- TABLE OF CONTENTS -

1.0 INTRODUCTION

Welcome to the world of telecommunications on your Commodore 128. C-NET 128 v7.0 is the next step in the evolution of the C-NET Bulletin Board System (BBS). It is, in our opinion, the most sophisticated bulletin board system available for the 128, and is sure to prove itself to you. Please take the time to read completely through the introductory and setup chapters before attempting to operate the program; this will ensure a successful configuration the first time. The balance of this manual has been provided to detail all of the many enhanced features of version 7.0 just waiting to be discovered! This chapter contains all the warranties, support, and legalities.

1.1 TRIALWARE

Shareware is a “Try-Before-You-Buy” concept of marketing software.

Trialware is a special case of shareware. Trialware is time-limited in some way, typically in either license or the features of the application or both. C-NET 128 v7.0 is being distributed as trialware, and is time-limited in that the program will cease to function after a predetermined time. The program is not crippled in any way. In this way, you are assured of being able to properly evaluate the program and make an informed purchase descision.

The C-NET 128 v7.0 Trialware software is freely distributable although not free of charge – if you continue to use it you are required to pay for it. Trialware makes this time limit cleaner and clearer.

Copyright laws apply to both shareware and commercial software, and the copyright holder retains all rights. The only exception is that the copyright holder may grant the right to copy and distribute the software, either to anyone or to a specific group.

1.2 USAGE AGREEMENT

C-Net 128 v7.0 (from now on referred to as the PROGRAM) is being distributed as Trialware. Trialware gives you the opportunity to evaluate the software before purchasing it.

It is NOT Public Domain or Free of Charge. Using this program requires you to accept the following terms and conditions:

1. You may use this copy of the PROGRAM on an evaluation basis. The evaluation period is 30 days.
2. If you enjoy the program and want to receive the benefits of being a registered C-Net System Operator (Sysop) then you must purchase the software. Fill out the registration form in section 1.9 along with your payment of twenty dollars ($20) in U.S. currency and mail it to R. Eric Pearson to register your copy.
3. You may freely distribute the PROGRAM shareware files or diskettes on the condition that each copy contains all of the original unmodified PROGRAM files.
4. You may NOT modify the machine language (INTRO, ML, M2, M3, M4.0, M5, SUBS.O, UDS.O or and of the PROTO files) or remove any copyright notices from any of the other programs or files, charge any fee for the distribution of the program, or take any action that would violate the copyright rights of the owner.

This product is protected by copyright law and international treaties. Unauthorized reproduction or distribution of this program, or any portion of it, may result in severe civil and criminal penalties, and will be prosecuted to the maximum extent possible under law.

1.3 COPYRIGHT

The PROGRAM and its related DOCUMENTATION are copywritten.

YOU MAY NOT REMOVE ANY OF THE COPYRIGHT NOTICES WITHIN THIS PRODUCT AT ANYTIME; ANYWHERE!

1.4 PROGRAM AND MANUAL

The PROGRAM and the MANUAL (‘SOFTWARE’) are provided ‘AS-IS’ without warranty of ANY kind, either express or implied, with respect to accuracy or suitability for any particular application. Should the PROGRAM or MANUAL prove defective, you (and not R. ERIC PEARSON) must assume the entire cost of all necessary servicing or repair. Further, R. ERIC PEARSON does not warrant, guarantee, or make any representations regarding the use of,
or the results of use of, the PROGRAM in terms of quality, correctness, accuracy,
reliability, currentness, or otherwise, and you rely on the PROGRAM and results
solely at your own risk.

R. ERIC PEARSON does not warrant that the PROGRAM or MANUAL will meet your requirements or that the operation of the PROGRAM will be uninterrupted or error free.

Furthermore, if you do not agree to these terms of sale, then you MUST DESTROY any copies of the PROGRAM.

1.5 IMITATIONS OF REMEDIES

In no event will R.ERIC PEARSON be liable to you for any damages in excess

of your registration fee paid, including, without limitation, any lost profits, business goodwill or other special, incidental or consequential damages arising out of the use or inability to use the PROGRAM, or for any claim by any other party, even if R.ERIC PEARSON has been advised of the possibility of such claims or damages. This warranty gives you specific legal rights and you may also have other rights which vary from state to state.

1.6 UPDATE AND CUSTOMER SUPPORT POLICY

In order to be able to obtain any customer support or updates of this PROGRAM, you must complete and return the enclosed registration card to R. ERIC PEARSON along with your registration fee. If R. ERIC PEARSON is made aware of ANY breech of ANY part of this agreement by you, R. ERIC PEARSON is under no obligation to make available to you any customer support or updates to the PROGRAM even though you have made payment of the applicable update fees.

Updates that you receive at a reduced 'update fee' are considered replacements for your current software. When you receive any update of the C-NET product, you must DESTROY all previous versions of the software.

1.7 ACKNOWLEDGMENT

You acknowledge that you have read this agreement, understand it, and agree to be bound by its terms and conditions by using the PROGRAM. You also agree that this agreement is the complete and exclusive statement of the agreement between parties and superseded all proposals or prior agreements, verbal or written, and other communications between the parties to the subject matter of this agreement.

Should you have any questions concerning this agreement, please contact in writing:

R. ERIC PEARSON
245 Shear Hill Rd.
Mahopac, NY 10541

1.8 USER SUPPORT

Thank you for trying the C-NET BBS. This MANUAL is a detailed description of the features and capabilities of the PROGRAM. However, if you have any questions left unanswered, or if you discover any problem with any part of the PROGRAM, please feel free to contact us by e-mail at CNET128@AOL.COM.

