# CONTENTS--SYSTEM BASICS

**List of Figures and Tables**

## SYSTEM BASICS

This chapter contains both introductory information and information essential to using GRiD software products. The following topics are covered:

o Start-up: turning on your computer and preparing to use it.

o The File form: description of GRiD's form interface to your files for creating and retrieving the applications and data files you work with.

o Initializing Diskettes: how to prepare diskettes for storing your files.

o System configuration: configuring the system for your specific application or preferences, and steps you must take before using a printer attached to your computer.

o GRiD Software common concepts: explanation of menus and forms, use of the arrow keys, and common commands used in all of GRiD's software products.

o Backup and recovery: procedures to safeguard the data and files you create using GRiDManager, GRiD's file management program.

o Communications: an introduction to the GRiD products that let your computer communicate with other local and remote devices and where you can get more information on the products.

## Start-Up

You start up your computer by turning on the power switch. (You should first turn on any external devices--printer, plotter, or disk/permanent storage devices attached to your computer--several seconds before turning on the computer.) During the next interval, the computer loads GRiD-OS (GRiD Systems Operating System) into the main memory (RAM, or Random Access Memory) from an external storage device. Depending on your computer, the storage device may be a floppy disk, a hard disk, or ROM (Read Only Memory). When the File form appears (Figure 1-1), the computer is ready to handle your requests.

### Start-Up Devices

If you have more than one storage device attached, your computer looks
for GRiD-OS on a primary device first--either ROM, floppy disk, or hard
disk, depending on your computer.  If GRiD-OS isn't on the first device
your computer scans, it then looks for GRiD-OS on any other storage
devices attached.

When you want to use the operating system on a device other than your
primary device, you can alter the order your computer searches for
GRiD-OS, as described below.

o  To load the operating system from Hard Disk, turn on the computer
   while holding down the H (for Hard Disk) key.

o  To load the operating system from Floppy Disk, turn on the computer
   while holding down the F (for Floppy Disk) key.

o  To load the operating system from External Floppy Disk, turn on the
   computer while holding down the E (for External Floppy Disk) key.

The operating system and all start-up programs and files are loaded from
the specified device.

See Appendix A for a detailed explanation of start-up and a description
of the software files available under the "Programs" subject on your
computer.

### Required Start-Up Files

To start up your computer and use your GRiD applications you need the
files listed in Table 1-1 under the "Programs" subject.

Table 1-1.  *Required Start-Up Files*

| Title[1] | Kind | Purpose |
|---|---|---|
| CCOS | System | Controls the operations of application programs, input/output devices, and other service functions. Different versions of CCOS exist for different computer models; if you have problems during start-up or program execution, make sure the version of CCOS in "Programs" applies to the computer you are using. |
| Common | Shared | Contains routines used by all GRiD application programs. |
| Executive | Run | Displays the File form and provides interchange services when transferring from one file to another using the Transfer command.  Also provides Window Manager functions. |
| Emulator | Shared | This file is required for those computers using GRiD-OS that don't have an 80-bit 8087 arithmetic processor chip.  The processor is an option on some computers.  GRiD software requires either the processor or this file, to perform processor functions. |
| User | Profile | Performs preset functions during start-up, such as identifying a start-up file and determining the current choices in the GRiDManager Options form (current modem, printer, screen font, etc.).  Also saves a start-up window configuration and any user key definitions. |
| | | GRiD supplies the User file on the system diskette with some items set to match your hardware configuration.  You can change these items or add to them using the following GRiDManager commands: Select Start-Up File, Cancel Start-Up File, Update Options Form Choices and Options (Code-O).  For details, see the GRiDManager chapter. |

[1] Title and Kind identify the file to GRiD-OS; their functions are discussed later in this chapter.

Although the other files in "Programs" are optional, you should exercise extreme caution in removing or deleting them, or moving them to a subject other than "Programs."  You might need the file for an auxiliary function important to you.  For example, if you want to use an Epson Model FX80 printer, you must have the EpsonFX80Parallel file in "Programs."

### Backing Up Your Files

If you have not already done so, you should duplicate your System diskette (and any other application diskettes).  Store your original diskettes in a safe place, and only use the duplicates as "working" diskettes.  If a working diskette is accidentally erased or damaged, you can make another copy from the original diskette.

The easiest method of backing up an entire diskette is to use the Duplicate Media utility described in the Utilities chapter. Alternately, you can use the GRiDManager Duplicate command with wildcards for Subject, Title, and Kind.

### Warm Start-Up

Once start-up is complete, you may on occasion find it necessary to start up your computer again as you work.

You can start up the computer in one of two ways:  1) by turning the power switch off and then on again, or 2) by pressing *Ctrl-Code-Shift* and the minus (-) key simultaneously for one full second.  This method is often called a warm start-up. Some users find this method more convenient than using the power switch.  Moreover, on some computers, the processing time for a warm start-up is faster than for a cold start-up.

