

OsborneMcGraw-Hill

# C-64<sup>®</sup>

## TELECOMMUNICATIONS

Jonathan Erickson

The cover features a dark teal background. A large, bright orange semi-circle is positioned in the lower-middle section. Overlaid on this and the background are numerous diagonal lines in various colors, including purple, blue, cyan, yellow, pink, and light blue, creating a dynamic, geometric pattern.



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**C-64<sup>®</sup> Telecommunications**



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**Jonathan Erickson**

**Osborne McGraw-Hill**  
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**This is for Asher.**



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## Introduction

If you are like people everywhere who own and use a C-64, you've probably done all of the things people do with their home computers: play video games, balance checkbooks, write letters, learn how to program. Yet you still may be asking the same question millions of other people are asking: "Yes, but what else can I do with my home computer?" The answer to that question (or at least part of it) can be summed up in one word — *telecommunications*.

What is telecommunications? It is the "talking" between two computers over the telephone lines. Actually, the computers don't talk any more than telephones talk. You do the talking, but instead of speaking into a microphone, you "talk" by typing on the C-64 keyboard.

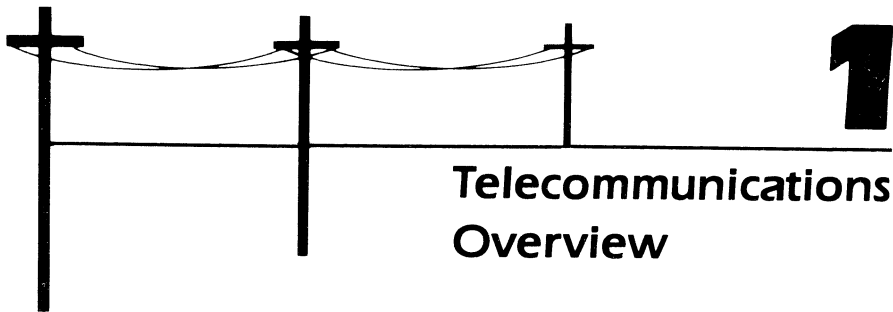
What do computers have to talk about? Well, that's what this book is about. They talk (or more precisely, they let you talk) about everything from sports to the stock market, or from programming to politics. But when computers are connected to the telephone, a lot more than just "idle digital chatter" can take place. You can also send mail to an acquaintance, do your Christmas shopping, go to college, play a game with someone on the other side of the country, and more.

Before any computer-to-computer communication can take place, however, your C-64 must be outfitted with certain hardware and software. The primary hardware required is a *modem* that connects the telephone to your computer. A

special computer program, called *communications software*, is also needed. C-64<sup>®</sup> *Telecommunications* focuses on the use of the Commodore Automodem 1650 and the CompuServe C-64 Vidtex communications program. These two products were chosen because they are reliable and they have the most widely used C-64 communications options. Nevertheless, Appendixes A and B of this book describe other hardware and software communications devices available to you.

This book begins with a general introduction to telecommunications: what it is, what you need, and what you can do. Next, C-64<sup>®</sup> *Telecommunications* will show you how to get started, including hardware connections and telephone dialing instructions. After that, specific telecommunication applications will be introduced along with step-by-step procedures. Finally, hardware and software options are provided.

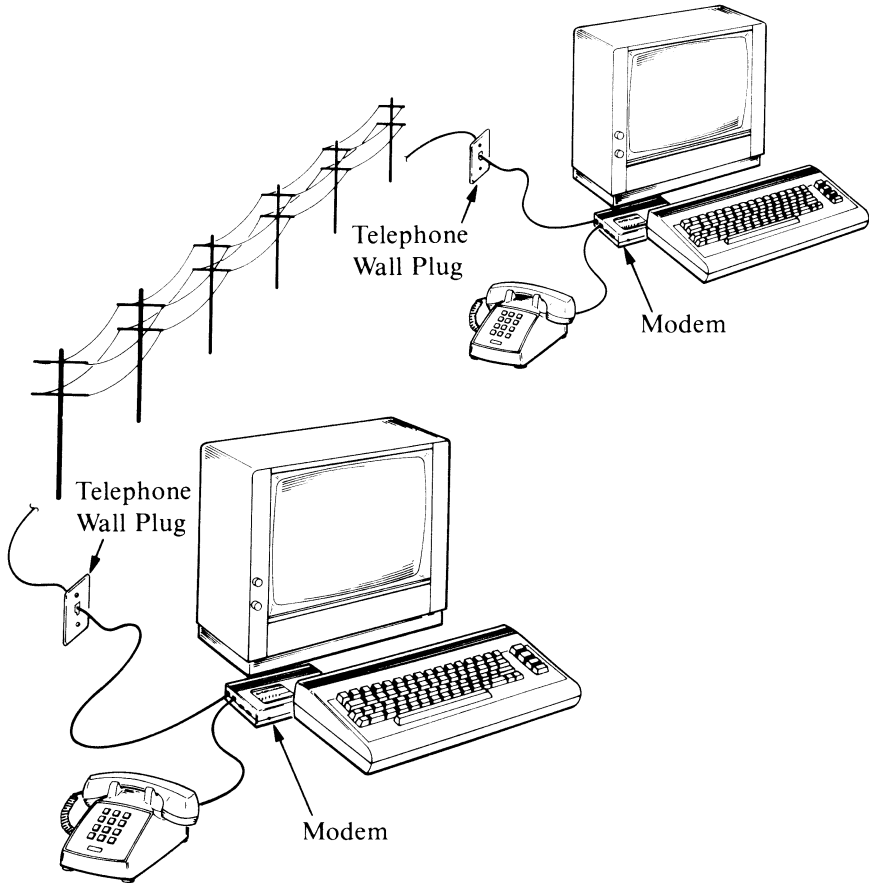
Telecommunications information services and telephone networks described in this book (such as CompuServe, The Source, and others) require specific procedures and display specific prompts and menus. At the time of this book's publication, this is the way the screens appear. However, the prompts and menus used by a specific service can and do change. Therefore, a screen or procedure may not be the same as described in this book, but don't worry. Just use the service's "help" feature to learn how to use the prompts and menu.



*Telecommunications* is the exchange of information that occurs when two or more computers are “talking” to each other over telephone lines. The type of computers they are and the distance between them doesn’t matter. Your C-64 can just as easily communicate with a multi-million-dollar mainframe computer located on the other side of the country as it can with another C-64 down the block.

When you look at the rear panel of your C-64, you see connectors for a television, disk drive, game controllers, and other devices. What you don’t see, however, is a connector for a telephone. That’s because a phone does not directly connect to a C-64. Instead you must first connect a *modem* (a device that converts information the computer understands to information the telephone understands) to the computer and then connect a telephone line to the modem. And although you can’t see it, you can be sure that the computer on the other end has a similar setup no matter what type of computer it is. Figure 1-1 illustrates a typical telecommunications system.

In addition to the modem, the only other requirement for C-64 telecommunications is a *communications program* that contains instructions (such as the speed



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**Figure 1-1.** C-64 telecommunications

at which information travels over the telephone line) needed for your C-64 to communicate with other computers. The medium on which the instructions are stored takes different forms. The Term 64 program that comes with Commodore's Automodem, for instance, is stored on a cassette tape, while CompuServe's Vidtex program is on a 5 1/4-inch diskette. Chapter 2 describes the features of typical communications programs.

## MAKING THE TELECOMMUNICATIONS CONNECTION

The steps you take to prepare for telecommunication are straightforward and relatively simple. First, connect a modem to your C-64; then connect a telephone to the modem. Next, turn on your computer's power and load the communications program. Once the program's opening message is on the screen, set the communication instructions to match those of the computer that you are going to talk to. Finally, dial the phone number of the other computer and begin communicating (or *telecomputing*, as it is sometimes called).

What you do after that depends on the other computer. If you are communicating with a friend down the street, you may begin typing to each other on the keyboard. However, if you are talking to an information service, you'll more than likely be required to type in a *password* before you can continue. Obviously, if you don't have a password or if you type an incorrect one, you can't gain "entry" to the information the other computer is storing.

## WHAT YOU CAN DO WITH TELECOMMUNICATIONS

Making that initial teleconnection is like opening a door to a new world for your C-64. At your fingertips are literally thousands of computerized *databases* (organized collections of information or data) containing an almost unbelievable amount and variety of information and services. Everything from free computer games to highly specialized scientific data is available. (For a description and directory of computerized databases, see *Answers Online: Your Guide to Informational Databases* by Barbara Newlin [Osborne/McGraw-Hill, 1985].)

Generally there are two types of computerized databases: those providing information and those offering services. Some provide both. A typical information-only database might give you the latest stock quotes and nothing more. A service-oriented database, on the other hand, might let you actually buy and sell stocks from your C-64 keyboard.

Many databases are "free," so accessing the other computer's information or services doesn't cost you anything. Free databases are usually computer-based *bulletin boards* that serve as message or software-exchange centers. In most cases, these systems are set up and monitored by an individual or club. Their phone numbers are rarely toll-free, however, so even though these bulletin boards are free, you'll have to pay for long-distance calls.

The large, commercial databases charge you for their information and services. These charges are usually based on the amount of time you spend *on-line* (that is, the time you are connected to the database's computer) just as the telephone company charges you for long-distance calls. Typically, you don't have to make a

## 4 C-64 Telecommunications

long-distance call to access the service's computer since most services provide a local access number (even though the actual computer may be far away).

For the most part, computerized databases provide information and services that fall into one of the following categories: bulletin board systems, general information services, specialized information databases, library or encyclopedic databases, and specialized commercial services.

### Bulletin Board Systems

Computerized bulletin boards are an ideal introduction to telecommunicating. Although the information and services they provide are sometimes limited or specialized, the format in which you use them is generally the same. Once you've used one bulletin board, you shouldn't have any trouble using another.

Most local bulletin board systems (BBS) are operated by computer users groups, computer stores, or individuals who simply enjoy telecommunicating. A computer store, for instance, might provide a classified message board for customers who want to sell or trade used computer equipment and for advertising new products of its own. Sometimes you can even place an order for items and have them mailed to you via the bulletin board. (Chapter 14 lists several bulletin board systems that will let you contact other people who are interested in C-64 telecommunicating.)

One advantage of local bulletin boards is that they can usually be accessed free of charge, so experimentation is cheap. Most boards request that you limit your on-line time to 20 or 30 minutes per session so that other people can use the system too. Still, it is sometimes hard to find a local bulletin board (check with a local computer users group or store), and when you do find one, the phone line is often busy or a long-distance call is required to access it.

### General Information Services

There are two giants in the general information service category: CompuServe and The Source. Both of these databases provide the widest range of information and services available to the general public (hence, they are often referred to as *information utilities*). Once on-line with either service, you can play games, read the newspaper, "talk" with other telecommunications enthusiasts, buy a car, send electronic mail, make airline or hotel reservations, and much, much more.

A general information service typically charges for on-line time the same way the telephone company does. If you call during *prime time* (normal business hours), the rates are higher than if you go on-line during *off hours* (in the evening or on weekends). Prime-time rates can be as high as \$25 per hour, while off-hour usage can be as low as \$5 per hour.

If you are new to telecommunicating, subscribing to a general information service like CompuServe or The Source is a good way to become acquainted with



on-line databases. However, you'll want to become familiar with the service's instruction manual before you go on-line, or you may end up spending your money in "wandering" around the maze of the service.

## Specialized Information Databases

Many on-line services provide information that is much too specialized for the general public; consequently, these are referred to as *specialized information databases*. An example of a specialized database is WestLaw, a service that furnishes legal citations and information to lawyers. Among the many other specialized databases are EnergyNet, Pharmaceutical News Index, and World Aluminum Abstracts.

Obviously, databases like these usually don't have information that is of much interest to the layperson. Some even require that subscribers be members of a specialized technical group or organization. (Only members of the American Bar Association can subscribe to WestLaw, for instance.) Because there are fewer subscribers to specialized information services, their access rates are usually much higher than those of general utilities. Some, in fact, charge as much as \$100 per hour.

## Library or Encyclopedic Databases

Students and others in need of in-depth research information will find encyclopedic databases highly useful. Databases in this category can be thought of as card catalogs that store an incredible amount of information. Dialog, for instance, contains more than 75 million records in such areas as business, agriculture, medicine, science, and energy. Even considering the millions of entries, however, you can still search through Dialog's catalog much faster than a much smaller card catalog in a regular library. In most instances, these services provide only bibliographic data, citations, and abstracts. When an article interests you, a printed copy can often be mailed to you if it cannot be transmitted electronically.

While many encyclopedic databases are geared for serious research, Dialog and the Bibliographic Retrieval Service (BRS) provide services for the home-computer user at reasonable evening rates. Knowledge Index, for instance, is Dialog's home-computer service, while BRS offers BRS After Dark.

## Commercial Services

Banks, department stores, stock brokerages, and other businesses are increasingly making their services available to home-computer users. Instead of distributing information, these businesses usually provide services. Telecommunicating with

stock brokerages like C.D. Anderson and Company, Texas Securities, or the Chemical Bank lets you buy and sell stocks or bonds and open IRAs directly from your C-64 keyboard. By communicating with the home-banking services of many banks, you can pay your mortgage, utilities, credit-card accounts, department store charges, and other bills. In a few large cities you can even call up a computerized food market, order your groceries over the C-64, transfer the money from your bank account to the market's, and have the goods delivered to your home by the end of the day.

The cost of these services varies. In most cases there is a minimum monthly charge (about \$10) for having access to the service; in addition, you may also have to pay for on-line time.

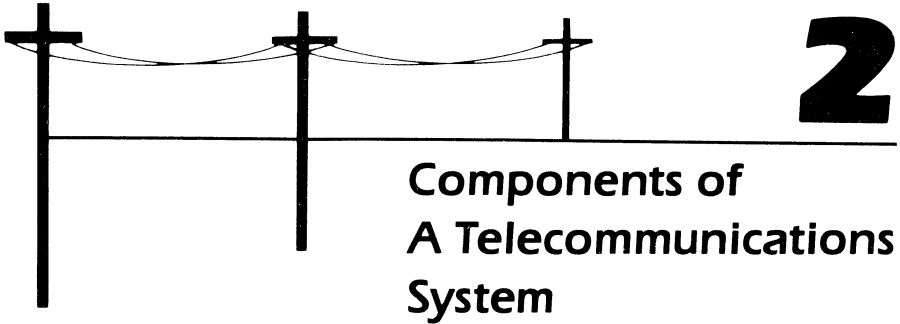
## OTHER TELECOMMUNICATIONS APPLICATIONS

Information and services are by no means the only applications for C-64 telecommunications. Another is *telecommuting*, which allows employees to stay at home and work on a computer instead of commuting to an office. An employee using a computer like the C-64 can either communicate on-line with an office computer or else perform work off-line (that is, before beginning communication) and then send it all at once over the modem to the office. Telecommuting offers advantages to both the employee and the employer. The employee doesn't have to fight traffic, worry about finding a babysitter, or arrive late for work. Employers, on the other hand, don't have to worry about providing valuable office space or whether or not a worker will show up on time.

Large corporations involved in data entry and information manipulation, including Blue Cross/Blue Shield, Control Data Corporation, and Aetna Insurance Company, have found that telecommuting is an efficient way to get work done. Telecommuting has also proven to be an ideal way of starting up a small business that doesn't require storefront contact with the public: overhead is low, hours are flexible, and the opportunity is great.

An even more recent development is on-line universities like the Electronic University. These "schools" allow you to earn college credits from your C-64 keyboard without leaving home. This is especially useful for handicapped people, for students who live far from colleges, and for part-time students in general.

As you read this book, you will discover that these applications are only an introduction to what may be the most interesting and practical way you can use your C-64. And since information services add new features almost daily, you and the world of C-64 telecommunications can grow together.

A stylized graphic of a telephone line with three utility poles and a large number 2. The graphic consists of three vertical poles connected by a horizontal line, with a curved line representing the telephone wire above it. To the right of the poles is a large, bold number '2'.

## Components of A Telecommunications System

As the previous chapter pointed out, a telecommunications system consists of two or more computers exchanging information over telephone lines. Each computer in the system must be connected to a modem, which in turn is connected to the phone line. Furthermore, each computer must be running a communications program.

It isn't necessary that all of the computers in the system be the same kind. A multi-million-dollar IBM computer, an IBM PCjr, a C-64, an Apple IIc, and any number of other computers can all be connected in the same telecommunications system. Nor is it necessary for modems to be the same. If you are using a Commodore Automodem 1650, for example, you can telecommunicate with someone who is using a Volksmodem or a Hayes SmartModem.

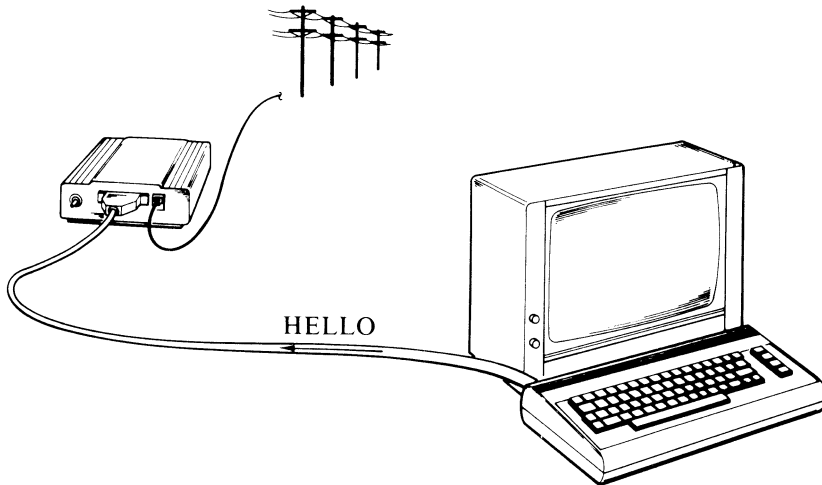
Nevertheless, there are certain requirements that must be met before telecommunications can occur. These requirements involve the hardware (that is, the computer and modem), the software (the communications program), and the way in which the two interact.

## C-64 TELECOMMUNICATIONS HARDWARE

The hardware elements that make up a C-64 telecommunications system include a C-64 computer, a modem (such as the Automodem 1650), and a telephone. And while a disk drive or Datasette recorder isn't actually required for communications to take place, you need at least one of them in order to load the communications program into the computer. They can also be used to store files that are sent or received over the telephone.

### The Computer

All information that is telecommunicated by your C-64 is sent or received in *serial* form. This simply means that each piece of data (such as the letters in a word) enters or leaves the computer in a single row — one character at a time.

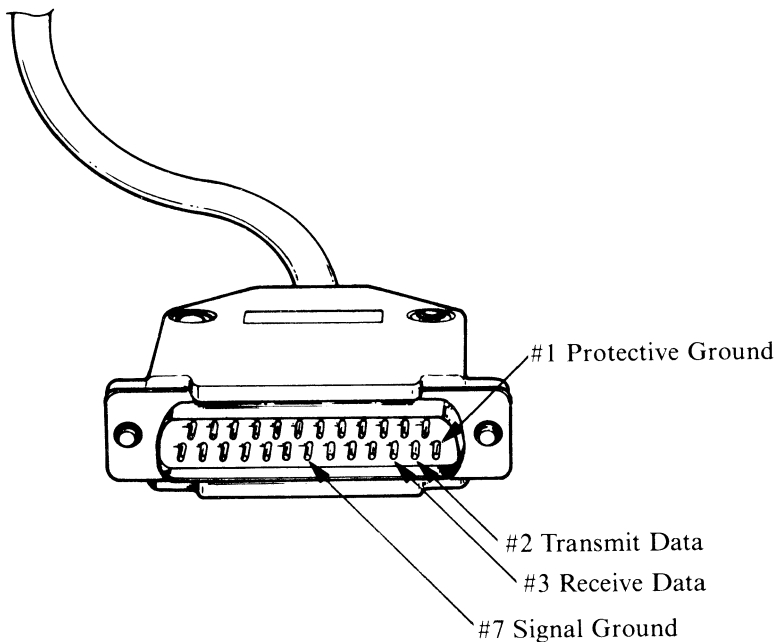


Each character (like the letter H in the word “HELLO” above) is a *byte*, and each byte consists of seven or eight *bits* (short for *binary digit*, which is either a 0 or a 1). While a mathematician may think of a bit as the number 0 or 1, the C-64 recognizes it as an electrical voltage pulse (or signal) like that which is activated when a switch is turned on. The principle is much the same as with Morse code, only here the signal is much faster and much more flexible. These voltage signals travel over wires from one computer to the other. The combination of the binary data bits 0 and 1 defines the characters being transmitted. The letter A, for instance, is 01000001, while the letter B is 01000010. An electronic computer doesn't understand 0's or 1's, however; it only understands electrical signals.

Most personal computers use a standardized form of serial communications to transmit electrical signals called the *RS-232C* standard. RS-232C refers to two elements in the communication process: the numbering sequence that identifies the wires transmitting the electrical signals, and the voltage levels of the signals themselves. Almost every modem, personal computer, or computing device with serial communication capability uses the RS-232C standard.

A typical RS-232C cable has 25 wires, each of which is designated for a specific purpose. Four wires (or *pins*, as they are referred to) are required for basic communication: pin #3 receives data from the other computer, pin #2 transmits data to the other computer, pin #1 is the protective ground, and pin #7 is the signal ground. (See Figure 2-1.) If these four pins of the serial connector of a modem are connected to the four pins in the serial connector of a computer, communication can occur. The other 21 pins are sometimes used and sometimes not—it depends on the specific computer application.

In RS-232C serial communications, the computer sends or receives only two types or voltage levels of electronic signals: those between +3 and +12 volts and



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Figure 2-1. Typical RS-232C connector

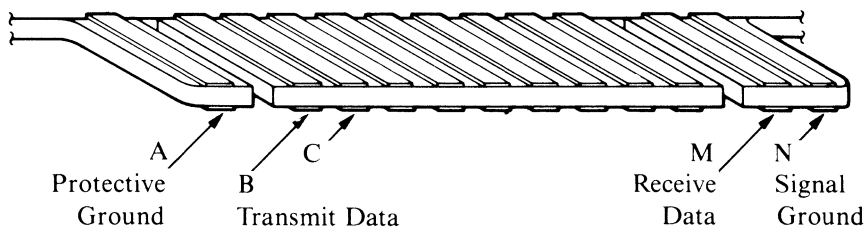
those between  $-3$  and  $-12$  volts. The computer interprets voltage levels between  $+3$  and  $+12$  as 0 and the levels between  $-3$  and  $-12$  as 1. Anything between  $-3$  and  $+3$  simply indicates that a change is occurring. If you are interested in learning more about serial communications, see *The Osborne/McGraw-Hill Guide to IBM® PC Communications* by David Kruglinski (Osborne/McGraw-Hill, 1984).

## Serial Communications and the C-64

While most personal computers use the RS-232C standard, some computers do not. The C-64 is one that does not. The C-64's *user-interface port* (located on the computer and used to connect different hardware devices) uses different pin connections and different voltage levels from RS-232C ports: pins B and C send data, pin M receives data, pin A is the protective ground, and pin N is the signal ground. The other pins have different assignments. See Figure 2-2.

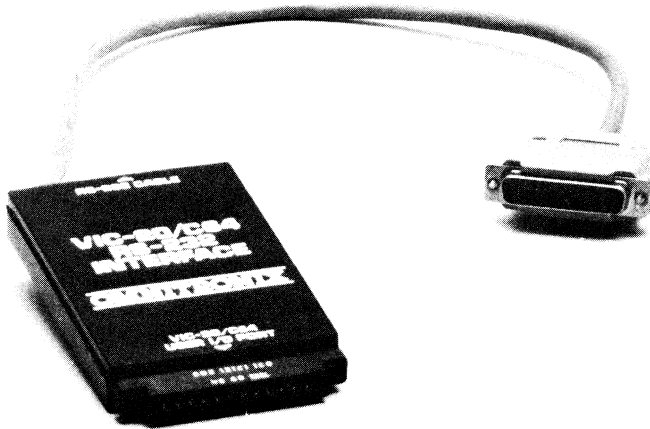
Also unlike RS-232C, the voltage levels and polarity of signals are generated by a circuit design called *TTL* (Transistor-Transistor Logic). While an RS-232C circuit requires a plus or minus range of 12 volts, a TTL circuit only requires 0 or  $+5$  volts. The polarity of a TTL signal is just opposite that of a RS-232C signal; that is, while a  $+12$  RS-232C electrical signal generates a 0, a  $+5$ -volt TTL signal generates a 1. Therefore, the C-64 interprets 0 volts as a binary 0 and  $+5$  volts as a binary 1. (The C-64 uses TTL logic because it is cheaper to incorporate into the design and manufacturing of a computer. This is one reason the C-64 is one of the least expensive home computers available.)

If you are using a Commodore modem, you really don't have to worry about the type of connector or the voltage level and polarity of the electrical signals. Both the Automodem 1650 and the Vicmodem 1600 are designed to connect directly to the user-interface port and use TTL signals. However, if you wish to use a non-Commodore modem that adheres to the RS-232C standard (most modems




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**Figure 2-2.** C-64 user-interface port



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**Figure 2-3.** RS-232C adapter for the C-64

are of this type), you will have to use a special interface adapter like the one shown in Figure 2-3.

This adapter has a Commodore-type connector on one end and a standard RS-232C connector on the other. In between are wires that connect the C-64 pin M to RS-232C pin #3, pin N to pin #7, and so on. Circuits that lower or raise the voltage levels and that reverse polarity are also included in the adapter. Appendix A describes similar adapters and modems that can be used with them.

## The Modem

Telephones and computers both depend upon electrical power to transmit information. Their similarities end there, however. In addition to their physical appearance and internal electronic components, the electrical signals generated by the two devices are much different. A telephone generates and uses *analog signals* (sound waves), while a computer generates *digital signals*. If you were to see the two signals on an oscilloscope (an electronic measurement device that lets you



a. Digital (computer) signals



b. Analog (telephone) signals

---

**Figure 2-4.** Digital versus analog waveforms

view electrical signals on a TV-like screen), they would look like those shown in Figure 2-4.

It isn't feasible to send digital information over phone lines or, for that matter, for digital computers like the C-64 to understand sound waves. Consequently, if you want to connect a computer to a telephone, one or both of the signals must be converted.

The modem's basic role is to convert analog and digital signals. When digital information is sent from the computer to the telephone, the modem simply converts the data to analog signals, or sound. This conversion process is called *modulation*. When information is sent from the telephone to the computer, the opposite process, *demodulation*, occurs: the modem converts the analog data to digital information. As you may have noticed, the name *modem* is a contraction of the two terms *MODulation*/*DEModulation*.

## TYPES OF MODEMS

Generally speaking, there are two types of modems: *direct-connect modems* and *acoustic couplers*. Any type of modem that electronically links a computer to the phone (via direct wires or cables) is a direct-connect modem. The Commodore 1600 and 1650 modems are variations of the direct-connect type in that they are cartridges that plug into the user-interface slot on the back of the C-64. Other types of direct-connect modems are linked to the computer by a wire or cable. Figure 2-5 shows examples of direct-connect modems.

The C-64 can also use acoustic couplers. These don't require direct connection to the computer. Instead, the telephone headset is inserted into the modem's rubber cups (see Figure 2-6).

Direct-connect modems are superior to acoustic couplers for almost every telecomputing application: they are usually easier to use, less expensive, and (most important) more reliable.

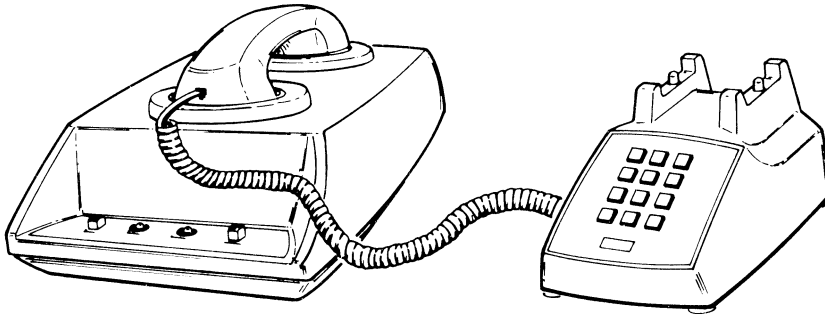
If you are just getting started with telecommunications, one of the Commodore modems, preferably the 1650, is the best to use.





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Figure 2-5. Typical direct-connect modems



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Figure 2-6. Acoustic coupler

## MODEM FEATURES

There are many features available on modems. Obviously, you'll pay more for the modem loaded with enhancements than you will for a basic model. For example, both the Vicmodem 1600 and the Automodem 1650 plug directly into the C-64, but you'll have to pay more for the 1650 because it has additional features.

Some modem features are mandatory; others are simply enhancements. This section will describe some common features; after that, it is up to you to decide which features you need.

**300 Versus 1200 Baud** *Baud rate* is the speed at which data transfer occurs and is measured in *bits per second* (bps). (Remember that a single character is made up of eight bits, or one byte.) The most common telecommunication speed for personal computers is 300 baud (about 30 characters per second). Virtually all of the computerized bulletin boards and information services send and receive data at 300 baud. Although it isn't nearly as common, some services communicate at 1200 baud (or about 120 characters per second).

Most low- to medium-priced modems (\$50-\$200) transmit at 300 baud *only*. If you are using a C-64 for telecommunications, it's certainly doubtful that you'll ever require 1200 baud. All of the procedures described in this book use 300 baud. In short, 300 baud is mandatory; 1200 baud is an enhancement — and an expensive one at that. Your choice is mostly a matter of economics: a modem offering both 300 and 1200 baud costs about \$700, more than the entire cost of a basic C-64 telecommunications system.

**Note:** In this book, when a modem is referred to as 300 baud only, it means that the modem can communicate at a maximum of 300 baud and not 1200 baud. Most 300-baud modems can communicate from 0 to 300 baud; however, you will probably never have to use a baud rate below 300.

**Full- Versus Half-duplex Communication** To be effective, a modem must be capable of two-way communication. That is, you must be able to “talk” and “listen” just as you can with a telephone. This capability is called *duplex* communication. (Radios and TVs only have the capability for *simplex*, or one-way, communication.)

There are two types of duplex communications: *full-duplex* and *half-duplex*. Full-duplex is true two-way communication because your computer screen displays what you are typing as well as what is being typed on the other computer. (Actually, whatever you type is first sent to the other computer and then sent back to your C-64 and displayed on the screen. So if you are using full-duplex and what you type appears on the screen, you know that the connection has been made.) Half-duplex, however, lets you see only what is typed on the other computer (somewhat like a CB radio, on which only one person can speak at once). Since many information services require full-duplex, you should consider this feature mandatory.

**Answer and Originate Modes** A basic modem must have both *originate* and *answer* capabilities. Since a single telephone line is used to send information in two directions, the system must have some way of knowing which signal is coming from which computer. This is controlled by having the two modems use different signaling frequencies. One frequency is identified as the *originate* signal and the other as the *answer* signal.

When you are communicating with an information service like CompuServe, you can assume that the service’s modem is always set to answer; therefore, your modem should be set to originate. Remember, one modem must *always* be set to originate and the other to answer. If you are communicating with another C-64 user down the block, decide in advance who will be “originate” and who will be “answer.” (Note that some enhanced modems have the capability to set themselves automatically to either answer or originate mode, depending on the other computer.)

Don’t be misled by the terms *originate* and *answer*. “Originate” does not necessarily apply to the person originating the phone call, nor does “answer” to the person answering the call. You can have your modem set to answer and still dial someone else as long as his or her modem is set to originate.

**Auto-dial** To communicate with an information service, you must first dial the phone number of its computer. If you use a basic modem (such as the Vicmodem 1600), you dial from the telephone as if you were making a normal phone call. When you hear the other phone answer, you set a modem switch and hang up the

phone. If your modem has an *auto-dial* feature, you can connect the modem directly into the phone jack in the wall and not even use a telephone. Enhanced modems like the Automodem 1650 allow you to “dial” the number from the C-64 keyboard. This is usually preferred. In addition, an auto-dial modem usually lets you store the phone number on a diskette if your communications program supports this feature. The computer can then dial the number for you.

**Auto-answer** In most cases, you won’t need an auto-answer modem unless you are operating a bulletin board. *Auto-answer* simply means that someone else can call your computer and the modem will answer the phone even if you aren’t there. An auto-answer modem must be supported by your communications program before it is of real use to you.

**Indicator Lights** Many modems have lights that indicate the current status of the modem. These lights are usually identified by abbreviations such as *MR*, Modem Ready, which means the modem’s power is on; *CD*, Carrier Detect, indicating that your modem has made contact with another modem; *SD*, Send Data, which indicates that your modem is sending information to the other computer; *RD*, Receive Data, which means that information is being transmitted to your system; and *OH*, Off Hook, which illuminates when your modem has answered the telephone.

Indicator lights are particularly useful when you are having communication problems. By watching the indicators and understanding what they mean, you can often isolate and solve a problem.

## C-64 TELECOMMUNICATIONS SOFTWARE

Communications hardware cannot operate on its own. To begin telecommunications, software is also required. The primary function of communications software (often called *terminal software*) is to provide the computer with the instructions that are necessary for *asynchronous communication* to occur. (Asynchronous communication is the basic method of computer-to-computer information exchange. It simply means that one character is transmitted at a time.) Individually, these instructions are referred to as *communications parameters*; together, these parameters are called *communications protocol*. (Baud rate is one typical parameter.)

In order for two computers to communicate, both computers must be using the same protocol. As long as the protocols match, it doesn’t matter what kind of computer your C-64 “talks” to. It can communicate with the C-64 down the block or an information service’s multi-million-dollar IBM. You don’t even need to use

the same communications software, as long as your parameter settings are the same.

Many communications programs automatically set protocol for you. This is useful if you are communicating with the same computer on a regular basis; but if you begin communicating with another computer, you may have to change all or one of the parameters.

## Communications Parameters

There are four basic communications parameters: baud rate, word length, parity, and number of start or stop bits. If you are communicating with an information service, you must find out what the service's protocol is and set yours to match it. If you are communicating with another C-64 user, the two of you can decide what parameter settings you want to use.

Many communications software packages allow you to select protocol or modem features from the keyboard instead of moving switches on the modem itself.

**Baud Rate** Baud rate has already been defined as the number of bits per second (bps). Three hundred baud is the most common baud rate for home computers. This simply means that 300 bits per second can travel from one computer to another. This is about 30 characters per second, depending on how many bits are used to define a character (that is, the *word length*, defined below). If your modem can only transmit at 300 baud, you *must* set your software baud rate to 300 baud.

**Word Length** In asynchronous communication, word length does not mean the number of characters in a word. Instead, *word length* refers to the number of bits that make up a character. Typical word lengths are 7 or 8 bits to a character. If your computer is set up to read 7 bits per character and the other computer sends 8 bits per character, communication will be very unreliable.

**Parity** To make sure that information is being sent correctly, a built-in error-checking feature called *parity* is used. You can set parity to *even*, *odd*, *none* (*none* disables parity checking), *mark*, or *space*. Most information services ignore parity (set it to "none").

**Start or Stop Bits** When a character is being transmitted, a *start bit* is sent from one computer to the other to indicate that the next 7 or 8 bits will be data bits. After the information bits are transmitted, one or two *stop bits* are sent to indicate the end of the character. This is true of every character (byte).