Support is available from the C-NET 128 Web Site:

http://ourworld.compuserve.com/homepages/cnet128/cnethome.html

and from C-Net Support BBS's:

S.T.A.R.-Link BBS
(The Home of C-Net 128)
(914) 621-4135

or

The Batcave BBS
(303) 252-0735

or

The Northern Outpost BBS
(403) 622-3395

1.9 REGISTRATION FORM

To register your copy of C-NET 128 v7.0 print-out and fill-in the following form and mail it along with your registration fee of $20 in U.S. Funds to:

R. ERIC PEARSON
245 Shear Hill Rd.

Mahopac, NY 10541

First Name:
Last Name:
Street Address 1:
Street Address 2:
City:
State/Province:
Zip Code:
Country:
Telephone Number:
E-Mail Address:
BBS Name:
BBS Telephone Number:
You System Operator Handle:
BBS Serial #:

System Information:
1. Do you use a hard drive with your BBS? If yes, which make and model?

2. Do you use and type of RAM Expansion (REU, RAMLink, etc.)? If yes, which?

3. What type of modem do you use (make/model)?

4. Do you own a Swiftlink or Turbo232 cartridge?

5. Do you own a SCPU (Super CPU) by CMD?

2.1 V7 DEVELOPMENT HISTORY

C-Net 128 has required extensive changes in both the Machine Language programs and Basic 7.0 code in order to operate with the Swiftlink/Turbo 232 interface and high-speed modems. C-Net 128 7.0A wedges the NMI

interrupt handler with ML code to receive data from the modem. Characters received are placed in the normal 255 byte RS-232 input buffer. This allowed the "Main" portion of the BBS to operate with existing code with only minor modifications to the ML program. However, it was quickly found that the U/D protocol programs bypassed this functionality and used their own separate code to access the modem. This is why so many of the PROTO files had to be modified. C-Net 128 7.0 does not use an output buffer, instead it writes output characters directly to the Swiftlink/Turbo232 transmitter for increased speed.

One of the major challenges in creating version 7 was the upload/download protocol files and consequently the networking (which uses the Punter protocol to send and receive files). First I had to reassemble the three U/D Protocol files; PROTO 0, PROTO 1 and PROTO 5. PROTO 0 was the most difficult since I did not have the source code for it. I had to reverse engineer or disassemble the ML and then fix any assumptions the disassembler made. Then figure out exactly what each line was doing since there were no comments to aid me. After reassembling each PROTO file I then tested them with the existing RS-232 modem routines. After each PROTO was working with the existing routines my first idea was to try to "patch" each PROTO to work with the Swiftlink/Turbo 232. I tried this for a couple of weeks but with only moderate success, mostly due to timing problems, the code was unstable and finally abandoned. Then I decided to make Swiftlink only versions of each PROTO. This was a major decision because from the start I had intended to keep compatibility with older RS-232 modems. C-Net 7 is still compatible now with the older modems with one exception; when you set up your system you have to decide which you'll be using since there are now two versions of each Upload Download PROTO file (PROTO 0, PROTO 1 and PROTO 2). Getting back to the development, the U/D protocols were ripped and rewritten. A version of each was created that would only work with the Swiftlink/Turbo 232.

I was just about to release version 7, in fact an Alpha version was released to a limited number of C-Net SysOps for testing, when I started hearing how people were worried about Year2000 compliance both in the C-Net world and DS-2. Both programs had similar Year2000 issues. Also I was hearing how the C-Net Electronic Mail system was inferior to comparable BBS programs. So I pulled V7 back into development and began analyzing the BBS for Year2000 issues. The Y2K fix actually went in very quickly, probably within a month. The first time watching the date roll over to 1/1/2000 was pretty cool. However, I eventually uncovered a major bug in the Message Base ML where the index would become corrupted. Now next to the UD Base the Message Base in C-NET is probably the most complicated program. Probably 80% of what goes in the Message Bases is done through ML. This bug stumped me for over a month to the point where I put everything down and walked away from it for the entire summer. Eventually I came back to it and after tearing apart the ML and tracing every line I fixed it.

As I mentioned above the E-Mail subsystem was in dire need of enhancement and I had actually begun work on it some months before. So with the message base bug squished I finished the enhancements to the e-mail system (except for a couple of things, see the Known Problems section) and about a hundred other little changes here and there. Here's just a few of those:

1. Reduced the size of PRG.LOGON by moving some code to PRG.LOGONTWO (strange things happen when a PRG gets too large, believe me and read section 21 if you plan to do any C-NET programming)

2. Redesign of PRG.NET-ASSEMBLE and PRG.AMAINT.
3. Redesign of System Configuration Utility.
4. Redesign of E-Mail.
5. Added System Monitor
6. Added HELP for System Operator at Waiting for Call screen.
7. Added Last 10 Caller Screen toggle at Waiting for Call screen.
8. Redesign of SysOp Interface.

2.2 INCOMPATIBILITIES BETWEEN V6 & V7

2.2.1 SysOps Upgrading from v6.x to v7

The follow is a list of files from v6 that are not compatible with v7. Meaning, the v6 format of these files has changed in v7. Most files will have to be deleted and then recreated using v7.

If a recommendation says "SCRATCH" you should manually scratch the files from DOS.

If a recommendation says "LOG" you should manually write down on a piece of paper all pertinent information.

Because of time constraints conversion programs are not available.

User Data files - These will self correct after a user logs on and logs off. Although First Call and Birth Date information will be lost and need to be re-entered. If you can wait I am considering a conversion program, probably to be released with patch number one.

All E-mail files - recommend scratch all v6 mail files before running v7.

All Message Base files - recommend log, then delete message bases from v6 using the KL # command.

The C-Term Phonebook (sys.phonebook) - recommend log, then scratch and recreate using v7.

P-File Directory’s - recommend log, then delete using v6 and recreate using v7.

G-File Directory’s - recommend log, then delete using v6 and recreate using v7.

Note: v6.X U/D files are 100% compatible with v7. There are still Year2000 problems with the way file upload dates are stored, but these problems should not effect the overall
BBS even if not fixed before 2000. The only effect I can foresee is that old files will be erroneously reported as new.

