of a volume, there will be fewer clusters per volume and thus a lower number in the FAT column for that volume.

Option 3: Number of Directory Entries

The directory entries number is the number of entries you can have in a volume's root directory. If the default value seems low or high for the number of entries you expect to have in your volume, you can change it.

To change the number of directory entries, enter a value which is in a multiple of 16 (16, 32, 48, 64) If you enter an incorrect value, it will be rounded to the nearest correct value. Repeat for all affected volumes.

Option 4: Number of FATs

FATs (File Allocation Tables) show which clusters are used and which clusters are still available in each volume. The size of a volume's clusters corresponds to a volume's FAT size.

Small cluster size = larger FAT size
Large cluster size = smaller FAT size

The recommended number of FATs is two.

Option 5: Alterations Completed

When you're satisfied with all the volume values, press Enter to select Option 5 and go on to the next menu.

Labeling Volumes

After selecting Option 5, you will next be asked whether you wish to create volume labels.

- To leave the volumes unlabeled, press [N] and then press [Enter].
- If you choose to label your volumes, choose the default (Y) by just pressing [Enter]. Labels can be used to describe the type of data to be stored in the volume. Labels are for your use only; MS-DOS does not reference them during its operations.

  To accept the numerical default label (Volume 1, Volume 2, etc.), just press [Enter].

  To create your own label (11 characters or less), type it in and press [Enter].

You will be prompted for each successive volume label.

Formatting

After the last label prompt, you are given another chance to make changes with the following prompt:

```
Until now nothing has been written to the disk
  Do you wish to continue (N)
```

- To redisplay the Volume Table and change your choices, press [Enter].
- To begin formatting, press [Y] and then press [Enter]. As each volume is formatted, the formatting information will be displayed on the screen.

Media Defects

When formatting is complete, the MV Utility will display a table that lists any hard disc media defects that may have been found. The head and cylinder number of each defect appears in the table. You are also informed if it finds no defects.

The Media Defects table is for information only. The MV Partition will automatically avoid the defects and your data will be safely written to disc.

Altering CONFIG.SYS

When Multi-Voluming is complete, and you've copied all of you master disc files to the hard disc, **you must add the line DEVICE=MULTIVOL.SYS to the CONFIG.SYS file on your hard disc or the computer will not be able to use the volume(s) in your MV Partition.** Refer to the section "Altering CONFIG.SYS" in this chapter.

Computer Museum

6 Using Printers and Plotters

Printers and plotters (know as peripherals) can be connected to your computer to give you printed copy of information. This information may have been created using an application such as MemoMaker or Lotus 1-2-3.

This chapter explains the ways in which your computer can be configured for use with **Parallel (Centronics interface)** and **Serial (RS-232C interface)** peripherals. Configuration is the first step to using your peripheral.

Do you have a **Parallel** or **Serial** peripheral?

- **NO.** Proceed to the *Using the Personal Application Manager* manual also in this binder.
- **YES.** Read on.

Requirements

- A Parallel, or Serial interface card must have already been installed in your computer (refer to your *System Checklist*, your *Setup Inventory Foldout*, or ask your dealer).
- Your peripheral must already be set up and connected as described in your computer's *Setting Up* manual *and* the manual that came with your peripheral.

Parallel Peripherals

Do you have a **parallel (Centronics interface)** peripheral?

- **NO.** Skip to the section "Serial (RS-232C) Peripherals" in this chapter.
- **YES.** Read on.

Printing with a parallel peripheral is relatively easy. After the peripheral has been connected to your computer, it's ready to print information (such as files and screens) in the following ways:

- In the MS-DOS environment (in PAM, or when using the MS-DOS Commands application), you may print the contents of a file by using the MS-DOS PRINT command (this command is explained in detail in the *User's Reference* manual in *Volume II* of this binder set). Or print the contents of a screen by using the keyboard's Print Screen function (on some computers you must hold down the "Shift" key and the "Print Screen" key at the same time).
- You may also print using an application (such as MemoMaker or Lotus 1-2-3). However, additional configuration may be necessary when printing from an application.