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## The File Form

After start-up, the first display you see on the screen of your computer is the File form (Figure 1-1).

NOTE: Your device list may look different, depending on how your computer is configured.

Figure 1-1.   *The File Form*
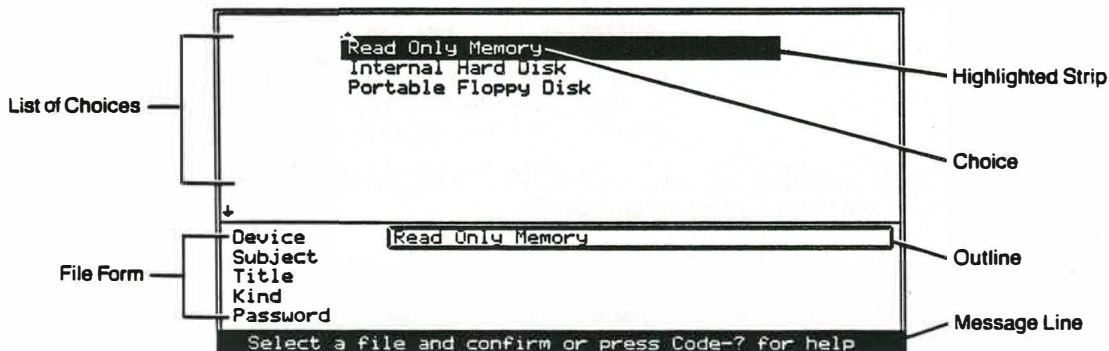
The File form is the "door" to your GRiD applications and files.  Here are some examples of what you can achieve by filling in and confirming the form:

o  Create a file and bring it and the corresponding GRiD application into memory to process the file.  For example, you fill in and confirm a File form to start work on a new worksheet, text file, or organizer.

o  Bring an existing file and its application into memory so that you can work on the file.

You fill in the File form by moving an outline and a highlighted strip, both shown in Figure 1-1.  You either type in a name--the Title of the file, for example--or select a name from the list of choices displayed at the top of your screen.

The outline surrounds the item (Device, Subject, Title, etc.) that you select or type in.

## Moving About the File Form

This section describes the keys you press to move the outline about the File form on the GRiDCase computer.  The keys you use when running GRiD-OS on other computers may differ.

You move the outline down by pressing *Return* and up by pressing *Shift-UpArrow* (Figure 1-2).  When the outline surrounds the Password item at the bottom of the form, pressing *Return* causes the outline to wrap around to the Device item at the top of the form.  When the outline surrounds the Device item at the top of the form, pressing *Shift-UpArrow* causes it to wrap around to the Password item at the bottom of the form.

Figure 1-2.  *Keys for Moving About the File Form*

| ← Home | ↑ PgUp | → End | ↓ PgDn | To move highlighted strip to choice |

| Return ↵ | To move outline to next item |

| Shift ⬆ | ↑ PgUp | To move outline to previous item |

| – Fn – | Return ↵ | To confirm selection |

| Esc | To start over |
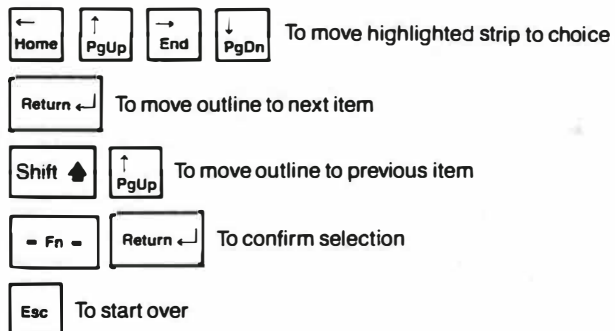
The highlighted strip highlights a choice for the item that the outline currently surrounds.  You indicate your choice by moving the highlighted strip over it.  Move the highlighted strip by pressing *UpArrow* or *DownArrow* (Figure 1-2).  For step-by-step instructions on creating or retrieving a file, refer to the Getting Started tutorial.

**File Form Help**

Pressing *Code-?* causes the File form menu to appear (Figure 1-3).  The menu shows you that there are three actions you can do at the File form: look at the File Form Overview, look at the Window Overview, or display a Usage report.

Figure 1-3.  *The File Form Menu*
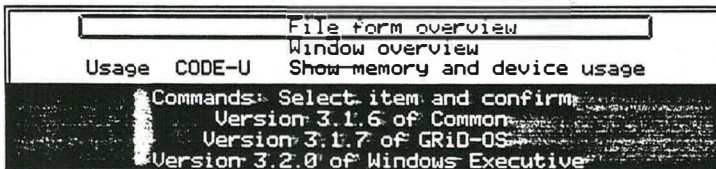


Selecting the File Form Overview item causes a Help screen (Figure 1-4) to appear, with a brief explanation of how to fill in the File form. The items in the Help screen are explained in the following subsections.