2.2.2 Networking Connectivity

In order for a C-Net 7.0 system to network with C-Net v6.x systems properly, the C-Net v6.x system must be using PRG.NET-TRANS (v6.3). This version of NET-TRANS has been modified to fix timing problems between the systems.

2.2.3 Net E-Mail & Subs

In order for v6.x systems to correctly receive networked e-mail and sub-board messages they must be running PRG.NET-MAIL (v6.1X) and PRG.NET-UNPACK (v6.1X). These versions have special filtering logic that will correctly translate v7 date fields to v6

2.3 USER PORT OR SWIFTLINK/TURBO232 SYSTEM

Before setting up your C-NET v7.0 BBS you need to decide if you will be running with a modem that interfaces with the Commodore 128 through the User Port or through a Swiftlink/Turbo232 cartridge. User Port modems will only be able to sustain speeds up to 2400 BPS, while modems using a Swiftlink/Turbo232 will be able to attain much greater speeds. C-NET v7.0 during testing was able to maintain speeds up to 28,800 BPS with a Swiftlink cartridge and should be able go higher still with a Turbo232.

2.4 MODEM INFORMATION

In order for your modem to work correctly with C-Net v7.0 it MUST be able to report DCE connect speed as opposed to DTE speed. DCE (or Data Communications Equipment) speed is the speed at which the modems connect. DTE (or Data Terminal Equipment) speed is the speed at which your computer connects to your modem.

Most modern high-speed modems have an AT command to enable DCE reporting. It may be an S-Register setting or a normal AT command. For example, my Cardinal 28.8 uses S95 to enable DEC reporting. Some other modems use the AT command W2 to enable it. Refer to your modem manual or contact your modem manufacturer for assistance in determining the correct command for your specific modem.

You will also need to determine the command to “lock” your modem at a specific BPS rate. Again most modems use an AT command to do this. Commonly, I have found, this command is AT&Nn where n is a number corresponding to the speed you want to “lock”. For example, AT&N2 would “lock” your modem at 1200 BPS. When I say “lock” I mean that when the correct AT command is issued your modem will ONLY attempt to connect at the designated speed. If it cannot connect at the designated speed it will hang-up. This “locking” is required for the Networking portion of C-NET.

The modified SU or Set-Up program now allows you to enter an initialization string, a hang-up string and the strings required to lock your modem at specific BPS rates.

CN
3360 - Send a command to modem appending a carriage return.

3500 - Clear the line, hang-up.
3860 - Retrieve one character the RS-232 input buffer.

M3
SYS4939 - Wedges the NMI handler and initializes the Swiftlink/Turbo232

2.5 KNOWN PROBLEMS

Following is a list of known problems (a.k.a. bugs) or features by subsystem that did not make the release date:

Electronic Mail
1. Retrieving File Attachments - Only the New Punter protocol works for retrieving file attachments at this time. This bug will be fixed in a patch release at a later date.
2. Reply with/File Attachment – Did not make the release date, will be included in the first patch.
3. Networked Return Receipts and File Attachments – Not implemented yet pending Network Administrator approval.

U/D Subsystem
1. The U/D Subsystem is not Year 2000 compliant. Dates are still stored in MMDDYY format. Since I plan to rewrite the U/D System for V7.5 I didn't see the point of patching the existing system. Secondly, since it is to be a major rewrite it didn't make the release date. And finally without a conversion program, all C-NET SysOps with huge U/D sections would have to recreate them since the headers will be incompatible.

Message Base Subsystem
1. There is currently a limit of 255 total messages (posts & responses) per message board. This will be increased to around the C-NET V6 default of 232 post and 718 total messages (posts & responses) in the first patch release.

Main System:
1. SY Command – Certain functions of the DOS Shell DO NOT work while on-line. It WILL crash your board if you attempt to load a Basic 7.0 program.
2. MF Command – The Move File command only works in Local Mode. It seems this is the way it was originally designed. I plan to take a look at and include a fix in the first patch.
3. Visual Editor – The Visual Editor is currently being modified to allow on-line use. Although it still functions now, use may be erratic.

2.6 V7.5 PLANS

Following is a list of enhancements that for one reason or another did not make it into V7 of C-NET but might make it into a future release.

Allow drives 8-30 and partitions above 9
New Visual Editor
C-Net FAX
Redesigned U/D Section
QWK Mail Support
Punter Timeout & PEEK
PRG.NET-STORE

3.0 HARDWARE CONFIGURATION

This section will assist you in choosing the correct computer equipment for use with C-NET v7.0 BBS.

3.1 MODEMS

There are two basic types of modems that are compatible with the program; User Port modems and modems that can be used with a Swiftlink/Turbo232 cartridge. Of the User Port modems there are 3 different types that are compatible:

1650 modem and anything compatible (Westridge, Video 7, Total Telecommunications)
Mitey Mo and anything compatible (Hesmodem II)
Hayes Smartmodem and anything compatible (Prometheus ProModem, Commodore 1670, Linker, US Robotics Courier, Supra Modem 2400). 1200 and 2400 baud may be used with Hayes compatible modems only.

A modem is considered 'Hayes compatible' only if it understands basic 'AT' commands such as ATV0, ATH, ATS0=x, ATS7=x, ATX1, and ATA, RS-232 interfaces, which are necessary to connect most Hayes compatible modems to the Commodore 128, must be tested separately for their compatibility with C-NET 128. RS-232 interfaces that have been successfully tested include the MSD and the Omnitronix brands.