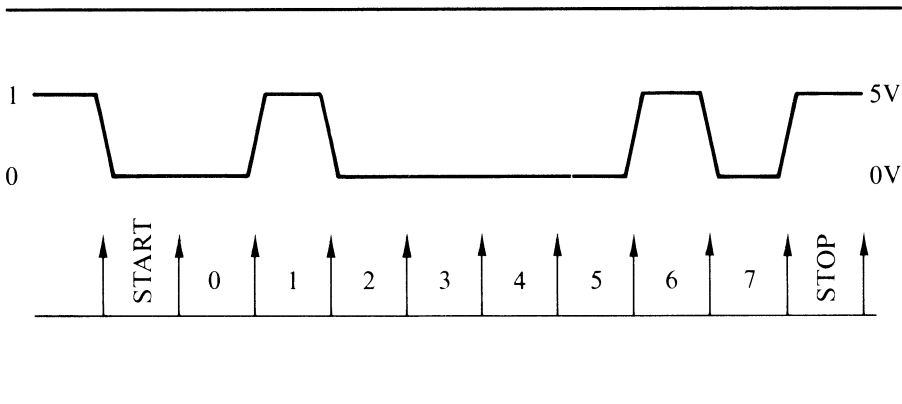


Figure 2-7. Digital signal for the letter B

In graphic form a character might look like Figure 2-7 as it leaves the computer. At 300 baud, this waveform would be repeated 30 times a second on an oscilloscope screen.

## Communications Software Features

Like modems, communications software comes in both basic and enhanced versions. The minimum software package includes *protocol* instructions. The enhanced programs allow your C-64 system to dial a phone number automatically, *download* (receive and store on disk) a file or program from another computer, or *upload* (send) a file or program to a distant computer.

Many of a communications program's features should be considered mandatory, while others are enhancements that make the program more useful to you. This section will describe some of these basic features and enhancements.

### COMMUNICATIONS PROTOCOL AND PARAMETER SETTINGS

Some specialized communications programs have preset communications parameters so that you cannot change the baud rate, word length, parity, or start and stop bits. General-purpose software that can be used with a number of different systems allows you to set up the protocol. Because it is more flexible, it is more advantageous.

### UPLOADING CAPABILITIES

The process of sending a file stored on disk from your C-64 is called *uploading*. The file can be a piece of electronic mail, a program, a game, or whatever.

Uploading is one of the most useful features of a communications software package.

### **DOWNLOADING CAPABILITIES**

The process of receiving (or capturing) a file from another computer and storing it on your disk is called *downloading*. Some programs allow you to store the file directly onto disk, while other programs first store the information in the C-64's random access memory. Downloading (like uploading) is one of the most useful features of a communications software package.

### **AUTOMATIC DIALING**

If your modem supports auto-dialing (the Automodem 1650 does), you may want to use a program that stores phone numbers and automatically dials another computer's phone.

### **XON/XOFF CAPABILITIES**

Telecommunications systems that make heavy use of uploading and downloading might require XON/XOFF (pronounced "X on, X off") capabilities. In most cases, information is sent to a storage area (called a *buffer*) in your computer's random access memory. Unless XON/XOFF is enabled, your computer can "choke" on the data because too much of it is coming too fast. The computer needs time to store the information on disk or in another part of memory. When XON/XOFF is activated, the system knows when the buffer is "filling up" and consequently stops data transmission until data is siphoned out of the buffer. When the buffer is almost empty, XON/XOFF begins filling it up again. For these reasons, XON/XOFF is often referred to as *flow control*. XON/XOFF is a desirable feature if large files are being transferred.

### **HELP FILES**

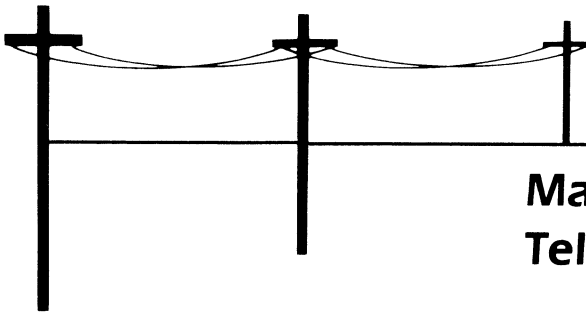
Many software packages have "help" files that let you simply type **HELP** or ? when you have a question about commands or features. This saves you the trouble of keeping the manual next to you at all times.

### **OPERATING SYSTEM AND DIRECTORY ACCESS**

When uploading or downloading files, you often need to know how much space is available on the disk as well as the name of the files currently stored there. Many communications packages have the capability of displaying a disk's directory and free space.







# 3

## Making the C-64 Teleconnection

Once you've collected the necessary hardware and software, you should be ready to make your first teleconnection. This chapter will describe how to set up your hardware and software for telecomputing, log onto two of the most popular information services, and perform a few of the most commonly used operations.

Before you begin, be sure you have the following hardware and software:

- Commodore C-64 computer
- Commodore Automodem 1650
- Commodore 1541 disk drive
- A telephone
- CompuServe's C-64 Vidtex communications software
- TV or monitor.

### SETTING UP THE HARDWARE

The first step is to connect your C-64 computer, disk drive, and TV set or monitor. Follow the setup instructions in your C-64 user's manual. Once those elements are

connected, go ahead and turn on the system's power. If the TV screen turns blue and the BASIC Ready prompt appears, the computer and TV are connected and working. You might also insert a disk that you have used before into the disk drive and perform an operation (such as checking the directory) just to confirm that the drive is working properly.

When you are sure that everything is operating the way it should, turn off the power to all three devices.

## **The Commodore Automodem 1650**

The Commodore Automodem 1650 offers many of the features that make a modem useful. It is also readily available to everyone who has a C-64 and is very reasonably priced. For this reason, it was chosen as the "example" modem for this book.

The 1650 (see Figure 3-1) is a 300 baud only modem. This baud rate will enable you to initiate communication with almost every information service and bulletin board in the United States.

Although you'll rarely need it, a full-duplex/half-duplex option switch is built



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**Figure 3-1.** *Commodore Automodem 1650*

into the 1650 just in case you run across a database that requires half-duplex. For most applications, just set the switch to full-duplex and leave it there.

Like any basic modem, the Automodem has an Originate/Answer switch. Remember that if you are telecommunicating with another C-64 Automodem user, one of you should set this switch to originate and the other to answer. When calling up an information service, set the switch to Originate.

One of the 1650's most attractive features is its auto-dial capabilities. Auto-dial allows you to dial an information service or bulletin board by typing the phone number on your C-64 keyboard (if your communications package allows this). However, you cannot dial a long-distance phone service (such as MCI or Sprint) from the keyboard to access a distant computer. Instead you simply dial the long-distance service on the telephone. (You can use auto-dial with regular long-distance numbers.)

The Automodem also has auto-answer capabilities so you can set up your own bulletin board system. This will allow other computer users to call and leave messages when you aren't there, similar to a regular telephone-answering machine.

The only indicator light on the 1650 is the Carrier Detect (CD) light. This indicator lights up when you make a teleconnection.

The *Data/telephone* switch lets you use the telephone normally (for voice communication) without having to disconnect the entire system. Set the switch to *Telephone* to make a phone call; set it to *Data* to use the phone with the modem.

Another feature is that the Automodem 1650 gets its power from the C-64, so you won't have an additional power cord cluttering your work area.

All in all, the Automodem 1650 more than fulfills the requirements for setting up your own C-64 telecommunications system.

## Connecting the Automodem 1650

The Commodore Automodem 1650 is connected to the C-64 via the computer's user-interface port on the right-rear of the C-64 (Figure 3-2). Before making connections of any kind to the port, be sure that the C-64's power is turned off.

Insert the modem's flat-edge connector (Figure 3-3) into the computer's user-interface port.

Now disconnect the modular phone connector from the back of the phone and insert it into the LINE connector on the modem.

Next you connect the phone cable that came with your Automodem. Connect one end of it to the PHONE connector on the Automodem (see Figure 3-4) and the other end to the telephone itself. (Refer to Figure 3-5.)

Finally, set the Automodem switches to the appropriate settings:

- Duplex set to **F**
- Originate/answer set to **O**
- Data/telephone set to **T** (for the time being).

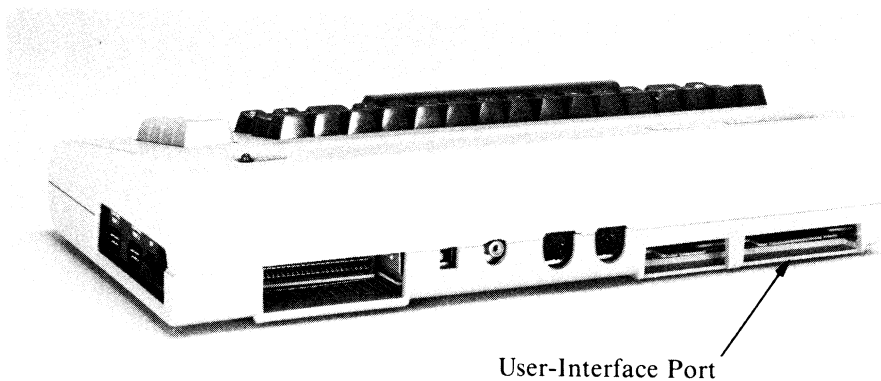


Figure 3-2. User-interface port on the C-64

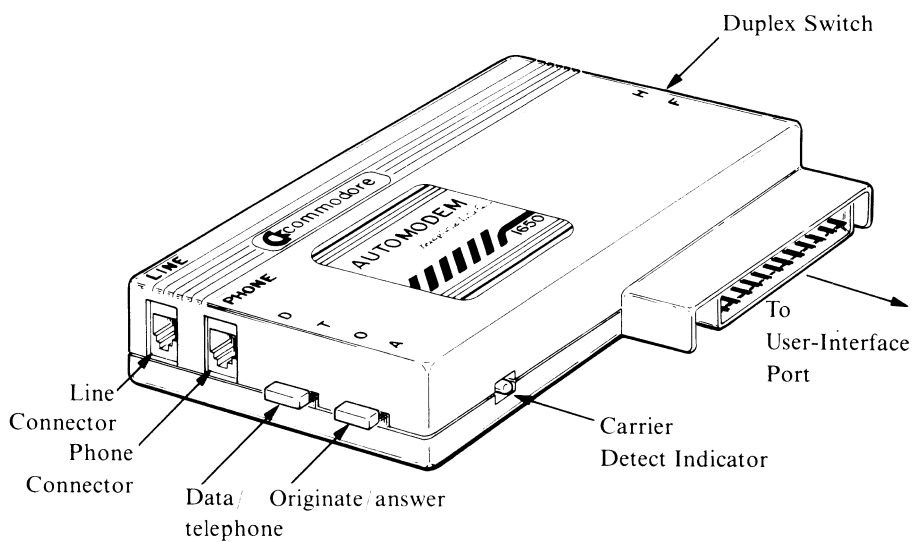
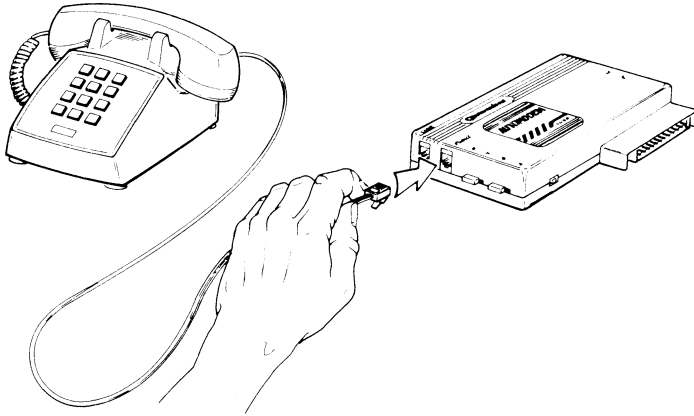


Figure 3-3. The Automodem 1650 switches and connection points



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**Figure 3-4.** *Connecting the phone line to the Automodem*

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**Figure 3-5.** *C-64 and Automodem telecommunications setup*

You can now restore the power to your disk drive, the TV, and finally the C-64. Later, when the other computer answers the phone, set the Data/telephone switch to **D** for computer-to-computer telecommunications.

## SETTING UP THE SOFTWARE

This section will describe how to load and set up the Vidtex communications program. But before loading the software, be sure to make a backup copy of the Vidtex disk. Store the original in a safe place and use the backup copy.

### The Vidtex Communications Program

The Vidtex program is one of the more readily available communications programs for the C-64. Although it was written by (and is available from) CompuServe, it can be used with most information services and bulletin boards.

Several machine-specific versions of Vidtex are available, including versions for the TRS-80, Apple, and other personal computers. Consequently, be sure you specify the C-64 program when ordering the software from CompuServe. Since the program is on disk, you need a C-64 (of course), a disk drive, a modem, and a TV or monitor in order to use it. The program also supports an additional disk drive, a printer, and an automodem like the I650.

Vidtex provides most of the features (protocol selection, uploading and downloading, and so on) required of a useful communications program. You make use of these features through two sets of command keys: *meta keys* and *control keys*.

The “meta” key is the Commodore **⌘** key. When you simultaneously press **⌘** and another key, you can access a “local” Vidtex feature to capture a file or set parameters. Meta key functions are not transmitted to the information service.

Control key features, accessed by pressing **CONTROL** and another key simultaneously, send a special signal to the information service. For example, you might send a command to the other computer to halt data transmission for a moment or two while you do something else.

For your convenience, all of Vidtex’s meta key sequences can be assigned to the C-64’s function keys. Doing this will save you time and effort and usually makes the program easier to use. Once saved on your Vidtex disk, these functions can be used every time you use Vidtex.

When you first run the program, you enter *terminal mode*. This means that all communications take place on your main screen. Pressing control or meta sequences will take you to other Vidtex screens; in most cases, pressing **⌘-A** will return you to the terminal mode screen.

Vidtex makes extensive use of a *RAM buffer* (an area of your C-64’s random access memory) to store information that is in “transit.” Information that you want to send to another computer must first be loaded from disk into this buffer. The

contents of the buffer are then sent. Conversely, information that is sent to you from another computer is first loaded into the buffer, and you must save it to disk. The information stored in the buffer can also be printed out on a printer or displayed on the screen.

**Communication Protocol Parameters** Vidtex allows you to set the basic communications parameters including duplex, baud rate, parity, number of start or stop bits, and XON/XOFF (flow control).

Unless you change protocol, the program will use the following default parameters: full-duplex, 300 baud, XON/XOFF on, 8-bit word length, parity set to 0, and 1 stop bit.

Once you have loaded the program, you can set the protocol to fit your particular needs by pressing the meta key combination of **⌘Q**. You then have the option of selecting either full- or half-duplex, setting the baud rate from 50 to 1200 baud, and enabling (turning on) or disabling (turning off) XON/XOFF. You can also set parity to 0, 1, even, or odd, or you can simply disable the parity check; and you can set the stop bits to either 1 or 2. You then specify the number of the disk drive that data is to be sent to or received from; the number 8 refers to your main disk drive and 9 identifies an additional drive.

**Uploading With Vidtex** To send a file to another computer, you first load a disk file into the buffer and then send the contents of the buffer to the other computer. The maximum file size the Vidtex buffer can store is 22K (about 15 pages of single-spaced text).

To load the buffer, first press the key combination **⌘L**; the program then asks you for the name of the file on disk. Enter the filename and press RETURN. To send the contents of the buffer, press the key combination **⌘V**.

**Downloading With Vidtex** The easiest method of downloading information from another computer is to *open* the Vidtex RAM buffer by pressing **⌘O**. From that point on, all information sent to your computer will be stored in the buffer until you close it (by pressing **⌘C**) or until it fills up. (A message will tell you the buffer is full.)

Once the buffer is closed, you can save its contents onto disk by pressing **⌘S** or **⌘U**. The program will ask you for the filename you wish to assign to the information, and then it will save the data on disk.

If at any time you need to know how much information is currently in the buffer (that is, its *status*), press **⌘M** and the Vidtex program will tell you the size of the current buffer file and how much memory space is left.

At times you may need to erase the buffer before downloading a second file. This process is called *zeroing* the buffer and is activated by pressing **⌘Z**.

**Automatic Dialing** Vidtex allows you to use the Commodore 1650 modem's auto-dial feature by typing the phone number of the other computer on the

keyboard. Be sure the modem is set up for data communication (full-duplex switch set to **F**, Data/telephone switch set to **D**, and Originate/answer set to **O**) before you begin the dialing sequence.

Some telephones require a “pause” if long-distance numbers or outside phone lines are dialed. Vidtex allows you to use a **P**, a comma (**,**), or an asterisk (**\***) for a one-second pause between elements of the phone number. For instance, to dial a long-distance number you might type **1,\*** (for the pause), the area code, **\***, and finally, the telephone number. If you are in an office that has its own phone system, you might have to type a **9**, a **P** (for the pause), and then the number. When you press **RETURN**, the number is dialed.

To begin the auto-dial sequence, first press **⌘@**. Vidtex will remind you of the proper Automodem 1650 settings and tell you to enter the phone number. Enter the number, including pauses, and press **RETURN**. If the number is busy or if you don't go on-line for any other reason, press **⌘A** to return to terminal mode.

**Operating System and Directory Access** Knowing what is on a disk can be extremely useful when you are uploading and downloading files. Consequently, Vidtex lets you check the disk without exiting the program.

Pressing **⌘\*** will display the disk's directory. If the directory scrolls by faster than you can read it, press any key to pause the display (and then press any key to resume scrolling). Pressing **RETURN** takes you back to terminal mode.

Sometimes a disk will fill up during a downloading operation, and your only recourse is to delete a file from the disk to make room for the new file. You can delete any file that has a lowercase filename (all files downloaded from Vidtex will have a lowercase filename) without exiting the program; to do this, press **⌘N**. You will then be asked to enter the appropriate filename. If you change your mind, press **⌘A**.

**Automatic Log-On** Vidtex has many other features that make it a highly useful communications program, among them *automatic log-on* capabilities. Auto log-on allows you to store on disk the keystrokes, ID number or name, and password required to connect to an information service like CompuServe. Once the sequence is stored on disk, you merely dial the number, and when the phone is answered, press one or two keys to bring you automatically on-line. Again, auto log-on sequences are created and executed by meta key operations, **⌘I** and **⌘J** respectively.

## Loading the Vidtex Program

To begin using the Vidtex program, insert the Vidtex disk into the disk drive with the label facing up and gently close the drive door. To load Vidtex, type **load “vidtex”,8** and press **RETURN**. The red light on the disk drive will light up briefly and the program will begin loading. After a few seconds, the **BASIC Ready**



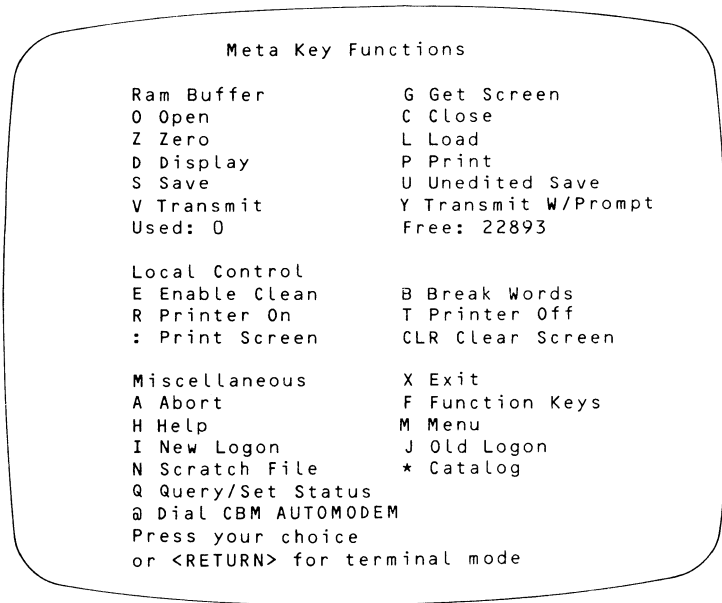
prompt will reappear. (Later, when you are ready to exit the program, press **⌘X** to return to the BASIC Ready prompt.)

At this point type **run** and press RETURN. The Vidtex introductory screen will appear, and you are ready to begin using the program.

Unless data files required for uploading or downloading are stored on your Vidtex disk, you should remove the program disk from the disk drive and insert a blank, formatted disk. (If you have a second disk drive, you can put the data disk in it.) You should not use your Vidtex program disk to upload or download data (text or program) files.

Once the Vidtex introductory screen is displayed, you can press **⌘M** to display the Meta Key Function menu (see Figure 3-6) or **⌘H** to display the help screen. If at any time when you are running Vidtex you forget how to perform a specific operation (such as uploading a file), press **⌘M**.

When the Automodem is connected to the C-64 and you are in terminal mode, or when you first load the program, the message **\*\* Data Carrier Lost \*\*** will be




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**Figure 3-6.** Vidtex Meta Key (**⌘**) menu

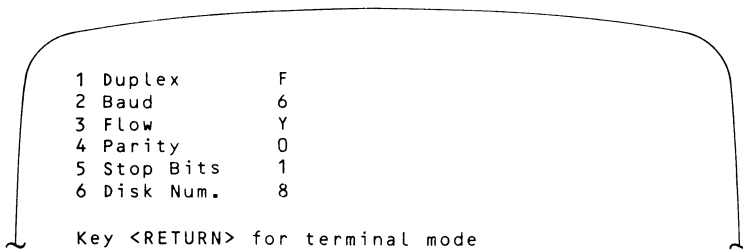
displayed. This simply means that you haven't made contact with another computer over the phone line. Later, when you do call up another computer and it answers the phone, the message will change to **\*\* Data Carrier Present \*\***.

## Setting Communications Parameters and Protocol

When you first start up Vidtex, the communications parameters are set to full-duplex, 300 baud, XON/XOFF (flow control) on, 8-bit word length, parity bit set to 0, and 1 stop bit. To set the communications parameters for your specific needs, be sure you are in terminal mode (go to the Meta Key menu as shown in Figure 3-6 and press RETURN), and then press **C=Q**. The Communication Settings menu will then appear (see Figure 3-7).

All of the parameters are chosen in the same manner. To select a parameter, press the number in the left-hand column (do not press RETURN) that corresponds to the parameter you wish to change. When you do this, the options for that parameter will appear. For instance, to view or change the baud rate, press **2**. The baud rate selections are as shown in Figure 3-8.

The Communication Settings menu (Figure 3-7) shows that the baud rate is set to 6, so the baud rate is 300. If you want to change the baud, press the appropriate corresponding number in the Baud Rate Setting menu — do not enter the baud rate itself. (Remember that the Automodem 1650 cannot communicate at a baud rate greater than 300 and that your computer's baud rate must match the computer you are communicating with. Consequently, do not change the baud rate at this time.)



---

**Figure 3-7.** Vidtex communication settings

Modem	Baud Rate
1	- 50 Baud
2	- 75 Baud
3	- 110 Baud
4	- 134.5 Baud
5	- 150 Baud
6	- 300 Baud
7	- 600 Baud
8	- 1200 Baud

---

**Figure 3-8.** *Vidtex baud rate selections*

## THE DEVICE NUMBER OPTION

Notice that the last option on the Communication Settings menu is **6 Disk Num. 8**. If you are using two disk drives in your C-64 system, the first disk drive is referred to as Device #8 and the second as Device #9.

Information saved on disk (downloaded) or loaded from disk (uploaded) normally goes to the first disk drive, which is designated #8. However, if you change this parameter to **9** (just select 6 and type **9**), Vidtex will automatically upload or download to the second drive. If you have a one-drive system, leave this option set to **8** or you will not be able to use the disk drive at all.

## Communications Parameters For Information Services

Different information services will be discussed throughout this book. In each instance the communications parameters used by the other system will be provided. If the parameters are different from the default parameters used by Vidtex, you will need to set the protocol as described earlier. If you begin communicating with a system that is not described in this book, be sure to find out the protocol and set your system accordingly, or communications will not occur.

Not all general-purpose information services use the same protocol. CompuServe, for instance, uses full-duplex, 300 baud, XON/XOFF (flow control) enabled, and parity set to 0. (You will not need to modify Vidtex's communications

protocol to communicate with CompuServe.) The Source and Dow Jones, however, use full-duplex, 300 baud, XON/XOFF disabled, and parity set to even. Vidtex does not allow you the flexibility of changing word length; it is set to 8 bits. For the most part this shouldn't be a problem, but some computer systems require a 7-bit word length, so you may need another package. See Appendix B for a description of other available C-64 communications programs.

## DIALING THE OTHER COMPUTER

Once the system hardware elements have been connected and the software parameters set, you can begin dialing the other computer's phone. To do so, enter terminal mode. The screen will not clear, and whatever you type will appear at the bottom of the screen.

Once in terminal mode you must tell the modem you are going to dial. The dialing instruction is initiated from terminal mode by pressing **C=@**. When you do so, the following message will appear:

```
Set H-F Switch to F, T-D to D, O-A to O
Enter Phone Number:
```

Be sure the modem switches are set to the appropriate positions and then type the phone number. Be sure to include any pauses that may be required. (Pauses are indicated by a **P**, **\***, or **,**.) Typical dialing sequences might be

```
Enter Phone Number: 1*415-555-1234
```

```
Enter Phone Number: 555-1234
```

```
Enter Phone Number: 9,1,(817)-555-1234
```

Note that dashes (-), parentheses, and other extraneous characters in a phone number are ignored by the system. Dialing begins after a few seconds. As the number is dialed, it appears digit by digit on the screen. You can tell when the other computer answers by watching the red Carrier Detect light on the modem; if it lights up, the connection has been made. At that point you should press RETURN or RUN STOP, and the other computer will send you a message that will be displayed on your screen. At the same time, the message at the bottom of the screen will change to **\*\* Data Carrier Present \*\***.

If the other phone line is busy or if it doesn't answer, the Carrier Detect indicator on your modem will not light up.

## LOGGING ONTO AN INFORMATION SERVICE

Once you have made a telephone connection with an information service's computer, it will send a message that appears on your screen. (If you are communicating

with another C-64 user, the two of you can begin typing on the keyboard to each other.) Remember that you can use meta key sequences to view the help screen without “losing” the other computer.

Typically, a bulletin board or information service will ask you for a log-on sequence before you can go on-line with the system. This sequence usually includes an identification number or name and a secret password. In most cases the ID number is known to other people on the system and is used to send you electronic mail and other messages. Generally, you don’t have to worry about it being public knowledge (in fact, you’ll probably want others to know it).

Your secret password, however, should be kept secret since your charges are billed to that name. Any time your password is used to log onto the system, you will be charged for the connect time. Furthermore, special services provided by an information service are also charged to your password. Guard your secret password just as you guard a credit-card number—it can be worth thousands of dollars to you.

At times you may need to dial a telephone network, such as Tymnet, Telenet, or Uninet, to connect to an information service. (See Chapter 4 for a description of telephone networks.) In response, the network will ask you the name of the information service you wish to communicate with. (This question is the first one posed.) You’ll need to enter the unique abbreviation for the service—for example, **CIS** for “CompuServe Information Service” and **DJNS** for “Dow Jones News Service.” After that, the log-on prompts (as described earlier) will be sent from the service you specify and will be displayed on your screen. The next section will describe the log-on sequence for two popular services, CompuServe and The Source.

## Logging Onto CompuServe

If you are calling CompuServe and the connection is made, press RETURN and a special code will appear, followed by the prompt **HOST NAME:**. Since CompuServe will be the “host,” type **CIS** and press RETURN. Next you are asked for your identification number: **USER ID:**. Enter the number that CompuServe assigned to you when you subscribed to the service (for instance, **70703,339**), and press RETURN. Finally, CompuServe will ask for your secret password: **PASSWORD:**. Enter the correct password—carefully, since it will not be displayed on the screen—and press RETURN.

If you make a mistake while entering either your ID number or password, CompuServe may have to repeat the entire procedure. The results of the process should look something like this:

```
01MCA
HOST NAME: CIS
USER ID: 70703,339
PASSWORD:
```

```
COMPUSERVE INFORMATION SERVICE

1 HOME SERVICES
2 BUSINESS & FINANCIAL
3 PERSONAL COMPUTING
4 SERVICES FOR PROFESSIONALS
5 THE ELECTRONIC MALL (TM)
6 USER INFORMATION
7 INDEX

ENTER YOUR SELECTION NUMBER,
OR H FOR MORE INFORMATION.
!
```

---

Figure 3-9. *CompuServe main menu*

Once you have logged onto CompuServe, you will be presented with the service's main menu, similar to the one shown in Figure 3-9.

CompuServe's command prompt is **!**, which signifies that the information service is waiting for you to enter something. What you do next is up to you. You can "leaf" your way through the various menus by simply selecting menu options and pressing RETURN; or, if you have a specific purpose for being on-line and know where the information is located, you can go directly to that page by typing **GO** followed by a page number. (You can always return to the main menu shown in Figure 3-9 by typing **GO TOP** and pressing RETURN.)

To log off the system at any time, simply type **BYE** and press RETURN. The CompuServe log-off message will be displayed, followed by the length of time you were on-line. To fully disconnect from the phone, unplug the phone cable attached to the modem.

```
OFF AT 20:26 PDT 22-SEPT-84
CONNECT TIME = 30:01
```

## Logging Onto The Source

Access to The Source is made through a telephone network like Telenet or Uninet. Once you have dialed and connected to a network, you can log onto The Source.

The following sequence will use the Uninet network as an example.

When you have dialed The Source and the Uninet computer has answered, a message and prompt similar to the following will appear:

```
UNINET PAD 5G00 PORT 01
SERVICE:
```

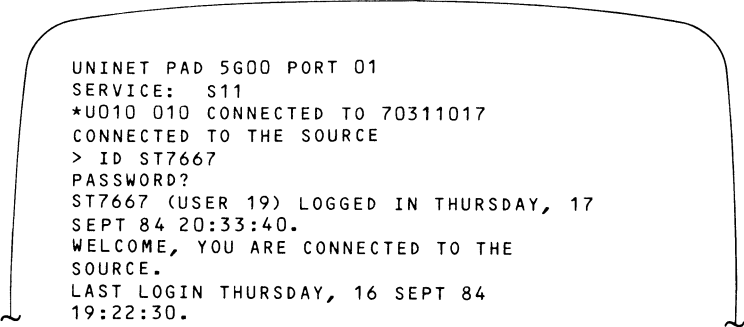
In response to the Uninet **SERVICE** prompt, enter the access code that will connect you with The Source; typically, this is S10, S11, S12, S13, or S14. In this instance, type **S11** and press RETURN. The introductory Source message will appear, and you will be asked for your user ID number:

```
*U010 010 CONNECTED TO 70311017
CONNECTED TO THE SOURCE
>
```

At this point, enter **ID** followed by your personal number and press RETURN. For example, type **ID ST7667** and press RETURN. Next you will be asked to enter your password:

```
PASSWORD?
```

Enter the secret password you were assigned when you subscribed to the service. Note that it will not be displayed on the screen as you type it. The entire log-on sequence should look something like this:



```
UNINET PAD 5G00 PORT 01
SERVICE: S11
*U010 010 CONNECTED TO 70311017
CONNECTED TO THE SOURCE
> ID ST7667
PASSWORD?
ST7667 (USER 19) LOGGED IN THURSDAY, 17
SEPT 84 20:33:40.
WELCOME, YOU ARE CONNECTED TO THE
SOURCE.
LAST LOGIN THURSDAY, 16 SEPT 84
19:22:30.
```

Once you have logged onto The Source, the service's main menu (similar to the one shown in Figure 3-10) will appear.

What happens next is up to you. Then, when you are ready to log off The Source, just type **OFF** and press RETURN whenever the **>** prompt is displayed. The

```
(C) COPYRIGHT SOURCE TELECOMPUTING
CORPORATION 1984

THE SOURCE MAIN MENU

1 NEWS AND REFERENCE RESOURCES
2 BUSINESS/FINANCIAL MARKETS
3 CATALOGUE SHOPPING
4 HOME AND LEISURE
5 EDUCATION AND CAREER
6 MAIL AND COMMUNICATIONS
7 PERSONAL COMPUTING
8 SOURCE*PLUS

ENTER ITEM NUMBER OR HELP
```

---

**Figure 3-10.** *The Source main menu*

Source exit information which then appears will look like this:

```
?> OFF
ST7667 (USER 19) LOGGED OUT THURSDAY, 20
SEPT 84 21:45:50.
TIME USED 01H 12M CONNECT.

WAIT...
BYE

*U010 010 DISCONNECTED BY HOST
SERVICE:
```

You should then press **C-x** to exit the Vidtex program and return to the BASIC Ready prompt.

## USING THE VIDTEX PROGRAM ONCE YOU ARE ON-LINE

Once you are connected to another computer system, that computer controls much of what you can do with your C-64 computer. However, Vidtex's meta key functions let you control several operations on your C-64 that are useful when communicating with another service. Two of these functions, downloading and uploading, are the most commonly used and useful operations available.



Downloading allows information sent from another computer to be received and stored on your disk. You can download programs that you can run later, electronic mail another computer user has sent to you, or a university correspondence course. Uploading is just the opposite. This process allows you to send information (a program or text file) to another system.

Most of the chapters later in this book make use of Vidtex's uploading and downloading capabilities.

## Downloading Information to Your C-64

When downloading information from another computer, everything that appears on your C-64 screen is saved. The process of using Vidtex to download information requires two activities: *buffer activity* and *disk activity*.

When information is being sent from another computer, you must first open the Vidtex buffer by pressing **C=O**. Once you have received the information you want to save, you close the buffer by pressing **C=C**. The information will remain in the buffer until you "zero" (erase) the buffer (press **C=Z**) or exit the program.

Before saving the information on disk, it is a good idea to insert a formatted *data disk* (a disk other than your Vidtex program disk) into the drive.

Once the information to be saved is in the buffer, you can save it by pressing either **C=S** or **C=U**. Vidtex will ask you for the filename that you wish to assign to the information. When you enter the filename and press RETURN, the information is sent to the disk. (If you have two disk drives and want the information saved on the second drive, you'll have to change the communications parameters.)

Whether you use **C=S** or **C=U** depends on whether you will be displaying the buffer contents on your C-64 screen. If you want to view it on the screen, use **C=U** to save the data; you can then read it without any problem. If you use the **C=S** version, many of the characters will be unreadable, appearing as Commodore graphics characters.

The following example illustrates the downloading procedure. Assume that you are on-line with an information service and someone has sent you some electronic mail. Since it is a long letter, you wish to download it on disk so you can print it out and read it off-line.

1. The information service sends you a message: **YOU HAVE MAIL WAITING.**
2. To download the entire message, press **C=O** to open the buffer. From this point on, all information sent from the other computer—including prompts—will be stored.
3. The information service asks **DO YOU WISH TO READ THE MAIL?**
4. You respond by typing **YES.**
5. The letter starts scrolling on your screen. As it appears on the screen, it is also being saved in the buffer.

6. When you see that the letter is finished, press **⌘C** to close the buffer.
7. Now press **⌘S** to save the buffer contents (that is, the letter) on disk.
8. The Vidtex program asks **WHAT FILENAME?**
9. Enter the filename (say, **boblet** for “Bob’s letter”) and press RETURN. The letter, including the prompts in steps 3 and 4, will be saved.
10. When the save operation is complete, press RETURN, and the information service will ask you another question.