Selecting Window Overview displays a brief overview of Window Manager. For more information on Window Manager see the Window Manager chapter.

The Usage command (Code-U) displays a report that shows the space usage both in RAM and on the permanent storage devices (such as Hard Disk or Floppy Disk) currently attached to your computer.  See the Usage command in the GRiDManager chapter for details on the Usage report.

Figure 1-4.  *The File Form Help Screen*
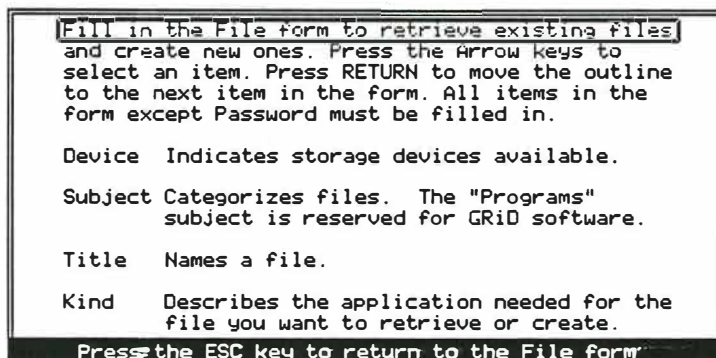
Device

Device is the name of a permanent storage device.  GRiD-OS assigns a
device name to each storage device attached to your computer at
start-up.  These names appear as choices for the Device item of the File
form.  Figure 1-1 shows an example of such a list.  For a complete list
of the device names that GRiD-OS assigns to your computer, refer to the
Owner's Guide.

You can change a GRiD-assigned device name using the Change Volume Name
command in GRiDManager.  See the GRiDManager chapter for details.

When you are connected to a file server device, you can choose among
additional storage devices.  See the documentation supplied with the
server device for information on the devices available.


*Diskette Volume Names*  GRiD-OS assigns a name--Floppy Disk, External
Floppy Disk, etc.--to each floppy disk drive.  In addition, you can
assign a volume name to each removable diskette that you use in the
diskette drive.  You use the Initialize Media program, described in the
Utilities chapter, for this purpose.  (You must run this program for
each new diskette before you can use it.)

The volume name is an internal label which the computer uses to identify
the diskette device when exchanging data.  Labeling each device ensures
that only the correct device is selected during an operation.  For
example, if you want to erase the files on a particular diskette, but
have the wrong one inserted in the drive, the computer won't continue
until you place the diskette with the correct volume name into the drive
(or press *Esc*).

Both the volume name and the name of the floppy drive containing the
diskette appear as choices on the File form.  The volume name is
indented one character to the right of the device name, as shown in
Figure 1-5.

Figure 1-5.  *Example of Volume Names as Choices in the File Form*

You can change the volume name of a diskette by using either the Change
a Volume Name command under GRiDManager or the Duplicate Media utility.

The volume names that appear initially represent the diskettes in the
drives at start-up.  You add volume names to the choices as follows:

**To Add a Volume Name to the List of Device Choices**

1.  Move the outline to the Device item of the File form.

2.  Remove any previously inserted diskette from the floppy drive you
    wish to use.

3.  Insert the new diskette whose name you wish to add.

4.  Move the outline to the device name of the floppy drive--for
    example, to Floppy Disk--where the diskette resides.

5.  Move the outline to any other File form item.

When you move the outline, the volume name of the new diskette is added
to the rest of the device name choices in the File form.

NOTE:  When you have numerous floppy diskette volume names for diskettes
you are no longer using, you can erase them by issuing the Update
Storage Device Choice command from GRiDManager as described in the
GRiDManager chapter.

### Subject

Subject is the name of a group of files that you define.  Each Subject
contains one or more Titles (described below) that identify your files.
Different Subject names let you divide your work into distinct, logical
groups.

In the example shown in Figure 1-6, a user has created Subjects for
"Expenses," "Forecasts," "Memos," "Personnel," and "Sales."

Figure 1-6.  *Sample List of Subjects in the File Form*

```
┌─────────────────────────────────────────────────────┐
│        ▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄             │
│        Expenses                                      │
│        Forecasts                                     │
│        Memos                                         │
│        Personnel                                     │
│        Sales                                         │
│                                                      │
│                                                      │
│ ↓                                                    │
├─────────────────────────────────────────────────────┤
│ Device        Marketing Budget                       │
│ Subject       ┌──────────────────────────────────┐   │
│ Title         └──────────────────────────────────┘   │
│ Kind                                                 │
│ Password                                             │
├─────────────────────────────────────────────────────┤
│ Select a file and confirm or press Code-? for help   │
└─────────────────────────────────────────────────────┘
```

If you want to specify a new Subject, move the highlighted strip to the
top of the screen and type in the name.  Then press *Return* to fill in
the next item on the File form.