3.2 FLOPPY DISK DRIVES

Generally, any disk drive that can be connected to your 128 and used normally with SAVE, LOAD, and OPEN commands, can also be used with C-NET v7.0. Disk drives that have been successfully tested in the past include the 1541, 1571, SFD-1001, MSD-d2, Indus GT, PET 4040, 8050, 8250, 9060, 9090. IEEE interfaces, which are necessary to connect SFD-1001's and other parallel disk drives must be tested separately for compatibility. The only IEEE interface that has been successfully tested is the Skyles Quicksilver 128. There are two terms, however that you must be familiar with when configuring your C-NET v7.0 BBS. When reference is made to a disk drive DEVICE, it is referring to the unit as a whole. A disk drive may have one or two openings each referred to as a DRIVE. A brand-new disk drive has a DEVICE number of 8. If you plan to connect more than one disk drive to the 128 for use with the PROGRAM, you must insure that each disk drive has a unique DEVICE number (see disk drive instructions for information about changing the device number of a unit). A disk drive with one disk capability is said to be a DRIVE 0. With a two-disk drive unit, the individual disk units are numbered 0 and 1 (see disk drive instructions to which slots are which).

3.3 HARD DISK DRIVES

Hard drive manufacturers have recently discovered the enormous market potential that exists among Commodore computer users, primarily because of the bulletin board systems that they operate. At the time of this publication, we have used two different hard drives, the first, and the one

used the longest by the Author, is the Lt. Kernel hard drive. Also, successfully tested is the CMD hard drive. Before you purchase a hard drive, please contact us first for the latest compatibility information.

When configuring your hard drive, you may configure your hard drive any way you wish, however, it is suggested that you make at least 3 LU's (partitions), (0 for system disk, 1 and 2 for whatever else you wish to use them for. It is also suggested that you reserve at least 15,000 to 20,000 for LU 0. This will leave you enough room for al the system files, your message bases (both local and network), as well as all the P-files (on-line games) that you wish to use).

3.4 VIDEO OUTPUT

C-NET uses the 80-column video chip exclusively for screen output. You MUST be using and RGB monitor or a specially created MONOCHROME (one color only) cable plugged into the RGB output driving a composite monitor. This cable may be made by connecting pin 7 of the RGB output port to the tip of an RCA connector and pin 1 to the ground of the same plug. Also, the 40/80-column key at the top of the 128's keyboard must be depressed at all times.

3.5 CARTRIDGES

No form of 'FAST LOAD, MACH128, etc. or other types of software cartridge can be successfully used with C-NET 128 v7.0, but will only interfere and cause numerous problems.

- SOFTWARE INSTALLATION -

4.0 SOFTWARE INSTALLATION

This section covers the configuration of the program, explaining step by step the procedure that you must follow before the program will be ready to place 'on-line'.

4.1 DECOMPRESSING THE FILES

All of the C-Net v7.0 files were compressed using Wraptor V3 for the Commodore 64 from Loadstar. You can decompress these files using a Commodore 64 or Commodore 128 in 64 mode. 128 mode means the 40/80 column switch is NOT depressed and you are holding the Commodore key down when you start your Commodore 128 or you type "GO64" and press return while in 128 mode.

In order to decompress the files you must have a copy of Wraptor V3. A copy of this program is available for download from the C-NET 128 Web site or you can contact Loadstar at their Web site (http://www.loadstar.com) to obtain a copy.

You should decompress all the .WR3 files to separate1581 diskettes. Or if you have a higher capacity drive such as a CMD FD-2000, CMD Hard Drive or a Lt. Kernel Hard Drive, you could decompress all the files to a single drive. If you are using a Hard Drive it is recommended that you copy all of the files to the first partition or LU. From now on the diskette(s) or DRIVE where you decompressed all the archive files to will be know as your C-NET INSTALL DISK(s).

4.2 CHECKLIST OF C-NET 128 v7.0 FILES

Following is a list and brief description of files you should have after decompressing all of the V7.0 archives.

MACHINE LANGUAGE PROGRAMS:
CNETBOOT – Loader program for C-NET 128 V7.0
M2
M3
M4.O – ML to save and restore the SysOp Status Window and cursor position
M5 – RAM Loader
ML – Main ML program.
PROTO 0 – Punter Protocol ML.
PROTO 1 – ASCII Protocol ML.
PROTO 101 – Net Pauq ML.
PROTO 4 -
PROTO 5 – X-MODEM, Y-MODEM Protocols
PROTO 6 – C-Term ML
PROTO 7 – Editor ML
PROTO 8 – Visual Editor ML
PROTO 9 – Basic Interface ML
SUBS.O – Message Base ML
UDS.O – UD Base ML

BASIC 7.0 PROGRAMS:
C1 – Loader Program
CN – Main C-NET Program (always in memory)
PRG.AMAINT – Auto-Maintenance Program
PRG.AMAINT1 – Auto-Backup Program, chained to PRG.AMAINT
PRG.AMAINT2 – “This Day in History” Program, chained to PRG.AMAINT
PRG.BAUDSET
PRG.BRAIN
PRG.CLEANUP
PRG.COLLECT
PRG.COPYFILES
PRG.DATA EDITOR
PRG.DATING
PRG.DOS – DOS Command Interface
PRG.DOWN – Program to down the BBS, SysOp Help menu
PRG.EMAIL – C-NET Electronic Mail Program.
PRG.EXCHANGE
PRG.FAX – Under construction
PRG.FILES – P/G-Files Program
PRG.FMAIL
PRG.GEDIT
PRG.HDTIME – Reads real-time clock if available and calculates current day.
PRG.LOGOFF – Logoff options
PRG.LOGON – Main Logon Program, Waiting for Call Loop
PRG.LOGONTWO – Second Part of Logon
PRG.MACS CHANGER -
PRG.MAINT – System Maintenance Program
PRG.NET-ACTIVATE
PRG.NET-APP
PRG.NET-ASSEMBLE – Main Network engine
PRG.NET-BLDFILE
PRG.NET-CONFIG – Configure Network Connections