The method for using your application to configure your computer follows.

Requirements

- Your application must have a peripheral installation program that lists your printer or plotter as one of the choices.
- Your peripheral should be connected to the parallel port of your computer (if you have more than one, make sure you know which one you are connected to).

Configuring with an Application

Your application should have a peripheral installation program which configures the computer for use with your peripheral. The use of this program is documented in the manual that comes with your application.

Note

Each application you use may have its own peripheral installation program. If so, you may need to configure your printer with *each* application.

If an Application Doesn't List Your Peripheral

If your application has a peripheral installation program, but it doesn't list your peripheral as one that is supported, you may be able to select some other peripheral (or a "standard" peripheral) that has characteristics similar to yours. However, selecting a peripheral with similar characteristics may mean that some of the features of your peripheral (for example, underline, or boldface) may not work.

Serial (RS-232C) Peripherals

Do you have a **serial (RS-232C interface)** peripheral?

- **NO.** Proceed to the *Using the Personal Application Manager* manual also in this binder.
- **YES.** Read on.

To print or plot information to a serial printer or plotter you must make sure that your computer and the printer or plotter have *matching configurations*.

Configurations can be matched using one of the following methods:

- **Method 1: Configuring with an Application**
  Use an application that has a peripheral installation program to match your computer's configurations to those of a selected peripheral.
- **Method 2: Configuring with the MODE Command**
  Use the MODE Command to configure your computer to match the configurations of your peripheral.
- **Method 3: Configuring the Peripheral**
  Change the peripheral's configurations (usually switch settings) to match the configuration requirements of your application.

Read the following description of each method to decide which would be best for you to use.

Method 1: Configuring with an Application

This is the best method for matching configurations. Many applications have a peripheral installation program which matches configurations for a specific peripheral. Read on to see if you can use this method.

REQUIREMENTS:

- Your application must have a peripheral installation program.
- Know which serial port of your computer the peripheral is connected to (COM1, COM2, etc.).

Using Method 1

Run your application's peripheral installation program to configure the computer for use with your peripheral as described in the manual that comes with your application.

Note

Each application you use may have its own peripheral installation program. If so, you must run the installation program for *each* application.

If an Application Doesn't List Your Peripheral

If your application has a peripheral installation program, but it doesn't list your peripheral as one that is supported, you may be able to select some other peripheral (or a "standard" peripheral) that has characteristics similar to yours. However, selecting a peripheral with similar characteristics may mean that some of the features of your peripheral (for example, underline, or boldface) may not work.

Method 2: Configuring with the MODE Command

This method requires you to use the MS-DOS MODE command to make your computer match the configurations of your peripheral. This method is not at as easy as Method 1, and may require you to create special file.

This method is typically used to configure the computer to print the contents of a file or screen from the MS-DOS environment. Files can then be printed from MS-DOS using the PRINT command (explained in detail in the *User's Reference* in *Volume II* of this binder set). Or, the text contents of a screen may be printed using the keyboard's Print Screen function (on some computers you must hold down the "Shift" key and the "Print Screen" key at the same time).

REQUIREMENTS:

- Find out your peripheral's settings for:
  - Baud rate,
  - Parity,
  - Databits,
  - Stopbits.

  This information is found in the peripheral Owner's manual.

- Know which serial port of your computer the peripheral is connected to (COM1, COM2, etc.).

Using Method 2

You may use the MODE command to make your computer match your peripheral's configurations by doing the following:

1. If you don't have a hard disc, insert your MS-DOS work disc in drive A:. If you have a hard disc (with a copy of the operating system on it) make sure that there is NO disc in drive A:.

2. If the computer is off, turn it on. If the computer is on, while holding down [CTRL], press [Alt] and [DEL] at the same time.