On your GRiD-OS diskette, GRiD supplies you with the "Programs" subject.
The Programs subject contains the files that comprise GRiD-OS, system
utilities, GRiDManager, printer drivers, and several additional font
files for changing your screen font.  See Appendix A for a list of the
files that appear in Programs as well as a brief description of each
file and how it is used during start-up.

### Title

Title is the name you assign to a file.  If you're creating a file, move
the highlighted strip to the top of the screen and type in the name.
Figure 1-7 shows a sample list of titles that might appear under the
Forecasts subject.

Figure 1-7.  *Sample List of Titles in the File Form*

```
          ┌─────────────────────────────────────────────────────┐
          │ ▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄▄ │
          │  ┌ December                        Worksheet ┐       │
          │  │ February                        Worksheet │       │
Titles ── │  │ February                        Text      │ ── Kinds
          │  │ January                         Worksheet │       │
          │  └ Six months                      Worksheet ┘       │
          │                                                      │
          │                                                      │
          │ ↓                                                    │
          ├─────────────────────────────────────────────────────┤
          │ Device        Marketing Budget                       │
          │ Subject       Forecasts                              │
          │ Title         ┌──────────────────────────────────┐   │
          │ Kind          └──────────────────────────────────┘   │
          │ Password                                             │
          ├─────────────────────────────────────────────────────┤
          │ Select a file and confirm or press Code-? for help   │
          └─────────────────────────────────────────────────────┘
```

Kind

Kind associates your file with a particular GRiD application or system
function.  When you move the outline to the Kind item, a list of choices
appears in the upper portion of the screen.  Figure 1-8 shows a portion
of the list of choices available for the Kind item.

Figure 1-8.  *Partial List of Kind Choices in the File Form*
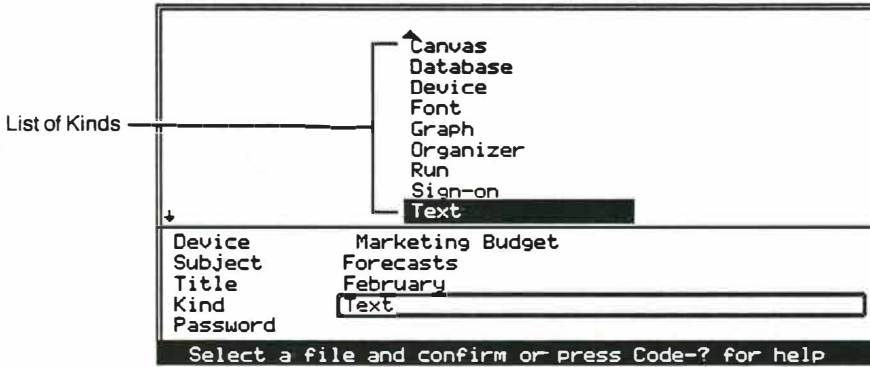


When you add a file, the Update Options Form Choices command in
GRiDManager updates the list of Kinds maintained by the system if the
Kind associated with the file isn't already in the list.

If you don't see a Kind item you need in the list, simply type in the
desired Kind.  Table 1-2 shows some of the more commonly used Kind
settings and what happens when you specify them.

CAUTION:  Make sure you have files in "Programs" that correspond to the
Kind item you use, or you will receive an error message.  The Kinds
Worksheet, Organizer, Graph, and Text, for example, require GRiDPlan II,
GRiDMaster, GRiDPlot, and GRiDWrite, respectively.

Table 1-2.  *Choices for the Kind Item of the File Form*

| Choice | Action After Confirming the File Form |
| --- | --- |
| 3101 | Makes the facilities of the GRiD3101* terminal emulator available and lets you connect to a remote host computer. Refer to the GRiD3101 User's Guide for information on this product. |
| Canvas | Brings a canvas file and the GRiDPaint* application into memory.  You can now start drawing a new image or modify an existing one on the screen.  Refer to the GRiDPaint User's Guide for information on this product. |
| Database | Brings a database file and the GRiDFile* application into memory.  You see a database table displayed on your screen. You can now start typing in or changing information in your database file.  Refer to the Analytical Tools User's Guide for information on this product. |
| Device | A file used by the system as an interface to a peripheral device.  For example, the file "Parallel" is a device driver used for operations involving the parallel port. |
| Graph | Brings a graph file and the GRiDPlot* application into memory.  You see a graph table displayed on your screen. You can now start creating a new graph or modifying an existing one.  Refer to the Analytical Tools User's Guide for information on this product. |
| Organizer | Brings an organizer file and the GRiDMaster* application into memory.  You can now use the various office tools provided by GRiDMaster such as the calendar, card file, file folders, and calculator.  Refer to the GRiDMaster User's Guide for information on this product. |
| Reformat | Brings a reformat file and the GRiDReformat* application into memory.  You can now convert data from a host computer into a format suitable for GRiD applications such as GRiDPlan II and GRiDFile.  Refer to one of the terminal emulator User's Guides for information on this product. |
| Run | Identifies a file that has executable machine code.  The code is the output of a compiler, such as the PASCAL or FORTRAN compilers.  When you confirm a File form whose Kind is set to Run, GRiD-OS brings the file into main memory; then, the program it contains starts to execute. |

