
Chapter 11: The PC File Transfer Utilities

This chapter describes the PC File Transfer utilities (PCMASTER.SYS and PCSLAVE.EXE) that transfer files from storage devices attached to an IBM PC, PC/XT, or PC/AT to storage devices attached to a GRiDCase, and vice versa. The programs run concurrently on a GRiDCase and on an IBM PC, PC/XT, or PC/AT which are connected by a cable attached to their serial ports.

The primary function of the PC File Transfer utilities is to transfer application programs and data files from an IBM 5 ¼ -inch diskette or a hard disk to a GRiDCase 3 ½ -inch diskette or hard disk.

The chapter covers the following topics:

- Required hardware and software
- Operational overview
- How to run the utilities
- Messages and troubleshooting
- How device letters are assigned

Serial Cable Requirements

You need the GRiD Model 6201 PCMASTER/PCSLAVE Serial Cable. Plug one end of the cable into the serial port of the GRiDCase and the other end into the serial port of the IBM PC or PC/XT.

If you already have a serial-to-serial cable and a null modem adapter (you can purchase one from an electronics store), the GRiD 6201 cable may not be required. Simply plug one end of your serial cable into the serial port of one computer, and plug the other end into the null modem adapter, and the adapter into the port of the second computer.

CAUTION: There is not a standard null modem adapter, so all null modem adapters may not work. Before you buy or use a null modem adapter, make sure the in and out pins are connected to each other as shown in Table 11-1.

Table 11-1. *Null Modem Adapter Requirements for PC File Transfer*

Pin In	Pin Out
1	1
2	3
3	2
5	20
6	20
7	7
8	20
20	5,6,8

If you are using the standard serial port on an IBM PC/AT, you will need a 9-pin to 25-pin adapter cable, included with your PC/AT or available from your computer dealer.

Required Files After start-up (boot), you designate one computer as the slave station using the PCSLAVE command; the other computer becomes the master station after you start it up; the master station controls the file exchange.

The files required at each station are listed below.

Master Station

The PCMASTER.SYS file must be on the MS-DOS diskette at the master station.

You must also create a CONFIG.SYS file at the master station; it requires the following statement:

```
DEVICE = PCMASTER.SYS [1 | 2]
```

Slave Station

The PCSLAVE.EXE file must be available on an active storage device.

NOTE: PCSLAVE.EXE and PCMASTER.SYS are shipped with the GRiD MS-DOS system files on both 3 ½-inch and 5 ¼-inch diskettes. Use the 3 ½-inch diskette on the GRiDCase internal drive and the 5 ¼-inch diskette on the IBM PC, PC/XT, or PC/AT drive.

Overview of Operations You operate the utilities from the master station using the standard MS-DOS commands. When the GRiDCase is the master station, you can specify devices at both the master and slave stations in all of the commands, except the following:

CHKDSK
DISKCOMP
DISKCOPY
FDISK
FORMAT
LABEL
RECOVER
SUBST
SYS

You can execute the above commands successfully only on devices at the GRiDCase master station.

How To Run PC File Transfer The next procedure describes how to transfer files from diskettes on an IBM PC or PC/XT to a 3 ½-inch diskette on the GRiDCase.

NOTE: The computer system that is running the most current (highest numbered) version of MS-DOS must be the master station.

To Run PC File Transfer

1. Connect the GRiD Model 6201 PC PCMASTER/PCSLAVE cable (or your own null modem cable) to the serial ports of each computer.
2. Insert system diskettes into the drives at the slave and master stations.
In Steps 3 and 4 below you designate either the GRiDCase or the IBM PC or PC/XT as the master station.
3. At the slave station:
 - Start up (boot) MS-DOS.

- If the PCSLAVE.EXE file isn't already on your system diskette, insert a diskette containing that file into a drive.
- Enter one of the following commands to activate the slave station and to indicate that the connecting cable is plugged into the COM1 port:

```
C>PCSLAVE
```

or

```
C>PCSLAVE 1
```

- If the connecting cable is plugged into the COM2 port, enter the following command to activate the slave station:

```
C>PCSLAVE 2
```

When PCSLAVE is ready, a display appears with the following messages in the center of the screen:

```
Slave station ready  
Enter commands at master station
```

At the bottom of the screen, you'll see:

Enter Ctrl-C upon completion.