3. At the MS-DOS prompt (A> if you don't have a hard disc, and C> if you do) you would first type in your peripheral's configuration settings in a form similar to this:

   ```
   MODE COM1:9600,N,8,1,P
   ```

   This example sets the computer's output at COM1 to:

   - Baud rate set to 9600,
   - Parity set to None,
   - Databits set to 8,
   - Stopbits set to 1,
   - Output set to P (Printer).

   If your peripheral is set differently, you must change the Baud rate, Parity, Databits, and Stopbits, or Output setting of the command to reflect it.

4. Next, you would redirect the output to one of your serial ports (the computer's default is to send output to the parallel port at LPT1) in a form similar to this:

   ```
   MODE LPT1:=COM1:
   ```

press Enter.

This example directs the computer's output to the serial port at COM1.

If your peripheral is connected to some other serial port, you can change the "COM" portion of the above command to reflect it (COM2, COM3, etc.).

Note

The above two portions of the MODE command are explained in greater detail in the "MODE Command" section further on in this chapter.

After typing in the two portions of the MODE command, you will be able to print files and text screens from MS-DOS. However, if you ever turn off or restart your computer, you will need to re-enter these portions of the MODE command unless you create a batch file to do it for you as explained in the "Creating An AUTOEXEC.BAT File" section further on in this chapter.

Method 3: Configuring the Peripheral

This method may be more difficult than the previous two methods and may make your peripheral run slower. This method requires you to change *both* the peripheral's configurations (switch settings) and the computer's configurations to match those required for your application.

REQUIREMENTS:

- The manual that comes with your peripheral.
- Any tools required to gain access to your peripheral's configuration switches (not all peripherals use configuration switches).

Using Method 3

Set your computer and peripheral configurations to match those specified in the documentation that comes with your application. Use the the manual that comes with your peripheral to set its configurations. Use the MODE command to set your computer's configurations.

The MODE Command

The MODE command is used to alter the configurations of your video display, serial ports, and parallel ports. In this section, only that part of the MODE command that alters your serial port configurations will be discussed. For a complete explanation of the MODE command refer to the *User's Reference* in *Volume II* of this binder set.

Configuring the Serial Port

The MODE command can be used to change the parameters and protocol of one or more serial (RS-232C) ports. The system supports four serial ports, 1 through 4. These are referred as COM1, COM2, COM3 and COM4. The following things can be changed by the MODE command for your serial ports.

Redirecting Output

This part of the MODE command allows you to redirect output from the default output port (which is the parallel port at LPT1) to one of the serial ports (COM1, COM2, COM3, or COM4). This is the first step to sending output to a serial printer. The following example command line will send characters originally intended for (parallel) LPT1 to (serial) COM1.

```
MODE LPT1:=COM1:
```

Setting Serial Parameters

The next part of the MODE command allows you to set serial communication protocol parameters. An explanation of the parameters that you must set is provided below.

Baud Rate	This parameter determines the baud rate (or speed) the serial port will operate at. It may be set to 110, 150, 300, 600, 1200, 2400, 4800, 9600, or 19200. When entering this parameter, only the first two digits need be entered, the others are ignored by MODE. For example, 12 will select 1200 baud, or 192 will select 19200 baud operation. The default setting is 2400 baud.
Parity	This parameter determines the parity used. It may be set to "N" for no parity, "O" for Odd parity, or "E" for Even parity. "E" is the default.
Databits	This determines the number of databits in each character transmitted. It may be set to either "7" or "8". The default is 7 databits.
Stopbits	This determines the number of stopbits in each character transmitted. It may be set to either "1" or "2". The default is 2 if a baud rate of 110 has been selected and 1 for all others.
P (Printer)	This optional parameter indicates that the port is being used as the system printer port, and therefore all time-outs must be continuously retried. The default has "P" disabled.