PRG.NET-CONNECT
PRG.NET-DIST
PRG.NET-EASY
PRG.NET-FBACK
PRG.NET-MAIL
PRG.NET-MAP
PRG.NET-NEWS
PRG.NET-NOW
PRG.NET-ORDERS
PRG.NET-PARMS
PRG.NET-PULL
PRG.NET-SEND
PRG.NET-SEND FIX
PRG.NET-SORT
PRG.NET-SU
PRG.NET-SUB EDIT
PRG.NET-SUBS
PRG.NET-TEST
PRG.NET-TRANS
PRG.NET-UNPACK
PRG.NET-UTIL
PRG.NEW USER – Run when a new user logs on
PRG.NEWS – C-Net News Sub-system
PRG.NEWSCAN
PRG.NS – Net Send E-Mail
PRG.PERIOD
PRG.PROFILE
PRG.RAM – Loads files into RAM Expansion Unit
PRG.RELREAD – Read relative files
PRG.RES-ENTRY
PRG.SEARCHTEXT
PRG.SEND WELCOME
PRG.SERVICES
PRG.SETUP – C-NET Initialization Program
PRG.SKY-AVERAGES
PRG.SMAINT
PRG.STATS
PRG.SUB-DIST
PRG.SUBS – Message Base Engine
PRG.TERM – Built-in terminal program
PRG.TRANSLATOR
PRG.U/D – U/D Base Engine
PRG.UEDIT – User Edit Program
PRG.ULIST – User List Program
PRG.UMAINT
PRG.USEREDIT
PRG.UTILITIES – SysOp Utilities
PRG.VDATA – Dump version data for PRG files
PRG.WEED – Weed Message Bases
SU – System Configuration Program

SEQUENTIAL FILES:

DATA FILES:
CHRSET#1 – Alternate Character Set/Font
CHRSET#2 – Alternate Character Set/Font
CHRSET#3 – Alternate Character Set/Font

CHRSET#4 – Alternate Character Set/Font
TRATBL 0 – Translation table 0
TRATBL 1 – Translation table 1

4.3 SETTING UP YOUR C-NET 128 V7.0 SYSTEM

4.3.1 PLANNING YOUR SYSTEM

The C-NET 128 Bulletin Board system works on the premise of different DEVICES and DRIVES for different operations. When planning your system you need to keep this premise in mind.

A basic C-NET 128 system needs DEVICES or DRIVES defined as the following:

THE SYSTEM DISK – Should always be DEVICE 8, DRIVE 0. On a system using a hard drive the SYSTEM DISK should utilize DEVICE 8 and the first PARTITION OR LOGICAL UNIT (LU) on that device. The SYSTEM DISK houses the main machine language and basic programs required when running C-NET 128. Also all of the User Data, System Help Files, and News Files.

THE P-FILES DISK – Can be another DEVICE or DRIVE (Partition or LU for Hard Drive users). The P-FILES DISK houses all the program modules (PRG files or also referred to as “Doors”) required for the various sub-functions of C-NET 128. Examples of these program modules might be the Electronic Mail engine, the Message Base engine, On-Line Games, etc.

THE E-MAIL DISK – Can be a separate DEVICE or DRIVE (Partition or LU for Hard Drive users). The E-MAIL DISK houses all the mail files for your users. Also in V7 it is the storage disk for any file attachments to messages. When planning your E-MAIL DISK you should keep all of these factors in mind as they all relate to how much disk space you will need to allocate for e-mail. C-NET 128 requires 20 blocks for the basic E-Mail files for each user (these include In-Box, Sent Mail, Archive and Personal Address Book. A simple formula for calculating your specific disk need is:

DISK SPACE NEEDED = PLANNED USER BASE * (20 BLOCKS + THE SIZE OF THE MAXIMUM ALLOWABLE FILE ATTACHMENT)

NOTE: It is HIGHLY recommended that you put E-Mail on it’s own DEVICE (for disk drive users) or it’s own partition or LU (for hard drive users). Not only for the obvious reasons of required disk space but also the sometimes erratic nature of relative files.

THE G-FILES DISK - Can be another DEVICE or DRIVE (Partition or LU for Hard Drive users). The G-FILES DISK houses all the General Text Files available on you BBS for on-line reading and/or downloading. Examples of these general text files might be the rules and regulations for your BBS, extra Help files, FAQs, etc.

ETCETRA DISK - Can be another DEVICE or DRIVE (Partition or LU for Hard Drive users). The ETCETRA DISK houses all of the system log files for C-NET 128. These include the file transfer log, caller log, system error log, etc. Log files are generally rather small in size as far as disk space, that is as long as you provide timely maintenance.

4.3.2 COPYING FILES

WARNING!!!! DO NOT use a ‘fast hack em’ files copier to transfer files from the C-NET INSTALL DISKS -- they have been proven to be very unreliable

and dangerous to data integrity!!!

Your SYSTEM DISK and P-FILES DISK must be properly formatted or partitioned before starting this procedure. For instructions on formatting a disk see the instruction manual for you diskette drive or hard drive. Or if no manual is available there are resources on the Internet such as the COMP.SYS.CBM newsgroup when you could get and answer.

You should load and use a file copier program such as Jim Butterfield's "Copyall" or the 1571 "Unicopy" or CMD's "Fcopy" for the following procedure.

Next, you should copy the following system files from the C-NET INSTALL DISK to your designated SYSTEM DISK:

CNETBOOT	ML	C1	CN	M2
M3	M4.o	SU	PRG.SETUP	PRG.RAM
*M5				

All SYS.MENU* files
All SYS.HELP* files
All PROTO * files
SUBS.O
UDS.O
TRATBL 0
TRATBL 1

*M5 must only be included on each disk if you plan to load sequential files into the RAM expander from that disk

Finally you should copy all of the PRG to your P-FILES DISK. PRG.SETUP and PRG.RAM can be excluded since they should be already on your SYSTEM DISK. Other OPTIONAL PRG files that can be excluded and their impact on your system areas follows:

PRG.DATING – Disable the on-line dating subsystem.
ALL PRG.NET-* FILES – If you don't plan on running the networking software.