Again, the specific prompts and messages will depend upon the information service and computer you are communicating with. The thing to remember is that once you open the buffer, everything sent from the other computer will be stored.

Before downloading another file, you should erase (or “zero”) the buffer by pressing **⌘Z**. Otherwise, the old information will be added to the next file you download.

## Uploading Information To Another Computer

Like downloading, uploading requires a two-step operation: loading your information from disk into the buffer and then sending the information to the other computer.

There are several ways to enter information into the buffer before beginning the uploading process. One way is to simply go on-line and, when you are ready to upload the information, open the buffer (**⌘O**) and begin typing. When you are finished, you press **⌘C** to close the buffer and then begin the uploading process. This method is usually inefficient because you are paying for on-line time and the phone call.

A better method is to create a file before you go on-line, save the file on disk, and then load the resulting disk file into the buffer. The way you create the disk file depends on the type of information you are uploading. If you are sending a BASIC program to someone, you’ll probably write and test it in BASIC, and then save it on disk. That disk will then be the data disk from which you upload.

If you are uploading a text file (for example, a letter or report), you might create the disk file with a word processing program. The file is saved on disk, and then that disk is inserted into the disk drive once Vidtex is loaded.

### UPLOADING A DISK FILE

No matter how a disk file is created, you can load it into the buffer by pressing **⌘L**. The program will then prompt you for the name of the disk file. (If you forget the name of the file, you can press **⌘\*** and the disk’s directory will be displayed.) Type

in the filename exactly as it appears on the directory; when you press RETURN the file will be sent into the buffer.

When the file is loaded into the buffer (or when the buffer is full), you can view it by pressing **C=D**. To send it to the other computer, press **C=V**. (Some bulletin boards will only accept one line at a time. If you are sending a file to such a system, press **C=Y** and enter the prompt used by the system.)

As an example, assume that you have previously written a letter to someone and wish to send it via an electronic mail system. You might follow this procedure:

1. You are at the information service's electronic mail section and the prompt **BEGIN ENTERING YOUR LETTER** is displayed.
2. Press **C=\*** for a directory of your disk. You see the filename of the letter you wish to send: **joelet.txt** ("letter to Joe").
3. Press **C=L** to load the file into the buffer. When prompted for the filename, type **joelet.txt** and press RETURN.
4. When the file is loaded into the buffer, press **C=V** to send the letter.
5. When the letter has been sent, you can use other service facilities or log off the system.

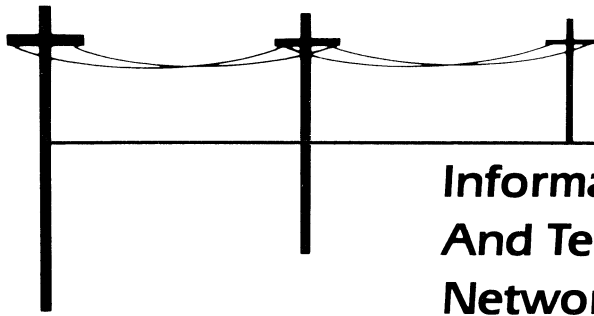
## USING VIDTEX TO CREATE A DISK FILE

You can use the Vidtex program as a very simple text editor to create a disk file. To begin, be sure that you haven't dialed up another computer yet, and that the Meta Key Function menu is displayed. First press **C=O** to open the buffer. The following message will appear: **\*\* RAM Buffer Open \*\***. To clear the screen and move the cursor to the upper-left corner of the screen in order to begin typing, press **C=CLR**. You can begin typing your message, but do not press RETURN until you have finished the message. This will obviously limit your ability to create even a normal-looking business letter, but remember you are using a telecommunications program, not a word processor.

When you have finished the message, close the buffer by pressing **C=C**. The following message will appear: **\*\* RAM Buffer Closed \*\***.

Next, press either **C=S** or **C=U**. You will be asked for the filename you wish to assign to the message. Enter the name, press RETURN, and the file will be saved on disk. You might then want to erase the buffer ( **C=Z** ) and create another message.





# **4**

## **Information Services And Telephone Networks**

Once you have set up your C-64 telecommunications system, you will be ready to dial up and go on-line with a database or an information service. Many services (such as CompuServe) can be called directly; others require that you first dial a telephone network (such as Tymnet) that will then connect you with a service. This chapter will describe a few of the most commonly used services and networks.

### **INFORMATION SERVICES**

Computer-based information services can supply an almost unlimited variety and amount of information through a computer terminal. Usually all you need to access an information service is a computer (such as a C-64), a modem, a telephone, and a communications software package. You might also want a printer to print out information you receive and some means of auxiliary information storage, such as a cassette tape recorder or disk drives.

The type of information and services you can get depends, of course, on the information service itself, but most offer

- Newspapers
- Reference materials
- Books and magazines
- Movie reviews
- Electronic shopping services
- Electronic banking services
- Games and entertainment.

For an information service to be really useful to you, it should be accessible through a local telephone number. (While some services are accessed only by long-distance numbers, any advantage they may offer is usually offset by higher telephone bills.) Most information services require a one-time registration fee. There are monthly charges, usually calculated by the amount of time you spend on the service. There may also be a base charge whether you use the service or not. The service can bill you directly or through a credit-card account like VISA or MasterCard.

With information services, as with long-distance phone calls, some hours of the day and days of the week are considered prime time, while others are not. Prime-time hours of use are roughly from 7:00 A.M. to 5:00 P.M. Monday through Friday (essentially regular business hours). Charges can run up to \$25 per hour for prime-time use—and for some services, several times higher than that. Non-prime-time hours of use are from 5:00 P.M. to 8:00 A.M. Monday through Friday and 24 hours a day on weekends and holidays. Non-prime-time access usually costs as little as \$5 per hour.

Almost all information services assign you a unique, secret password that allows you to gain access to the system. This password is to be known only to you and to the service. (Since anyone knowing your password can go on-line and charge hundreds or thousands of dollars' worth of expenses to your account, guard it just as you do your credit-card numbers.)

Once you're on-line, most information services are menu-driven: you're presented with a menu of several options, and choosing an option will take you either to another menu of choices or to the particular information you desire. If the information you want is "buried" under several menus, most of your connect time (and money) can be spent just getting to it. It is worth your while, then, to look in the index supplied to you when you subscribed to the service and find the "page number" where the information you want is stored. By entering the page number, you can go directly to that information.

The local number you must phone to access a particular information service may or may not be the service's number. If it is not, it is usually the number of a

“telephone networking system.” These systems don’t provide information themselves; they simply serve as a broker, or connection, through which information passes on its way to you. (These networks are described in detail later in this chapter.) You may have to pay a fee for use of the network in addition to the standard information-service fees. Likewise, one information service can serve as an access “node” to another service. In such a case, you may receive two separate bills, one from each service, or a single bill from one service that has been billed by the other and passes these charges to you.

Most information services communicate with your computer at 300 baud. At that rate, about 30 characters will appear on your C-64 screen every second. This may seem fast to you, but it’s slow for computers; your C-64 has the ability to communicate at over 2000 characters per second. However, few information services provide communication at this speed over standard telephone lines.

If you want a higher rate of communication, some services have 1200-baud telephone numbers. These are not as common as 300-baud numbers, and you may have to make a long-distance call to use one. The information service will probably charge more for 1200 baud than it does for 300 baud. Nevertheless, you may save money in the long run because it will take you less time to transfer large amounts of data.

Contact the network for the local number in your area. Before using this number, however, you’ll have to connect a 1200-baud modem to your C-64 and set your communications parameters to 1200 baud.

Three of the most widely used information services are CompuServe, The Source, and Dow Jones News/Retrieval. In many ways, CompuServe and The Source are alike. Both services provide general information in areas ranging from science to entertainment. But they differ in details and the commands you must type on your C-64 keyboard to get that information. On the other hand, Dow Jones is almost entirely devoted to financial information. There are also technical differences between the services. CompuServe, for instance, uses “flow control” to communicate with remote computers, while Dow Jones does not. The rest of this chapter describes these services.

## **CompuServe**

CompuServe has a little of everything and something for everyone — newspapers, magazines, feature stories, sports and weather reports, CB simulators, bulletin boards, electronic mail (EMAIL), electronic shopping, and entertainment. Features are added almost weekly.

CIS (short for “CompuServe Information Service”), which is based in Columbus, Ohio, is on-line 24 hours a day, 7 days a week. However, there may be times after midnight (eastern standard time) when the system is shut down for system maintenance.

CompuServe charges you for the time you are on-line. For billing purposes, there are prime-service and standard-service hours.

- Prime service is from 5:00 A.M. to 6:00 P.M. Monday through Friday.
- Standard service is from 6:00 P.M. to 5:00 A.M. Monday through Friday and 24 hours a day on weekends and some holidays.

If you go on-line during standard hours but are still on-line when prime-service hours begin, the entire time you are on-line will be billed as prime time. (For a similar reason, always disconnect from the service by logging off first [type **BYE**]; then disconnect the phone and turn off your C-64 system, or you will be billed for an additional 15 minutes.)

If you want to know the current CompuServe rates, you can get them when you are on-line with the service. You can also request your current charges. Use of some special services (products or information) may incur additional charges.

When you buy an Automodem 1650 from Commodore, the package contains a CompuServe subscription form. If you subscribe to CompuServe, you'll receive a manual and an hour of free on-line time.

To learn more about this information service before subscribing, contact CompuServe at

CompuServe Information Service  
5000 Arlington Centre Blvd.  
Columbus, OH 43220  
Phone: 800-848-8990 (in all states except Ohio)  
614-457-8650 (in Ohio)

## **The Source**

The Source, a subsidiary of the Reader's Digest Association, Inc., is another information service that you can access with the C-64. It also offers a full range of information, including electronic mail (called "SMAIL" or "SourceMail"), bulletin boards, conferencing, general news from UPI, business news, magazines, personal-computing services, education services, and games. Nearly 1300 features in all are provided for your use.

The Source is accessible 24 hours a day, 7 days a week. You are charged a one-time sign-up fee and are billed by the hour for on-line time. There are three billing rates: weekday business hours are the most expensive; less expensive are evenings, weekends, and holidays; and least expensive are the hours between midnight and 7:00 A.M.

When you subscribe to The Source, you'll receive an excellent 285-page user's manual that tells you exactly how to use the service. For more information, contact



The Source  
1616 Anderson Road  
McLean, VA 22102  
Phone: 800-336-3366

## Dow Jones News/Retrieval

Dow Jones News/Retrieval is limited to financial news. It provides information from the *Wall Street Journal*, *Barron's*, and the Dow Jones News Service. Stock quotes are provided after a 15-minute delay, along with quotes on bonds (corporate and foreign), options, mutual funds, and U.S. Treasury notes.

Historical quotes on a company or industry are also available. Detailed information on the New York, American, and over-the-counter markets are provided by Media General Services.

Dow Jones is on-line from 6:00 A.M. to 3:00 A.M. weekdays and from 7:00 A.M. to 3:00 A.M. weekends and holidays.

When you buy a Commodore Automodem 1650, the package contains a subscription form for Dow Jones. If you subscribe to the service, you'll receive a manual plus an hour of free on-line time. To get in touch with Dow Jones, contact

Dow Jones News/Retrieval  
P.O. Box 300  
Princeton, NJ 08540  
Phone: 800-257-5114 (in all states except New Jersey, and in Canada)  
609-452-1511 (in New Jersey)

## TELEPHONE NETWORKS

Some information services, such as Dow Jones and The Source, do not offer a local telephone number throughout North America. However, these services can still be accessed through a telephone network like Telenet, Tymnet, or Uninet. To access one of these networks from Canada, you must first establish a connection with the Canadian DataPac telephone network and then with Tymnet or Telenet.

These telephone networks are called *packet-switching networks* because information is "switched" from one part of the network to another in distinct groups, or "packets," of data. The switching network (Tymnet, Telenet, or Uninet) identifies and keeps track of each information packet as it sends the data to the correct computer, whether that computer is an information service or your C-64.

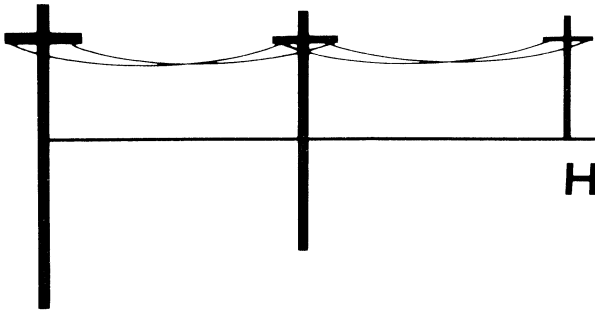
Each network system has a different sign-on procedure. Typically, you're first asked what type of computer you have. You must answer by entering in a one- or two-letter identifier code. Usually the network will then ask which information

## **46** *C-64 Telecommunications*

service you want to communicate with. Your response should put you in contact with the information service, which will then ask for your account or ID number.

If you want to find out if there is a local telephone network number for your area, all three services provide a toll-free information service. For Telenet, call 800-336-0437; for Tymnet, call 800-336-0149; and for Uninet, call 800-821-5097.

Canadian subscribers should contact their information service for a list of local DataPac phone numbers.



# 5

## Home Banking

Going to the bank usually means contending with long lines, inconvenient hours, and complicated procedures. Many banks, however, offer “home-banking” services that let you avoid these inconveniences by using your C-64 to perform a variety of transactions that normally take place at a bank teller’s window. These transactions include paying bills, transferring funds, and reviewing account balances.

While there are many different home-banking services available, this chapter will describe Bank of America’s “HomeBanking” service, which is available on the West Coast. Although HomeBanking has many unique features, it is nevertheless typical of most telecommunication banking services.

Perhaps the main attraction of any home-banking service is that it allows you to pay many of your regular bills without signing a check and hurrying to the post office. Once you subscribe to a home-banking service, bills for home mortgages, utilities, charge cards, hospital and health care, insurance, cable television, credit unions, department stores, newspapers, travel agencies, and the like can be paid quickly and easily.

When you subscribe to a home-banking service, the bank provides you with a *payee directory* listing the businesses that can be paid via your C-64. (See Figure 5-1.) To indicate which businesses you wish to pay, all you do is fill out a form that identifies the name of the business, its code (the left-hand column in Figure 5-1), and the billing account number you have with that particular business. At the same

TRAVEL

- 
- 546 Fitzgerald Travel Agency
  - 547 West Coast Airlines
  - 548 California Rental Car

UTILITY SERVICES

- 
- 462 Albany Sanitary Service
  - 684 California Gas and Electric
  - 342 Contra Costa Telephone

---

**Figure 5-1.** *HomeBanking payee directory*

time you usually identify the account number of the bank account from which the bills are to be paid.

Accessing a home-banking system from your C-64 keyboard usually requires you to pass through two levels of security: entering an identification number and then a secret password. In many instances the ID number is the same as your bank "convenience card" number that you use with computerized tellers. The password, however, is assigned to you when you subscribe to the home-banking service.

## COMMUNICATING WITH A BANKING SERVICE

Before you can begin telecommunicating with a home-banking service, you must set the proper communications parameters. Communications parameters required for most home-banking services are full-duplex, 300-baud, and even parity. Set your communications protocol accordingly and your Automodem's Originate/answer switch to originate. (See Chapter 3 for details.)

Most home-banking services are accessed through a telecommunications network like Tymnet or Telenet (see Chapter 4). Tymnet will be used in the following HomeBanking example, since it is the access network for that service. First dial the local Tymnet phone number (the number should be included with your HomeBanking manual). When the connection to Tymnet is made, the prompt **PLEASE TYPE YOUR TERMINAL IDENTIFIER** will appear. Press the A key. (Nothing will be displayed on the screen.)

Next Tymnet will ask you to **PLEASE LOG IN**. This is where you identify the telecommunication service you want to access. Remember that your particular response to this Tymnet prompt will depend on your geographical location and the home-banking service you are using. For example, type **HBSF** (for “HomeBanking in San Francisco”). At this point you will be communicating directly with the home-banking service.

## LOGGING ONTO THE HOMEBANKING SERVICE

The first message HomeBanking will send you when you make the teleconnection is **HOST: CALL CONNECTED**; you will then be asked to **ENTER ID:**. For HomeBanking, the format for the ID number is a ) (right parenthesis) followed by the last nine numbers on your bank convenience card — for instance, **)987654321** — and **RETURN**. Other systems may use a different format.

The next step is to enter your secret password when the message **PASSCODE:** is displayed. The password code is mailed to you after you have registered with the service. You should guard it carefully; in fact, it might be a good idea to memorize the code and then store the original in a safe-deposit box. Enter the code exactly as it is assigned to you. For example, if the password is **SECRET**, type **SECRET** and press **RETURN**.

For security purposes, most banking services (including the Bank of America’s) put a limit on the number of errors you can make while logging on. With most services, only three attempts at signing onto the system can be made. If you haven’t entered the correct password after three attempts, you will be denied access to the banking service, even if you eventually remember and try to enter the correct code. If this happens, you must contact the home-banking office and have a new log-on sequence and password assigned for your use.

## USING THE HOMEBANKING SERVICE

When you have successfully logged onto a home-banking service, the introductory message and main menu will usually be displayed. The main menu is a list of the services provided by a particular bank. Figure 5-2 illustrates Bank of America’s HomeBanking main menu. Most services provide menu options and prompts to help you use the system. You can also move to different parts of the system by using direct commands. (For instance, if you want to go to HomeBanking’s main menu, just type **MM**, and you will bypass all other menus.) Until you are familiar with a service, the easiest way to move around the system is by using the menus. To use a menu, simply enter the number (displayed in a menu’s left-hand column) that corresponds to the feature you want to use. With HomeBanking, for instance, you can review your bank account’s current balance by typing **3** and pressing **RETURN** when the main menu is displayed on the screen.

---

```
WELCOME TO HOMEBANKING
COPYRIGHT 1983 BANK OF AMERICA NT&SA

** MAIN MENU **
0 LOGOFF
1 PAY BILLS
2 TRANSFER FUNDS
3 BALANCE INQUIRY
4 REVIEW OR CANCEL
5 ELECTRONIC STATEMENT
6 ELECTRONIC MAIL
? COMMAND (CMD) LIST
ENTER:
```

---

**Figure 5-2.** *Sample HomeBanking main menu*

## Using HomeBanking to Pay Bills

Before you can use home banking to pay any bills, you must tell the banking service who the payees are when you subscribe to the service (or in writing thereafter). If a business you want to pay isn't listed on the payee directory, check with the business or with the banking service to see if it has registered recently. The following example describes how you might use HomeBanking to pay a monthly utility bill.

To begin paying the bill, select the Pay Bills option from the main menu (refer to Figure 5-2) by typing **1** and pressing RETURN. The first message that appears is a list of your bank accounts from which bills can be paid. You identify these accounts when you subscribe to the service. If you have several accounts at the bank, you do not have to list them all — only the ones you wish to pay the bills. For instance, if your home and business checking accounts are registered, both account numbers will be displayed so you can select the account to use.

Once you have selected the bill-paying account, a list of your payees will be displayed. Below the name of each business is the billing account number you have with the firm. (See Figure 5-3.) To identify the company you want to pay, type the number in the left column that corresponds to the business and press RETURN.

To pay a utility bill when a screen similar to Figure 5-3 is displayed, type **1** and press RETURN. HomeBanking will ask you the date you want to pay the bill.

ENTER T FOR TODAY'S BUSINESS DATE OR  
MM/DD/YY FOR FUTURE DATE

If you want the bill to be paid immediately, just type **T** and press RETURN. However, you can enter a future date (for instance, the exact day the bill is due), and the funds will not be transferred until that time. This is especially useful if you have an interest-drawing checking account and want to keep as much money in the account as you can for as long as possible. It is also useful if you are going out of town for an extended period and want to be sure all bills are paid on time in your absence.

Next you'll be asked the **AMOUNTS**: you want to pay. Simply enter the amount; for example, if the bill is \$37.82, type **37.82** and press RETURN. HomeBanking will then display a payment confirmation such as this:

```
FROM 005000-006000
PAY CALIFORNIA GAS AND ELECTRIC
  VUT550550
ON 11/08/84          $37.82
PLEASE CONFIRM
Y OR N:
```

If all the information is correct, type **Y** and press RETURN. HomeBanking will then display the transaction number and ask if you want to make another payment. The transaction number is, in effect, your receipt number for the payment. If you correspond with the payee (California Gas and Electric in this example) or with your bank, this number will identify the payment. Therefore, you should

---

```

PAY FROM 005000-006000
SELECT A PAYEE
1 CALIFORNIA GAS AND ELECTRIC
  VUT550550
2 SMITH INSURANCE AGENCY
  CT93MDI45
3 FLORENCE MORTGAGE CORPORATION
  6539422NALSD
SELECT ONE:
```

---

Figure 5-3. Sample payee list

write it down or make some record of it.

```
PAYMENT ACCEPTED
TRANSACTION NUMBER 199299
ANOTHER PAYMENT?
Y/N OR CMD:
```

Now that the transaction is complete, you can pay another bill, check your balance, or log off the system. If you want to pay another bill, respond to the prompt with a "yes".

## LOGGING OFF THE HOMEBANKING SERVICE

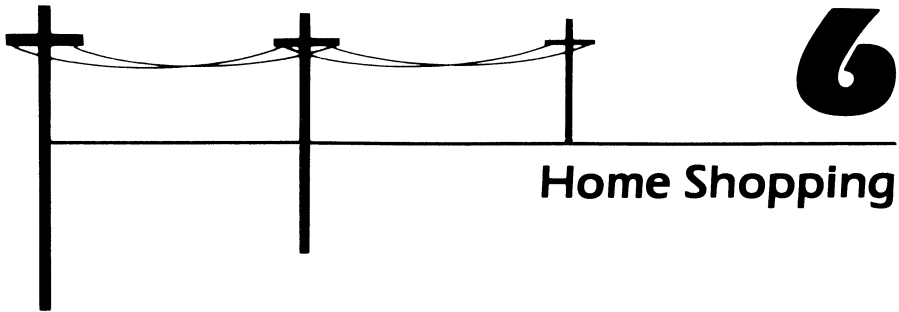
You can exit the HomeBanking service at any time by typing =LO and pressing RETURN. When you do, a sign-off message will be displayed, telling you the session has concluded.

At this point you will again be communicating with Tymnet. When the network displays the prompt **PLEASE LOG IN:** you can hang up the phone and exit the Vidtex program by pressing **⌘ X**.

If you want to keep records of your various transactions, you might want to save your home-banking sessions on disk. To do this with Vidtex, open the buffer (press **⌘ O**) when you begin a transaction and close the buffer (press **⌘ C**) when you have completed all your transactions. Then save the buffer contents on disk (press **⌘ S**). Chapter 3 provides a detailed description of these procedures.

This chapter describes only one of the many services that home banking provides. However, it should illustrate how easy it is to perform even relatively complicated transactions on your C-64. For a complete description of all the features offered by home banking, check with a bank that provides such a service.





You don't have to read the newspaper ads or drive from store to store to find the best buy—even for major purchases. When running around looking for that best buy—and sometimes finding it—you realize you are wasting a lot of time and money.

Connecting your C-64 to a telephone lets you shop right at home 24 hours a day, 7 days a week. Your shopping is done through the Comp-U-Store Home Shopping Service available at additional cost through CompuServe and several other information services. You don't have to put up with salespeople, long lines, traffic jams, and all the other headaches of shopping. Best of all, you save money. After only two or three major purchases, you can probably save enough money for the C-64 to pay for itself.

Let us say your TV is on the fritz, and you begin looking around at new color sets. You know what you want and what you can afford—and the two figures don't match up. You can spend about \$350, yet the set you want lists for about \$500. After checking stores, you have just about decided that you'll have to settle for less than you wanted.

Comp-U-Store, a database service that provides information on over 50,000 name-brand items (everything from roller skates to pianos), generally sells color

TVs for 40% less than the list price in most regular stores: \$320 through Comp-U-Store, compared to \$450 list, a savings of \$130.

Among the other goods you can buy are

- New cars (for only \$125 over dealer's cost)
- Stereos
- Telephone equipment
- Sewing machines
- Furniture (everything from patio furniture to recliners)
- Luggage
- Refrigerators
- Microwave ovens
- Computers and computer products (hardware and software).

How do you pay for purchases? Just as you would at any other store — personal checks, VISA, or MasterCard.

## ACCESSING COMP-U-STORE

Once you've logged onto CompuServe (see Chapter 3 for details), you'll be presented with a screen similar to that in Figure 6-1. The ! is CompuServe's command prompt, which signifies that the information service is waiting for you to type in something. To get to Comp-U-Store, select option 1, Home Services, by

---

```
      _____  
      |  
      |  COMPUSERVE INFORMATION SERVICE  
      |  
      |  1 HOME SERVICES  
      |  2 BUSINESS & FINANCIAL  
      |  3 PERSONAL COMPUTING  
      |  4 SERVICES FOR PROFESSIONALS  
      |  5 THE ELECTRONIC MALL (TM)  
      |  6 USER INFORMATION  
      |  7 INDEX  
      |  
      |  ENTER YOUR SELECTION NUMBER,  
      |  OR H FOR MORE INFORMATION.  
      |  !  
      |  
      |  
      |
```

---

Figure 6-1. CompuServe main menu

```
HOME SERVICES
1 NEWS/WEATHER/SPORTS
2 REFERENCE LIBRARY
3 COMMUNICATIONS
4 HOME SHOPPING/BANKING
5 GROUPS AND CLUBS
6 GAMES AND ENTERTAINMENT
7 EDUCATION
8 HOME MANAGEMENT
9 TRAVEL

LAST MENU PAGE. KEY DIGIT
OR M FOR PREVIOUS MENU.
!
```

---

**Figure 6-2.** *CompuServe Home Services menu*

typing **1** and pressing RETURN. You'll then be presented with another menu that looks like that in Figure 6-2.

Select option **4**, Home Shopping/ Banking, by typing **4** and pressing RETURN, and CompuServe will take you to the Home Shopping/ Banking menu. (See Figure 6-3.) Select option **1**, Comp-U-Store, and you will be presented first with

---

```
HOME SHOPPING/BANKING
1 COMP-U-STORE
2 ELECTRONIC BANKING
3 NATIONAL PUBLIC RADIO
4 THE ATHLETE'S OUTFITTER
5 DOCUMENTATION AND ART GALLERY
6 MUSIC INFORMATION SERVICE
7 FIFTH AVENUE SHOPPER
8 PRIMETIME RADIO CLASSICS

LAST MENU PAGE. KEY DIGIT
OR M FOR PREVIOUS MENU.
!
```

---

**Figure 6-3.** *Home Shopping/ Banking menu*

```
COMP-U-STORE SHOPPING SERVICE

1 OVERVIEW/INSTRUCTIONS
2 COMP-U-STORE BROWSING
3 COMP-U-STORE MEMBERSHIP
4 COMP-U-STORE ORDERING & BIDDING

ENTER ITEM NUMBER OR HELP
```

---

**Figure 6-4.** *Comp-U-Store menu for members*

Comp-U-Store's introductory message and then, if you're a Comp-U-Store member, with the first Comp-U-Store menu (see Figure 6-4).

If you're not a Comp-U-Store member, you may get a special menu that offers a description of the service, a shop-at-home demonstration, and an on-line membership sign up. (See Figure 6-5.) (The > is the Comp-U-Store command prompt that signifies the service is waiting for you to type something.) If you're not a member, you'll be able to see the Top menu (Figure 6-6)—although you still won't be able to order.

If you are a Comp-U-Store member, select option 4 on the menu in Figure 6-4

---

```
COMP-U-STORE SHOP-AT-HOME SERVICE

1 DESCRIPTION OF THE SERVICE
2 SHOP-AT-HOME DEMONSTRATION
3 MEMBERSHIP SIGN-UP
4 COMP-U-STORE SHOPPING SERVICE

LAST MENU PAGE. KEY DIGIT
OR M FOR PREVIOUS MENU:
>
```

---

**Figure 6-5.** *Comp-U-Store menu for nonmembers*

---

```
                **TOP**  
ENTER:  
(1) HELP & INFORMATION  
(2) SHOPPING & ORDERING  
(3) TO PROCESS A STORED ORDER  
(4) DATABASEMENT (BARGAINS)  
(5) COMP-U-STAKES (AUCTION)  
>
```

---

Figure 6-6. The Top menu

by typing **4** and pressing RETURN; you will be prompted

```
ENTER MEMBERSHIP #:  
>
```

Enter the number assigned to you when you subscribed to Comp-U-Store and press RETURN. You will be prompted

```
ENTER ACCESS CODE:  
>
```

Since the Access Code is secret, it will not appear as you type. When you have entered it, press RETURN. Once you are on-line with Comp-U-Store, a menu similar to the one shown in Figure 6-6 will appear.

It's a good idea to start by requesting a list of merchandise categories. Type **LIST** and press RETURN. Once you've done so, a display similar to that in Figure 6-7 will appear. For TV and Video Equipment, type **8** and press RETURN.

A list of the different categories of TV products that Comp-U-Store provides then appears. (See Figure 6-8.) Since you are looking for a television, type **TVSN** and press RETURN. Comp-U-Store next prompts

```
ENTER:  
    BRAND NAME  
    (NP) NO PREFERENCE  
    (LIST) BRAND LISTING  
>
```

You aren't looking for a particular brand of television, so type **NP** and press RETURN.

Next, Comp-U-Store will ask if you want a black-and-white or color TV.

#	CATEGORIES
1	APPLIANCES
2	CAMERAS & OPTICAL EQUIPMENT
3	CARS & CAR STEREO
4	FLATWARE & CRYSTAL
5	LUGGAGE
6	SPORTING GOODS
7	STEREO & AUDIO EQUIPMENT
8	TV & VIDEO EQUIPMENT
9	OTHER ELECTRONICS
10	MISCELLANEOUS

ENTER A CATEGORY #:

---

Figure 6-7. *Comp-U-Store list of merchandise categories*

CODE	PRODUCT
TVAC	TV ACCESSORIES
TVCA	TV CAS/CAM ACCESS
TVCM	VIDEO CAMERAS
TVCR	VIDEO CASSETTE RECORDERS
TVDK	VIDEO DISK PLAYERS
TVGM	TV GAMES & CARTRIDGES
TVSN	TELEVISION
TVSY	TV COMPONENTS
TVTP	TV BLANK TAPE

ENTER A PRODUCT TYPE:

---

Figure 6-8. *Subcategories within a merchandise category*

```
SCREEN SIZE
(NP) NO PREFERENCE
(1) LESS THAN 8 INCHES
(2) 9 INCHES
(3) 10 INCHES
(4) 12 OR 13 INCHES
(5) 14 OR 15 INCHES
(6) 16 OR 17 INCHES
(7) 19 INCHES
(8) 20 OR 21 INCHES
(9) 22 OR 23 INCHES
(10) 25 OR 26 INCHES
(11) PROJECTION
>
```

---

**Figure 6-9.** *List of TV screen sizes*

```
COLOR OR BLACK & WHITE
(NP) NO PREFERENCE
(1) COLOR
(2) BLACK & WHITE
>
```

Type **1** and press RETURN for color TVs.

Since TVs differ by screen size, you will be asked what size you are interested in. (See Figure 6-9.) Nineteen-inch TVs are a standard size, so type **7** and press RETURN.

Comp-U-Store will now ask if you want remote control.

```
REMOTE CONTROL
(NP) NO PREFERENCE
(1) YES
(2) NO
>
```

If you don't, type **2** and press RETURN.

Comp-U-Store will then ask where the TV is to be shipped. (Shipping charges are automatically figured into the quoted price.)

TELEVISION				PAGE 1 OF 1
#	MFG	MODEL	FDC	
1	GE	19PC3704W	320.03	
2	SHRP	19H74	324.51	
3	SNYO	91C500	305.74	
4	SNYO	91C510	321.39	
5	SYLV	CXB161W	320.03	
6	TSHB	CE910	321.79	

ENTER: AN ITEM #, OR  
(P#) FOR THAT PAGE  
(CHA) TO CHANGE >

---

Figure 6-10. List of goods meeting shopper's specifications

SHIP-TO-STATE  
(NECESSARY FOR QUOTE)  
>

Let's assume you live in Chicago; type **ILLINOIS** and press RETURN.  
Finally, Comp-U-Store asks

WHAT'S THE MOST YOU WILL SPEND?  
>\$

TELEVISION		
MFG	: SYLVANIA	MODEL: CXB161W
LIST :	439.95	SRCHG:
FDC :	320.03	COLOR: WG
SAVE	119.92	
-----DESCRIPTION-----		
19" COLOR PORTABLE TV WITH TWO DIAL TUNING. WALNUT GRAINED CABINET.		
WANT TO ORDER? (Y OR N)		

---

Figure 6-11. Specifications of a particular product



Since you've already decided not to spend more than \$325, type **325** and press RETURN. Comp-U-Store will then display a list of all televisions that meet your specifications. (If Comp-U-Store has no product meeting your specifications in the price range you're after, it will tell you so at this time.) (See Figure 6-10.)

If you are interested in the Sylvania unit, type **5** and press RETURN. A display similar to that in Figure 6-11 will appear.

If you don't want to order this TV, type **N** and press RETURN, and the previous menu will appear. The next section describes what happens if you do want to order the product.

## ORDERING MERCHANDISE THROUGH COMP-U-STORE

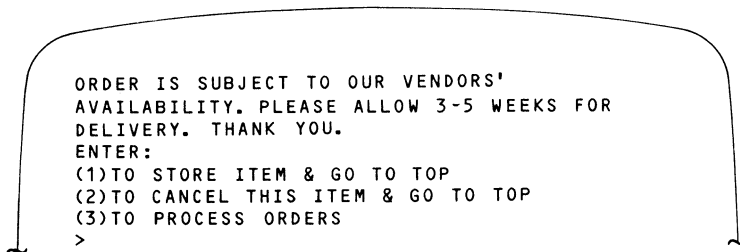
When you decide that you want to place an order with Comp-U-Store, answer the question in Figure 6-11, **WANT TO ORDER? (Y OR N)**, by typing **Y** and pressing RETURN.

Comp-U-Store will ask how many of the items you want to order: **QUANTITY:**. Since you want only one TV, type **1** and press RETURN. Comp-U-Store then displays a message like the one shown in Figure 6-12.

To order the TV, type **3** and press RETURN. Comp-U-Store will return with a display similar to that in Figure 6-13.

Since the ordering information is correct, type **1** and press RETURN. Comp-U-Store then tells you how much you owe and asks how you want to pay. (See Figure 6-14.)

---



```
ORDER IS SUBJECT TO OUR VENDORS'  
AVAILABILITY. PLEASE ALLOW 3-5 WEEKS FOR  
DELIVERY. THANK YOU.  
ENTER:  
(1)TO STORE ITEM & GO TO TOP  
(2)TO CANCEL THIS ITEM & GO TO TOP  
(3)TO PROCESS ORDERS  
>
```

---

Figure 6-12. Order Initiation menu

```
ORDER CONFIRMATION:
#      TYPE      MFG      MODEL #  FDC
1      TVSN      SYLV     CXB161W  320.03
QTY: 1
ENTER:
(1) IF OK
(2) TO CANCEL AN ITEM
(3) TO REDISPLAY ORDER >
```

---

Figure 6-13. Order Confirmation menu

Let's assume you want to pay by personal check — type **CH** and press RETURN. Comp-U-Store will respond with the message

```
A TWO WEEK DELAY OCCURS WHILE CHECK
CLEARS. PAY BY CHECK? (Y OR N):
```

If you don't mind the wait, type **Y** and press RETURN.