The following command line will set serial COM1 to 1200 baud, Even parity, 7 Databits, 1 Stopbit, with the "P" option.

```
MODE COM1:12,E,7,1,P
```

A continuous retry loop (specified with the P option) may be broken by holding down CTRL and pressing Break key. To disable the "P" option, re-enter the parameters, but without the "P" option. For example,

```
MODE COM1:12,E,7,1
```

disables the "P" option for COM1.

To create a special file that automatically enters these portions of the MODE command for you when you start or reset the computer, proceed to the next section "Creating an AUTOEXEC.BAT File."

Computer Museum

Creating an AUTOEXEC.BAT File

The AUTOEXEC.BAT file is a special kind of file. It allows you to automatically execute programs each time you start or reset your computer. When configuring your serial port, this batch file can automatically set the MODE command configurations for you.

The AUTOEXEC.BAT file can also be use to execute any other sequence of MS-DOS commands. For more information on batch files, refer to the *User's Reference* in *Volume II* of this binder set.

Methods for Creating the File

If no AUTOEXEC.BAT file exists on your disc, create one using one of the following methods:

- EDLIN, which is the MS-DOS line editor
- COPY CON command
- A word processing application

EDLIN is described in the *User's Reference* in *Volume II* of this binder set. COPY CON, a form of the COPY command, is described below. Instead of using COPY CON, you may also use a word processing application to create and store the file.

Note

The AUTOEXEC.BAT file must be stored in the root directory. If you do not store it in the root directory, it will not execute properly. The directions given here copy and store the file in your root directory.

Before Creating the File

Before you can create an AUTOEXEC.BAT file, you must complete the following tasks:

1. Start (or restart) your system. The PAM Main Menu should appear.

2. Select and start the MS-DOS COMMANDS application.

3. If you start your system from a hard disc, you should see the C> prompt. If you start your system with a flexible disc, you should see the A> prompt.

4. At the MS-DOS prompt, type:

   ```
   TYPE AUTOEXEC.BAT
   ```

   press Enter.

5. If you do not have an AUTOEXEC.BAT file already, you will see the following message:

   ```
   File not found
   ```

   Did you see the above message?

   - **YES.** Skip to the next section "Using COPY CON to Create a a File."

   - **NO.** Read on.

If a listing of a resident AUTOEXEC.BAT file is displayed on your screen copy it down on a piece of paper *exactly* as it appears (include blank spaces also). You will need to retype these lines when you create your new AUTOEXEC.BAT file.

To be on the safe side, rename this AUTOEXEC.BAT file by typing the following at the MS-DOS prompt:

```
RENAME AUTOEXEC.BAT AUTOEXEC.SAV
```

This is insurance in case you make a mistake - you will still have a copy of your old AUTOEXEC.BAT file (with its new filename AUTOEXEC.SAV) for reference. Proceed now to creating your new AUTOEXEC.BAT file.

Using COPY CON to Create Your File

To create an AUTOEXEC.BAT file with the COPY CON command, do the following:

1. At the MS-DOS prompt, type:

   ```
   COPY CON AUTOEXEC.BAT
   ```

   press Enter.

2. The cursor will then move to the bottom of the screen. Before you begin typing, answer the following question:

   Did you already have an AUTOEXEC.BAT file that you renamed to something else?

   - **NO.** Skip to step 4.
   - **YES.** Go to step 3.

3. Type in the lines from your previous AUTOEXEC.BAT file that you wrote down earlier. Type them in *exactly* as you copied them (include blank spaces). End each line by pressing Enter, the cursor will move down to a new line.

4. Type in the two parts of the MODE command to direct output and set the parameters of your serial port. An example of what you might type is shown below (press Enter at the end of each line to go to the next line).

```
MODE COM1:9600,N,8,1,P
MODE LPT1:=COM1:
```

5. When finished, hold down CTRL and press Z once. Then press Enter. You should see this message:

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

Your new AUTOEXEC.BAT file has been created. Next, activate the MODE commands in the file by restarting your computer. To restart your computer by holding down CTRL, and pressing Alt and DEL at the same time.

You should now be able to print files and text screens from the MS-DOS environment.

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