4.4 LOADING THE SYSTEM CONFIGURATION PROGRAM

Ensure you Commodore 128 is in 128 mode by depressing the 40/80 button and that you monitor has the 80 column RGB mode selected.

For users running from a diskette based system (no hard drive), before going any further, make a backup of your C-NET SYSTEM DISK. Use this backup as your main program disk. DO NOT use your master copy for any writing to, or running of the BBS.

NOTE: For users of hard drives:

Lt. Kernel hard drives: You should create a BASIC file called 'autostart' containing the single line:

```
1 BLOAD"CNETBOOT":SYS14336
```

CMD hard drives: Your should create a BASIC file called ‘boot’ containing the single line:

```
1  BLOAD“CNETBOOT”:SYS14336
```

C-NET will automatically boot from the hard drives when powered on with these files in place.

For users with floppy diskette systems, insert the C-NET SYSTEM diskette into device 0, and power-up the Commodore 128. At the ready prompt type:

```
BOOT”CNETBOOT”
```

And hit the RETURN key.

Regardless of which type of system you are using, a few moments after booting the following menu will appear on the screen.

```
(1)   Set-up the C-Net BBS
(2)   System configuration
```

Select “(2) System Configuration” by pressing the down arrow key using either the cursor arrow keys (the ones on the top of the keyboard) once to move the light bar pointer down, then the RETURN key. Once the system configuration program has finished loading, you will be instructed to insert all system disks, and then to press RETURN. You should remove the C-NET Program Disk, then insert blank or erasable disks into every disk drive connected to the system (leave the SYSTEM DISK in drive 8 for floppy users). After pressing the RETURN key, C-NET will let you know that the system is not yet configured, then a menu of eight options will appear. To properly configure the system, you must select the options in the following order:

4.5 SYSTEM CONFIGURATION

4.5.1 SCAN SYSTEM

```
Computer type
JiffyDOS Detect
RAM Expansion
RAMLink
Real-Time Clock
Total Drives
Drive Types
Printer Detect
```

4.5.2 FORMAT DISKS

Disks must be formatted and completely empty before they may be used with C-NET. Systems with only hard drives may skip this section, providing they have formatted all the Logical Units (Lt. Kernel) or partitions (CMD) prior to loading the C-NET software. Press RETURN with the lightbar is highlighting option “(1) Format Disks” to begin formatting disks. You will be asked for the DEVICE and DRIVE location of each disk that is to be formatted. After a disk is formatted, you will be informed of the disk

drive status. If there is an error, you should first try another erasable disk before having the disk drive unit checked for problems. Continue to select device and drive numbers until all disk drives contain empty, newly formatted and error-free disks. Go back to the main menu by pressing RETURN when you are asked for another device for formatting.

4.5.3 SYSTEM PARAMETERS

Now move the lightbar to the second option "(2) System parameters", and press RETURN. For this screen and the following configuration screens, you will be given cursor control using the four control arrows at the top of the keyboard. To change an item on the screen, simply begin typing and press the RETURN key when finished. To exit a screen press the ESCAPE key that is located at the top left corner of the keyboard.

1) System disk -- device and drive number for storage of all system information (user files, help files, machine language programs, main basic programs). If you are using a hard drive, your system disk MUST be configured to 8,0 (CMD drives recognize 8,1 as 8,0).
2) E-Mail disk -- device and drive number for storage of all inter-user messages.
3) Etcetera disk -- device and drive number for the storage of all system logs (file transfer log, call log, error log, feedback, new user information, etc.).
4) G-Files disk -- device and drive number for storage of C-NET's general text and information file system.
5) P-Files disk -- device and drive number for storage of all program modules (the system's modules and on-line games). For hard drive users, it is best to use 8,0 as your device and drive numbers for this. That way, all your program files are in one place, and the hard drive does not have to look all over for program files.
6) Output Feedback, Logs -- The two numbers on line 6 tell C-NET where to direct system files. The first number directs written text messages such as feedback and new user information. The second number directs the 'logs' of caller sign on/sign off activity as well as system errors.
   (1) In a position here indicates disk file output to the Etcetera disk
   (2) Indicates printer output
   (3) Indicates output to both disk and printer
   (0) Indicates no output at all.

*Editor's note: I have found that it is best to have a printer hooked up to your BBS, and have all logs printed out to printer as well as disk. It is much easier to follow and track errors using both disk and printed matter.

(7) Login identifier -- The login identifier is a two-character prefix to all user ID's of the system. Both characters must be uppercase letters, or numbers. DO NOT use punctuation symbols. (E.g., "FW" would be used for a BBS with the name Future World.)
(8) DCD Invert -- This entry should ALWAYS be set to 0 if you are using modem type 0, 1. But can be either a 0 or a 16 for modem type 2 and 4; depending on your RS-232 interface, and whether it supports normal or inverted carrier detection
9) Printer Device – This is usually 4 or 5. Check your printer interface instructions to be sure.

10) Printer Secondary (address) – This is usually 7, but check your printer interface instructions to be sure.

11) Modem Type -- Set according to the following list:

(0) Mitey Mo, Hesmodem II

(1) 1650, Westridge, Total Telecommunications, Video 7

(2) Hayes compatibles (extended return code set and non-verbose mode must be supported). C-NET waits for a ring, sends ATA, then waits for a connect code --1 for 300 baud, 5 for 1200 baud, or 10 for 2400 baud. "+++" and ATH are sent to hang up. If a dip switch for DTR exists, set it for always on (true).

(3) Commodore 1670 (this modem does not support ATA while the phone is ringing -- so must always be set to auto-answer mode.)

(4) A Hayes compatible (type 2) modem with DTR (Data Terminal Ready) control ability for fast hang-ups. The RS-232 interface must also support the DTR pin connection to the modem. If a dip switch for DTR exists, set it for line signal (not always on). If a dip switch exists on any modem for CD (carrier detection), insure that it is set for line signal (not always on).