You will then be told to whom you should make out the check (Comp-U-Store) and asked the exact address to which the television is to be shipped.

Finally, you are given one last chance to cancel the order. Comp-U-Store will display a referral number (that is, the electronic equivalent of a receipt) that you should write down and save.

---

```
BALANCE DUE: 320.03
PAYMENT TYPE:
(CH) CHECK
(V) VISA
(MC) MASTERCARD
>
```

---

Figure 6-14. Display of balance due and payment choices

Once the order is processed and confirmed, Comp-U-Store automatically returns you to the Top menu, where you should type **EXIT** and press RETURN to return to CompuServe. Next, type **BYE** and press RETURN to log off CompuServe.

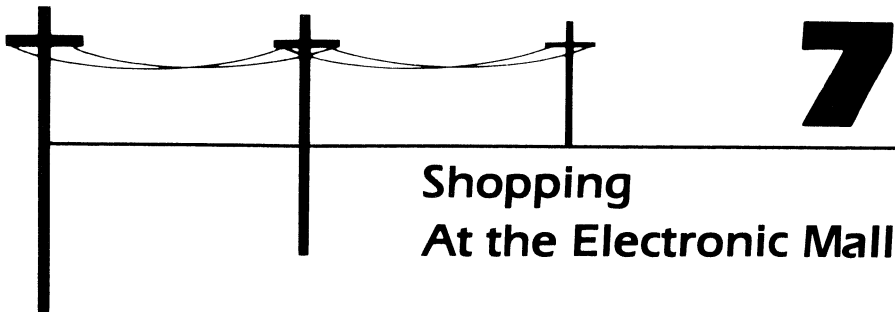
## **FINDING OUT MORE ABOUT COMP-U-STORE**

If you want more information on Comp-U-Store, write or call the service at

Comp-U-Card of America, Inc.  
777 Summer Street  
Stamford, CT 06901  
Telephone: 800-243-0266 (in all states except Connecticut)  
800-942-3315 (in Connecticut)

Comp-U-Store can also be accessed through The Source or Dow Jones; if you subscribe to them, see your user's guides for information on accessing Comp-U-Store. In addition, both CompuServe and The Source provide their own shopping services for such merchandise as books, records, clothes, artwork, and more. Again, see the user's guide for more details.





## Shopping At the Electronic Mall

It is possible to go shopping at many of your favorite stores 24 hours a day without standing in line or having to fight for a parking spot—just use your C-64 to go on-line with the Electronic Mall. Some of the stores in the Electronic Mall are Bloomingdale's, Sears, E.F. Hutton, 47th Street Photo, Colonial Penn Insurance, Big T Automotive, McGraw-Hill Books, Kodak, Waldenbooks, RCA Record Club, and Stark Brother's Nursery—and there are many, many more.

Once you have entered the Electronic Mall via CompuServe, you can browse through the stores just as you would at any other shopping mall. Or if you know exactly what store you want to patronize, you can go directly to it and see what they have in stock or on sale.

When you have found an item you want to buy, just drop it in your “shopping basket” by typing **O** (or typing the word **ORDER**) and keep on browsing. When you have found another item, drop it in your basket the same way. You don't pay for the articles you have collected until you “exit” the store (just as with any other store).

At the “checkout stand,” you are asked what method of payment you want to use: the store's charge card, VISA, MasterCard, or whatever. If you have a Sears credit card, for instance, you can charge any purchases at Sears electronic store to your account. When the order form appears on the screen, simply enter your name, shipping address, and credit-card number, and the items will be shipped to you in a couple of days.

```
1 INTRODUCTION
2 NEW & NOTEWORTHY (9/13/84)
3 ORDERING INSTRUCTIONS
4 DIRECTORY OF MERCHANTS
5 BROWSE THE MALL
6 TALK TO THE MALL MANAGER
7 ENTER THE ELECTRONIC MALL

KEY DIGIT OR M FOR PREVIOUS MENU
!
```

---

Figure 7-1. *Electronic Mall main menu*

## ENTERING THE MALL

To get to the Electronic Mall, log onto CompuServe (see Chapter 3 for details), and when the CompuServe main menu appears, select option 5, Electronic Mall. (If you are somewhere else in the system, you can reach the mall by typing **GO EM-1** and pressing RETURN.) The Electronic Mall main menu will then appear. (See Figure 7-1.)

The first time you enter the mall, you should type **1** and press RETURN to read the introductory material. After that (and every time you go to the mall, for that matter) you should read the New and Noteworthy section, number 2 on the menu, to see if any new stores or services have been added.

The following example illustrates how to find your way around the Electronic Mall. Assume that you are going shopping for a book, specifically a book about the C-64. To begin, you need to know what bookstores are located at the mall; then you need to “enter” a store and order a book.

## ENTERING A STORE

From the main Electronic Mall menu, type **4** and press RETURN. A list of stores (see Figure 7-2) arranged alphabetically will begin scrolling up your screen.

Notice that the left column lists the name of the store and the right column displays the Go command followed by the store code. When you have identified the store at which you want to shop, type **GO** and the store code when the **!** prompt is displayed. In this instance, try shopping at Waldenbooks by typing **GO WB** and

---

```
STARK BROTHERS NURSERY  GO SB
SUPERSOFT                GO SU
VANGUARD GROUP          GO VG
VISICORP                GO VC
WALDENBOOKS             GO WB
WALL STREET JOURNAL     GO DJ
WOMAN'S DAY BOOKS      GO WD
```

---

**Figure 7-2.** Partial list of Electronic Mall stores

pressing RETURN. When you do so, Waldenbooks' introductory menu will appear. (See Figure 7-3.)

Since every store has a slightly different ordering procedure, you should always read the ordering procedures section, especially if you are entering the store for the first time. In this case, type **4** and press RETURN. Waldenbooks' ordering information will then appear (refer to Figure 7-4).

By typing **M**, you will return to Waldenbooks' main menu (Figure 7-3). To begin shopping, select option 2, The Waldenbooks Catalog, by typing **2** and pressing RETURN. A list of book categories, just like the labels on the shelves in a regular bookstore, will then appear. (See Figure 7-5.)

---

```
// // // // // // // // // //
                WELCOME TO WALDENBOOKS
// // // // // // // // // //
1. INTRODUCTION
2. THE WALDENBOOKS CATALOG
3. CONTACT US
4. ORDERING INFORMATION

LAST MENU PAGE. KEY DIGIT
OR M FOR PREVIOUS MENU.
!
```

---

**Figure 7-3.** Sample main menu

```
=====
ORDERING INFORMATION
=====
*   VISA, MASTERCARD, AND AMERICAN
    EXPRESS ACCEPTED
*   $2.00 SHIPPING AND HANDLING
    CHARGE PER ORDER.
*   WE SHIP VIA UPS WHENEVER
    POSSIBLE; ALLOW 3-4 WEEKS
    FOR DELIVERY.
*   "WALDENBOOKS HAS LOCATIONS IN
    ALL 50 STATES. THEREFORE WE
    MUST CHARGE SALES TAX IN ALL
    STATES WITH SUCH A TAX."

LAST PAGE. KEY M FOR MENU
!
```

---

Figure 7-4. Sample ordering information

```
1. THE COMPUTER CONNECTION
2. BUSINESS & PERSONAL FINANCE
3. THE FINEST IN FICTION
4. PEOPLE AND PLACES
5. HEALTH, FITNESS AND SPORTS
6. COOKBOOKS
7. JUST FOR KIDS
8. KEEPSAKE AND INSPIRATIONAL
9. PLAN YOUR TRAVEL NOW
10. SPECIAL VALUES
11. WALDENTAPES(TM) LISTEN/LEARN
12. SCIENCE FICTION AND FANTASY

LAST MENU PAGE. KEY DIGIT
OR M FOR PREVIOUS MENU.
!
```

---

Figure 7-5. Sample product category menu



---

```
      = THE COMPUTER CONNECTION =  
  
1.  GENERAL INTEREST  
2.  FOR THE IBM  
3.  YOUR COMMODORE  
4.  TI COMPUTERS  
5.  APPLE BOOKWARE  
6.  VIC PICKS  
7.  ATARI SELECTIONS  
  
LAST MENU PAGE. KEY DIGIT  
OR M FOR PREVIOUS MENU.  
!
```

---

**Figure 7-6.** Sample article section in an electronics store

Books on the C-64 would obviously be found in the first section, so type **1** and press RETURN. The computer book section menu will then appear (see Figure 7-6).

Since you are looking for a C-64 book, type **3** and press RETURN. The first thing you will see is a message that says

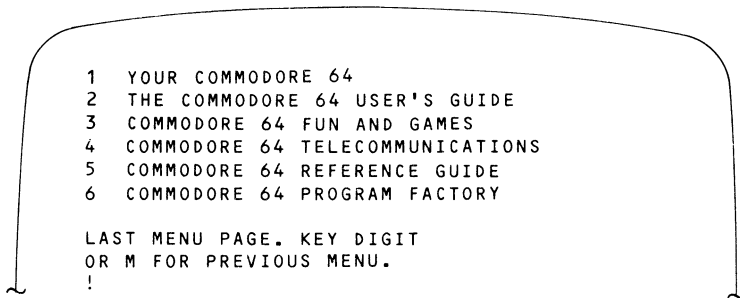
**6 ARTICLES SELECTED**

This is the store's way of telling you how many books in the selected category are in stock. In this case, Waldenbooks has six Commodore-related books. After that, the individual titles will appear on the screen. (See Figure 7-7.)

By pressing the keys that correspond to the numbers in the left-hand column, you can read a description of each book and be told the price. After reading the descriptions, assume that you want to buy *Your Commodore 64*. To do so (when a menu like that in Figure 7-7 is displayed), type **0 1** and press RETURN. This simply tells the store you wish to "order book #1." (If you wanted to order *Commodore 64 Program Factory* instead, you would type **0 6** and press RETURN.) When you do order an article, the following message will then appear:

```
YOUR ORDER HAS BEEN PLACED  
IN YOUR PERSONAL ORDER FILE  
!
```

This message just tells you that you have placed the book into your "shopping cart." Remember that you won't have to pay for the item until you leave the store.



---

**Figure 7-7.** *Sample article selection menu from an electronic store*

## LEAVING A STORE AND PAYING FOR AN ITEM

When you are ready to leave a store, just return to the store's "entrance," or main menu (see Figure 7-3), by typing **M** (for "previous menu") several times and pressing RETURN at the **!** prompt. When you do this at the store's "entrance," an order form will appear. (See Figure 7-8.)

The only difference between Figure 7-8 and a standard catalog ordering form is in the name of the article itself. This form shows that you have ordered *Your Commodore 64*; it then asks how many ("quantity") of that item you wish to order. Type **1** and press RETURN to order a single book. (If you have ordered other books, their titles and the quantity prompt will then be displayed.) Following that will be an "order summary" form that lists each article you have ordered, the quantity and price of each item, and finally the total dollar amount of the purchase. The store then asks if the information is correct; if so, type **Y** (for yes) and the order form will continue. If not, type **N** and you are reprompted so you can correct the order.

If the ordering information is correct, the order form continues with the billing information. Specifically, you must enter the name and address of the person paying for the purchase (the billing person), the method of payment, and the name and address that the article is to be shipped to. In each instance, you are prompted for the information.

Entering the name and address of the billing person is relatively straightforward: when the **:** prompt appears, just enter the information requested (name, street address, city, phone number, and so on) and press RETURN.

In almost every case, the method of payment is a charge card. Waldenbooks, for instance, might present payment options like those shown in Figure 7-9.

```
ELECTRONIC ORDER FORM

TO CANCEL AN ORDER AT ANY POINT
IN THIS ORDER ROUTINE SIMPLY
ENTER:
    EXIT
AND YOUR ENTIRE ORDER WILL BE
VOIDED.
FOR EACH ITEM, ENTER THE
REQUESTED INFORMATION.

YOUR COMMODORE 64
QUANTITY
:
```

---

Figure 7-8. *Electronic order form*

After specifying the method of payment you wish to use, you'll be asked the card number and expiration date on the card. Next the store will query whether or not the article is to be shipped to an address other than the card's billing address. Finally, the order confirmation is displayed (refer to Figure 7-10).

Once you type **Y** and press RETURN, the order will be placed and an *order confirmation number* will appear. Write this number down and save it; all communication with the store about the order must refer to this number.

Also remember that you can cancel the order at any time before the order

---

```
HOW WOULD YOU LIKE TO PAY FOR
THIS ORDER?

1. VISA
2. MASTERCARD
3. AMERICAN EXPRESS
PLEASE CHOOSE PAYMENT METHOD!
```

---

Figure 7-9. *Sample method of payment menu*

```
ORDERED BY:
ASHER FITZGERALD
2338 COLUMBIA AVE.
STOVER, MO 64087

TELEPHONE #: 314-555-8763

CHARGE TO: VISA
CARD #: 4XX123123XX1
EXPIRATION DATE: 2/86

RECIPIENT:
SAME AS ABOVE

TOTAL ORDER: $14.95

IS THIS CORRECT? (Y/N)
```

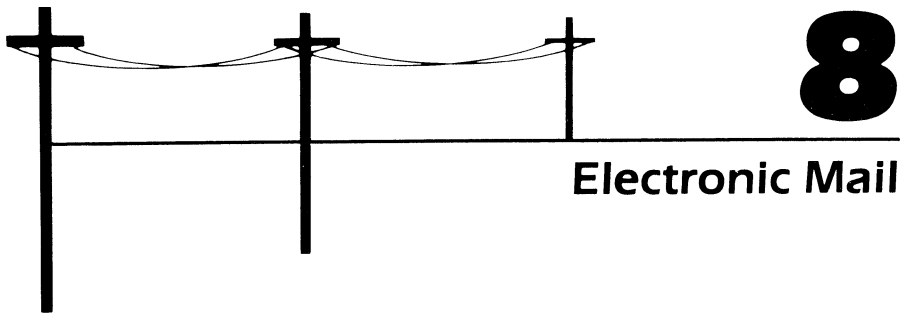
---

**Figure 7-10.** *Sample order confirmation display*

confirmation number appears by typing **EXIT** and pressing RETURN. If you need to cancel an order after the order has been placed, you can do so by contacting the store directly by telephone, regular mail, or electronic mail. Information (addresses, phone numbers, and so forth) about how to contact a store is included in the introductory information about the store (refer to Figure 7-1).

Every store will have a slightly different procedure for ordering merchandise. Some stores in the Electronic Mall provide catalogs that are sent to you on request, so you can browse through them at your leisure, going on-line with the store only to actually place the order. Most stores, however, are like Waldenbooks in that they have an on-line catalog.

New stores join the Electronic Mall continuously, and new products are offered by member stores on a regular basis. Furthermore, most stores run special sales on a regular basis. Stark Brother's Nursery, for example, offers discounts for bedding plants in the spring, and computer supply stores offer discounts on software packages.



With the advent of electronic mail, the Post Office motto should perhaps be changed to "Neither snow, nor rain, nor gloom of night, nor software bugs . . . ." Even with the possibility of program errors, electronic mail is one of the main reasons many people become involved with telecommunications in the first place.

Electronic mail essentially consists of any message or letter that is written on a computer and transmitted (mailed) by that computer over a telecommunications line. What happens once the letter is sent depends on a number of things: to whom it is sent, where it is sent, how quickly it is to be delivered, and whether or not the recipient has a computer.

Electronic mail takes many different forms. Most electronic mail services allow you to send letters instantly from one computer (your C-64, for instance) to another. If the person to whom you are sending electronic mail doesn't have a computer, some services print out the letter on their printer and deliver it to the recipient within hours. The one thing all electronic mail services have in common, however, is that letters can be sent more quickly than with traditional postal service.

Databases that offer electronic mail services include the United States Post Office, Western Union, MCI Communications, CompuServe, and The Source. Generally speaking, electronic mail services fall into two categories: those "dedicated" to electronic mail and those offering electronic mail as a feature of a larger service. E-COM, the U.S. Post Office's electronic mail service; MCI Mail, the mail

service of MCI Communications (the long-distance phone company); and Easy-Link, Western Union's service, are dedicated mail services. Their primary function is to send and receive letters and messages electronically.

EMAIL and SourceMail, the electronic mail branches of CompuServe and The Source, have somewhat more limited capabilities than the dedicated services. For example, mail sent through the CompuServe or Source systems can only be sent to subscribers of that service. (Mail transmitted via MCI or the Post Office can be sent to anyone, anywhere.)

Since there is no envelope to stick a stamp on, you are usually billed on a monthly basis. Some services, such as MCI Mail, charge only for the letters you send, just as with normal mail. When you use an information utility (CompuServe or The Source) to send electronic mail, there is no charge other than your regular on-line costs. In this chapter, both types of electronic mail will be described.

Your C-64 is an excellent personal computer to use for electronic mail. You can write letters several different ways: by using one of the many available word processing programs, by typing directly into the RAM buffer of your communications program, and by typing when you are on-line with the service. If someone sends an electronic letter to you, you can read the message, download and store it on disk, and print it out whenever you need to.

## **MCI MAIL**

MCI Mail is one of the most widely used dedicated electronic mail services and offers a variety of mail delivery options. MCI offers, for instance, Instant Letters, which can be delivered in seconds to another MCI Mail subscriber. All that person has to do is turn on his or her computer and check the "mailbox." MCI's Four Hour Letters are delivered within four hours to designated cities throughout the U.S. (Atlanta, Boston, Chicago, St. Louis, Dallas, San Francisco, and others). The person receiving a Four Hour Letter doesn't have to be an MCI subscriber. Overnight Letters are delivered before noon the next day to anyone (MCI subscriber or not) located in one of 20,000 cities across the country. Finally, MCI Letters (sent from your C-64) are delivered via first-class mail faster than when you mail the letter via regular mail. MCI Mail also allows you to send telexes, a method of communication similar to electronic telegrams. (The telex system is used primarily by people engaged in international business to send messages quickly and cheaply to offices in other parts of the world.) If you have a telex number, you can use your C-64 to receive telexes.

Unlike some information services, MCI does not charge you for signing up with the system or charge for on-line communication time. Nor is there a minimum monthly charge—you pay only when you mail a letter. Mailing a three-page Instant Letter (computer-to-computer) costs about \$1; an additional three pages will cost another \$1. MCI Letters (mailed from your C-64 but delivered via

first-class mail) cost about \$2 to mail, Overnight Letters cost \$6, and Four Hour Letters cost \$25.

In addition, you can select various options, such as volume mail, mailing lists, and graphics for letterheads and signatures. You are charged extra for each of these. Furthermore, you can access the Dow Jones News/Retrieval service (see Chapter 12) through the MCI Mail system. (When you are billed for using the service, the charge will come from MCI, not Dow Jones.)

## **Subscribing to MCI Mail**

When you subscribe to the MCI Mail service, you are assigned a user name and a secret password. Both must be entered correctly before you can access the system.

Your user name is typically the first letter of your first name followed by your last name: AFITZGERALD might be the user name for a customer named Asher Fitzgerald. The secret password, however, is a series of random characters that may be difficult for you to remember. For example, the password might be IOFDREFI.

You will also be assigned an MCI Mail ID number and a customer number. The ID number is used to distinguish you from another subscriber who may have the same name. The customer-service number, however, is used for accounting purposes. Neither has to be entered when you log onto the MCI Mail system.

Signing up with the service also means you get a series of quick reference guides that serve as the system documentation. Additional information, such as a complete user's guide, brochures on volume mail, and a letterhead and signature kit, is also available free of charge.

## **Logging Onto MCI Mail**

Accessing MCI Mail requires your C-64 telecommunications system to be properly connected and set up. When you have loaded the Vidtex program (or another communications package), set the communications parameters: 300 baud, XON/XOFF (flow control) enabled, 7-bit word length, no parity (ignore parity), and 1 stop bit. (See Chapter 3 for details on setting up your hardware and software.)

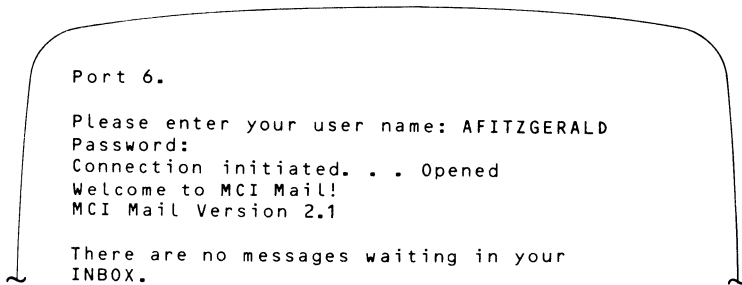
Once the system is set up and running, you can dial the MCI Mail phone access number that is closest to you. MCI Mail provides phone access numbers in more than 30 major cities across the country, and you receive a list of them when you subscribe to the service. If the list does not include a phone number in your area, contact MCI Mail for an updated list or additional instructions.

When you are ready to dial the number, press **C-@** (assuming you are using Vidtex) and enter the phone number. When your Automodem's CD (Carrier

Detect) light comes on, press RETURN twice. The first message appearing on your screen is a special message from the service that indicates which part of the system you have accessed, for instance, **PORT 6**.

Next you will be prompted for your user name: **PLEASE ENTER YOUR USER NAME:**. Enter the name you were assigned by MCI and press RETURN. For example, type **AFITZGERALD** and press RETURN. At this point, MCI will ask you for your secret password: **PASSWORD:**. (As in most services, the password will not be displayed on the screen as you enter it.) For instance, type **IOFDREFI** and press RETURN.

If you have entered the correct log-on sequence, the introductory MCI message followed by any special announcements or news headlines appears. This is followed by a message telling you if there are any instant letters in your mailbox that need to be read. The entire log-on sequence will be similar to this:



```

Port 6.

Please enter your user name: AFITZGERALD
Password:
Connection initiated. . . Opened
Welcome to MCI Mail!
MCI Mail Version 2.1

There are no messages waiting in your
INBOX.

```

Finally, the MCI main menu (see Figure 8-1) will appear. The first time you use the service, it is a good idea to select the Account option that allows you to identify the characteristics of your personal computer to the service. If you do this, the MCI system will send information formatted for computers like your C-64. For instance, the Account option enables you to tell the system the type of terminal you have (video or paper), the line width and page length of the screen, and your particular time zone. Although you can use MCI Mail with your C-64 without adjusting the Account options, customizing these features will make the display more readable. When you initially enter the system, for example, MCI Mail sends information at the rate of 80 characters per line across your screen. Since the C-64 displays a maximum of 40 characters per line, it may be difficult at times to read the display. (See Figure 8-2.)

To adjust the terminal display, type **ACCOUNT** and press RETURN. The service will first ask if you want to view the current settings; if you respond by



```

You may enter:

SCAN      for a summary of your mail
READ      to READ messages one by one
PRINT     to display messages nonstop
CREATE    to write an MCI Letter
DOWJONES  for Dow Jones News/Retrieval
ACCOUNT   to adjust terminal display
HELP      for assistance

Command (or MENU or EXIT):
```

---

Figure 8-1. Sample MCI Mail log-on sequence and introduction

---

```

We have sent the sales reports you requested under separate cover. I hope this will enable you to get the job done.
```

- a. MCI Mail message displayed at 80 characters per line on the C-64

```

We have sent the sales reports you requested under separate cover. I hope this will enable you to get the job done.
```

- b. MCI Mail message displayed at 40 characters per line on the C-64
- 

Figure 8-2. MCI Mail line-width differences on the C-64 display

entering **yes**, the following may appear on the display.

```

Do you wish to see your current
settings?
  YES or NO: Y
TERMiNal type:  VIDEO
LINE length:    80
PAGE depth:    24
TIME zone:     EST

Setting you wish to change:
  
```

To change the line width, type **LINE** and press RETURN. MCI will respond with the prompt **PLEASE ENTER THE LINE LENGTH:**. It is probably a good idea to use 39 characters per line. This allows for 39 characters plus the carriage return code on each line; therefore, type **39** and press RETURN. MCI will then ask if you want to change another setting. If not, just press RETURN. Finally, the service will ask **Are Settings PERMANent or TEMPorary:**. If you select “permanent” by entering **PERM**, the new settings will be in effect whenever you log onto the MCI system. If you choose “temporary” by entering **TEMP**, you will have to reset the options the next time you log on. If you select temporary settings, the message **Temporary settings are now in effect** is displayed. But if you select permanent settings, the message **Permanent settings are now in effect** is displayed. After either message is displayed, you should press RETURN, and the main menu (Figure 8-1) will reappear.

## Writing an MCI Mail Letter

Letters mailed via MCI can be written either on-line or off-line. In most cases, it is to your advantage to write the letter off-line, using either the Vidtex RAM buffer or a word processing program, and then upload it to the MCI system. (A word processing program is preferred because of its greater editing capabilities.) Short messages can be written and edited while on-line with the MCI system. In any case, letter writing begins when you select the Create option from the main menu. To select this option, simply type **CREATE** and press RETURN at the MCI command prompt. MCI will then ask you to address the “envelope.”

### ADDRESSING THE ENVELOPE

When you select the Create option from the main menu, the first prompt that appears is **TO:**. At this prompt, you must identify the person to whom you are writing. Enter that person’s name the way you want it to appear on the envelope. For instance, type **Dave Lammert** and press RETURN. The MCI system will check its database to see if the person (that is, the addressee) is also an MCI subscriber.

---

```
Command (or MENU or EXIT): CREATE
TO: Dave Lammert
    (Dave Lammert University of Missouri
     Columbia MO)
```

---

**Figure 8-3.** Instant Letter addressed to another MCI Mail subscriber

If the addressee is a subscriber to MCI Mail, the service will display the person's name and address below the name you entered. This is to be sure that the letter is addressed to the correct person. In such a case, MCI will assume that you want an Instant Letter (which you will enter later) to be automatically sent to that person's computer. The procedure might look like Figure 8-3.

In some cases, there may be more than one MCI Mail subscriber who has the name you typed in. If this situation occurs, the name, address, and MCI ID of all subscribers who have that name will be listed, and you can choose the correct addressee. (See Figure 8-4.) You simply enter the number listed in the left-hand column and press RETURN. For example, type **1** and press RETURN to select Dave Lammert at the University of Missouri. (See Figure 8-4.)

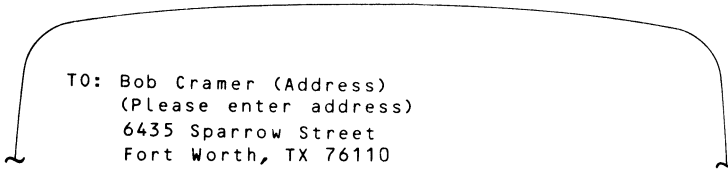
If you want a printed version of the letter sent via first-class mail to another MCI Mail subscriber, enter the addressee's name and then type **(Address)** before pressing RETURN. (See Figure 8-5.)

---

```
Command (or MENU or EXIT): CREATE
TO: Dave Lammert
    There is more than one:
    1 204-555 Dave Lammert University
      of Missouri Columbia MO
    2 343-123 Dave Lammert Brooks Book
      Company Houston TX
Please enter the number:
```

---

**Figure 8-4.** Selecting the correct Instant Letter recipient when more than one MCI Mail subscriber has the same name



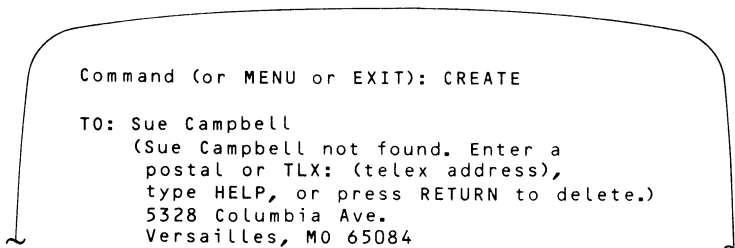
```
T0: Bob Cramer (Address)
(Please enter address)
6435 Sparrow Street
Fort Worth, TX 76110
```

---

**Figure 8-5.** Printed letter to be sent via first-class mail to another MCI Mail subscriber

In many instances, you will want to send letters to people who aren't MCI Mail subscribers. These letters are either delivered by first-class mail or by courier (overnight or four-hour delivery). When you enter the name of an addressee who is not an MCI subscriber, the service will search its database and tell you that the person is not registered; you will then be prompted to enter a mailing or telex address as illustrated in Figure 8-6.

Once you have identified the addressee (including the mailing address), the **TO:** prompt will reappear, giving you the option of sending the same letter to another person. Follow the same procedure, or press RETURN to display the next prompt — **CC:**. This lets you send a "carbon copy" of the letter to someone else. If you don't want to send a copy, just press RETURN and the **SUBJECT:** prompt will appear. If you don't want to identify the letter for your records, press RETURN to begin entering the letter.



```
Command (or MENU or EXIT): CREATE

T0: Sue Campbell
(Sue Campbell not found. Enter a
postal or TLX: (telex address),
type HELP, or press RETURN to delete.)
5328 Columbia Ave.
Versailles, MO 65084
```

---

**Figure 8-6.** MCI Mail letter addressed to a nonsubscriber

## ENTERING THE LETTER

Once you have addressed the “envelope,” the prompt **TEXT: (TYPE / ON A LINE BY ITSELF TO END)** will appear and you can begin entering the letter. If you are typing the letter while on-line, simply type as you normally would. However, if you have previously written the letter and saved it on disk, you will be ready to load it into the Vidtex RAM buffer and then upload it to the service.

To upload a file, return to the Vidtex main menu by pressing **CM** (don't worry, you won't go off-line); then press **CL** and enter the filename of the letter when prompted. (If you have forgotten the filename, type **C\*** to check the disk directory.) When the letter is in the buffer, type **Cv** to enter the letter into the MCI screen. When the letter has been completely entered, you should “sign” your name as in a regular letter.

For either method of entering letters, the way you indicate the end of the letter (after you have signed your name) is the same: press RETURN, type / and press RETURN again. A complete MCI Mail message might look like Figure 8-7.

---

```

Command (or MENU or EXIT): CREATE

TO: Marvin Davis
    (Marvin Davis not found. Enter a
    postal or TLX: (telex address), type
    HELP, or press RETURN to delete.)
    Box 342
    Rte. # 3
    Peterborough, NH 32084

TO:
CC:
Subject: Birthday
Text: (Type / on a Line by itself to
end)

Dear Marvin,
Just a note to say happy birthday! Don't
look at it as if you are getting older.
Just tell yourself that you aren't
getting any younger.
As always,
Pat
/
  
```

---

**Figure 8-7.** Entering an MCI Mail letter to a nonsubscriber

## Sending an MCI Mail Letter

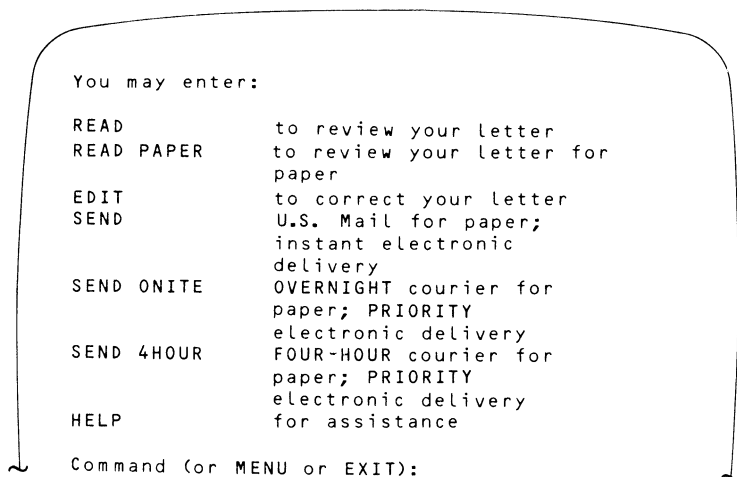
Once you have indicated that your letter is complete by typing / and pressing RETURN, the MCI Mail Send menu will appear (see Figure 8-8). From this menu you can read and make changes to messages before sending them. To select any of the options, just enter the appropriate command (the left-hand column in Figure 8-8) and press RETURN.

To send the letter in Figure 8-7, for example, you would type **SEND** and press RETURN. A message indicating the date and time the message is sent will then be displayed.

```
One moment please; your message is
being posted.
Your message was posted: Sat May 19,
1984 12:38 pm PST.
Press <RETURN> to continue
```

When you press RETURN, the MCI main menu will reappear. You can then write another letter, read your mail, sign onto Dow Jones, or exit the system. To log off the MCI system, just type **EXIT** and press RETURN. This sign-off message will appear:

```
Call clearing requested by remote
source.
```



---

Figure 8-8. MCI Mail Send menu

Although you have logged off, you will not be completely disconnected from the service; consequently, the MCI Mail's initial prompt (asking for your user name and ID) will reappear. If you want to log back onto the service, enter the correct information. If not, disconnect the phone line from the Automodem to "hang up" the phone. If you do not disconnect the phone or log back onto the service, MCI will hang up its phone after two minutes.

## **Finding Out More About MCI Mail**

If you want to find out more about MCI Mail, contact the service at

MCI Mail  
2000 M Street, NW  
Washington, DC 20036  
Phone: 202-293-4255

## **COMPUSERVE'S EMAIL**

CompuServe's EMAIL is fairly typical of electronic mail services offered by general-purpose information utilities. It allows you to compose, edit, and send electronic mail to other CompuServe subscribers and to read and store the electronic messages sent to you.

Except for normal on-line connect charges, sending and receiving EMAIL is free. Since you pay for on-line time, there is a definite advantage for you to write letters off-line and then use your C-64 Vidtex upload features to mail the letter. You should keep in mind, however, that the maximum length of a letter in EMAIL is 4000 characters. If you try to send a longer document, the service will instruct you to shorten the message. The maximum number of letters that can be sent to one user at a time is 20.

## **Accessing Electronic Mail**

Once you've logged onto CompuServe (see Chapter 3 for details), you'll be presented with CompuServe's main menu, similar to the one shown in Figure 8-9. The ! is CompuServe's command prompt, which signifies that the information service is waiting for you to type in something. To write, send, or read an electronic memo, first select option 2, Business & Financial, by typing **2** and pressing RETURN. Another menu, like that in Figure 8-10, will appear. Next select option 3, Communications, from this menu by typing **3** and pressing RETURN. CompuServe will then send another menu screen, similar to the one shown in Figure 8-11. Select

```
1 HOME SERVICES
2 BUSINESS & FINANCIAL
3 PERSONAL COMPUTING
4 SERVICES FOR PROFESSIONALS
5 THE ELECTRONIC MALL (TM)
6 USER INFORMATION
7 INDEX

ENTER YOUR SELECTION NUMBER,
OR H FOR MORE INFORMATION.
!
```

---

**Figure 8-9.** *The CompuServe Information Service menu*

option 1, Electronic Mail, by typing **1** and pressing RETURN. A brief description of EMAIL will then be displayed, followed by another menu. (See Figure 8-12.) You are ready to use the electronic mail system.