NOTE: It may take several seconds for these messages to appear. Don't go to the next step until you see these messages.

4. At the master station:

- Start up (boot) MS-DOS.

NOTE: Always start up the master station *after* start-up of the slave station (Step 3). This allows the master station to accurately assign letters to the storage devices attached to the slave station.

- Rename the CONFIG.SYS file (if present), or copy it to a file with a different name.
- Create a new CONFIG.SYS containing the following statement (or add the statement to an existing CONFIG.SYS file):

```
DEVICE = PCMASTER.SYS [1 | 2]
```

where *1* or *2* refers to the serial port (COM1 or COM2) you are using at the master station. (See Chapter 5 for detailed instructions on creating a CONFIG.SYS file if you don't already know how to create one.)

- Restart (boot) MS-DOS by turning the power off, then on. Because PCMASTER is installed in the CONFIG.SYS file, power to the serial port is automatically turned on and it is configured for PCMASTER communication (9600 baud, 8 databits, 1 stopbit, no parity). There is no need to turn on the serial port power with the MODE command.
- Enter an acceptable MS-DOS command (COPY, DIR, DEL, or FC).

For example, assume that the master station is a GRiDCase and the only storage device available is an internal diskette drive. To copy all the files on the first diskette drive at the PC to the internal 3½-inch diskette drive on the GRiDCase, enter the following command.

```
A>COPY C:*. * A:
```

The device letters you specify vary with the number of devices attached to each computer. See Assignment of Device Letters below for more information.

When the master station is a GRiDCase, the power to the serial port is turned on at start-up; the power remains on until you turn it off with the MODE command, as shown in Step 6.

5. At the slave station, press Ctrl-C after completing the file transfer.
6. At the master station, do the following:
 - If you don't intend to use PCMASTER/PCSLAVE again, you should remove the DEVICE = PCMASTER.SYS statement from the CONFIG.SYS file. The statement increases the amount of main memory (RAM) required by MS-DOS.

To remove the statement, either delete the file as follows:

```
A>DEL CONFIG.SYS
```

or, if a CONFIG.SYS file existed before Step 6, restore it by entering the following command:

```
A>COPY savename CONFIG.SYS
```

where *savename* is the filename of the original CONFIG.SYS file you saved in Step 4.

- If the master station is a GRiDCase, turn off the power to the serial port by entering the following command:

```
MODE SERIAL=OFF
```

- Restart MS-DOS.

Messages This section describes the messages you can receive during a file transfer and the action you take to recover from the error conditions they describe.

Message: **Serial port specified does not exist on system**
What To Do: You issued a PCSLAVE command. Either the serial port you specified doesn't exist, or your computer does not have a serial port. To use the COM1 serial port, enter one of the following commands:

PCSLAVE
or
PCSLAVE 1

To use the COM2 serial port, enter the following command:

PCSLAVE 2

Message: **Insufficient memory**
What To Do: Check the CONFIG.SYS file for large allocations of memory for RAMDRIVE or other memory resident applications. Remove these allocations from the CONFIG.SYS file.

Message: **Initialization error**
What To Do: An error was encountered while trying to initialize the serial port. Make sure the serial cards are properly inserted in the PC or PC/XT.

Message: **PCSlave requires DOS version 2.10 or higher**
Message: The version of MS-DOS on the Slave station must be 2.10 or higher, otherwise, PCSlave will not work.

Message: **Data error reading drive x^{*}**
Abort, retry, ignore?_
What To Do: First, make sure the null modem cable connecting the serial ports of the two computers is firmly inserted. Then, enter R (for *retry*).