(5) Swiftlink/Turbo232 Cartridge

12) Idle Baud Rate -- Baud rate at which the computer should conduct conversation with the modem while the system is waiting for a call. This means, the maximum baud rate of the modem that you are using.

13) Default Text Color -- A color code (0 to 15) for color of all system prompts and status displays. I would suggest against using 0 (black) as a default text color.

14) Drive Secondary Address -- When writing to files, 1571's tend to write faster (when writing to the backside with the old bug-filled ROM's) with a secondary address of 1. Most other drives don't mind this 1. Lt. Kernel hard drives will not function with a secondary address of 1, so you must change the 1 on this line to a 2 if you are using the Lt. Kernel.

15) Network/Amaint Hour -- This is the time of day (in military time, 0 is midnight, 12 is noon, etc.) that auto-maintenance will occur. Auto-maintenance is described more fully in chapter 18.

16) 2400 Baud Fine Adj – Only necessary for modem types 0-4

16) Real-Time Clock –

17) System Hard Drive – 0=NONE, 1=CMD HD, 2=Lt. Kernel

18) Expansion RAM – 0=NONE, 1=1700, 2=1750

When you have finished this screen, press ESC.

4.5.4 EDIT MODEM STRINGS

INITIALIZATION STRING
Build a modem initialization string with the following elements.
Refer to your modem manual to verify correct commands.

EO - Echo OFF

Q0 - Display Result Codes

X4 - Set Level of Result Codes Displayed
V1 - Verbal Result Codes
&C1 - Normal CD (Carrier Detect) Operations
&D2 - Normal DTR (Data Terminal Ready) Operations
W2 - Connect Message Control

NOTE: Some modems may use an S-Register to set Connect Message Control. The Cardinal 28.8 I tested and Practical Peripherals modems use S95 while the Zoom 33.6 offered by CMD uses W2 as does most Boca modems. Refer to your owners manual.

Completed initialization string should be something like the following:

ate0q0x4v1&c1&d2w2
or
ate0q0x4v1&c1&d2s95=1

HANG-UP STRING

Now build a modem hang-up string. Most modems use H0 to hang-up the modem so the command would be:

ath

LOCK MODEM STRING

I have found most modems use AT&Nn to lock modem speeds (Cardinal, Zoom, US Robotics, Boca) but you should still check your modem manual to confirm these values.

After confirming all of your modem settings hit ESCAPE to go back to the System Configuration menu.

4.5.5 ENTER ACTIVATION CODE

C-NET 128 V7.0 is Time-Limited Shareware (or Trialware). This means that the PROGRAM will cease to function after a predetermined amount of time. When you purchase the software and send in the Registration Form, you will be given an Activation Code. A valid Activation Code will disable the predetermined deactivation date for the PROGRAM.

4.5.6 CREATE USER DATA FILES

You should now select the sixth option. You will be warned that this will erase any existing user data. Enter a 'Y' to continue. You will be asked for a number of user accounts to initially reserve disk space for -- it is a good idea to slightly overestimate this number (a good number to start with is 200). After this number of user accounts is exceeded, the files should automatically grow to accommodate any new accounts. It will take several minutes to create the user data files. NOTE: Some disk drives may not like to expand the user data files on an as needed basis, so it may be a good idea to reserve all of the space you think you will ever require right now! Each complete user account requires slightly less than one disk block.

4.5.7 SAVING YOUR CONFIGURATION

Select option #8 "Save Configuration" and when prompted to "Save Changes" type Y for Yes. Now that your configuration is saved, select option #9 to exit the System Configuration utility and to load the BBS.

NOTE: Option #9 no longer prompts you to reset your computer. Instead it reloads CNETBOOT. This was an enhancement to V7.

4.6 LOADING FILES INTO A RAM EXPANSION UNIT

If you have a 1700 or 1750 RAM expander, or a CMD RAMLink, C-NET is able to make use of it to store three types of files:

(1) Program modules (prg.* files)
(2) File transfer protocols and machine language overlays (proto* files)
(3) Sequential files which are read by the system from start to finish, that is, any completely NON-DATA SEQ files (such as menus, g-files, welcome and exit files, not including message base entry files). Sequential files stored in the expander may not exceed 10,240 bytes (approximately 40 disk blocks).

The RAM expanders are divided into banks of 64K bytes (about 256 disk blocks). The 1700 has 2 of these banks; the 1750 has 8. C-NET is not able to load a file partially into one bank, and continue it into another -- a file must fit entirely into one bank. This means that if as C-NET loads a file into the expander, it finds not enough room in the current bank for the file it is attempting to load, it will move to the next bank, leaving some memory in the previous bank unused. The result is this: optimally, a 1700 can store 512 blocks, but because some of the memory at the end of each of its two banks must be wasted, the 1700 may only be good for 480, or even 430 blocks. The same situation holds for the 1750, which can (under optimal circumstances) hold 2048 blocks. You will have to observe the loading process (next chapter) to see if you have over-extended the memory of your expander.

To use a RAM expander, designate a blank and formatted disk as your "RAM loading disk" and copy to it all files you wish to load into the RAM expander, as well as the files "prg.setup" and "m5" from the C-NET master disk. You may use multiple disks for program/proto files, and a separate

disk for sequential files. If you use multiple disks, you need only include “m5” on your sequential files disk, and “prg.setup” on the last disk you will be loading from (this is your sequential files disk if you are using a separate disk for them).

Any files NOT included on these disk (s) for loading into the RAM expander must be copied to the appropriate disk (s) in the same manner as someone who is not using a RAM expander would.

5.0 GOING ON-LINE

After you have configured you system by following the instructions in section 4, this chapter explains you how to put your system on-line and ready to receive calls.