---

```
BUSINESS AND FINANCIAL SERVICES

1 NEWS/REPORTS
2 REFERENCE DATABASE
3 COMMUNICATIONS
4 BROKERAGE SERVICES
5 BANKING SERVICES
6 DISCUSSION FORUM
7 TRAVEL SERVICES
8 PERSONAL FINANCE

ENTER YOUR SELECTION NUMBER,
OR H FOR MORE INFORMATION.
!
```

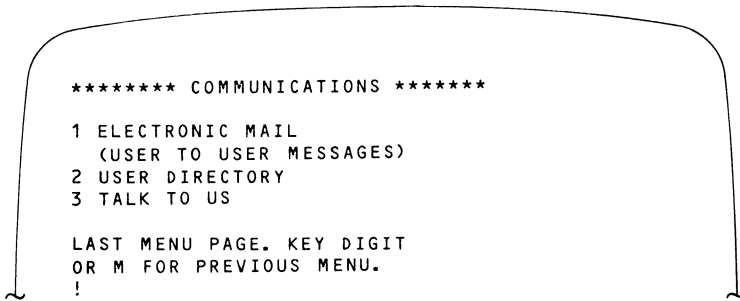
---

**Figure 8-10.** *The CompuServe Business and Financial Services menu*



---

```
***** COMMUNICATIONS *****  
  
1 ELECTRONIC MAIL  
  (USER TO USER MESSAGES)  
2 USER DIRECTORY  
3 TALK TO US  
  
LAST MENU PAGE. KEY DIGIT  
OR M FOR PREVIOUS MENU.  
!
```

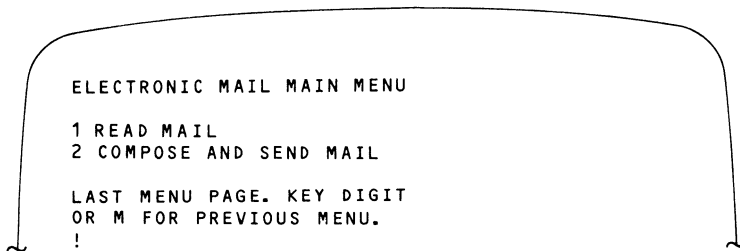


---

**Figure 8-11.** *The CompuServe Communications menu*

---

```
ELECTRONIC MAIL MAIN MENU  
  
1 READ MAIL  
2 COMPOSE AND SEND MAIL  
  
LAST MENU PAGE. KEY DIGIT  
OR M FOR PREVIOUS MENU.  
!
```



---

**Figure 8-12.** *The CompuServe Electronic Mail main menu*

## Writing and Sending EMAIL Letters

If you're sending messages, select option 2, Compose and Send Mail. Several options like those shown in Figure 8-13 will then be presented.

To compose short memos, select FILGE (short for "File Generator") by typing 1 and pressing RETURN. The CompuServe file number for your letter will appear at

```
CREATE A NEW MESSAGE IN YOUR
TEMPORARY WORKSPACE USING:
 1 FILGE EDITOR
 2 ICS EDITOR
 3 FILE FROM DISK SPACE
EDIT MESSAGE IN WORKSPACE USING:
 4 FILGE EDITOR
 5 ICS EDITOR
 6 SEND MESSAGE FROM WORKSPACE
 7 INFORMATION ON FILGE
 8 INFORMATION ON ICS

LAST MENU PAGE. KEY DIGIT
OR M FOR PREVIOUS MENU.
!
```

---

**Figure 8-13.** A CompuServe Electronic Mail options menu

the top of the screen. *This number is for CompuServe's reference only;* it need not concern you. You can now type any message you want. For instance, you might type the following:

```
10/12/83
 8:30 PM
```

```
DAVE
```

```
GOOD TO HEAR FROM YOU THE OTHER DAY.
GIVE ME A CALL AT 212-555-3341 AT 10:00
EST ON 10/13/83.
```

```
WENDY
```

Once you're satisfied that the message is complete, type /EX and press RETURN and you will exit to the Electronic Mail main menu shown in Figure 8-13. Then, if you're sure the message is correct, type 6 and press RETURN to send it.

Before your message is sent, however, you'll be asked the user ID of the person you are sending it to. (See Figure 8-14.) Next you'll be asked the subject matter. In the previous example, it might be DL:CALL for "Dave Lammert: Call Me." Finally, you'll be asked to give your name. You can enter your name or initials. (Refer again to Figure 8-14.)

CompuServe will give you one final chance to be sure the information is correct. If you answer YES or Y, the mail is sent. Note that it can take as long as 20 minutes to process the letter.

---

```
KEY <ENTER> TO LEAVE; ? FOR HELP
SEND TO USER ID: 70007,912
SUBJECT?          (32 CHARACTERS MAX)
:DL:CALL
YOUR NAME?       (32 CHARACTERS MAX)
:WENDY
(12 CHARACTERS)
```

---

**Figure 8-14.** *Input needed before a message is sent*

## Reading EMAIL Letters

Like most electronic mail systems, CompuServe notifies you when someone has sent you an electronic letter as soon as you log onto the system. Instead of displaying the main menu, the message **YOU HAVE EMAIL WAITING** appears. The information service then automatically takes you to the Electronic Mail main menu. (See Figure 8-12.)

By selecting option 1, Read Mail, you can get various kinds of information, as shown in Figure 8-15.

- A list of all messages sent to you
- The name of each person who sent a message
- The subject of each message.

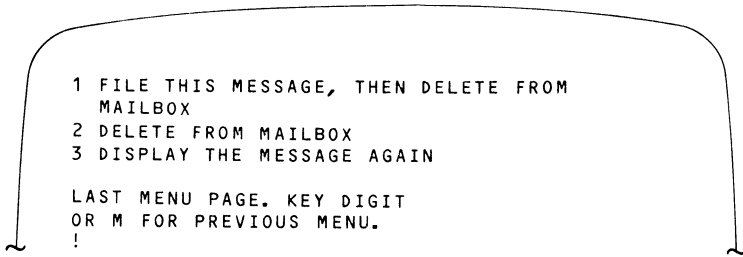
---

```
1 WENDY/DL:CALL
2 JR/DL:UPDATE

LAST MENU PAGE. KEY DIGIT
OR M FOR PREVIOUS MENU.
!
```

---

**Figure 8-15.** *A list of messages identifying senders and subjects*



---

**Figure 8-16.** *A CompuServe Electronic Mail options menu*

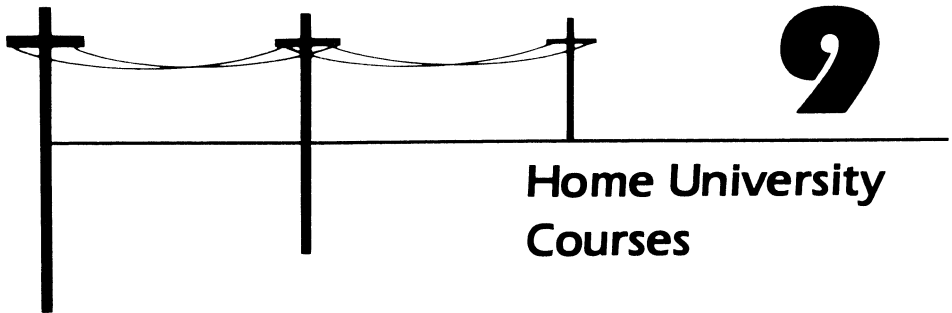
You can select the message you want to read by typing the appropriate number and pressing RETURN. The message will then appear on your C-64 display. At the top of the display will be the time and date the mail was sent so it doesn't get mixed up with other letters.

## Storing or Throwing Away EMAIL

When you press RETURN, a menu similar to Figure 8-16 appears. After you have typed **1**, **2**, or **3**, the specified operation is performed.

- Option 1 deletes the message from the display but stores it in CompuServe's computer for about a month in case you need to see it again.
- Option 2 deletes the message forever.
- Option 3 displays the message again.

If you need to leave a message for another person, return to the Electronic Mail main menu by typing **M** and pressing RETURN. You can then go through the procedure for composing and sending mail.



Part of the problem everyone encounters when going to college is that you have to rearrange your schedule to accommodate the university's schedule. If you are a full-time student, this usually isn't a problem. If you are a part-time student, however, this means not being able to take the courses you want, having to reschedule your work hours, or not having the time to enjoy other activities.

Correspondence courses have been the traditional alternative to college for part-time students. Although correspondence courses can go a long way in bridging the gap between institutions and individuals, they don't offer the immediate interaction between you and your instructor, where much of your education actually occurs.

Telecommunications offers another alternative, however. With your C-64, a modem, and an appropriate communications program, you can enroll in the Electronic University, which allows access to hundreds of accredited courses ranging from American history to child psychology. Ohio University, the University of Nebraska, San Diego State University, and the New York Institute of Technology are just a few of the participating colleges that offer credits for Electronic University coursework. In addition, Electronic University courses can prepare you for College Level Examination Program (CLEP) tests. More than

1500 colleges and universities across the country belong to the CLEP program. With a passing grade on a CLEP test you can earn college credits without doing coursework.

## **TAKING COURSES AT THE ELECTRONIC UNIVERSITY**

Once you have registered with the Electronic University and are enrolled in a specific course, your C-64 will relay all lessons, exams, and communications with your professor, as well as special instructions and reading assignments. When you register for a class, you are sent a special course diskette (sent to you when you enroll) and purchase a textbook. Optional study guides are also available.

For the most part, you and your instructor (who may be on the other side of the country) can work and study at different times because the university is “open” 24 hours a day, 7 days a week. When you have an assignment to turn in, just send it to your professor’s electronic mailbox. Questions about the class can be asked the same way. And when you need to talk directly with your teacher, simply make an appointment that is agreeable to both of you. When that time arrives, you and your instructor can both go on-line and “talk” by typing on the keyboard.

## **REGISTERING AS AN ELECTRONIC UNIVERSITY STUDENT**

Before enrolling in an Electronic University course, you must register as a student by purchasing an Electronic University software program, which is on a C-64 5 1/4-inch diskette. It is important to note that the program is a “smart” terminal program designed especially for the C-64 and for the Electronic University system. You cannot use Vidtex or another communications program to access the Electronic University. Electronic University software is available through many computer stores or from

TeleLearning Systems, Inc.

Phone: 1-800-225-3276 (in all states except California)

1-800-445-3276 (in California)

Several versions of the package are available. The basic package consists of the disk and a manual. Another version also provides a modem (called a *Knowledge Module*), while a third version includes a computer literacy course. If you already have a Commodore Automodem 1650, the basic package should be all that you will require.

## ACCESSING THE ELECTRONIC UNIVERSITY

Before accessing the Electronic University, be sure your C-64 telecommunications system is set up properly. (See Chapter 3 for details.) Once the system is connected, type **LOAD "TLS",8** and press RETURN to load the program. Then type **RUN** and press RETURN to execute the program. When the Ready prompt is displayed, you access the university through the Tymnet or Telenet network. (For a description of these networks, see Chapter 4. A list of network phone numbers is included in the Electronic University manual.)

### Registering at the University

The first time you run the program, you will be asked to enter your local Tymnet or Telenet number. The phone number is then stored on the program diskette and will be automatically dialed when you subsequently run the program.

Next you will be asked which type of modem you are using: the Commodore Automodem 1650 or the TeleLearning Knowledge Module. Answer the question correctly since auto-dialing differs for the two modems.

Once you have confirmed that the information you entered is correct, you will be asked to enter information about yourself: your name, address, phone number, and so on.

When you have completed the registration process, you can either exit the program or begin enrolling in a course. What is important about the registering process is that all the information has been saved on the program disk as you entered it. When you then use the disk to subsequently log onto the Electronic University system, the system automatically knows who you are.

### Enrolling in an Electronic University Course

The Electronic University catalog (included with the user's manual) provides a list and descriptions of available classes. Figure 9-1 shows a typical catalog entry.

When you have identified a course that you want to take, there are several ways to enroll in it: fill out the card enclosed with the manual, attach a money order or check, and return it to TeleLearning; call the TeleLearning toll-free phone number (listed earlier in this chapter) and pay by credit card; register electronically when on-line with the University and pay by credit card.

No matter which way you enroll in a course, the first menu presented when you log onto the system is the Course Registration menu (see Figure 9-2). As soon as you enroll, you can order books and study guides on-line from the Electronic University "bookstore."

#4195

General Psychology

In this first-semester college-level psychology course, you will learn the psychological factors influencing human behavior. Whether you want assistance in preparing for the CLEP exam or knowledge of the principles affecting human behavior, this course is designed to meet your needs. Some of the major topics are:

- physiological psychology
- perception
- learning and language
- emotions
- social influences
- techniques of psychotherapy.

Your instructor will respond to your coursework with detailed analyses of your comprehension of course material and suggestions for further study.

- Timothy L. Roorda, Ph.D.

Dr. Roorda is an educational psychologist with more than fifteen years' experience in public schools and private practice. He has taught at the college level and is Director of the Personal Learning Institute in Napa, California. Currently he is using computer and video technology to supplement traditional methods of providing psychological and educational services to his clients.

Course Book: Introduction to Psychology  
(Harcourt, Brace, Jovanovich)

Study Guide: Introduction to Psychology Study Guide  
(Harcourt, Brace, Jovanovich)

No. Sessions: 11

Book No.: 2195a

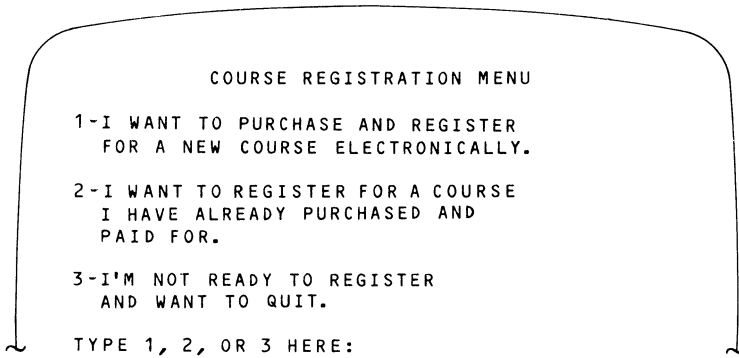
Study Guide No.: 2195b

Course Price: \$115

Book Price: \$25.95

Study Guide Price: \$9.95





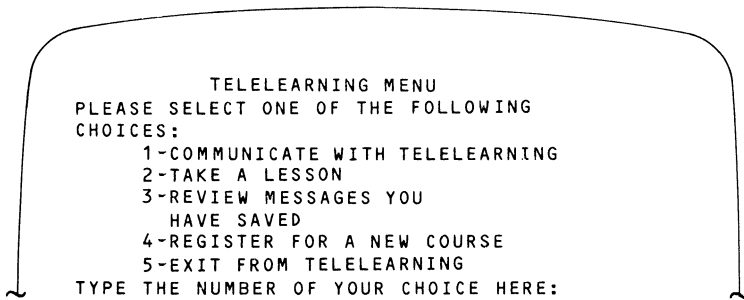
---

Figure 9-2. *Electronic University Course Registration menu*

## ATTENDING AN ELECTRONIC UNIVERSITY CLASS

Once you have enrolled in a class, the TeleLearning main menu (see Figure 9-3) will automatically appear whenever you log onto the system. Selecting an option from the TeleLearning main menu causes another, more specific menu to appear on your screen. After that, what appears on your screen generally depends on the class in which you have enrolled.

---



---

Figure 9-3. *TeleLearning main menu*

## Communicating With TeleLearning

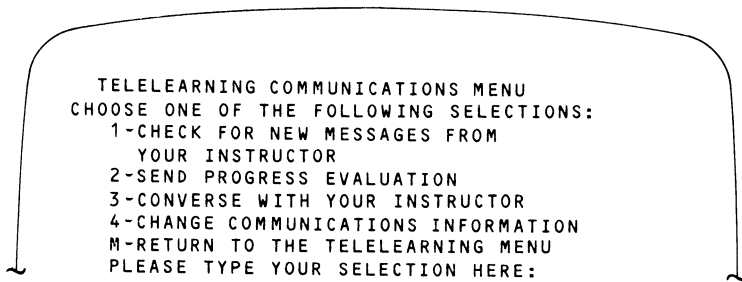
The first choice on the TeleLearning main menu allows you to communicate with the University. When you select this option, a menu like that in Figure 9-4 will appear.

If your instructor has sent you any messages, for instance, you are notified when you select the first option. Once you have completed a lesson and are ready to send a request for a "progress evaluation," choose option 2. Appointments with your instructor are scheduled when you select option 3, Converse With Your Instructor. If your local Tymnet or Telenet number has changed or if you are using a different modem from the one you originally specified, select the fourth option to tell the system.

## Taking a Course Lesson

You begin a course lesson by selecting the second option from the TeleLearning main menu (shown in Figure 9-3). At this time you must remove the Electronic University program disk from your disk drive and insert the course disk. When you do so, the TeleLearning Lesson menu (refer to Figure 9-5) will appear on the screen.

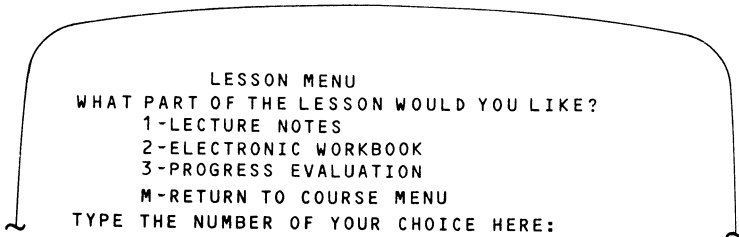
Again, the specific information presented by the TeleLearning Lesson menu depends upon the course you are taking. In general, however, the Lecture Notes option introduces you to the topics covered in the lesson and tells you the specific lesson objectives. The Electronic Workbook option provides review questions and miscellaneous information about the lesson.



---

Figure 9-4. TeleLearning Communications menu

```
LESSON MENU
WHAT PART OF THE LESSON WOULD YOU LIKE?
1-LECTURE NOTES
2-ELECTRONIC WORKBOOK
3-PROGRESS EVALUATION
M-RETURN TO COURSE MENU
TYPE THE NUMBER OF YOUR CHOICE HERE:
```



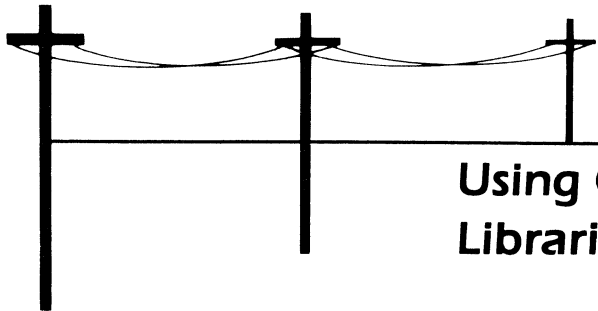
---

**Figure 9-5.** *TeleLearning Lesson menu*

The Progress Evaluation option presents a test on the lesson material. You must complete a quiz on each lesson before you can move on to the next. This test is made up of a combination of true or false, multiple choice, and essay questions. As you take the test, your answers are stored on disk. When the test is complete, you must return to the TeleLearning Communications menu (refer to Figure 9-4) and send your answers to your instructor.

When you have finished the course by completing the final lesson, your final grade will be mailed to you as soon as it is processed.





# 10

## Using Computerized Libraries

Getting to the library isn't always convenient or even possible. The library may not even have the information you need. Not getting the information you want is a nuisance if you are researching a topic for general interest; if you are a student writing a term paper, it can be detrimental to your grade.

Once you begin telecommunicating with your C-64, you will probably be able to locate most of the resources you will ever need, everything from an encyclopedia to the contents of thousands of periodicals.

There are many different sources of computerized research material. CompuServe provides a variety of resources, including periodicals and encyclopedias. Databases like Knowledge Index and BRS After Dark provide more detailed information.

### **OBTAINING RESEARCH INFORMATION FROM COMPUSERVE**

Why would you want to use CompuServe's encyclopedia rather than the one on the library shelf? For one reason, the library copy may be less up-to-date—a real handicap in many fields of knowledge—and smaller and less comprehensive. The Grolier encyclopedia provided by CompuServe contains more than 9 million

```
COMPUERVE INFORMATION SERVICE

1 HOME SERVICES
2 BUSINESS & FINANCIAL
3 PERSONAL COMPUTING
4 SERVICES FOR PROFESSIONALS
5 THE ELECTRONIC MALL (TM)
6 USER INFORMATION
7 INDEX

ENTER YOUR SELECTION NUMBER,
OR H FOR MORE INFORMATION.
!
```

---

**Figure 10-1.** *CompuServe main menu*

words and 30,000 entries. Cross-referencing is fast and easy, and complete bibliographies list other relevant publications for further research. Furthermore, if you use a disk drive, you can store the research material as you receive it. You can then use a word processing program to merge the material with other pertinent information as you write the report on paper.

---

```
HOME SERVICES

1 NEWS/WEATHER/SPORTS
2 REFERENCE LIBRARY
3 COMMUNICATIONS
4 HOME SHOPPING/BANKING
5 GROUPS AND CLUBS
6 GAMES AND ENTERTAINMENT
7 EDUCATION
8 HOME MANAGEMENT
9 TRAVEL

LAST MENU PAGE. KEY DIGIT
OR M FOR PREVIOUS MENU.
!
```

---

**Figure 10-2.** *Home Services menu*

---

```

                                EDUCATION

$ 1 GROLIER'S ACADEMIC AMERICAN
  ENCICLOPEDIA
  2 THE COLLEGE BOARD
  3 THE MULTIPLE CHOICE
  4 CLARKE SCHOOL FOR THE DEAF

LAST MENU PAGE. KEY DIGIT
OR M FOR PREVIOUS MENU.
!
```

---

**Figure 10-3.** *CompuServe's Education menu*

For starters, select option 1, Home Services, from the CompuServe main menu shown in Figure 10-1. The Home Services menu will appear (Figure 10-2).

To use the encyclopedia, select option 7, Education, by typing 7 and pressing RETURN, and CompuServe will take you to the Education menu. (See Figure 10-3.) (The \$ sign indicates that an additional fee is charged for using the option.)

To get to the encyclopedia, next select option 1, Grolier's Academic American Encyclopedia, by typing 1 and pressing RETURN. You'll be presented with a menu like the one in Figure 10-4. If you want information on how to use the

---

```

                                THE ELECTRONIC EDITION OF
                                GROLIER'S ACADEMIC AMERICAN
                                ENCICLOPEDIA
                                COPYRIGHT (C) 1983
                                ARETE PUBLISHING COMPANY
                                1 ELECTRONIC ENCICLOPEDIA
                                2 AAE USER'S GUIDE
                                3 PRODUCT INFORMATION
                                4 GROLIER TALK-BACK

                                !
```

---

**Figure 10-4.** *Encyclopedia menu*

encyclopedia, select option 2, AAE User's Guide. Otherwise, begin researching a topic by selecting option 1, Electronic Encyclopedia.

When the ! prompt is displayed, you can begin searching the encyclopedia for a particular topic. Type in the **SE** (for "search") command followed by a word identifying the topic. For instance, if you are researching solar energy, you might type **SE SOLAR** and press RETURN.

The encyclopedia will display a list of available articles like this:

```
SOLAR
5 ARTICLES SELECTED
1 SOLAR APEX
2 SOLAR COLLECTORS
3 SOLAR ENERGY
4 SOLAR FLARE
5 SOLAR RADIATION

INPUT A NUMBER OR KEY
<ENTER> FOR MORE CHOICES
!
```

By selecting option 3, Solar Energy, you can read a general article on solar energy. When you are finished reading press RETURN, and another menu, similar to the following, will appear:

```
1 POWER GENERATION
2 RESIDENTIAL APPLICATIONS
3 INDUSTRIAL APPLICATIONS
4 BIBLIOGRAPHY

LAST MENU PAGE. KEY DIGIT
OR M FOR PREVIOUS MENU.
!
```

Since you are primarily interested in solar energy use in homes, select option 2, Residential Applications, by typing **2** and pressing RETURN. An article on that topic will appear. After that, another menu, like this one, will be displayed:

```
1 ACTIVE SYSTEMS
2 PASSIVE SYSTEMS

LAST MENU PAGE. KEY DIGIT
OR M FOR PREVIOUS MENU.
!
```



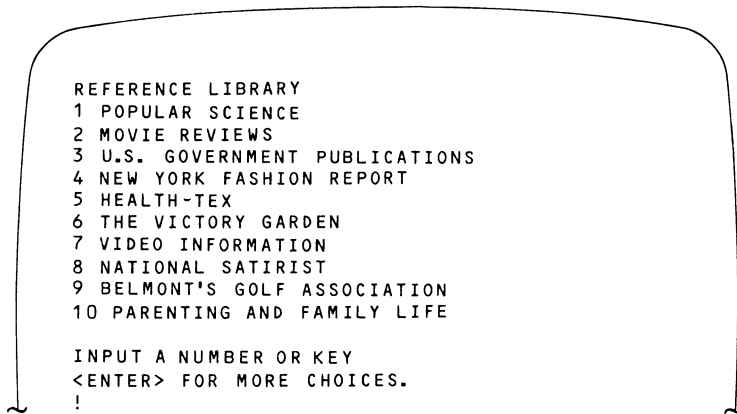


Figure 10-5. Reference Library main menu

After you have all the information you need, type **M** and press RETURN. You might then begin searching for other sources of solar energy information.

If you want to look up magazines and other periodicals, return to CompuServe's Home Services menu (shown in Figure 10-2) and select option 2, Reference Library, by typing **2** and pressing RETURN. A list of available publications like that in Figure 10-5 will be displayed.

Since *Popular Science* magazine regularly carries articles concerning solar energy, you might select option 1 (by typing **1** and pressing RETURN). In this case, you will be able to obtain three articles on solar energy—one on a solar house, another on solar energy applications in an urban environment, and a third on solar hot-water heaters. You could then return to the Reference Library main menu (see Figure 10-5) and select option 3, U.S. Government Publications, where "Energy Conservation" might be one of the topic categories; choosing this option produces three government pamphlets about solar energy.

## OBTAINING RESEARCH INFORMATION FROM KNOWLEDGE INDEX

CompuServe isn't the only information service providing reference material. Other services offer extensive reference material for high schools, colleges and universities, and business. However, they have fewer hours of access than CompuServe and are therefore not as convenient, and they are costlier to use.

One such service, the Dialog Information Service, offers the Knowledge Index, a reference source with over 4 million summaries of books, magazine articles, and reports on business, technology, science, current events, and other topics. To keep service costs to a minimum, Knowledge Index is available only in the evenings and on weekends.

Unlike many information services, Knowledge Index does not have its own telephone network; it must be accessed via a local Tymnet or Telenet phone number (see Chapter 4). When you subscribe to Knowledge Index, you'll be provided with a directory of local Tymnet or Telenet phone numbers.

You make the same hardware connections (that is, phone connections) to communicate with Tymnet or Telenet as you do for CompuServe. Setting the communications protocol is also the same, although the specific software requirements may be different. See the Knowledge Index literature for details.

Once the hardware and software are set up (see Chapter 3), the C-64 and Telenet should be ready to "talk" to each other. When the Vidtex main menu is displayed, press **C@** on your C-64 keyboard and the Vidtex call prompt will appear. Enter the local Telenet number; for instance, type **555-4321** and press RETURN.

When the connection is completed at the other end, press RETURN to establish it. The following message from Telenet will appear: **TELENET 817 19E**. (In this message, 817 19E is a sample code; the actual code will vary according to the location you are calling from.)

Next Telenet will display the message **TERMINAL =**. In response to this prompt, simply press RETURN. After a brief pause, Telenet will send you the message **@**. You can then specify that you want the Knowledge Index service by typing **C 41548K** and pressing RETURN.

Knowledge Index will prompt you for your account number and password (assigned when you subscribed). Enter them and press RETURN. If you make a mistake while entering either the account number or password, Knowledge Index will tell you so and ask you to repeat the procedure. The results of the entire procedure should look something like Figure 10-6.

Once on-line with Knowledge Index, you'll be able to search thousands of articles in just a few minutes. To sift through them, all you have to know is the general subject area of your topic. When Knowledge Index prompts you, **?**, to let you know that you can request information, the general procedure is to

1. Tell Knowledge Index to begin a section (by typing **BEGIN**) from one of the following nine general subject areas, listed in the literature you receive when you subscribe to Knowledge Index:
  - Agriculture
  - Business information
  - Computers and electronics
  - Corporate news

- Education
- Engineering
- Government publications
- Magazines
- Medicine.

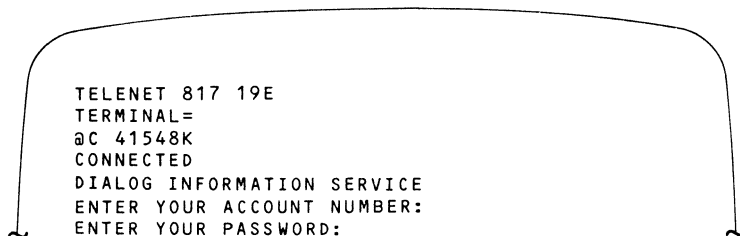
For example, to find out information pertaining to education, type **BEGIN EDUCATION** and press RETURN.

2. Tell the service to find (by typing **FIND**) a more specific topic. Knowledge Index will then tell you how many articles are filed on that topic. For example, type **FIND ELEMENTARY EDUCATION** and then press RETURN.
3. Tell Knowledge Index to display (by typing **DISPLAY**) one of the articles (each article is identified by a code). For instance, type **DISPLAY S1** and press RETURN.
4. To exit Knowledge Index, simply type **LOGOFF** when the ? prompt is displayed (at the end of the article).

If you're interested in subscribing to Knowledge Index, you can send for a brochure outlining the services it offers. Write to

Knowledge Index  
Dialog Information Services, Inc.  
3460 Hillview Avenue  
Palo Alto, CA 94304  
Phone: 800-528-6050, ext. 415 (in all states except Arizona)  
800-352-0458, ext. 415 (in Arizona)

---



```
TELENET 817 19E
TERMINAL=
@C 41548K
CONNECTED
DIALOG INFORMATION SERVICE
ENTER YOUR ACCOUNT NUMBER:
ENTER YOUR PASSWORD:
```

---

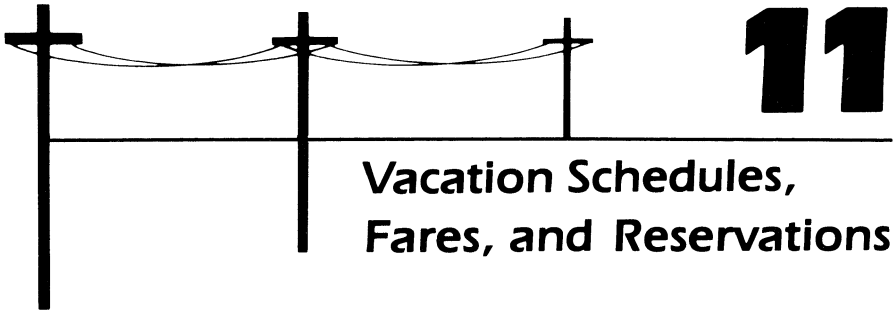
Figure 10-6. Knowledge Index log-on sequence via Telenet

## **BIBLIOGRAPHIC RETRIEVAL SERVICES (BRS)**

Bibliographic Retrieval Services (BRS) offers information in such areas as science and medicine, business and finance, reference, education, the social sciences and humanities, and energy and environment.

In general, BRS costs more than Knowledge Index, but the information is probably worth the extra cost if you're doing research of a highly technical nature. And as with Knowledge Index, you can access BRS through either Tymnet or Telenet. To find out more about BRS, contact:

Bibliographic Retrieval Services  
1200 Route 7  
Latham, NY 12110  
Phone: 800-833-4707



# 11

## Vacation Schedules, Fares, and Reservations

Whether you are a constant or an occasional traveler, there are times you need to know about airline schedules and fares right away. Of course, you can get your own copy of the airline schedule compendium (a book about the size of a big-city phone directory). However, even the most recent publication is always weeks out of date, for the airlines seem to change schedules daily — if not hourly. Tapping into the airlines' "official" scheduling system provides a better way of keeping up-to-date on the most recent airline fares and schedules.

Your C-64 telecommunications system provides you with access to airline information through CompuServe and other information services. The Official Airlines Guide (OAG) database provides schedules—updated weekly—for more than 290,000 North American flights and a total of 820,000 flights worldwide on 640 airlines. The OAG also provides fare information that is updated daily.

Before using the OAG service, you might think you have to be a travel agent to understand the scheduling system, but the first time you log onto the OAG, you'll find out otherwise. It's quick and simple to use and can save you both time and money.

When you go on-line with the OAG, you're asked your point of departure. You enter the name of a city or an airport code (just like the ones on baggage tags). Next the OAG asks your destination. Again, just enter the name of a city or an

airport code. You are then asked the date and time of day you want to fly. After you respond, a list of all scheduled flights from your point of departure to your destination will appear on the C-64's display. You can also obtain fare information about any flight you specify.

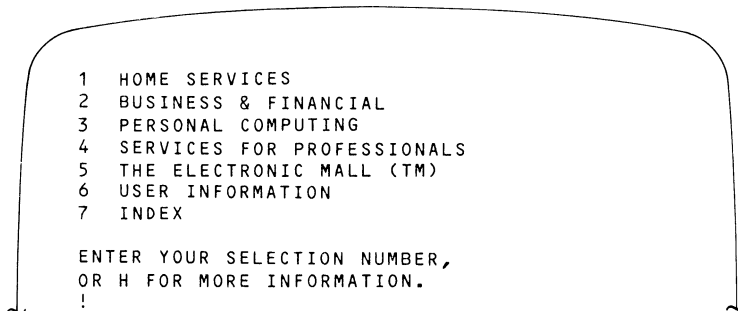
Use of the OAG is billed through your CompuServe account. You can also connect to the OAG via Tymnet or Telenet, but each of these requires a special OAG account number and password.

Before beginning your OAG session, be sure your C-64 telecommunications system is set up correctly. See Chapter 3 for correct hardware and software setup procedures. Chapter 3 also provides instructions for logging onto CompuServe.

## ACCESSING OAG INFORMATION

Once you've logged onto CompuServe, you'll be presented with a screen similar to that in Figure 11-1. The ! is CompuServe's command prompt, which signifies that the information service is waiting for you to type in something. To access airline schedule and fare information, select option 2, Business and Financial, by typing 2 and pressing RETURN. You'll then be presented with a menu like the one shown in Figure 11-2.

Select option 7, Travel Services, by typing 7 and pressing RETURN; a Travel menu like the one shown in Figure 11-3 will appear. Select option 1, Official Airline Guide. The OAG menu will then appear. (See Figure 11-4.) Option 3 of the OAG



---

Figure 11-1. The CompuServe Information Service menu

```
BUSINESS AND FINANCIAL SERVICES

1 NEWS/REPORTS
2 REFERENCE DATABASE
3 COMMUNICATIONS
4 BROKERAGE SERVICES
5 BANKING SERVICES
6 DISCUSSION FORUM
7 TRAVEL SERVICES
8 PERSONAL FINANCE

ENTER YOUR SELECTION NUMBER,
OR H FOR MORE INFORMATION.
!
```

---

**Figure 11-2.** *The CompuServe Business and Financial Services menu*

```
TRAVEL

1 OFFICIAL AIRLINE GUIDE
2 PAN AM TRAVEL GUIDE
3 WORLDWIDE EXCHANGES
4 STATE DEPARTMENT ADVISORIES
5 TRAVEL FAX
6 TRAVEL AMERICA
7 AIRPORT DELAYS
8 FIRSTWORLD TRAVEL CLUB
9 NORWEGIAN AMERICAN CRUISES
10 TRAVELVISION

ENTER YOUR SELECTION NUMBER,
OR H FOR MORE INFORMATION.
!
```

---

**Figure 11-3.** *The CompuServe Travel menu*

```
OFFICIAL AIRLINE GUIDE EE
  1. HOW TO USE OAG EE
  2. OAG EE FEEDBACK
  $3. ACCESSING OAG EE

OAG HELP DESK: 800-323-4000
LAST MENU PAGE. KEY DIGIT
OR M FOR PREVIOUS MENU.
!
```

---

**Figure 11-4.** *The OAG menu*

menu gives details regarding flights. (The \$ sign indicates that using the option costs extra.)