Message: **Not ready error reading drive x^{*}**
Abort, Retry, Ignore?_

- What To Do:** Make sure the diskette is inserted in the proper drive and the latch is secured.
- Make sure the diskette is in the drive that corresponds to the device letter you specified in the command. See the section Assignment of Device Letters below to determine which device letters you should specify.

x is a letter indicating the storage device.

File Transfer Troubleshooting

If you have problems with the file transfer utilities, be sure to check the following items.

- Ensure that you have the most current versions of both PCMASTER.SYS and PCSLAVE.EXE. A newer version of one should never be used with an older version of the other.
- Ensure that the system running the highest numbered version of MS-DOS or PC-DOS is the master station.
- Ensure that you are using a GRiD Model 6201 cable, or equivalent, such as an INMAC null modem serial cable. See Serial Cable Requirements in this chapter for cable details.
- If more than one serial port exists on the IBM PC system, ensure that the card switches are set correctly and the cable is plugged into the correct serial port.
- Ensure that the serial port specified in the PCSLAVE command is the port that the cable is plugged into. If you are in doubt about how the ports are configured, try specifying the other port; e.g. if you entered PCLSAVE 1, try entering PCSLAVE 2.
- At the PCMASTER station, ensure that the CONFIG.SYS file on the boot device contains the statement DEVICE = PCMASTER.SYS [1 | 2]. Also, ensure that the serial port configuration hasn't been changed from the system default. (This can be changed by the MODE command, printer drivers, or communications programs.) You can reset the serial port by rebooting, or by the following commands: MODE SERIAL = ON and MODE COMn:9600,n,8,1.
- Some programs bypass the file system and access disks directly. Trying to access a slave device from the master station does not work when using one of these programs. For example, FORMAT, FDISK, DISKCOPY, and DISKCOMP will not recognize devices at the slave station.

Assignment of Device Letters Device letters are assigned in alphabetical order, starting with the storage devices attached to the master station, and continue in sequence to those attached to the slave station. You can use the DEVICES command to check the device letters assigned to the slave devices. The following rules apply to the assignment of device letters.

- Letters assigned to diskette drives at the master station alphabetically precede those assigned to hard disks and other devices.
- The letters assigned to devices at the slave station follow in alphabetical order after the last letter assigned to the master station.
- The letters assigned to GRiDCase devices follow the rules and precedences described in the Owner's Guide.
- There are no logical device letters assigned to devices at the slave station.

Configuration Examples—GRiDCase Master Station

The following are examples of device letter assignments when you designate the GRiDCase as the master station.

Example 1 The master station (a GRiDCase) has only the internal diskette drive available; the slave station (IBM) has two diskette drives.

Master Station	Internal drive	A,B
Slave Station	Diskette drive 1	C
Slave Station	Diskette drive 2	D

Note: Two letters refer to the internal diskette drive, where the MS-DOS diskette usually resides. This lets you carry out commands that require a source and a target diskette in the internal drive. When you use the second drive designation letter, MS-DOS recognizes it as a "single-disk" operation.

Example 2 The master station (a GRiDCase) has two diskette drives and the slave station (an IBM) has one diskette drive.

Master Station	Internal drive	A,C
Master Station	External drive	B,D
Slave Station	Drive 1	E

Example 3 The master station (a GRiDCase) has one diskette drive and a hard disk; the slave station (an IBM) has one diskette drive and a hard disk.

Master Station	Internal drive	A,B
Master Station	Hard Disk	C
Slave Station	Drive 1	D
Slave Station	Hard Disk	E

Configuration Examples—IBM PC or PC/XT Master Station

The following are examples of device letter assignments when you designate the IBM PC or PC/XT as the master station.

Example 1 The master station (an IBM) has two diskette drives and the slave station (a GRiDCase) has one diskette drive.

Master Station	Drive 1	A
Master Station	Drive 2	B
Slave Station	Internal drive	C

Example 2 The master station (an IBM) has two diskette drives and a hard disk; the slave station (a GRiDCase) has one diskette drive and a hard disk.

Master Station	Drive 1	A
Master Station	Drive 2	B
Master Station	Hard Disk	C
Slave Station	Internal drive	D
Slave Station	Hard Disk	E