| Choice | Action After Confirming the File Form |
|--------|----------------------------------------|
| Sign-on | Brings a Sign-on form and GRiDManager into memory.  You can now connect with an external file server device, and you have GRiDManager available for erasing, duplicating, moving, and performing other file-managing tasks.  See the GRiDManager chapter in this manual for details on GRiDManager |
| Task II | Identifies a file that contains a GRiDTask II* program. When you confirm a File form whose Kind is set to Task II, GRiD-OS brings the file and the GRiDTask II application into main memory; then, the GRiDTask program starts to execute.  Refer to the GRiDTask User's Guide for information on this product. |
| Terminal | Makes the facilities of the GRiDTerm* terminal emulator available and lets you connect to a remote host computer. Refer to the GRiDTerm User's Guide for information on this product. |
| Text | Brings a text file and the GRiDWrite* application into memory.  You can start typing or changing text in the file. Refer to the GRiDWrite User's Guide for information on this product. |
| Worksheet | Brings a worksheet file and the GRiDPlan II* application into memory.  You see a worksheet displayed on your screen. You can start entering or changing information in the worksheet.  Refer to the GRiDPlan II User's Guide for information on this product. |
| VT100 | Makes the facilities of the GRiDVT100* terminal emulator available and lets you connect to a remote host computer. Refer to the GRiDVT100 User's Guide for information on this product. |

*These applications can be purchased from GRiD.

### Password

Password is an identification item that must be typed in (if previously assigned) by anyone accessing that file.  It thus restricts the use of the file to only those persons who know the password.  If a password has not been assigned to the file, leave the Password item blank.  You designate a password using the Assign Password command in GRiDManager; you can change an existing password with the same command.  See the Assign Password section in the GRiDManager chapter.

CAUTION:   Don't assign a password to a file unless file security is essential.  If you forget the password, you can't recover, duplicate, erase, or move the file.  If you want to delete the file, you must reinitialize the device on which it resides (see the Initialize Media Utility in the Utilities chapter).  Reinitializing a device deletes all files on the device.

If you do assign a password to a file, use a word that is personally meaningful, thus easy to remember, but not easily guessed by someone else.

## Preparing Diskettes for Use

Before you can use a new diskette (or hard disk) to store information, you must <u>initialize</u> it.  The initializing process formats the diskette in a certain way, providing the computer with an organized means for storing and retrieving data.  To initialize a diskette or any other storage device, use the Initialize Media program, which is described in detail in the Utilities chapter.

Use the Initialize Media program with caution because initializing a device erases all information previously stored on it.  Note that you can "recycle" a previously used diskette by initializing it again; the diskette is left blank and ready for reuse.

## System Configuration

There are several system characteristics that you can set so that when your computer starts up, it is configured the way you want it.  These system characteristics include such things as a start-up file and the choices in the GRiDManager Options form (current modem, printer, screen font, etc.).  For details on these configuration items, see the following commands in the GRiDManager chapter:  Options and Select Start-up File.

All of the user settable items are stored in the file "User" with a Kind of "Profile".  If the User file is available on a disk device when GRiD-OS starts up, your personal options are automatically set for you by GRiD-OS.  However, if your User file is not available on a disk device when GRiD-OS starts up, GRiD-OS will either read a "generic" User file from ROM or will create a "generic" User file on the start-up device.  Therefore, if you have no User file on your hard disk, we recommend always placing a "user diskette" containing your User file in the diskette drive before starting up.

If you have the GRiD-OS system in ROM, you should copy the generic User file from ROM to the Programs subject on a floppy diskette or a hard disk, then restart your computer.  When the computer restarts, it reads the User file from the disk device and any changes you make to it can be

saved permanently.  (When the computer reads the User file from ROM at
start-up, any configuration changes you make are not saved permanently
since ROMs are read-only devices.)