Once you've selected option 3, OAG will begin with introductory information, which is followed by a prompt. To answer the prompt you need to know only four commands:

- /S to investigate schedule information
- /F to investigate fare information
- /I to get help information
- /Q to quit and return to CompuServe.

If you type either /S or /F, for fare or scheduling information, you will be asked four questions:

1. What is your departure city?
2. What is your destination city?
3. What is your departure date?
4. What time do you want to leave?

You can answer by typing in the names, dates, and times as follows:

- City names can be typed in full or abbreviated by the official three-character airport code (the one used on airline baggage claim checks to identify destinations, such as DFW for Dallas-Fort Worth Airport).



- Dates must be entered with the day of the month first, followed by a three-letter abbreviation for the month (for instance, 26 Jan for January 26).
- Times can be in 24-hour or regular format (that is, 3:00 P.M. can be either 1500 hours or 3 P.M.).
- For both time and date, you can enter + and press RETURN, and OAG will assume you want to use the current date and 6:00 A.M.

## Getting Schedule Information

You need use only one command to get airline schedule information, the /S command. Simply type /S and press RETURN.

OAG will respond **ENTER DEPARTURE CITY NAME OR CODE**. Enter the name of a city or its airport code. You might, for example, enter either **CHICAGO** or **ORD**.

OAG will respond **ENTER DESTINATION CITY NAME OR CODE**. Again enter the name of a city or its airport code. You might, for example, enter either **DENVER** or **DEN**. OAG will then prompt you for the departure date: **ENTER DEPARTURE DATE OR ENTER + TO USE 26 JAN**. (January 26 is simply a sample date; the current date will be used when you log on.) Enter a date, putting the day of the month first, or + for the current date. Finally, OAG will ask you to **ENTER DEPARTURE TIME OR ENTER + TO USE 600AM**. If you enter + and press RETURN, all flights from Chicago to Denver on the entered or current date will be displayed. (See Figure 11-5.)

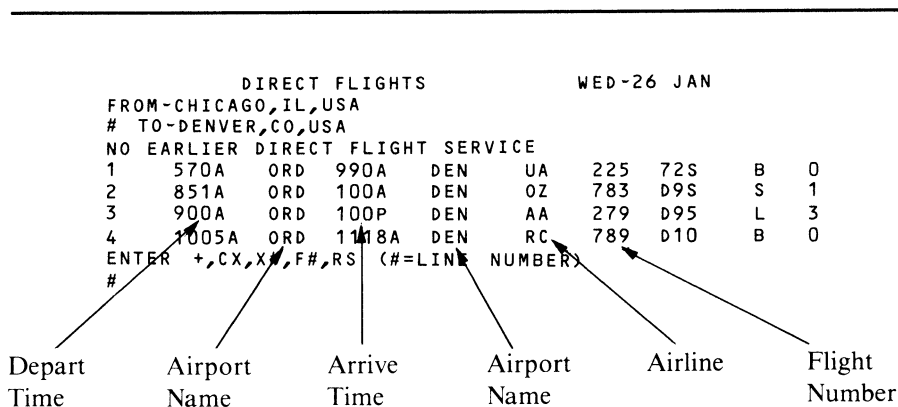


Figure 11-5. Display of specified flight information

```
FARES IN US DOLLARS          WED-26 JAN
SELECTED FOR ORD-AA 279 DEN
# ONE-WAY RND-TRIP ARLN/CLASS FARECODE
NO LOWER FARES IN CATEGORY
1*  238.00          AA/B      BE76
2*  249.00          AA/B      BE69
3*  195.00          AA/N      MAP2
4*  244.00 488.00  AA/Y      Y
5*  317.00 634.00  AA/F      F
NO HIGHER FARES IN CATEGORY
* ENTER L# TO VIEW LIMITATIONS
ENTER L#,X#,S,RS(#=LINE NUMBER)
```

Figure 11-6. Fare information for a specified flight

## Getting Fare Information

To find out the fare of a particular flight, enter the **/F** command followed by the line number of the flight you're interested in. Say, for example, that of the flights displayed in Figure 11-5, you are interested in the 9:00 A.M. flight, line 3. To find out how much it costs, type **F3** and press RETURN. OAG responds with information similar to that shown in Figure 11-6.

You may be interested in the \$195 fare, but the asterisk tells you there are limitations. To find out what they are, type **L3** and press RETURN. OAG will display the information about fare restrictions shown in Figure 11-7. If you don't have three days to wait after picking up your ticket, choose one of the other fares.

When you have gotten all the information you need, you exit the OAG service and return to CompuServe by typing **/Q** and pressing RETURN. Next, to exit CompuServe, you type **BYE** and press RETURN. To disconnect from the phone line, unplug the phone line from the Automodem.

## Making Airline Reservations

Once you have identified the flight you need, CompuServe's Firstworld Travel Club (see Figure 11-3) lets you make airline reservations via electronic mail (which is described in Chapter 8). You leave your message on CompuServe, and a

```
CHI-DEN AA CLASS M WED-26 JAN
195.00 US DOLLARS ONE WAY
LIMITATIONS FOR FARE CODE MAP3
FARE DESCRIPTION: ADVANCE PURCHASE
COACH FARES
BOOKING CODE: M.
PURCHASE TICKET FOR TRAVEL NO LATER
THAN 3 DAYS BEFORE DEPARTURE.
* END OF LIMITATIONS DISPLAY *
ENTER F TO RETURN TO FARE DISPLAY
ENTER S TO RETURN TO SCHEDULE DISPLAY
```

---

**Figure 11-7.** *Limitations on a specified fare category*

Firstworld representative reads the request and sends you reservation confirmation and bills you by postal mail.

## FINDING OUT MORE ABOUT OAG

If you're interested in subscribing to OAG or want more information about it, contact:

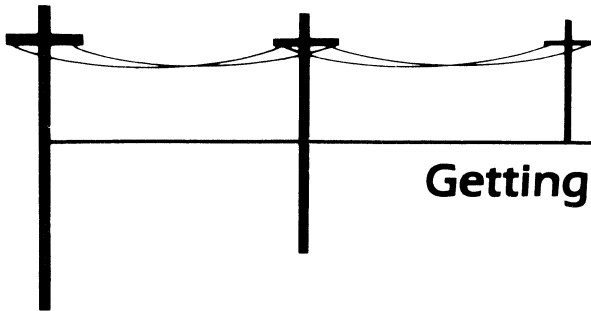
Official Airline Guides  
Electronic Publishing  
2000 Clearwater Drive  
Oak Brook, IL 60521  
Phone: 800-323-3537, ext. 904 (in all states except Illinois)  
800-942-1888, ext. 904 (in Illinois)

## OTHER TRAVEL INFORMATION SERVICES

The Source's Travel Club provides not only airline fare information and schedules, but also information on hotel reservations. Like CompuServe's Firstworld, the Travel Club is an electronic mail service; it is an independent agency that provides a travel service for The Source. After logging onto The Source, you communicate

your travel plans to the Travel Club by electronic mail. A Travel Club representative reads the mail and makes the reservations for you; then you mail a check directly to the Travel Club. In addition, you can use the Travel Club to make hotel and rental car reservations and to get special travel tips and alerts for the areas in which you plan to travel.

Also available on The Source are the Mobil Travel Guides, which offer information about more than 6000 restaurants in 1800 North American cities; and Mobil Travel Services, which offer information — such as rates and availability of facilities — about thousands of U.S. and Canadian hotels.



# 12

## Getting Stock Quotes

Anyone who invests in stocks or bonds, whether casually or seriously, needs to keep track of the latest business news and current stock quotes. Sometimes yesterday's quotes aren't good enough, even though they're listed in today's *Wall Street Journal*. Furthermore, the most up-to-date information about companies, industries, and the economy is essential.

When connected to a telephone, a C-64 can provide the most recent information about companies and their stocks. All that is needed is the telephone number of the Dow Jones News/Retrieval service and a password. The Dow Jones service provides current market quotes on all stocks, bonds, and options traded on the major stock exchanges. Also available are quotes on selected U.S. Treasury issues and business news from the *Wall Street Journal*, *Barron's*, and the Dow Jones News Service. Information (some of it historical) on more than 3000 companies and an electronic encyclopedia are offered by Dow Jones as well.

You can become a Dow Jones subscriber by contacting the service directly (see Chapter 4 for details). You can also gain access to Dow Jones information by joining one of the many other information services, such as MCI Mail. If you are an MCI Mail member (see Chapter 8), dial your MCI access number and log onto the system. When the MCI Command prompt appears, type **DOWJONES** and you will be on-line with the Dow Jones News Service.

---

1 Duplex	F
2 Baud	6
3 Flow	Y
4 Parity	0
5 Stop Bits	1
6 Disk Num.	8

Key <RETURN> for terminal mode

---

Figure 12-1. Vidtex Communication Settings menu set to default values

## SETTING UP THE SOFTWARE

Before using Vidtex to communicate with the Dow Jones service, you must set the communications protocol to match that of the information service: full-duplex, XON/XOFF disabled (off), and even parity.

To set the Vidtex parameters, load the program and press **C-M** to access the Function Key menu; then press **Q** to display the Communication Settings menu. (See Figure 12-1.)

If the menu looks like that in Figure 12-1, first press **3** to change the XON/XOFF (flow control) setting. A menu like this will appear:

```
Flow Control
  Y - Enable flow control
  N - Disable flow control
```

Press **N** and then **RETURN** to disable XON/XOFF; when you do so, the Communication Settings menu will reappear.

Next, press **4** to change the parity setting. Then press **E** and **RETURN** to set parity to even, and the Communication Settings menu will appear. However, it will look like Figure 12-2.

At this point, you are ready to enter Vidtex's terminal mode and dial the Dow Jones phone number.

## LOGGING ONTO DOW JONES

Depending on your geographical location, you may have to log onto Dow Jones via the Tymnet or Telenet network services. The following section will use Telenet

---

```

1 Duplex           F
2 Baud            6
3 Flow            N
4 Parity          E
5 Stop Bits       1
6 Disk Num.       8

Key <RETURN> for terminal mode

```

---

**Figure 12-2.** *Vidtex Communication Settings menu set for Dow Jones*

to demonstrate how to log onto Dow Jones. For your local network telephone number, see the directory provided by Dow Jones when you subscribe to the service.

First, press **C=@** to dial the phone number. The dial prompt will then appear:

```

Set H-F Switch to F; T-D to D, 0-A to 0
Enter Phone Number:

```

Next, type the phone number. For example, type **555-4321** and press RETURN. You'll then be communicating with Telenet. However, you won't yet be on-line with Dow Jones.

The next prompt you will see looks something like this:

```

PLEASE TYPE YOUR TERMINAL IDENTIFIER
-3775-022-

```

Simply type **A**—do not press RETURN—and you will be prompted **PLEASE LOG IN:**. Type **DOW1;**; but do not press RETURN. (Notice that the second semicolon is not displayed.) Next the message **HOST IS ONLINE** will appear.

This means you've established communication. When prompted **WHAT SERVICE PLEASE????**, you should type **DJNS** and press RETURN. Telenet will transfer you to Dow Jones, and you'll be prompted to **ENTER PASSWORD**. Enter the password you were assigned when you subscribed to Dow Jones (for instance, **SECRETSTAR**) and press RETURN. Notice that the password is not displayed on the C-64 screen as you type.

The entire procedure should look something like Figure 12-3.

```
Set H-F Switch to F; T-D to D, 0-A to 0
Enter Phone Number: 555-4321
PLEASE TYPE YOUR TERMINAL IDENTIFIER
-3775-022-
PLEASE LOG IN: DOW1;
HOST IS ONLINE
WHAT SERVICE PLEASE????
DJNS
ENTER PASSWORD
```

---

Figure 12-3. Logging onto Dow Jones

## USING DOW JONES

Once you've logged onto Dow Jones, you'll be presented with a screen that looks like the one in Figure 12-4. If you want to get down to business, type **//MENU** and press RETURN.

The Dow Jones master menu will then appear, allowing you to look up stock quotes or any of the information Dow Jones provides. (See Figure 12-5.)

No matter where you are in the service, you can always type **//MENU** and press RETURN to return to the master menu.

---

```
DOW JONES NEWS/RETRIEVAL
      COPYRIGHT (C) 1983
DOW JONES & COMPANY, INC.
      ALL RIGHTS RESERVED

TYPE //INTRO TO VIEW FREE
ANNOUNCEMENTS ABOUT OUR
SERVICE, OR //MENU FOR A
LIST OF DATA BASES.
ENTER QUERY
```

---

Figure 12-4. The initial Dow Jones screen display



---

```
                MASTER MENU
            COPYRIGHT (C) 1983
        DOW JONES & COMPANY, INC.

TYPE           FOR

A             DOW JONES BUSINESS
              AND ECONOMIC NEWS
B             DOW JONES QUOTES
C             FINANCIAL AND INVESTMENT
              SERVICES
D             GENERAL NEWS AND
              INFORMATION SERVICES
```

---

Figure 12-5. *The Dow Jones master menu*

## Getting Stock Quotes and Company News

For stock information, select option **B** by typing **B** and pressing RETURN. Dow Jones will prompt you with a menu like that in Figure 12-6.

To check on current stock quotes, type **//CQ** and press RETURN. Dow Jones will respond with the message

```
CURRENT DAY QUOTES BEING ACCESSED
ENTER QUERY
```

---

```
TYPE           FOR
//CQ          CURRENT QUOTES
//DJA         HISTORICAL DOW JONES AVERAGES
//HQ          HISTORICAL QUOTES

FOR HELP, TYPE CODE AND HELP.
(EXAMPLE: //CQ HELP)
```

---

Figure 12-6. *A Dow Jones stock information menu*

---

```

CURRENT DAY QUOTES BEING ACCESSED
ENTER QUERY

DOW JONES STOCK QUOTES
STOCK QUOTES DELAYED OVER 15 MINUTES
*=CLOSE PRICE ADJUSTED FOR EX-DIVIDEND

STOCK      BID      ASKED
SUP        CLOSE   OPEN   HIGH   LOW   LAST   VOL(100'S)
          31 3/4  31 1/2  33 1/4  31    33 1/8  1591

```

---

**Figure 12-7.** Dow Jones stock information on a company

To get the current quote on a particular stock, type a comma (,) and the company symbol and press RETURN. (For a complete list of company symbols recognized by Dow Jones, see your copy of *Dow Jones News/ Retrieval Operating Guide and Directory of Symbols*.)

For example, if you hold stock in Superior Papers (a fictitious company) and want to find out the price of paper and the financial condition of various paper-supply companies, you might type ,SUP and press RETURN. Dow Jones will respond with a message similar to that in Figure 12-7.

If you want additional news (not just stock quotes) on how Superior Paper has been doing, type .SUP and press RETURN.

Dow Jones will list any news stories about the company in the last 30 days. You might want to download this information for your records.

At this time, you can request more data on Superior Paper or a quote on a different company, or return to the master menu by typing //MENU and pressing RETURN.

## Getting Business and Industry News

Dow Jones isn't limited to information on particular companies; you can get general news about an industry as well. To do so, return to the master menu (by typing //MENU and pressing RETURN).

From the master menu, select option A by typing A and pressing RETURN. A menu like that in Figure 12-8 will appear.

If you want the Dow Jones News, type //DJNEWS and press RETURN; Dow Jones will display the message

```

DOW JONES NEWS IS BEING ACCESSED
ENTER QUERY

```

```

                                DOW JONES BUSINESS
                                AND ECONOMIC NEWS SERVICES

TYPE                               FOR
//DJNEWS                           DOW JONES NEWS
//FTS                               FREE-TEXT SEARCH
//UPDATE                            OF DOW JONES NEWS
//WSJ                               WEEKLY ECONOMIC
                                      UPDATE
                                      WALL STREET JOURNAL
                                      HIGHLIGHTS ONLINE

FOR HELP, TYPE CODE AND HELP.
(EXAMPLE: //DJNEWS HELP)

```

Figure 12-8. Dow Jones Business and Economic News menu

Following the instructions in the *Dow Jones User's Guide*, you can then type in an industry code to get the latest news headlines. (See the *Dow Jones News/Retrieval Operating Guide and Directory of Symbols* for a list of the codes.)

For example, if you are interested in news about the paper industry—code I/PUL—type **I/PUL 01** and press RETURN. Dow Jones will respond with such headlines as

```

DM 06/24 U.S. WANTS CANADA TO END LUMBER
    (DW) SUBSIDIES
DN 06/22 SUPERIOR ANNOUNCES PRICE HIKE
    (WJ) ON NEWSPRINT

```

Since you want to know about anything having to do with Superior (especially a price hike), type **DN** (the index code in the left column) and press RETURN. The story that accompanied the headline will begin scrolling on your C-64 screen.

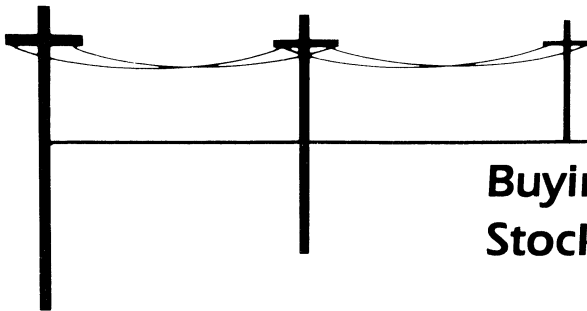
## LOGGING OFF DOW JONES

When you have the information from Dow Jones that you need, log off the service by typing **DISC** and pressing RETURN. You will then be in Vidtex's terminal mode; to exit the program and return to the C-64's BASIC Ready prompt, type **C=X**. Vidtex will ask you **Exit(Y/N)?**. When you type **Y**, you will return to BASIC.

## **OTHER SERVICES**

CompuServe and The Source also offer financial information. CompuServe, for instance, offers Standard and Poor's data, MicroQuote, and Quick Quote, among other financial databases. Check your information service user's guide for details.

If you want to buy and sell stocks or perform other financial transactions, several stockbrokers across the nation provide telecommunication facilities. See Chapter 13 for a discussion of these services.



# 13

## Buying and Selling Stocks at Home

While several information services give you the most current news, stock quotes, and historical information on companies and industries, they do not let you buy or sell stocks or other securities (such as IRAs and Keogh accounts) from your C-64 keyboard. There are, however, brokers who do provide this assistance. Such services let you manage your own portfolio 24 hours a day, 7 days a week, executing financial transactions faster and more reliably than via telephones or "ticker tape."

In addition to their trading capabilities, on-line brokerage services provide automatic record keeping, news and quotes, itemized schedules of long- and short-term capital gains and losses, summaries detailing portfolio values and security yields, transactions in cash or margin accounts at market order or limit order, and many other services. If you place an order while stock exchanges are open, the order is executed immediately. When you place an order and exchanges are closed, the order will be executed as soon as the market opens.

Stockbrokers offering home portfolio management include Texas Securities, Inc., in Fort Worth; C.D. Anderson, Inc., in San Francisco; and Fidelity, Inc., in Boston. All three brokers use a variation of the Trade\*Plus program offered by Trade\*Plus, Inc., of Palo Alto, California. When you use your C-64 and a regular telecommunications program (such as Vidtex) to dial one of these stockbrokers,

you actually gain access to the Trade\*Plus financial database that stores your portfolio and other financial information.

Brokerage service fees usually include a subscription fee and additional on-line charges ranging from 10¢ to 40¢ per minute, depending on the time of day you call. Average charges are about \$15 per month and include Telenet connect time.

## **MAKING THE HOME BROKERAGE TELECONNECTION**

Before dialing an on-line brokerage service, be sure your C-64 system is set up correctly and that the communications parameters match those of the service (typically 300 baud, even parity, and 7 stop bits). See Chapter 3 for details on using the Automodem 1650 and the Vidtex communications program.

Connection to a Trade\*Plus brokerage service is usually made through the Telenet network system. You should be provided with a local Telenet phone number when you subscribe to the brokerage service. When you dial the Telenet number, the first message that appears on your screen is **CONNECT**, next the word **TELENET**, and then a special code.

When the message **TERMINAL=** appears, simply press RETURN. After that, the prompt **@** will be displayed. At this time, enter the brokerage access code supplied to you when you subscribed to the service. For instance, type **G 415332** and press RETURN. This code tells Telenet which service to connect you to. This is followed by a message confirming that the brokerage service's computer has answered the phone.

## **Logging Onto a Home Brokerage Service**

Once the connection is made, the brokerage service will initiate a log-on sequence, first prompting you for your "user name" and then for your secret password. These identifiers are assigned to you when you subscribe to the service. When both are entered correctly, the service's introductory message will appear on the screen. A typical log-on sequence might look like Figure 13-1. In this example, assume that the service previously assigned you the user name AF9933 and the password SECRET.

## **USING THE TRADE\*PLUS SERVICE**

Once you have successfully logged onto a Trade\*Plus home brokerage service, you can begin trading or reviewing securities. When you initially telecommunicate with the service, the first menu that appears will be a main menu like the one in Figure 13-2. There are basically two types of operations you can perform from the main menu: "housekeeping" tasks and trading tasks. Housekeeping tasks involve

```
CONNECT
TELENET
415 33M
TERMINAL=
@G 415332
415 332 CONNECTED
USER NAME: AF9933
PASSWORD: SECRET

- Welcome to Trade*Plus Service -
  - Copyright 1983 -
- 10:22 PM EDT 10/08/84 2243.33 -10.0
```

---

**Figure 13-1.** *Sample log-on sequence for home brokerage service*

maintenance-type operations that are not directly related to stock transactions. These tasks include changing your password or getting help with commands and are numbered on the main menu from 0 to 9.

Being familiar with housekeeping aspects of the service may save you time and money in the long run. The service will, for instance, display the current prices of

---

```
- 1 MAIN MENU -

2 CHANGE PASSWORDS
7 UPDATE DISKS
8 NEWS
9 HELP
10 PRICE MENU
20 ORDER MENU
30 PORTFOLIO MENU
40 RECORD MENU
50 INFORMATION MENU
60 ANALYSIS MENU
0 SIGN OFF

*** TYPE NUMBER TO SELECT...
```

---

**Figure 13-2.** *Sample Trade\*Plus main menu*

stocks in your portfolio as soon as you log on. This will significantly reduce your connect time.

The main menu also includes a number of trading operations, procedures directly related to financial transactions. The trading operations are numbered from 10 to 100 in the main menu. Ordering buys or sells, checking on current stock prices, and reviewing your portfolio are typical trading operations.

To illustrate the use of home brokerage services, the next section of this chapter describes how you can use your C-64 to sell stock from your portfolio. Keep in mind that a home brokerage service assumes that you are familiar with most brokerage terms and procedures. If you encounter an unfamiliar term, the help feature, number 9 on the main menu, should explain it. If you still don't understand a procedure or concept, however, you should consult your stockbroker before attempting the transaction.

## Reviewing Your Personal Portfolio

You should be aware of the current status of securities in your personal portfolio before buying or selling stocks. When you first subscribe with a brokerage service, such information as the names and quantities of securities, dates of purchase, and purchase prices are entered into the database. Each time you review the information, all of this data, plus the current total value and market price per share, are displayed.

To review your portfolio, be sure the main menu is displayed (refer to Figure 13-2) and then select the Portfolio menu by typing **30** and pressing RETURN. The Portfolio menu (see Figure 13-3) will then appear. From this menu, select option 31 to review your portfolio. When you do, a menu like that in Figure 13-4 will appear.

By selecting option 311, Display Portfolio, the contents of your portfolio will be displayed in a format similar to that in Figure 13-5. (In this case, the stock symbols

---

```

- 30 PORTFOLIO MENU -
31  PORTFOLIO
39  HELP

*** TYPE NUMBER TO SELECT...

```

---

**Figure 13-3.** Sample Trade\*Plus Portfolio menu



```

- 31 PORTFOLIO -

311 DISPLAY PORTFOLIO
312 DISPLAY PORTFOLIO SUMMARY
313 ADD ENTRIES TO PORTFOLIO
314 CHANGE PORTFOLIO DATA
315 DELETE ENTRIES FROM PORTFOLIO
316 DISPLAY UNREALIZED GAINS/LOSSES
39 HELP

*** TYPE NUMBER TO SELECT...
    
```

Figure 13-4. Trade\*Plus portfolio

and figures are fictitious.) Each security is grouped according to its type: personal portfolio stocks, IRAs, and Keoghs. Notice that the total current market value for each type of stock is listed in the leftmost column, named Value, then the stock symbol for the security. (If you forget the abbreviated symbol for the

```

- Closing Prices -
- Account: Asher Fitzgerald
- 10:29 PM EDT 10/28/84 1156.93 -11.0
    
```

VALUE	#	SECURITY	QTY	LS/M	BOUGHT	AGE	COST	CURRENT	CHANGE
- Personal Portfolio -									
11500	1	ANE	200L		10/10/81	31	35	57 1/2	+22 1/2
23088	2	FMZGX	740		6/06/82	23	23.42	31.20	+ 7.78
13719	3	GP	250L		3/14/77	86	25 1/8	54 7/8	+29 3/4
12900	4	GY	200L		9/29/79	56	60 1/4	64 1/2	+ 4 1/4
1240	5	TYN	40L		2/20/82	27	35	31	- 4
12638	6	ZZN	300L		6/25/81	35	35 1/2	42 1/8	+ 6 5/8
- IRA Portfolio -									
6600	7	ABCL	200L		5/23/83	12	51 1/4	33	-18 1/4
6773	8	LBM	60L		3/14/82	26	60 7/8	112 7/8	+52
7325	9	ALU	200L		5/24/80	48	16	36 5/8	+20 5/8
- Keogh Portfolio -									
3275	10	ATTE	100L		10/07/82	19	39 7/8	32 3/4	- 7 1/8
5719	11	FTE	150L		9/17/78	68	30 1/4	38 1/8	+ 7 7/8
5635	12	RXT	140L		6/23/80	47	60	40 1/4	-19 3/4

\*\*\* Type the RETURN key to proceed.

Figure 13-5. Sample portfolio

company you want to trade with, refer to the program's help feature.) Next the number of shares you own of each stock is listed along with the purchase date and the purchase price. The last two columns display the current market price per share and the change (plus or minus) between what you paid for the stock and its current value.

As you can see, the contents of your portfolio include most of the information you need to make a selling decision.

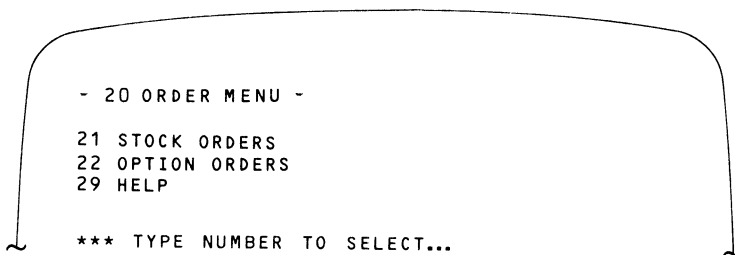
If you want additional or more specific information about your portfolio, select other options from the Portfolio option (Figure 13-4). For instance, option 316 (Display Unrealized Gains/Losses) provides a summary of the gain or loss of each security. It would tell you, for example, that the personal stocks shown in Figure 13-5 have a total present value of \$75,084. The IRA and Keogh portfolios are worth \$20,698 and \$14,629 respectively.

## Buying and Selling Stock

Just as in a stockbroker's office, buying and selling stocks begins by placing an order. To place an order with a home brokerage service, the main menu (shown in Figure 13-2) should be on the screen. When it is, select the Order menu by typing **20** and pressing RETURN, and the Order menu (see Figure 13-6) will appear.

Since you want to place an order, select option 21, Stock Orders, and the options for various stock orders will appear. (See Figure 13-7.)

Entering **211**, Buy or Sell Stocks, will result in the service displaying an "order form" (like the ones used at brokerage houses) for you to fill out. (See Figure 13-8.) This form must be completed before you can begin buying or selling stocks. The order form in Figure 13-8 has been completed for a sale of fictitious stock (ANE,




---

**Figure 13-6.** Sample Trade\*Plus Order menu

```

- 21 STOCK ORDERS -
211 BUY OR SELL STOCKS
212 LIST STOCK ORDERS
213 CANCEL A STOCK ORDER
214 CANCEL ALL STOCK ORDERS
 29 HELP
*** TYPE NUMBER TO SELECT...
    
```

Figure 13-7. Sample Stock Order options

listed in the sample portfolio shown in Figure 13-5). The brokerage service's prompts are in the left column and are preceded by a >. Your responses to the questions are in the right column.

Notice that you must enter a secret password before the order can be executed. This is the same password you use to log onto the service. When you have filled out

```

- 211 BUY OR SELL STOCKS -
- Account: Asher Fitzgerald
- Type CTRL/C to Escape -
(N)ew Order, (C)ancel Former Order,
  or (I)f Nothing Done Order...
> Order Type: (N,C,I) ..... N
(P)ersonal, (I)RA, (K)eogh
> Portfolio (P,I,K) ..... P
> Stock Symbol ..... ANE
AMERICAN NEW ENERGY
  Closing Price is .... 57 1/2
> (B)uy or (S)ell ..... S
> Short Sale (Y,N) ..... Y
> Number of Shares ..... 100
> Price: Your Limit or (M)kt. M
> Password ..... SECRET
    
```

Figure 13-8. Sample Trade\*Plus order form

```
You have ORDERED the following:

Portfolio ..... Personal
Stock Symbol ..... ANE
AMERICAN NEW ENERGY
(B)uy or (S)ell..... Sell Short
Account ..... Margin
Number of Shares ..... 100
Closing Price ..... 57 1/2
Price: Your Limit or (M)kt. Mkt
Type of Order ..... Day
Name ... Asher Fitzgerald

Order placed at 10:45 PM EDT 10/08/84

*** WARNING: YOU ARE ENTERING A FIRM
ORDER WHICH WILL BE EXECUTED IN YOUR
NAME AND RECORDED IN YOUR ACCOUNT ****

Is this ORDER Correct?
> Y to CONFIRM, N to CANCEL...Y
- Your Order is being Processed. -
> Place another Order (Y or N). N
```

---

Figure 13-9. Sample order confirmation

the order form, a confirmation will be displayed before the stocks are bought or sold. (See Figure 13-9.) If all the information is correct, answer yes to the prompt.

## LOGGING OFF TRADE\*PLUS

Once you have completed all transactions and reviewed all the necessary information, you are ready to log off Trade\*Plus. To do so, simply type **0** and press RETURN at any time. A sign-off message, which includes the time you were on-line, will then appear.

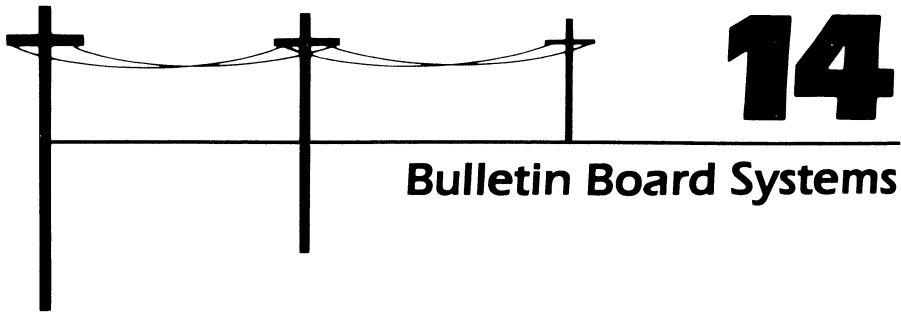
When you have logged off the service, you will be returned to the Telenet prompt. Simply “hang up” the phone to disconnect from the network. You can then return to the Vidtex main menu to begin dialing another information service or exit the Vidtex program by typing **C-X**.

You can keep records of all transactions by opening Vidtex’s RAM buffer (type **C-O**) before placing orders. Once an order has been executed, close the buffer by

typing **C=C**. You can then save the information on disk by typing either **C=S** or **C=U**. See Chapter 3 of this book for details.

It is important to note that the services available through most stock brokerage houses usually do not provide in-depth historical news about companies and industries. This information, which is sometimes crucial when making decisions about buying or selling stocks, is available through services like Dow Jones News/Retrieval. (See Chapter 12 for a description of the Dow Jones service.) The background information provided by Dow Jones coupled with the ability to buy or sell stocks instantaneously provides you with an enjoyable and potentially profitable way of using your C-64 telecommunications system.





# 14

## Bulletin Board Systems

Computerized bulletin board systems (BBSs) were at one time nothing more than electronic message centers. Today they offer a variety of services and information ranging from religious conferences to telecommunications programs. And except for the cost of a phone call, using a bulletin board system is free.

Generally speaking, there are two types of bulletin boards: special-interest and general-interest bulletin boards. Special-interest bulletin boards usually focus on specific topics (such as medicine and sports) or on particular computers (such as your C-64). A Commodore bulletin board, for instance, might offer public domain programs for the C-64, share technical information about your computer, and provide you with a forum to ask other C-64 users how they use their computers. A science-fiction bulletin board might discuss books and movies or even let you take part in an ongoing spaceship adventure game.

A general-interest board, on the other hand, might offer a variety of topics for discussion. General-interest bulletin boards often have rotating topics of discussion—an upcoming political election during one month, a computer that has just entered the marketplace in another month. You convey your opinion by dialing up the bulletin board, reading the comments other people have made, and typing in your particular views on the topic.

Bulletin boards are typically installed and monitored by telecommunications

enthusiasts or by a group, such as a C-64 users group. While an information service like CompuServe may consist of a large building filled with large mainframe computers and perhaps dozens of phone lines connected to them, a bulletin board system is usually a single system consisting of a personal computer, a disk drive, and an auto-answer modem. In addition, the computer must run special bulletin board software 24 hours a day or at least as long as the bulletin board is on-line. Several bulletin board programs are available commercially, although many bulletin boards operate on programs written by the individuals who maintain the system.

Once you begin accessing bulletin boards, you will probably encounter two problems: first, you must usually make a long-distance phone call to access a board unless you live in a large metropolitan area; second, you often get a busy signal when accessing a popular bulletin board. There isn't much you can do about either situation. Since bulletin board sponsors don't charge for their services, they can't be expected to maintain a toll-free phone number. Nor, for that matter, can they be expected to provide several phone lines and the computer hardware and software to support them.

You should keep in mind that bulletin boards are a cooperative effort on the part of the people who sponsor them and those who use them. You can do your part by sharing (uploading) programs and information with other participants and by limiting the time you are on-line. (Many bulletin boards automatically disconnect you after 20 or 30 minutes so that other people have a chance to use the system.)

## LOCATING BULLETIN BOARD SYSTEMS

While many established BBSs have used the same phone number for years, bulletin boards tend to come and go. In some cases, the people who sponsor them (called "system operators," or "SYSOPs" for short) simply lose interest, while in other instances they find they can't afford the time or money to maintain the system. Consequently, any definitive list of bulletin board phone numbers is quickly outdated.

