

Installing MSCDEX.EXE and Associated CD-ROM Device Drivers Without Using the SETUP program

Copying the MSCDEX Files

If you have a floppy-disk based system, create a bootable MS-DOS floppy disk for the MSCDEX files. You can do this by connecting to drive A, inserting your normal bootable floppy (the disk you normally use to start your computer) into drive A and a blank unformatted disk in drive B, and running diskcopy.

Next, copy the contents of the MSCDEX floppy onto your bootable floppy. Insert the MSCDEX floppy into drive A and leave the bootable floppy that was just created in drive B. Type the following to copy the files:

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

If there is not enough space to copy the files, you will have to make room on your disk by deleting unnecessary files and repeating the copy procedure.

If you have a hard-disk based system (usually drive C:), insert the MSCDEX floppy disk into drive A and type:

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

Once this is finished, you need to modify the CONFIG.SYS and AUTOEXEC.BAT files to complete the installation of MSCDEX.

Changing the CONFIG.SYS File

After copying the system files, you need to edit the CONFIG.SYS file used to boot the computer. You will need to update the file to set the last drive designator, and to add the command line to load the CD-ROM device driver. (If the CONFIG.SYS file does not exist, you will have to create it.)

Scan the contents of CONFIG.SYS to see if it contains a LASTDRIVE command line that specifies the last drive designator. You will have to add or modify this line to read:

```
LASTDRIVE=Z
```

This lets MS-DOS know that it will have to allocate enough drive records to account for the additional CD-ROM drive letters. It's a good idea to have this line as the first entry in the CONFIG.SYS file. The last drive only needs to be the largest drive letter that will be used on the system. For example, a PC with 2 floppy drives (drives A and B), a hard disk (drive C), and two CD-ROM drives (drives D and E) would only need LASTDRIVE=E.

A computer that is on a network though will typically allocate more drive records than are used so that new network drives can be added after booting.

Next, add entries for each device driver that is going to be installed. The entry will have the following format:

```
DEVICE=<driver.sys> /D:<device_name> <driver specific switches>
```

Replace the *driver.sys* parameter with the full pathname of the device driver being installed. This will include the drive letter of the bootable drive, the directory path of the device driver, and the filename of the device driver. For example, if the device driver is located in the root directory on a hard disk system that boots off drive C:, a sample entry might read:

DEVICE=C:\DRIVER.SYS /D:MSCD001

For the Hitachi driver, this should read:

DEVICE=C:\HITACHI.SYS /N:1 /D:MSCD001

The */D:device_name* parameter is the name MSCDEX will use to find the device driver.

After the device driver is installed, the system will use this name to identify the device driver. Every installed device driver must have a unique name. In addition, because of the way MS-DOS handles opening files, if a file has the same name as a device driver, then a file open call with that name will open a handle to the device driver rather than to the file. For this reason, you will want to choose a *device_name* that will not likely be used as a file

name. We recommend using names of "MSCDXXX" where XXX is three digits. This will also let the setup program locate CD-ROM device driver entries in the CONFIG.SYS file at a later date.

The remaining fields for *driver specific switches* are device driver dependent. The applicable switches are described in the documentation accompanying individual device drivers.

Changing the AUTOEXEC.BAT File

You need to edit the AUTOEXEC.BAT file to include an entry to invoke MSCDEX each time the system is booted. If your computer is on a network, the network software must be installed before MSCDEX. Otherwise the network will not install, since MSCDEX will not allow the network to be installed after it.

If your AUTOEXEC.BAT file starts up a shell program such as DOSSHELL or Windows, or runs another BAT file, make sure the line that starts MSCDEX is ahead of the line that starts your shell or BAT file. Otherwise MSCDEX will not have a chance to start the CD-ROM drives before your shell or BAT file begins.

A sample entry in AUTOEXEC.BAT to install MSCDEX would be:

C:\MSCDEX.EXE /D:MSCD000 /D:MSCD001 /M:20 /V /E

Include the drive letter of the drive containing MSCDEX and its full pathname for MSCDEX. If the previous example, MSCDEX will be in the root directory. Each device driver will have a *device_name* listed on the command line to MSCDEX following the */D:* switch. MSCDEX uses this parameter to locate each device driver. Names used must match those used for the */D:device_name* parameters for each device entry in CONFIG.SYS.

The */M:<value>* switch determines how many sector buffers MSCDEX allocates when it installs itself. The larger this value is, the more sector cache entries are available and the less MSCDEX will have to read directly from the CD-ROM drive. It is especially important that there be enough entries to cache the path table, and the more entries available for directory sectors, the less MSCDEX will have to reread the directory files. Typically, each drive should have at a minimum about 4-5 buffers per drive but the larger this value is, the better the performance will be.

Both the CD-ROM device driver and MSCDEX require small amounts of additional

memory to run which should not cause any problems. But if you find that some applications no longer run because of insufficient memory after you have installed MSCDEX, you might review your CONFIG.SYS and AUTOEXEC.BAT files to locate other entries that use memory that you might not require and can remove. For example, you might be able to free memory by eliminating entries that start the GRAPHICS or FASTOPEN programs.

There is an additional switch **/E** which tells MSCDEX to use expanded memory if it is available. The verbose switch **/V** asks MSCDEX to print additional information about memory usage during initialization.

For software that requires that the CD-ROM drive be identified by particular drive letter, you can use the **/L:<drive letter>** switch. The SETUP program does not set this switch so you will have to edit your AUTOEXEC.BAT file if this switch is needed. For example, the following assigns CD-ROM drives starting at drive letter L:

MSCDEX /D:MSCD001 /L:L

There are also two other switches: **/K** and **/S**. The **/K** switch causes MSCDEX to look for a Supplementary Volume Descriptor that identifies a shift-JIS Kanji volume for Japanese. The **/S** switch tells MSCDEX to patch MS-DOS to allow sharing of CD-ROM drives on MS-NET based servers.

End.