### Printer Set-Up

GRiD products support a variety of popular printers, and GRiD supplies
software, called printer drivers, for driving them.  Before using your
printer for the first time, check the GRiDManager Options form and make
sure that the printer attached to your computer is correctly specified
in the Current Printer item of the form.  For more information about
specifying your printer correctly, see Current Printer under
Options--Code-O in the GRiDManager chapter.  The available GRiD printer
drivers are described in Appendix A.

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## GRiD Software Common Concepts

The GRiD Operating System has a number of carefully planned conventions
that make your computer and the GRiD integrated applications easy to
use.  These conventions include common commands, as well as other more
general features.  The following sections describe the more important
common concepts.

### Menus and Forms

With GRiD applications, you don't have to commit long lists of file
names, command names, choices, and options to memory.  The system does
all the work for you; it presents you with a list of choices whenever
you need to do something.  You never have to guess or memorize.  Any
options or choices about how to do something are all displayed in menus
or forms.  You simply need to select what you want to do to accomplish a
task.

In addition, once you're familiar with GRiD menus and forms, you can
type several keystrokes ahead while the computer is processing your
current command.  The computer will remember up to 40 keystrokes that
you type ahead.  If you make a mistake while typing ahead or are unsure
that your keystrokes are correct, you can cancel all the typed ahead
keystrokes by pressing *Esc*.

### Arrow Keys

In GRiD applications, you use the Arrow keys to move around menus and forms and to move or select data in files.  The Arrow keys will always get you to where you want to go.  Just hold one down long enough, or press it often enough, and you'll get there.  You can use the Arrow keys by themselves, or in combination with the *Code* and *Shift* keys.  The *Code* and *Shift* keys multiply the effect of the individual Arrow keys. Table 1-3 summarizes how to use the Arrow keys alone and in combination with the *Code* and *Shift* keys for moving around a file and for data selection.

Table 1-3.   *Using the Arrow Keys*

| Keystroke | Effect |
|---|---|
| RightArrow or LeftArrow | Moves cursor right or left one character |
| UpArrow or DownArrow | Moves cursor up or down one line or cell |
| Code-RightArrow or Code-LeftArrow | Moves cursor right or left one word or cell |
| Code-UpArrow or Code-DownArrow | Moves cursor up or down one screen |
| Code-Shift-RightArrow or Code-Shift-LeftArrow | Moves cursor to the beginning or end of the line |
| Code-Shift-UpArrow or Code-Shift-DownArrow | Moves cursor to the beginning or end of the file |

### Common Commands

GRiD software uses a set of carefully developed common commands that make GRiD applications easy to use.  The majority of GRiD common commands operate in the same way regardless of the GRiD application you are using.  The common commands make it easy to learn new GRiD applications after you've learned one, because you already know the basics.

The GRiD common commands can be organized into six functional groups: editing commands, selection commands, options commands, data transfer commands, help commands, and exit commands. Most of these commands are general to all GRiD applications, however, command availability varies according to the needs of individual applications.

The common commands are summarized in Table 1-4 and each of the functional groups is described briefly following the table. For detailed command information on individual GRiD applications, refer to the appropriate User's Guide.

Table 1-4.   *Common Commands Summary*

| Command | Function |
| --- | --- |
| Code-B | Begin a selection of data |
| Code-C | Select a column of data |
| Code-D | Duplicate a selection |
| Code-E | Erase a selection |
| Code-Esc | Cancel and don't save working file |
| Code-F | Find data |
| Code-I | Insert data |
| Code-M | Move data |
| Code-O | Set application options |
| Code-P | Set data properties |
| Code-Q | Quit and save working file |
| Code-R | Select a row of data |
| Code-S | Search for and replace data |
| Code-T | Transfer data to disk, printer, etc. |
| Code-U | Display storage and memory usage |

o  **Editing commands**  When editing a file, the following commands are available for manipulating text or other data:  Duplicate (Code-D), Erase (Code-E), and Move (Code-M).  Searching functions, if available, are provided by Find (Code-F), and Substitute (Code-S), which searches for and replaces the data specified.  Additionally, some applications include Insert (Code-I), which allows you to insert a new column in a database, for example.

o  **Selection commands**  When using many commands, you are prompted to select the data you want the command to operate on.  The selection commands allow you to select the relevant data.  The simplest way to select data is to use the Arrow keys.  To multiply the effect of the individual arrow keys, you can use them in combination with the *Code* and *Shift* keys.  Begin (Code-B) allows you to specify where you want your data selection to begin.  Additionally, some applications include Column (Code-C) and Row (Code-R), which allow you to select an entire row or column of data.

o  **Options commands**  Two commands are available that let you define certain characteristics of the application you are working with: Options (Code-O) and Properties (Code-P).  These commands cause a menu of items to be displayed that you can set to suit your needs.  Options items generally pertain to global characteristics, while Properties items generally have a more specific scope, such as the format and width of a particular column in a worksheet.