To find out if there are any bulletin boards in your area, check with your local computer store or C-64 users group. Once you get the phone number of one bulletin board, other phone numbers become readily available, since most bulletin boards maintain a list of other BBSs. In a short time, your bulletin board phone list can easily consist of several hundred phone numbers.

Another source of BBS phone numbers is the *On-Line Computer Telephone Directory* available from

J.A. Cambron Company, Inc.  
P.O. Box 10005  
Kansas City, MO 64111  
Phone: 816-756-1847



This listing is updated on a regular basis and provides hundreds of BBS numbers in a variety of categories. Yet another publication, the *BBS Directory*, can be ordered from

BBS Directory  
P.O. Box 4150-LU, Beach Station  
Vero Beach, FL 32964-4215  
Phone: 305-466-5515

The list of bulletin boards in Table 14-1 is a sampling of some available boards.

When you call a bulletin board phone number, it is a good idea to confirm that the phone number is a “data” line, not a “voice” line. To do so, set the Telephone/data switch on your modem to **T**. When the other phone answers, listen for a data signal (a high-pitched tone) and then set the modem to **D** to begin telecommunication. If a person answers, ask if the bulletin board is still available.

## ACCESSING A BULLETIN BOARD SYSTEM

Once you have identified the bulletin board system you want to communicate with, be sure your C-64 telecommunications system is set up properly (see Chapter 3 for details). Once the system is connected and the software is running, begin dialing the BBS number by first pressing **C=@**. When prompted, type in the phone number and begin the log-on sequence.

Although the log-on sequence for every BBS is somewhat different, the general format is similar. An introductory message usually appears, followed by a prompt asking for your name. The first time you access a system, you’ll be asked to enter the city and state you are calling from. Finally, you will be asked what password you want to use to gain access to the system. (If you join a number of BBSs, it is a good idea to use the same password for all the boards; otherwise, you may forget which is which.)

## USING A BULLETIN BOARD SYSTEM

This section illustrates how you can log onto and use a typical bulletin board (remember that every system will vary slightly).

### Logging Onto the System

Once you have dialed the BBS phone number and the other computer has answered the phone, the message **CONNECT** appears on the screen, indicating that the teleconnection between your computer and the BBS has been made. This is followed by an introductory message from the bulletin board system.

Bulletin Board	Description
ABBS Gamemaster Chicago, IL 312-475-4884	A special-interest BBS
AVC-Commodore Bulletin Board Indianapolis, IN 317-255-5435	Provides C-64 programs and information. Sponsored by the AVC Computer Center
B.A.S.I.C. BBS Aurora, IL 312-896-9628	A general-interest board offering BASIC programs for a number of different computers. Not specifically a C-64 board
Board-Busting for Fun Houston, TX 713-488-2003	Offers you the opportunity to try "busting" a software code
Boston Information Exchange Boston, MA 617-423-6985	A general-interest board
Commodore Public Bulletin Board Chicago, IL 312-397-0871	Commodore bulletin board; on-line 24 hours a day, 7 days a week
Commodore Utah Bulletin Board Salt Lake City, UT 801-277-3913	C-64 BBS; on-line 24 hours a day, 7 days a week
Conference Tree Honolulu, HI 808-487-2001	General-interest board
CUGBS Edmonds, WA 206-743-6021	Another C-64 BBS; sponsored by a local Commodore users group
Exec PC Board Milwaukee, WI 414-964-5160	A general-interest board

**Table 14-1.** *Selected Computer Bulletin Board Systems*

Bulletin Board	Description
Explorer's Aid Phoenix, AZ 602-991-0144	This board keeps "help" files for most of the popular adventure games
Front Range Colorado 303-223-4305	A C-64 system that allows downloading and messages
Kansas City PET User Group BBS Kansas City, MO 816-257-2502	Commodore bulletin board; on-line 24 hours a day, 7 days a week
Midwest Computer Camp Indianapolis, IN 317-297-5438	A general-interest, education-oriented board
NET-WORKS Portsmouth, NH 603-436-3461	A general-interest BBS
Northwest Commodore BBS Edmonds, WA 206-743-6021	C-64 related BBS; on-line 24 hours a day, 7 days a week
Pacific Medical Bulletin Board Santa Barbara, CA 805-522-1789	A special-interest board discussing medical topics
RPCC Dallas, TX 214-996-6806	C-64 BBS; on-line 24 hours a day, 7 days a week
S.E.W. P.U.G. Racine, WI 414-554-9520	A C-64 bulletin board system
Southeast Wyoming Commodore BBS Wyoming 307-637-6045	Commodore bulletin board
The First Amendment Indianapolis, IN 317-887-3034	A general-interest board, on-line in the evenings only

**Table 14-1.** Selected Computer Bulletin Board Systems (continued)

**C-64 Bulletin Board System****SYSOP: Mike Dunton****Log In At 1026h**

the system automatically asks you for your first and last name. Enter your name when prompted and press RETURN. When your name has been entered, the bulletin board computer checks to see if you are a "registered" participant of the BBS. In some cases, you can become a member instantly; in other cases, you enter the required information and become a member after a few days.

In this next sequence, the user, Asher Fitzgerald, is logging onto the bulletin board for the first time. Other than his name, Asher must enter the location he is calling from. Since there may be more than one person with the same name, the system requires you to identify a unique code or password that must be entered when you log on. This code isn't for security purposes but simply for identification. In this example Asher is using the code "Austin," as the following sample illustrates.

```

Your First Name? Asher
Your Last Name? Fitzgerald

Standby...

VERY WELL ASHER FITZGERALD,
Is This Your First Time On The System?
yes

City/State? (30 chrs max) Stover, MO

Please supply a 6 character USER CODE
>AUSTIN

```

Finally, all the information you have entered is redisplayed for your confirmation:

```

Name: ASHER FITZGERALD
City: STOVER,MO
Code: AUSTIN

```

```
Is the Information Correct? yes
```

```
Standby, Logging You In...
```

Once the system has logged you on, the command prompt will appear. Often this is usually nothing more than the > symbol. In some systems, however, this prompt is prefaced by a *time elapsed* message telling you how long you have been on the system. The time elapsed message usually appears only on bulletin boards that limit your on-line time; after the designated time they automatically log you

off and hang up the phone. A time elapsed command prompt may look something like this when you first log on:

```
00:03:10 (Time Elapsed) Command >
```

After you have registered with a bulletin board, you will usually be asked to enter your password or code once the system has identified you. The name you typed in is then displayed for confirmation. A typical log-on sequence for a BBS participant is shown in Figure 14-1.

## Entering Bulletin Board Commands

Once you have completed the log-on sequence and the command prompt is displayed, you can begin entering commands. Again, the commands you use will depend upon the board you have accessed. A few common commands are listed in Table 14-2. To find out the commands you can use with a particular system, type **? or HELP** and press RETURN when the command prompt (>) is displayed.

To use a command, simply enter it when the command prompt is displayed and press RETURN. For instance, if you want to see an overview of all the messages on the board, you might type **O** and press RETURN. A list like the following might then appear on your C-64 screen:

```
00:04:10 (Time Elapsed) Command > O
Type 'S' to stop the listing.
Once stopped, 'S' will restart,
'A' will abort.

Msg #   : 564 - Ref 6543
From    : BOB BURKE
To      : JIM HANSEN
Subject : New C-64 game programs

Msg #   : 563 - Ref 6542
From    : BOB CRAMER
To      : SUE MARRIOTT
Subject : Help with assembly language

Msg #   : 562 - Ref 6541
From    : PAT DAVIS
To      : MARVIN VOGT
Subject : Political elections
```

If you are interested in downloading C-64 programs from the bulletin board, you can check what programs are available by entering the LIST command when the command prompt is displayed. Typically, the name of the program will appear, followed by the name of the person who submitted it to the board. Knowing who

```

C-64 Bulletin Board System
-----
SYSOP: Mike Dunton
Log In At 1026h
Your First Name? Asher
Your Last Name? Fitzgerald
Standby...
Please enter your USER CODE
>AUSTIN
Name: ASHER FITZGERALD
Code: AUSTIN
Is the Information Correct? yes
WELCOME ASHER FITZGERALD OF STOVER,MO
Standby, Logging You In...
00:03:10 (Time Elapsed) Command >

```

Figure 14-1. Typical BBS log-on sequence

wrote the program is useful if you have any questions about the program and want to send a message asking about it. A program list might look like this:

```

00:06:25 (Time Elapsed) Command > LIST
Type 'S' to stop the listing.
Once stopped, 'S' will restart,
'A' will abort.

P SIMON          GEORGE ANDERSON
P CHECKBOOK    DONNA WHITE
P FASTCOPY      GEORGE STANS
P PRINTFORMAT   ROBERT SIMS

```

Once you have identified a program you want to use, return to the command prompt and enter the download command **LOAD**. In some BBSs you enter the command followed by the program name; in other systems you enter the command and then the system will prompt you for the program name. The following illustration shows how a BBS prompts you for a filename after you have entered the **LOAD** command.

```

00:07:37 (Time Elapsed) Command > LOAD

Enter file name of program: FASTCOPY

```

Command	Function
A	Read <i>all</i> messages sent to you
BYE	Log off the bulletin board system
E	Enter a message to another member
LIST	List available programs
LOAD	Download a program from the BBS
O	Overview of board messages
P	Reply to the current message
S	Summary of available messages
SAVE	Upload a program to the BBS
U	Display user log

**Table 14-2.** *Typical BBS Commands*

Before pressing RETURN after entering the filename, press **⌘O** on your C-64 keyboard to open the Vidtex RAM buffer. This will allow you to capture all information that is sent from the other system. When the complete program has been sent to you, a message such as **FILE TRANSFER COMPLETE** will appear; and you should then press **⌘C** to close the Vidtex RAM buffer. You can then immediately save the buffer contents to disk (**⌘S** or **⌘U**) or continue using the BBS.

## Logging Off the System

When you are ready to end a bulletin board session, all that is usually required is to type **BYE** or **QUIT** and press RETURN when the command prompt is displayed. Remember that many systems will automatically log you off after 30 minutes.

## SETTING UP YOUR OWN BULLETIN BOARD SYSTEM

If the idea of setting up and running your own BBS appeals to you, it may be easier than you think. All you will need is your C-64, a disk drive, an auto-answer modem like the 1650, and the appropriate software. You will also need a dedicated phone line, be willing to leave your computer system running 24 hours a day, and have a lot of patience.

Finding the right software is the key to a functional, easy-to-use BBS. If you

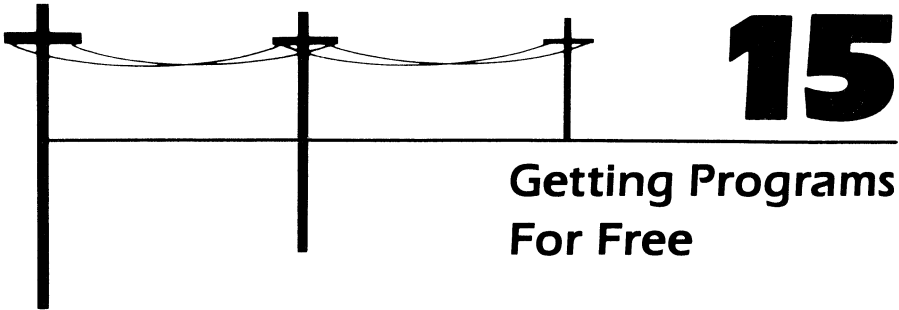
are a programmer, writing your own software shouldn't give you that much trouble. However, excellent BBS software is available for as little as \$100. For more information on setting up a C-64-based BBS, contact

Steve Punter  
1343 Tyneburn Crescent  
Mississauga, Ontario  
CANADA L4X 1P6  
Phone: 416-625-1786

If you have a CP/M board installed on your C-64, you can probably use or modify one of the many CP/M-based bulletin boards. A supplier of CP/M BBS software is

CBBS  
Randy Suess  
5219 West Warwick  
Chicago, IL 60641  
Phone: 312-545-1776





# 15

## Getting Programs For Free

One of the most attractive incentives for becoming involved with telecomputing is the capability to download “public domain” software, programs not protected by copyright laws. Software available in the public domain includes everything from games to accounting programs. Such programs are typically written in BASIC, but many machine-language programs are also available.

Public domain software is available from a number of telecommunication sources. Most information utilities (such as CompuServe) have organized special-interest groups, called SIGs, that provide software for computers like the C-64. Computerized bulletin boards are also a good source for such programs.

There are no direct charges for using public domain programs, although information utilities do charge you for your on-line connect time. Bulletin boards that are accessed free of charge may occasionally ask for a donation to help cover the expense of maintaining the system that stores the free programs.

Whatever the source of your programs, keep in mind that public domain software is for personal use only; you should not download the software or try to make a profit on it in any way. By the same token, if you decide to contribute a program written by someone else to a bulletin board, be sure it is in the public domain. Copyrighted programs should not be uploaded or downloaded under any circumstances.

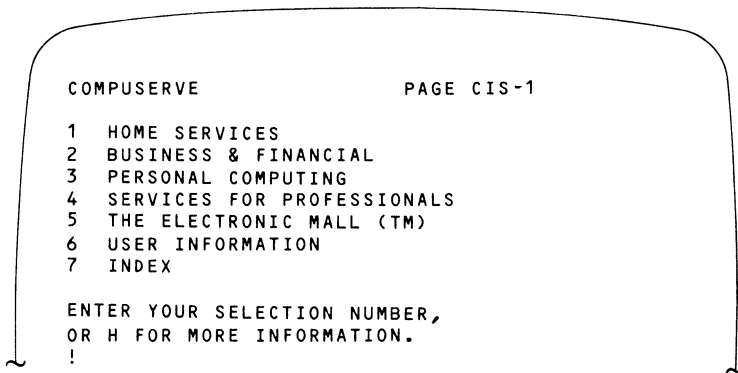
## DOWNLOADING PROGRAMS FROM COMPUERVE'S C-64 SIG

A wide range of public domain programs is available for the C-64, and the CompuServe Information Services is one of the best sources for them. The rest of this chapter will describe how to download programs from CompuServe's C-64 SIG. The procedures used are unique to CompuServe; individual bulletin boards may require different steps to download programs.

Before accessing CompuServe, be sure your C-64 telecommunications system is set up properly; see Chapter 3 for details. Once the system is connected and the software is running, begin dialing your local CompuServe number by first pressing **C=@**. When prompted, enter the phone number and log onto the service (again, see Chapter 3 for details).

Once you have successfully logged on, the CompuServe main menu will be displayed (see Figure 15-1). When the command prompt is displayed (the !), type **GO PCS-160** and press RETURN to go directly to the Commodore users-group area. When you do so, a menu similar to the one in Figure 15-2 will appear. You can access the C-64 programs and files by selecting option 2 (just type **2** and press RETURN). It will take a couple of minutes to gain access to the area, so the following message will appear:

**REQUEST RECORDED,  
ONE MOMENT, PLEASE  
THANK YOU FOR WAITING**



---

**Figure 15-1.** *The CompuServe Information Service main menu*

---

```
          COMMODORE USER GROUPS
1  COMMODORE VIC 20 USER GROUP
2  COMMODORE 64   USER GROUP
3  COMMODORE PET   USER GROUP

LAST MENU PAGE. KEY DIGIT
OR M FOR PREVIOUS MENU.
!
```

---

**Figure 15-2.** *CompuServe Commodore Users Group menu*

## Entering the C-64 SIG

You must be a SIG member in order to use SIG services. All that is required is a bit of information about yourself: your name, CompuServe user ID, and so on. There are no special membership fees or charges. When you do become a C-64 SIG member and log onto your group, a display similar to this one will appear:

```
WELCOME TO COMMODORE 64 SIG, V. 3A(75)

NAME: ASHER FITZGERALD      707070,707
LAST ON: 16-DEC-84         16:39:09
HIGH MSG#: 75021

YOU ARE USER NUMBER 291165
SYSTEM CONTAINS MESSAGES
74192 TO 75021
ENTER BLANK LINE FOR MENU:
```

As you can see, the SIG automatically knows who you are (by your ID when you logged onto CompuServe), and it keeps track of the last time you accessed the SIG. To get to the main SIG menu, simply press RETURN and a menu like the one in Figure 15-3 will appear. Instead of selecting any of the options, however, type **XA** and press RETURN. This will allow you access to the “database” area of the SIG, and a message similar to the following will appear.

**DATABASE FOR WHICH SECTION:**  
0 1 2 3 4 5 6 7 8 9

Not all of the databases contain programs. The subject matter contained within the various databases may be as follows:

Database	Topic
0	Hotline (general information)
1	Talk to the trade
2	64 general utility
3	Beginner/user information
4	The 64th dimension
5	Manual updates
6	CP/M section
7	Games
8	CBM public domain
9	CBM public domain

You select a database by simply entering the database number and pressing RETURN. The following example will illustrate how to download programs by using database 8. To enter this database, type 8 and press RETURN. When you do, a menu like the one in Figure 15-4 will appear.

---

```
      COMMODORE 64 SIG
FUNCTION MENU:
1 (L)  LEAVE A MESSAGE
2 (R)  READ MESSAGES
3 (RN) READ NEW MESSAGES

5 (B)  READ BULLETINS
6 (CO) ONLINE CONFERENCE

9 (OP) CHANGE YOUR SIG OPTIONS
0 (E)  EXIT FROM THIS SIG
ENTER SELECTION OR H FOR HELP:
```

---

Figure 15-3. Main SIG menu

---

```

XA 8 - CBM PUBLIC DOMAIN :
1 BRO  BROWSE THRU FILES
2 UPL  UPLOAD A NEW FILE
3 EXI  EXIT TO COMMODORE 64 SIG
4 HEL  HELP
5 XA   CHANGE DATABASE
KEY DIGIT:

```

---

**Figure 15-4.** *Sample CompuServe SIG Database menu*

## Using a C-64 SIG Database

As you can see from the menu in Figure 15-4, you need to be familiar with several commands in order to download public domain programs. The first command, Browse, allows you to peruse the database's contents. When you select the Browse option, the name of the program, the user ID of the person who submitted it, the date it was submitted, and a brief description of what it does will be displayed. After you choose the Browse option, two additional options appear: /AGE and /KEY. Simply pressing RETURN in response to both prompts enables you to browse through all of the available programs in the current database. You can, however, answer one prompt to select only the programs submitted within a specified time period (the /AGE prompt) or on a specific topic (the /KEY prompt). The following is a sample description of a program in public domain:

```

[707070,707]
BLKJK.IMG      15-DEC-84
35255(14160) ACCESSES: 21
KEYWORDS: BLACKJACK GAME C-64
THIS IS A GREAT VERSION OF
BLACKJACK (21) GAME FOR THE C-64.
YOU PLAY AGAINST THE COMPUTER. FOR
PUBLIC DOMAIN, PERSONAL
USE ONLY.

```

Once a description of a program has been displayed, a menu like the one in Figure 15-5 will appear. The main function of this menu is to allow you to “read”

---

```
DISPOSITION:
1 R   READ THIS FILE
2 D   DOWNLOAD THIS FILE
3 T   TOP ACCESS MENU
KEY DIGIT OR ENTER FOR NEXT:
```

---

**Figure 15-5.** *CompuServe SIG File Disposition menu*

(list) the program or download it into your C-64. However, when you attempt to list a program in the C-64 SIG, it will not look like a normal BASIC program listing if it has the file extension **.IMG** (for “image”) or **.BIN** (for “binary”). This is true of most of the programs.

IMG files are programs uploaded through a special transfer method called “B” protocol that ensures reliable data transfer. Without B protocol, regular BASIC programs can be uploaded, but data transmission problems sometimes result in incorrect data being sent from your computer to another (and vice versa). B protocol prevents these problems. Consequently, when you “read” a program from the menu in Figure 15-5, it will appear as a binary file consisting of binary (8-bit) data — 0’s and 1’s. (What is also in the file but what you won’t see is a special code identifying the type of computer that originally uploaded the program.) However, when the download operation is complete and you load the program into C-64 BASIC, the binary file will be translated into a BASIC program and a normal BASIC listing will be displayed.

To download the Blackjack program described in the previous sample display, simply type **2** or **D** and press RETURN when the menu in Figure 15-5 is displayed. When you do so, CompuServe will display the following prompt:

```
I NEED A FILE NAME FOR YOUR COMPUTER:
```

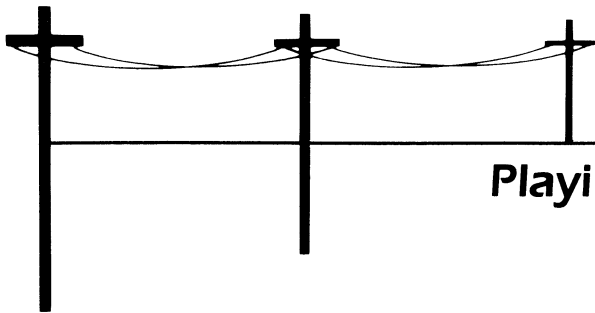
In this instance you might enter **BLACKJACK** and press RETURN. The program will then be saved on your C-64 disk under the name of **BLACKJACK**. As the transfer operation takes place, your screen will be filled with a series of messages, including the size of the file being downloaded.

Once the download is complete, the menu in Figure 15-5 will reappear, and you can view the next available program file (press RETURN), exit the database to return to the main SIG menu (type **EXI** and press RETURN), or log off the system by typing **BYE** and pressing RETURN. If you choose the last option, the CompuServe sign-off message will appear; after two minutes, CompuServe will hang up

the phone, and your modem's CD (Carrier Detect) light will go off. You can then type **C=X** to exit the Vidtex program and return to BASIC. To ensure that the program is on disk, check the directory of your disk by typing **LOAD "\$",8**, press RETURN, and look for the filename **BLACKJACK**. If it is on disk, you can type **LOAD "BLACKJACK",8** and press RETURN to execute the program.







# 16

## Playing Telegames

If you have been using a C-64 for any time at all, you know that it is probably the best home computer available for playing games. And if you have been playing computer games, you have probably found that there are two basic types for your C-64: *single-player* games that you play by yourself or perhaps against the computer, and *multiplayer* games that you play with another person or on a team. Multiplayer games are the most exciting of the two because they allow you to compete and interact with other people.

One problem with multiplayer games, however, is that both you and the other person must be sitting in front of your C-64. *Multiplayer telegaming*, game playing with other people over telephone lines, overcomes this obstacle. This method of entertainment enables you to compete against one or more people who are also using computers. Each person taking part in the game can be situated in a different location: you can play a game simultaneously with people in Dallas, Boston, New York, Seattle, and other cities, or with someone on the other side of town. The computer instantly transmits the players' responses.

Telegaming is made possible through special software that enables two computer users to compete via telecommunication. In addition, some computerized bulletin boards (see Chapter 14) scattered about the country are set up especially for long-distance game playing.

A more practical version of telegaming is available through the CompuServe Information Service. This information service offers several categories of games (board games, parlor games, adventure games, and so forth), including multiplayer contests that in some cases can match you against 99 other computer users across the country. CompuServe offers a number of multiplayer games such as SpaceWars, SeaWars, and three versions of a space game called MegaWars. In each game you compete against other participants or on teams. Keep in mind that you do not play against the CompuServe computer; its role is simply that of a coordinator or “umpire”: it keeps score, ensures that you play by the rules, tells you who else is playing, and so on.

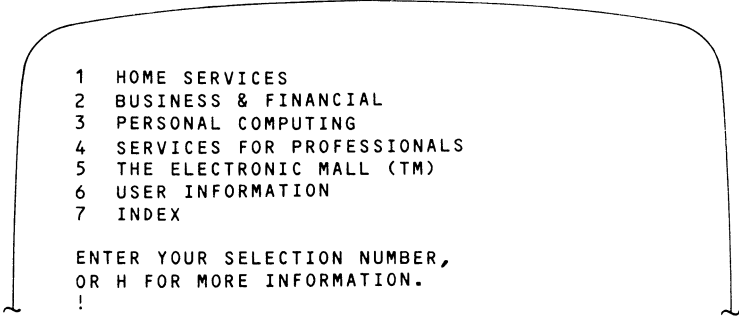
Using CompuServe’s SpaceWars as an example, this chapter will describe how you can join and enjoy a multiplayer game. For specific instructions on playing the game, in-depth manuals are available through the information service.

## ACCESSING COMPUSERVE’S MULTIPLAYER GAME AREA

Before accessing CompuServe, be sure your C-64 telecommunications system is set up properly (see Chapter 3 for details). Once the system is connected and the software is running, begin dialing your local CompuServe number by first pressing **C** @. When prompted, enter the phone number and log onto the service (again, see Chapter 3 for details).

Once you have successfully logged on, the CompuServe main menu shown in Figure 16-1 will be displayed. When the command prompt is displayed (the !), type

---

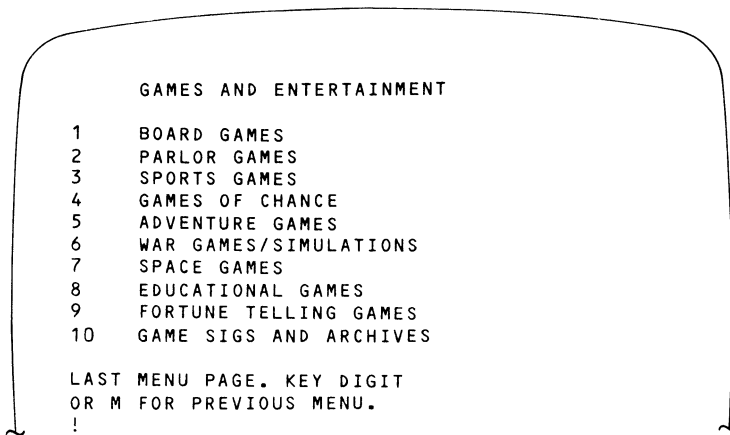


```
1 HOME SERVICES
2 BUSINESS & FINANCIAL
3 PERSONAL COMPUTING
4 SERVICES FOR PROFESSIONALS
5 THE ELECTRONIC MALL (TM)
6 USER INFORMATION
7 INDEX
```

```
ENTER YOUR SELECTION NUMBER,
OR H FOR MORE INFORMATION.
!
```

---

**Figure 16-1.** *The CompuServe Information Service main menu*



---

**Figure 16-2.** *CompuServe Entertainment main menu*

**GO GAM-1** and press RETURN to go directly to the Games and Entertainment area. When you do so, a menu similar to the one in Figure 16-2 will appear.

You can access the SpaceWars game by selecting option 7, Space Games (just type 7 and press RETURN). When you do, CompuServe will present a menu (like the one in Figure 16-3) that lists the different space games available.

Lunar Lander and Space Trek are single-player games, while the other four—Mega Wars I, II, and III and SpaceWars—are multiplayer games:

- Mega Wars I Galactic Conflict is a multiplayer game for one to ten people. This version of Mega Wars has a medium level of difficulty and is recommended for people 12 years of age and older. Instructions are available on-line by using the game's "help" feature; an instruction manual is available at extra charge.
- Mega Wars II Fourth Dimension is the advanced version of the game and is recommended for one to eight players (12 years old and up). To play this version of the game, you must be using the Vidtex telecommunications program. Since you are using a C-64, this version may be ideal for you because it makes use of your computer's color, graphics, and sound capabilities.

Notice that the Mega Wars II option is prefaced by a \$; this means that you will be charged extra if you select this game.

The game involves two teams of four players each. Each team tries to

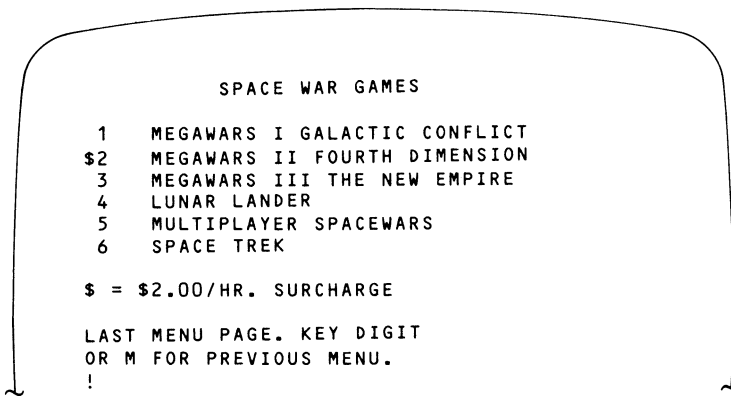


Figure 16-3. CompuServe Space Games main menu

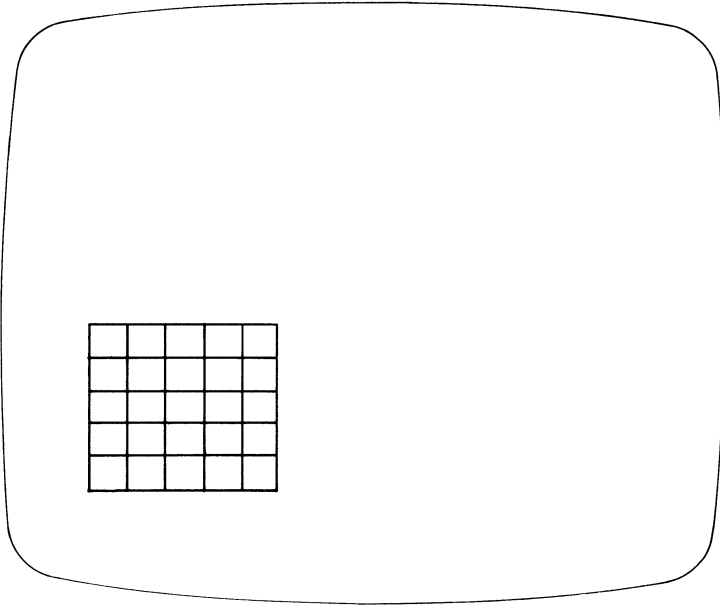
destroy or capture the other team's spaceships. Any unclaimed ships are controlled by a robot.

- Mega Wars III The New Empire allows from 1 to 100 players (12 years old and up). The game simulates the colonization of the galaxy as you inhabit planets. You fly your ship around the universe, exploring space and defending yourself against enemies. Once you have colonized a planet, you must support the population by manipulating its economy.
- SpaceWars, the game described throughout the rest of this chapter, is your best introduction to multiplayer games. From one to eight players can take part, and the recommended age is only 8 years old and up.

The goal of the game is to find and destroy other spaceships. You will get points for each ship you hit but lose points when another player scores a hit on your ship.

## MULTIPLAYER SPACEWARS

If you have ever played a traditional board game, you should be able to master a Multiplayer SpaceWars (MSW) game without much difficulty. The main difference between MSW and a traditional board game is that you only see a part of the MSW "board" at a time.



As this illustration shows, the actual board is like a checkerboard. As you move your “spaceship” around the board, different playing area becomes visible.

Your spaceship appears on the board as a ^, >, <, or V, depending on the direction it is facing: facing up is ^, facing down is V, facing right is >, and facing left is <. If you want to turn the ship in another direction, press L or R to rotate the ship’s direction either left (counterclockwise) or right (clockwise). Once a ship is facing in the appropriate direction, press M to move it forward one square at a time. Other ships in the game are identified as numbers on the board. Any time you are facing another ship, you can “fire” on it or it can fire at you; to fire on another ship, simply press F. The following illustration shows a number of board elements:

```

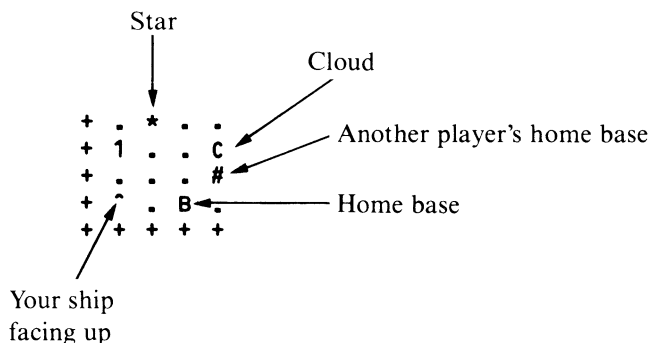
. . 1 . .
. > . . .
. . . . .
. . . 3 .
. . . . .

```

If you wanted to fire on spaceship 1 (on the top row), for instance, you would press L to rotate your ship to the left so it would be pointing up. You would then press M to move it up one space and press R to rotate the ship to the right so it would be facing ship 1. Finally, you would press F to fire on the ship.

When you join a SpaceWars game, you are assigned a number. In the previous example you might be player 2. You will see the direction that your ship is facing; the other players simply see your number.

A number of other elements can be displayed on the board as well.



In this example your ship is in the lower-left corner of the screen (the + signs indicate the “edge” of a board sector), facing up. To your right is your “home base” (the letter B), a safe haven for you. Two squares in front of you is player 1. To that player’s right is a “cloud” (the letter C). Clouds can be a safe hiding place or they can be dangerous as you move through them, so approach them with caution. Just below the cloud is another player’s home base (the #), while on the top row is a “star” (the \*).

In addition to the movement and firing commands, there are a number of other commands you can use throughout the game. Pressing D, for instance, allows you to see what your segment of the board looks like at any one time. Pressing S displays all of the current scores; pressing U provides you with a list of the other players.

You can “talk” to any player in the game (to discuss strategy, for instance) by typing a message to that player. To type a message, press T followed by the player’s number as it appears on the board. Enter the message and then press RETURN. If at some time in the game you don’t know what to do, press H for “help.” To exit the game, press E, and your final score will be displayed as you return to the MSW introductory menu.

## How the Game Is Scored

The CompuServe computer keeps score for you and the other players. Points are scored a number of different ways. You get points, of course, when you fire upon and hit another player’s ship. The other player loses points when you hit his or her ship. Points for hits are calculated with the following formula:

$$\text{points} = \frac{\text{target's score} - \text{your score}}{8} + 8$$

For instance, if you have 60 points and you fire at someone who has 100 points, the points are calculated as shown.

$$13 = \frac{100 - 60}{8} + 8$$

You would therefore get 13 points for hitting the other ship.

When your ship is hit, your score is decreased by the following formula:

$$\text{points} = \frac{\text{target's score} - \text{your score}}{8}$$

You lose 1 point if you fire at another ship and miss, and 10% of your score if you ram into another player's spaceship or a star other than your homebase.