o  **Data Transfer Commands**  Data transfer commands include any command that causes data to be transferred between files or devices.  These commands are all accessed through Transfer (Code-T).  Issuing the Transfer command causes a menu of transfer functions to be displayed. Typical Transfer items include:  Save This File, Exchange for Another File, Include Another File, Append to Another File, Write to Another File, Erase a File, and Print.

o  **Help commands**  The primary help command is Code-?.  Pressing *Code-?* at any time causes a help screen to be displayed that shows and describes each of the commands available to you at that point.  (This will not affect whatever you are working on at the moment.)  Usage (Code-U) provides information on the current usage of main memory (RAM) and permanent storage devices attached to your computer. Additionally, you can use the Show Characteristics of a File item under the Transfer (Code-T) command to display information about a file, including its size and date of last modification.

o  **Exit commands**  The exit commands allow you to exit the file you are currently working with.  Quit (Code-Q) saves all changes made to your file and exits the application.  Cancel (Code-Esc) exits an application without saving any changes made to your file.  The Exchange for Another File item under the Transfer (Code-T) command lets you save (at your option) your current file and transfer to another file and application (at your option) that you specify.

With GRiD applications, you never have to worry about starting one command and then changing your mind.  To cancel any command, just issue another command or press *Esc*; you then have a fresh start.

## Backup and Recovery

CAUTION:  For the security of your files and to save yourself needless
work, you should establish good back-up and recovery procedures for your
data.

Backup is the practice of periodically copying data to other storage
media; the copied data is then available in the event the original data
is damaged or lost.  Recovery is the process of restoring files from a
back-up device if they are lost on the primary storage device.

Data can be lost either as you work with it in main memory (RAM) or
later, through the damage or loss of the permanent storage device where
your files normally reside.  The precautions you take to prevent this
loss are described in the following sections.

### Backing Up Data As You Work

The data file you are currently using resides in main memory (RAM).
Data in main memory is subject to loss through power failures, equipment
malfunction, and your own errors.  Therefore, as you work, periodically
(at least every 10 minutes) save your file on the permanent storage
device where it normally resides when you're not using it--Hard Disk,
Floppy Disk, or Portable Floppy.

You save your file by pressing *Code-T* and confirming.  This
automatically selects the Save This File item in the Transfer menu and
saves your file with any changes you've made.  (Figure 1-9).

Figure 1-9.  *Saving Data in Main Memory*
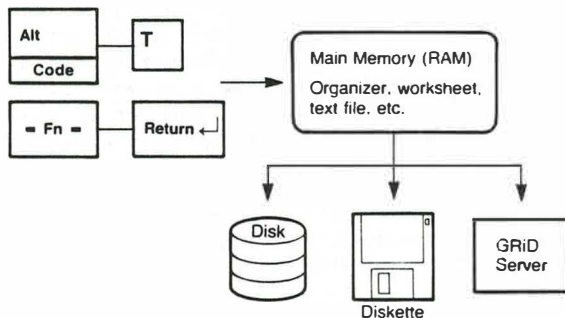
The data you are working on in main memory (RAM) is stored into the file on the device where you first retrieved it.  (Note that this method isn't necessary with GRiDMaster or GRiDFile, which automatically store revised data on the device as you enter it.)

## Backing Up Files in Permanent Storage

At regular intervals, make back-up copies of updated files from their external storage device to another storage device (Figure 1-10).  For example, if you're using hard disk, you might want to keep duplicate copies on a floppy diskette or on a file server device.  The interval of the backup depends on how often you update the file.  If you update it every day, you might want to duplicate it at the end of each workday.

Figure 1-10.  *Backing Up Files in Permanent Storage*
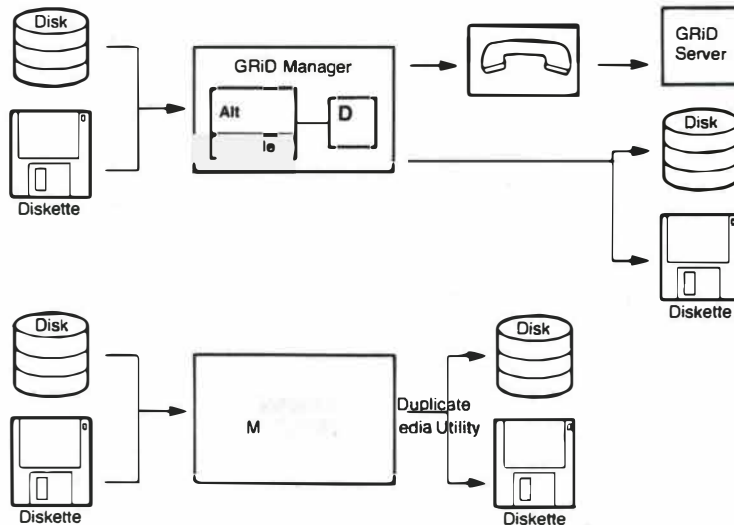