## PLAYING MULTIPLAYER SPACEWARS

Once the menu in Figure 16-3 is displayed on your C-64 screen, select option 5 (Multiplayer SpaceWars) by typing **5** and pressing RETURN. When you do, a MSW menu like the one in Figure 16-4 appears. It takes a few minutes to gain access to the game, but when you do, a welcoming message appears, you are asked to enter the name you want to play under, and you are assigned your spaceship number. In

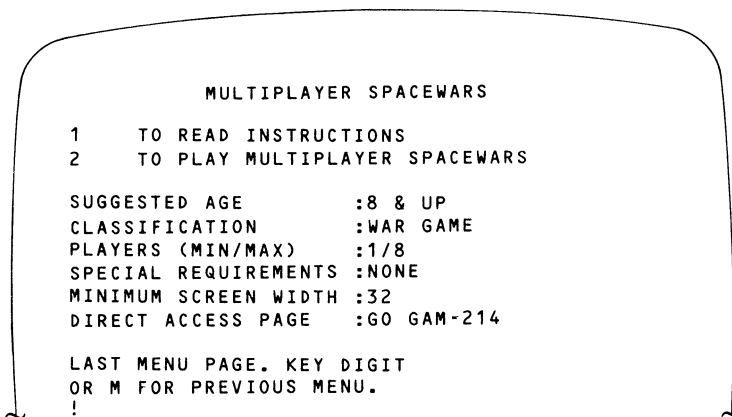


Figure 16-4. Multiplayer SpaceWars (MSW) introductory display

the following example, assume you entered the name “Spock” and are identified as player 2.

```

WELCOME TO SPACEWARS!

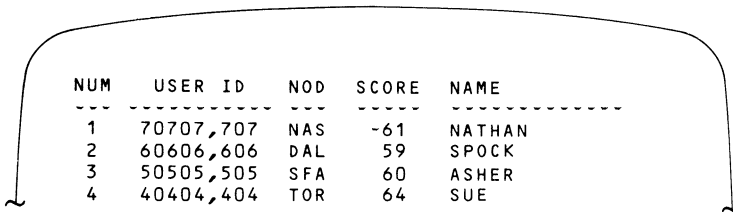
YOUR NAME PLEASE: SPOCK

YOU ARE NUMBER 2
TYPE H FOR HELP

+ * # . .
+ . . . .
+ # ~ * .
+ + + + +
+ + + + +

```

Before beginning your search-and-destroy mission, you should probably find out who else is playing the game. To do so, type **U** and press RETURN; a display similar to this one will appear:



NUM	USER ID	NOD	SCORE	NAME
1	70707,707	NAS	-61	NATHAN
2	60606,606	DAL	59	SPOCK
3	50505,505	SFA	60	ASHER
4	40404,404	TOR	64	SUE

The first column lists the numbers assigned to the players; remember that you can see all numbers except your own on the board. The second column lists the user ID of each player; this is entered automatically when each player joins the game. The third column (labeled NOD) tells where all the game participants are located; player 1, for instance, is in Nashville, player 2 in Dallas, player 3 in San Francisco, and so forth. The next column tells each player’s current score, and the last column lists the players’ names.

If you want to say hello to the other players before you begin the game, you can use the “talk” feature. You have the option of talking to all of the players at once or to an individual player. To send a message to everyone, simply type **T** followed by the message. For instance, you can type **T 0 SPOCK IS HERE TO RID THE UNIVERSE OF ALIENS** and press RETURN. If you want to send a message to an individual player, type **T** followed by the player’s number and then the message. For instance, you might type **T 3 ASHER, LET’S TEAM UP AGAINST NUMBER 1** and press RETURN.

Once you have all of the preliminaries out of the way, you can begin playing. To see what the board looks like in the  $5 \times 5$  grid around your spaceship, type **D** (for “display”) and press RETURN. If you don’t see any other spaceships in your area,



begin moving your ship (use M, L, or R) until a number appears on the screen. After each movement, the current board is displayed automatically.

As you move around the grid, you will encounter various obstacles, most of them stars and clouds. You can move through or hide in clouds, but you take chances when doing so. If you are hiding in a cloud, your normal spaceship symbol (^, V, >, or <) becomes A, U, ], or [, indicating that the ship is in a cloud but facing up, down, right, or left respectively. At times you will encounter a dangerous situation when entering a cloud or coming too near a star (you can also lose 10% of your score for ramming a star), and a message like this may appear:

```
THE STAR'S GRAVITATIONAL FIELD HAS SWUNG
YOU FAR BEYOND YOUR INTENDED ORBIT. IN
ADDITION TO HAVING YOUR CREW SHAKEN UP,
YOU HAVE LOST 10% OF YOUR POINTS!
```

When you do encounter another player (as in the following display), type **F** to fire a missile.

```
+ . 1 . *
+ . . . .
+ . ^ . .
+ . . C .
+ . . . .
```

If you score a hit on the other ship, a message telling you so will appear. For instance, if you fired at and hit player 1 in the previous example, the message **HIT 1** appears and 8 points plus a percentage of the other person's score is added to your total score. If you fire and miss, the message **MISSED** appears and you lose one point.

When another player fires at and hits your ship, a message telling you this will appear. If, for example, player 1 hits your ship, the message **HIT BY 1** is displayed and your score decreases.

The current score for all participants is displayed whenever you type **S** and press RETURN. Each player's number, a "job" number (a special CompuServe code you needn't worry about), and the player's name and current score will be displayed like this:

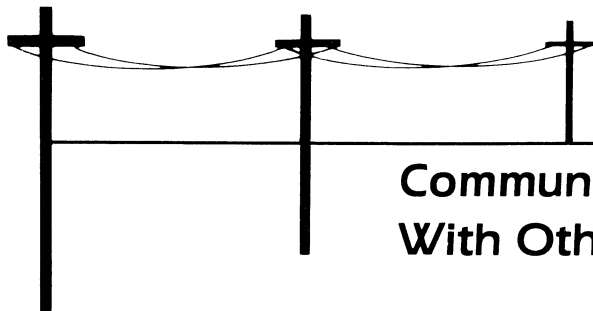
```
1 #80      2 #119     3 #52      4 #221
NATHAN    SPOCK      ASHER      SUE
-61       59       60       64
```

Exiting the game is a simple matter of typing **E** and pressing RETURN. When you do so, the final scores of all players will be displayed along with their high scores, the number of shots fired, and the number of hits given and received:

```
1 #80      2 #119    3 #52     4 #221
NATHAN    SPOCK     ASHER     SUE
-61       59        60        64

HIGH SCORES:
10        59        70        84
SHOTS FIRED:
23        33        34        41
HITS GIVEN:
4         15        18        22
HITS RECEIVED:
33        14        12        8
THANK YOU FOR PLAYING SPACEWARS!
```

You will then return to the MSW menu shown in Figure 16-4. You can then log off the system by typing **BYE** and pressing RETURN.



# 17

## Communicating With Other Computers

Telecommunications are not limited to information services and bulletin boards. If you are a student or businessperson, for instance, you might need to communicate with a mainframe computer at school or at work. Hobbyists, on the other hand, may want to communicate with other C-64 enthusiasts directly over telephone lines. Your C-64 allows you to communicate with both types of computers.

### **C-64 — TO — MAINFRAME TELECOMMUNICATIONS**

C-64s are commonly used for communicating with mainframe computers. Many businesses and universities have large mainframe systems that are used by individuals for a variety of applications, including word processing, accounting, and inventory. In most instances, these systems are used primarily during normal working hours. However, some systems become overloaded during peak hours, resulting in a fewer number of terminals available for use and slower access time for the ones being used. The obvious solution to such problems is to use the system during “off hours,” when fewer people are using the facilities. Unfortunately, it isn’t always convenient to return to the office or university computer lab late at night. But if the mainframe computer system is equipped with a modem and

communications software (and most are), you can log onto the mainframe with your C-64 and use the system. In most cases, you can use your C-64 in much the same way as you would a computer terminal that is directly connected to the mainframe computer.

Before trying to log on, be sure to contact the mainframe's system operator to find out specific communications protocol and requirements. Be aware that when using your C-64 as a telecommunicating terminal, there may be times when some of the keys perform differently from what you expect. This is because the specific function of a key depends upon the type of computer you are communicating with

---

```

SYSTEM V UNIX (TTYD3)

LOGIN: AFITZGERALD
PASSWORD:
LAST LOGIN: WED MAY 16 16:59:07 ON TTYD3
SYSTEM V UNIX #3: FRI APR 27 12:26:55 PST 1984

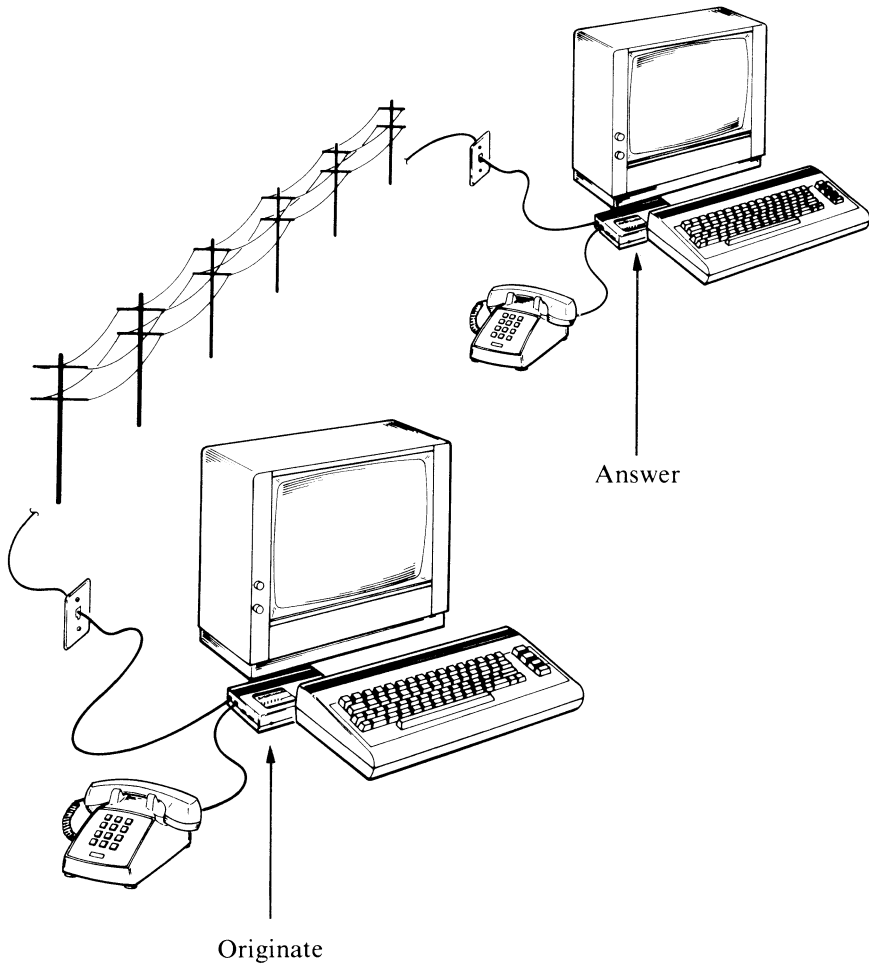
>>> TERMINAL ROOMS WILL BE LOCKED AT NIGHT AND ON WEEKENDS FOR
      SECURITY REASONS.

YOU HAVE MAIL.
TERM = (ADM3A) N
TYPE N UNKNOWN
ERASE SET TO CTRL-H
KILL SET TO CTRL-X
NO NEWS.
% MAIL
MAIL VERSION 2.18 5/19/83. TYPE ? FOR HELP.
"/USR/SPOOL/MAIL/AFITZGERALD": 1 MESSAGE 1 NEW
>N 1 DSSMITH@UCCD THU MAY 17 04:28 332/14088 "TODAY'S STOCKS"
& S 1 STOCK32
"STOCK32" [NEW FILE] 332/14088
& D 1
& Q
% WHO
BCLEA          TTYD0          MAY 17 09:41
BERHSAD        TTYD1          MAY 17 09:42
CARVAOH        TTYD2          MAY 17 09:45
CC-39          TTYJ3          MAY 17 09:39
CS164-4        TTYK4          MAY 17 09:15
AFITZGERALD    TTYD5          MAY 17 09:14
KSHALL         TTYI1          MAY 17 09:53
KJPRIEE        TTYI2          MAY 17 09:23
JBAKER         TTYI8          MAY 17 08:53
CLINE          TTYP1          MAY 17 05:23
LIBBIE         TTYP2          MAY 17 08:59
% L LOGOUT

```

---

**Figure 17-1.** Sample telecommunications session with a VAX running the UNIX operating system



**Figure 17-2.** *C-64-to-C-64 telecommunications setup*

and the software it is running. For the most part, though, most C-64 keys will be interpreted correctly by the mainframe computer.

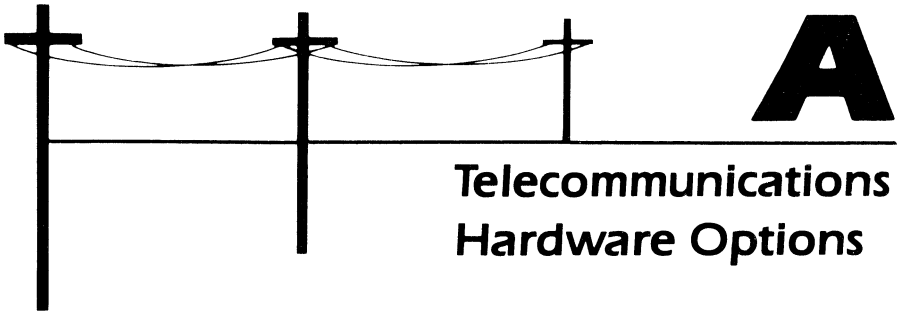
Figure 17-1 describes a session in which a C-64 running Vidtex is telecommunicating with a VAX computer using the UNIX operating system. In this case, the VAX computer is located in the computer center of a major university, while the C-64 is miles away.

If you are familiar with UNIX, you will notice that UNIX commands can be executed from the C-64 keyboard. And even if you are not familiar with UNIX, the log-on sequence should still look familiar. Notice that this system, like most, requires a “user name” (LOGIN:) and a password (PASSWORD). (In Figure 17-1, the person logging onto the system is AFITZGERALD.) In addition, the password does not appear on the screen as you type it in. Once you have logged on, you are told when you were last on the system and whether or not someone has sent you any electronic mail; the system also prompts you to identify the type of computer terminal you are using. In the example, the N command is entered, telling the system that an “unknown” terminal is being used.

## C-64 — TO — C-64 TELECOMMUNICATIONS

At times you may want to telecommunicate directly with other C-64 users without going through an information service. This is an easy way to share programs and information. The guidelines for C-64— to— C-64 telecommunications are simple: both computers must be using the same communications protocol; one modem must be set to originate and the other to answer. (Refer to Figure 17-2.)

Start by loading and executing your communications software. When the parameters are set, enter terminal mode (Vidtex users only need to press RETURN when the main menu is on the screen). Next, both parties should be sure that their Automodem 1650 switches are set to **T** (for telephone) for voice communication. One person should then manually dial and speak with the other person over the phone to confirm that the communications programs are running and that the communications parameters match, and to agree on whose modem will be set to Originate and whose will be set to Answer. Both parties can then set the modem switch to **D** for data. To confirm that communication is taking place between the C-64s, one party may wish to set the modem’s duplex switch to **H** for half and begin typing on the keyboard. If you and the other person can communicate with each other, a reliable communication link has been established. Both modems should then be set to **F** for full-duplex, and you can begin uploading or downloading information from disk files.



Although this book has used the Commodore Automodem 1650 to describe the role of modems in the C-64 telecommunications system, you can use other modems as well. However, there is a problem with using modems other than the 1650 or the 1600 with the C-64: the modem connector on the computer does not use the standard RS-232C connection configuration required of most serial devices (see Chapter 2 for a discussion of serial communications). Consequently, steps must be taken before you can use an RS-232C device with your C-64.

## **CONVERTING TO RS-232C**

Before using a standard RS-232C modem with the C-64, the proper wires between the computer and modem must be connected, the electrical polarity must be inverted, and the voltage levels must be converted. If you are an experienced electronic technician, you can probably build a device that does all of this. However, most people do not have the time or experience for such work. Fortunately, Commodore and others provide an RS-232C interface for the C-64 that plugs into the user-interface port on the back of the computer.

## The Omnitronix RS-232C Interface

One such RS-232C interface is provided by Omnitronix of Seattle, Washington. This device consists of a cartridge that is inserted into the user-interface port on one end and a standard RS-232C connector on the other (see Figure A-1).

The interface converts TTL signals to RS-232C and supports RS-232C pins 2 through 8, 20, and 22. Once connected to your C-64, the interface allows you to use any serial device (printer and so on) as long as you have the software that supports the accessory. However, the interface is not "intelligent," so it will not convert C-64 control characters to standard text.

Included with the hardware is a machine-language driver (you must type it in), a BASIC dumb-terminal program listing, and other instructions. For more information, phone Omnitronix, Inc., at 206-236-2983.



---

Figure A-1. *Omnitronix RS-232C interface*



## MODEMS

Once you begin using your C-64 serial communications capability, there are literally dozens of modems available. The problem with finding a modem for your C-64 isn't availability or compatibility, however—it is cost. Many modems cost more than your C-64 itself. This may be fine, of course, but that decision is up to you. Two criteria were used to select the modems described in this section: availability and cost. There are some modems (like the Hayes SmartModem) that are so widely used that they must be included even though they typically cost more than a C-64. Other modems cost less than your Commodore computer, so a few of those will also be mentioned.

### The Hayes SmartModem

The most popular modem in use today is the Hayes SmartModem. There is a complete line of Hayes modems, ranging from the SmartModem 300 (\$290) to the SmartModem 1200 (\$700). The main difference between the two is that the SmartModem 300 is 300 baud only, while the SmartModem 1200 can be used at



---

Figure A-2. Hayes SmartModem

either 300 or 1200 baud. For C-64 telecommunications, the SmartModem 300 should be more than sufficient. (See Figure A-2.)

The SmartModem is of the direct-connect type and has an external power supply that must be connected to a wall outlet. It supports full- and half-duplex, as well as auto-answer and auto-dial. The SmartModem also has a built-in speaker that lets you hear if the line is busy or if someone has picked up the phone.

Virtually all SmartModem features can be controlled from your C-64 keyboard. This includes answer or originate, baud rate, duplex setting, auto-dial, and auto-answer. And even though the speaker has a volume control knob, you can even “turn up” or “turn down” the volume from the keyboard.

The SmartModem has hardware configuration switches, but since they are rarely used, they are hidden behind the front cover. These switches provide hardware control of auto-answer and other features.

Finally, the SmartModem has a full complement of indicator lights that let you know the modem’s status at any time,

## The Volksmodem

The Volksmodem (shown in Figure A-3), produced by Anchor Automation, is an inexpensive direct-connect modem that is 300 baud only. Like the Automodem

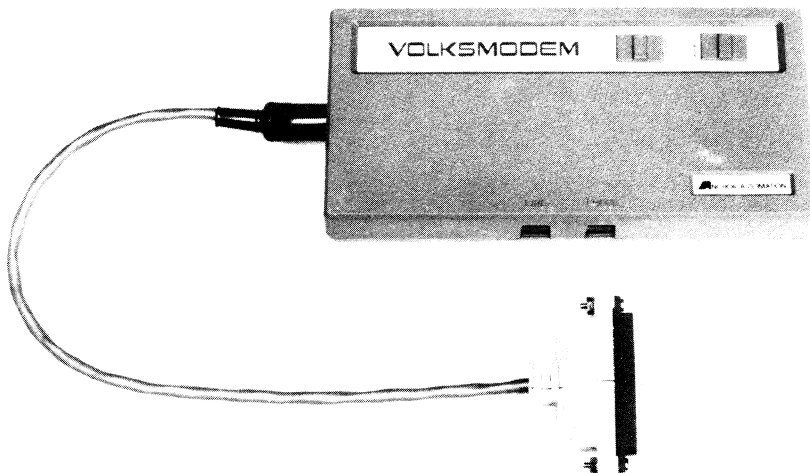


Photo courtesy of Omnitronix, Inc.

---

**Figure A-3.** *Volksmodem with cable for C-64 use*

1650, it operates in either answer or originate mode and has a Data/telephone switch. Unlike the Automodem or Hayes SmartModem, the Volksmodem derives its power from 9-volt batteries that must be replaced periodically.

While the Volksmodem does not have an auto-dial feature (you must dial from the phone), it does have the capability to switch from answer to originate (and vice versa) automatically. The modem can communicate at either full- or half-duplex.

## The Vicmodem 1600

In addition to the Automodem 1650, Commodore supplies a lower-priced, direct-connect modem that operates at 300 baud only: the Vicmodem 1600. (See Figure A-4). While the modem does have an Originate/answer switch and a Carrier Detect indicator, it does not have auto-dial or auto-answer capabilities or a Data/telephone switch.

To use the Vicmodem, you dial another computer; when the computer answers, you then disconnect the telephone line from the phone and connect it to the modem. When you are finished telecommunicating, you will have to reconnect the line to the phone.

Since the 1600 plugs directly into the C-64's user-interface port, special cables or external power supplies are not needed.



Photo Courtesy of Commitronix, Inc.

---

**Figure A-4.** Commodore's Vicmodem



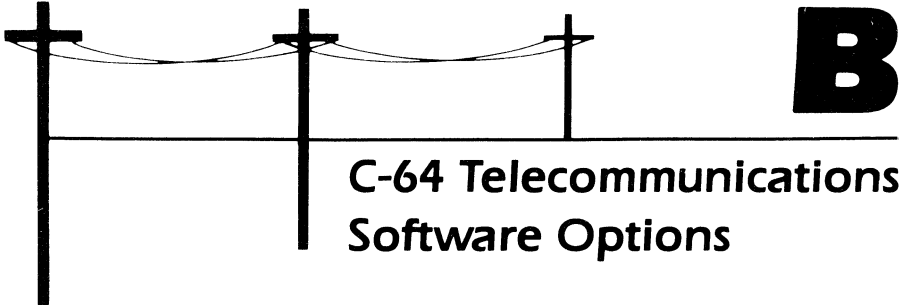
---

Figure A-5. Radio Shack's Modem I

## The Modem I

Another low-cost, easy-to-use modem is Radio Shack's Modem I. This modem is 300 baud only and has full- and half-duplex capabilities. The Modem I (see Figure A-5) has only one switch (answer, originate, and off) and a single indicator light (Carrier Detect). The modem does not support auto-answer or auto-dial, and it must be connected to external power.

To use the modem, connect the system (a C-64 RS-232C interface cable is required) and position the answer/originate/off switch to off. Next dial the other computer (from the phone). When the other computer answers, set the switch to originate.



## C-64 Telecommunications Software Options

In addition to CompuServe's Vidtex program (discussed throughout this book), there are many communications programs available for the C-64. The one you use depends upon your specific needs, equipment requirements, and preferences. Several representative programs are described in this appendix.

### **SUPERTERM**

Superterm, by Midwest Micro, has all of the basic features required of a telecommunications program: uploading and downloading, selectable communications parameters, buffer control, and disk support. The enhanced features of the program include predefined C-64 function keys, the ability to print while on-line (parallel printing), buffer editing, and terminal emulation.

The basic Superterm package consists of a manual and disk. Since the Superterm software supports parallel printer output, you have the option of buying a Superterm module and "smart" ASCII interface cable. This equipment allows you

to connect a parallel printer to the cartridge port on the C-64, enabling you to print out information as you receive it from an information service.

Once you load the Superterm program, the C-64 function keys are automatically redefined to support the program. This means you don't have to remember a series of control key functions to use the program. (Superterm even comes with a template that fits over the function keys as an additional aid.) F1, for instance, is used to open or close the buffer, while F4 displays the Communications Protocol menu.

After loading any communications program, your first step is usually to set the communications parameters. You do this with Superterm by pressing F4 once you are in terminal mode.

To change a parameter, simply press a specific key and the options for that parameter will then be displayed. To change the baud rate, for instance, press B and you will be given the option of choosing 150, 300, 600, or 1200 baud. Each parameter has a default value that is displayed: in the case of baud rate, the default value is 300. Once all values have been selected, the parameters can be saved on your Superterm disk so you don't have to set them each time you use the program.

You may not be familiar with many of the terms used in the Communications menu (GO, THROTTLE, WILDCARD, and so on); however, the Superterm manual defines these terms extensively.

Once you have set communications parameters, you can upload files to another computer by returning to terminal mode and pressing F6. First you will be asked the protocol to use: CBM (for "Commodore Business Machines") or XON/XOFF. In most instances, you will choose CBM. Next the program will ask if you want to receive or transmit a file. You should select transmit by pressing T, at which time you will be asked the name of the file. Finally, you will be asked to specify the file type; after you do, the file transfer will begin.

Downloading files is almost the same. After pressing F6 and specifying CBM, press R (for "receive") instead of T. Next you will be prompted for the filename you want to assign to the file; the data will then be saved on disk. Superterm also uses another downloading method called "capture mode," which is used for certain kinds of files. This method is similar to the one just described, but it is initiated by pressing F7. The Superterm manual explains this method in detail.

Although Superterm does allow automatic log-on (it stores your ID number, password, and so on) to a system like CompuServe or The Source, it does not support auto-dialing. It does, however, have a "phone book" that stores numbers for quick referral. For more information about Superterm, contact:

Midwest Micro, Inc.  
311 West 72nd Street  
Kansas City, MO 64114  
Phone: 816-333-7200

## GEMINI-64

Gemini-64 is a low-cost, highly functional smart terminal designed for the C-64. It supports the Commodore Automodem 1650 for auto-dialing and the Vic 1520 Plotter for graphics output. Since the program is written entirely in machine language, program execution is faster than with many other communications programs.

Communications protocol and parameter settings are set from a Terminal Parameter menu. When you press the key that represents the first letter of the appropriate parameter, a different value will be displayed. If you want to change the baud rate to 1200, for instance, press B until the number 1200 appears.

Gemini-64 supports both uploading and downloading of C-64 files. Files to be uploaded can be created with another program (such as a word processor) and then stored on disk. Gemini-64 also allows you to compose a text file with the program, save the file on disk, and then upload it when you go on-line. To upload a file from disk, you merely press the F4 function key when you are in terminal mode and then U (for "upload"), and enter the disk filename when prompted. To download a file stored in your buffer, just press F4 when you are in the terminal mode and enter a filename when prompted.

The Gemini-64 program has a 41K buffer that can be manipulated a number of different ways. You can review buffer contents, save the contents on disk, print the buffer, edit the information, or erase ("zero") the buffer.

A series of phone numbers can be auto-dialed with Gemini-64. For instance, if you believe the phone numbers of your favorite bulletin boards may be busy, you can enter several phone numbers at once. If the first number is busy, the program will then dial the second number, and so on until one of the bulletin boards answers the phone. To find out more about Gemini-64, contact:

B. K. Takahasi  
1523 Fourth Street  
Berkeley, CA 94710  
Phone: 415-525-6973

## XMODEM

The term *XMODEM* serves to identify a communications protocol, and it serves as the generic name of communications programs that use this protocol. The protocol involves a signal sequence that ensures error-free data transmission over the phone lines. Although originally written for personal computers using the CP/M operating system, the XMODEM protocol is used in communications programs for the C-64 (with or without the Commodore CP/M interface card).

The good news about most XMODEM communications programs is that they are free, since the protocol itself is in public domain. The bad news is that you can only find a C-64 XMODEM program on a computerized bulletin board system (see Chapter 14); and to log onto a computerized bulletin board, you need a communications program. Furthermore, when you use XMODEM protocol to send or receive a file, the computer on the other end must also be running a program using XMODEM, or else the data transfer won't work.

XMODEM protocol may become a standard for personal communications because of its widespread use and reliability. It is relatively easy for a programmer to implement XMODEM from languages like BASIC, and XMODEM is ideal for personal computers that have 64,000 bytes of memory, such as the C-64.

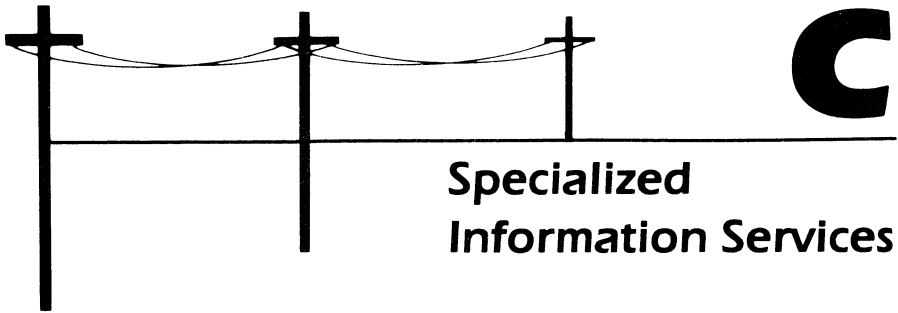
## TOTAL TELECOMMUNICATIONS

Total Telecommunications is exactly what its name implies: a "total" telecommunications package for the C-64 that includes all the necessary hardware and software you need to go on-line. The package, supplied by TeleLearning Systems, Inc. (the same company that markets the Electronic University described in Chapter 9), consists of a telecommunications program and a 300-baud modem.

The telecommunications program is a full-featured package that includes auto-dialing and -answering, selectable communications protocol, and uploading and downloading. Like most terminal programs, Total Telecommunications is menu driven. The direct-connect modem also supports auto-dial and auto-answer. The modem is 300 baud only. For more information about Total Telecommunications, contact:

TeleLearning Systems, Inc.  
505 Beach Street  
San Francisco, CA 94133  
Phone: 415-928-2800





General-purpose information utilities like CompuServe, The Source, and the Dow Jones service should meet most of your telecommunications needs. However, there will be times when you need very detailed or highly technical information on a specific topic. When such an occasion arises, you may find the information you need in a specialized information service. Specialized services number in the hundreds, providing data on everything from entertainment to international economics.

Most specialized services can be accessed through standard telephone networks (Telenet, Tymnet, and so forth) or through an information utility (such as CompuServe or The Source). Some have their own dedicated dial-up numbers.

The cost of accessing specialized systems is as varied as the information they contain. Some government services are free, while some scientific or industrial systems may charge hundreds of dollars per hour.

This appendix describes a few generalized categories of specialized information services; a complete list is beyond the scope of this book. For additional information, see *Answers Online: Your Guide to Informational Databases* by Barbara Newlin (Osborne/McGraw-Hill, 1985).

## **AGRICULTURE SERVICES**

Agricultural information is important not only to farmers, but also to anyone involved in commodities or the food service industry. Most agricultural databases provide information these individuals need to make planning decisions.

### **Aagnet**

The Aagnet service provides commodity prices from all of the major boards of trade (Chicago, Kansas City, Minneapolis, and so on). Also included in the service is an electronic mail and teleconferencing system and electronic classified ads.

Aagnet  
105 Miller Hall  
University of Nebraska  
Lincoln, NB 68583-0713  
Phone: 402-472-1892

### **Agricola**

Agricola (short for "Agriculture On-Line Access") is a general-purpose reference covering animal husbandry, soil science, forestry, agricultural chemistry, and similar topics.

U.S. Department of Agriculture  
National Agricultural Library  
Beltsville, MD 20705  
Phone: 301-344-3937

### **Agriculture**

The Agriculture information service is more useful for investors and others involved in farm-related businesses than it is for working farmers. Information includes price fluctuations, weather patterns, and government regulations on a worldwide basis.

Data Resources, Inc.  
Data Services  
1750 K Street, NW  
Washington, DC 20006  
Phone: 202-862-3700

## **BUSINESS SERVICES**

Business-related databases cover a broad spectrum of topics, including industries, commodities, corporate history, and economics.

### **Cost Forecasting Data Banks**

Long-range financial planning can be facilitated by the information stored in the Cost Forecasting Data Banks. This service provides data on various economic indicators, such as U.S. and European wages, inventories, and export and import quotas.

Data Resources, Inc.  
Data Services  
1750 K Street, NW, Suite 1060  
Washington, DC 20006  
Phone: 202-862-3760

### **Standard and Poor's General Information File**

The Standard and Poor's database provides information on more than 3000 corporations offering public stock (corporate addresses, net worth, history, and so on).

Standard and Poor's Corporation  
25 Broadway  
New York, NY 10004  
Phone: 212-208-8000

### **Trade and Industry Index**

The T & I Index provides information on specific products and companies. Business topics range from building trades to tax laws.

Information Access Corporation  
4040 Sixth Avenue  
Menlo Park, CA 94025  
Phone: 800-227-8431

## **EDUCATIONAL SERVICES**

These databases collect specialized information of interest to educators from journal abstracts and dissertations.

### **NICEM**

NICEM (National Information Center for Educational Media) tells how to get audiovisual materials that are not widely publicized. Selections include films, filmstrips, slides, and records.

National Information Center for Educational Media  
University of Southern California  
Los Angeles, CA 90007  
Phone: 213-743-6681

### **Resources in Vocational Education**

The technical nature of most vocational-education courses requires up-to-date information. The Resources in Vocational Education (RIVE) database provides information of this type that is of particular value to educators.

The National Center for Research in Vocational Education  
Ohio State University  
1960 Kenny Road  
Columbus, OH 54210  
Phone: 614-486-3655

### **Exceptional Child Education Resources**

Information that helps educators deal with exceptional children can be found in this database.

The Council for Exceptional Children  
1920 Association Drive  
Reston, VA 22091  
Phone: 703-620-3660

## **SCIENTIFIC SERVICES**

Scientific databases provide information on a variety of subjects, such as medicine, chemistry, computers, and energy.

### **Chemsearch**

Almost any substance can be identified through this chemical search database.

Chemical Abstracts Service, Inc.  
P.O. Box 3012  
Columbus, OH 43210  
Phone: 614-421-3600

### **Critical Care Medicine Library**

Some of the most recently published medical textbooks can be found on-line in the CCML database. BRS offers several science-oriented services (two are PRE-MED and PRE-PSYC).

BRS  
1200 Route 7  
Latham, NY 12110  
Phone: 518-783-1161

### **Nuclear Energy Agency Data Bank**

Information concerning the design and construction of nuclear reactors can be found in the Nuclear Energy Agency Data Bank (NEA Data Bank), which is sponsored by the U.S. Department of Energy.

Argonne National Laboratory  
National Energy Software Center  
9700 South Cass Avenue  
Argonne, IL 60439  
Phone: 312-972-7250

## **Scisearch**

This scientific search service covers more than 4000 technical magazines in all scientific areas from around the world. The Institute for Scientific Information, the sponsor of Scisearch, maintains several science-related information services.

Institute for Scientific Information  
3501 Market Street  
Philadelphia, PA 19104  
Phone: 215-386-0100

## **TRANSPORTATION INDUSTRY SERVICES**

Information on virtually every facet of the transportation industry (automobiles, trucking, air travel, railroads, and so on) can be found in an on-line database.

## **Automotive News Data Bank**

Market statistics can be reviewed and trends predicted with the information stored in the Automotive News database. Typical data includes production levels, inventories, and prices.

Crain Automotive Group, Inc.  
965 East Jefferson  
Detroit, MI 48207  
Phone: 313-567-9520

## **POD**

The POD (Passenger Origin Destination) database provides transit data—for example, the number of people flying on small airlines and the tonnage of freight carried on feeder airlines.

Civil Aeronautics Board  
Information Management Branch  
1825 Connecticut Avenue, NW  
Washington, DC 20428  
Phone: 202-673-5922

## **Interstate Commerce Commission**

The ICC database offers information on the railway industry, including mileage traveled per car, types of cars and locomotives, earned income from freight and passenger trains, and so forth.

Federal Railroad Administration  
400 Seventh Street, SW  
Washington, DC 20590  
Phone: 202-426-4000

## **MARDATA**

MARDATA (short for “marine data”) keeps track of ship movement around the world. This database is useful for planning the most cost-effective international cargo shipments.

Maritime Data Network, Ltd.  
102 Hamilton Avenue  
Stamford, CT 06092  
Phone: 203-327-6433





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## About the Author

Jonathan Erickson, a senior editor at Osborne/McGraw-Hill, is a former newspaper reporter and technical writer. He is co-author of *The Model 100 Book: A Guide to Portable Computing*, *The ImageMaker: Graphics on the IBM® PCjr*, and *MacTelecommunications*. He has also written numerous magazine articles on a variety of topics and contributed to the *McGraw-Hill Computer Handbook*.





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