Here are some guidelines to consider in planning your back-up and recovery procedures.

o  Make back-up copies of files that would take a long time to recreate.

o  Make back-up copies each time you make changes to the original file.

o  When backing up sensitive data, consider the security of the back-up device.  For example, if your back-up copy is on a Floppy Disk, keep the diskette in a safe place (in a locked cabinet or at home, for example).

o  Keep a record of when you make back-up copies.  For example, write
   the back-up date on the diskette label.  If you lose the original
   file, you'll want to know the last back-up date.  (You can also get
   this information with the Show Characteristics of a File item under
   the Transfer (Code-T) command.

*How to Make Back-Up Copies of Files*  The most efficient way to back up
multiple files is to use the Duplicate Files command (Code-D) and the
Wildcard character (Code-W) in GRiDManager.  For descriptions and
examples of both the Duplicate Files command and the Wildcard character,
see the GRiDManager chapter.

If you wish to back up an entire floppy disk to another floppy disk and
you have only one floppy disk drive, you must use the Duplicate Media
utility.  See the Utilities chapter for a description of this utility.

## Recovering Data

The following describes alternative actions you can take if you lose
data while working with your files.

o  Reselect the original file if you lose data while working in main
   memory (RAM).  The data will be either in its original state or as
   you last saved it with Code-T.  If, as you are working, you want to
   restore the original file and throw away any changes you have just
   made, press *Code-Esc* and confirm; then reselect the original file.

o  Use the Duplicate files command (Code-D) in GRiDManager to restore
   back-up files into their original files.  You can recover in this way
   data that is backed up on Hard Disk, Floppy Disk, or a file server
   device.

o  Use the MediaRepair program to attempt to repair damaged storage
   areas and to provide a report on the results.  A variety of
   incidents--power failures, physical damage, etc.--can cause files to
   be lost or irrecoverable.  See the Utilities chapter for information
   on MediaRepair.

o  Use the GRiDFile Repair utility to repair or restore damaged database
   files--for example, database files in which you inadvertently erase
   records.  Refer to the Analytical Tools User's Guide for information
   on GRiDFile Repair.

o  Use GRiDTerm, GRiD3101, GRiDVT100, or another terminal emulator to
   restore files you backed up on a host system.

## Communications

You can use your computer to exchange data with a variety of external systems or devices.  The purpose of this section is to briefly describe these systems and tell you where you can get more information about them.

### GRiD Server Devices

GRiD Server is a powerful, modular file server system that allows up to 58 users to share storage, printing, and other input/output devices.  In addition, GRID Server users have access to the GRiDMail Electronic Mail System.  GRiD Server may be accessed locally through a cable or remotely over telephone lines.  Refer to the GRiD Server User's Guide for GRiD-OS Users for more information on GRiD Server.

You connect with GRiD Server by creating a file whose Kind is set to Sign-on, and then filling in and confirming the applicable forms.  See the Sign-on section in the GRiDManager chapter for details on filling in the forms.

You fill in the forms only once.  When you exit and save them, all the information you typed in (except your password) is saved.  Later, when you select the same Sign-on file, the forms are available as you filled them in; you need enter only your password.

When the sign-on is completed, you have the facilities of GRiDManager available, allowing you to erase, move, and duplicate files between your computer and GRiD Server.  See the introduction to the GRiDManager chapter for an overview of what you can do with GRiDManager.

When you finish your work GRiD Server, you must use the Sign-off command in GRiDManager to disconnect.

### Terminal Emulators

GRiD Systems provides terminal emulator programs that transform your computer into an intelligent terminal.  Using these programs, you can access remote host systems, use their applications, retrieve data, and then use the data as source information in your worksheets, database files, and graphs.

The following terminal emulator products are available:

o  GRiDTerm, which gives access to public sources such as Dow Jones, the SOURCE, and Compuserve, as well as your own firm's mainframe computer.  See the GRiDTerm User's Guide for more information on this product.

o   GRiD3101, which transforms your computer into an IBM 3101 Display
    terminal, and gives you the ability to communicate with a host system
    that supports the IBM 3101.  Refer to the GRiD3101 User's Guide for
    more information on this product.

o   GRiDVT100, which transforms your computer into a DEC VT100 terminal,
    giving you the ability to communicate with a host system that
    supports DEC's VT100, VT101, and VT102 terminals.  Refer to the
    GRiDVT100 User's Guide for more information on this product.

In addition, GRiD Systems provides GRiDReformat, a program that converts
the data you receive with a terminal emulator into a format suitable for
one of the GRiD applications (GRiDPlan II, for example).  GRiDReformat
is described in the user's guide provided with each terminal emulator.