5.1 BOOTING THE PROGRAM

C-NET must be booted from device 8. If you have either a 1571 or 1581 master, insert the master disk into the appropriate disk drive. If you have a two-disk 1541 master, insert disk ‘one’ into either a 1541 or 1571 drive. If you have a device 8 hard drive, and have copied the master disk to LU 0 or partition 1, and have created the autostart or boot file described in chapter 3, you need not insert any disks. Now, power up the computer. If for any reason you are booting from a copy of the boot files in any other format, the command:

BOOT“CNETBOOT”

should be all that is needed to get things moving.

When the light bar menu appears, press RETURN to select ‘(1) Set-up the C-Net BBS.’

If no activity is detected from the keyboard at this light bar menu for a period of approximately 30 seconds, C-NET will automatically skip the date entry prompts, and skip the ‘insert disks’ prompts in an effort to put itself on-line. What this means is, if your system will autoboot when powered-on, and all of the boot files are present on device 8, C-NET will take itself the rest of the way to “waiting for a call” in the event of a power failure. The date used for set-up will be either the last date entered by yourself, or the date of the last user’s sign-off. If you are using a CMD device with a real-time clock the program will read the internal clock and insert that time and date. A command is provided in system maintenance to change the date on-line.

5.2 SETTING THE DATE AND TIME

First the month will be set. Use the up and down arrows to change the month displayed.

If for any reason any characters other than a valid month is displayed in the month location, insure that a fresh copy of the file ‘d’ is placed on your boot disk, and re-boot the system. When the correct month

abbreviation is displayed, press the RETURN key. Now you must set the date. To change the date, use the number keys, either on the numeric keypad or at the top of the keyboard. When the correct date is displayed, press the RETURN key. Enter the year, hour and minute in the same manner. Finally, you must press either 'A' or 'P' to select AM or PM, respectively. The date you enter will be stored in the file 'd' on your boot disk.
NOTE: To protect the boot code from ever becoming overwritten by saved program code on the master disk (or a back-up), never validate (collect) the disk.

5.3 LOAD AND RUN C-NET

When you have finished setting the date and time, another menu will be displayed, giving you a chance to correct the date and time if you have made a mistake. If the date and time are correct, select the option to '(2) Load and Run C-Net' to continue. If the load proceeds correctly, several seconds later, C-NET will clear the screen and will auto-detect if you have a RAM expander connected to your system. If a RAM expander is found C-NET will ask if you would like to load PRG files into RAM. If you are not using a RAM expander, the program will display 'REU not found' and will continue on.

If you intend to load any PRGs into the RAM expander, first remove the C-NET master disk from the drive, then insert your RAM loading disk. Press 'Y' to begin loading p-files. As p-files are loaded, each file name and stored location in the RAM expander will be displayed. The bank number will always begin at 0, and increment as a bank fills and another must be used. The 1700 may use only banks 0 and 1; the 1750 may use banks 0 to 7. The program will load as many PRG files into memory as possible.

NOTE: The program loads PRG files into the RAM expander in the order it finds them on the P-File Disk. To optimize RAM loading you should order your directory so the PRG files are in batches of 60000 blocks (or as close as possible).

Once one disk of P-Files has been loaded, and if there is still room in memory, you will be given the option to load the P-Files from another disk. If you intend to do so, remove the first disk, and then insert the next before answering 'Y'. Once you are finished loading P-Files, you are then given the option to load sequential files. If you intend to load sequential files into the expander, remove the P-Files loading disk and insert the sequential files loading disk before answering 'Y' at the prompt. DO NOT FORGET TO INCLUDE THE FILE 'm5' AND 'prg.setup' AS DESCRIBED IN CHAPTER 3. Note that you must load at least one P-File before being able to load any sequential files into RAM.

If you have selected not to load p-files into RAM or if you have finished filling the expander, you will next be instructed to insert all system disks, and press RETURN. Before pressing RETURN, insure that the disks that you configured the system onto are placed into their correct drives, the disk drives are all on, and your modem is turned on, if it has a power switch. If the system has been configured correctly, the disks will spin for several minutes as the program goes through all set-up routines. Soon, the "C-NET: Waiting for call" message and 'System Monitor' screen will be displayed.

5.4 CREATING THE SYSTEM OPERATOR ACCOUNT

If this is a brand new BBS, after booting the system for the first time there will be no user data. Not even an account for you the System Operator. So, the first thing you need to do is create an account for yourself with all the rights and privileges that will allow you complete and utter control of your system.

Following is a walkthrough to get you started.

5.4.1 LOGGIN ON FOR THE FIRST TIME

From the “Waiting for call” screen access the light bar controls (the four arrow keys in the upper right hand corner of your keyboard). Press the “right arrow” key until the light bar has highlighted the letters “LO”. Now press the “up arrow” key to toggle the “LO” option on. You will notice a check mark appear to the left of the letters “LO” and simultaneously the screen will clear and the system will be prompting you to hit the INST/DEL key. Hit the INST/DEL key now.

When the “LOGON:” prompt appears type:

NEW

And hit RETURN. You will now be placed in the “New User Application” (see section 5.4.2 for more information). Fill out the requested information and follow the prompts. After you have completed the “New User Application” and have practiced logging in by typing your new ID and PASSWORD you should after following the “Logon Flow” (see section 5.4.3 for more information) arrive at the MAIN prompt.

Now you need to give yourself System Operator access. Access the light bar arrow controls one more time. Press the “left arrow” key once so the letter “AC” is highlighted. Then press the “up arrow” key to toggle the option on. A check mark should appear to the left of the letters “AC”. Now on the left-hand side of the Status Screen (where your information is now displayed), in the middle you will see the letters “AC” again. Accessing the light bar arrow keys, press the “right arrow” key until the value next to the letters “AC” is the letter “e”. System Operator access should be at level 14, the highest access level possible in C-NET. The letter “e” in hexadecimal equals 14. Now press the “up arrow” key again to toggle the “AC” option off on the light bar (the check mark should be removed from the left of the letters). Now at the MAIN prompt type the letter “O” for OFF and hit RETURN. You will be prompted if you would like to logoff the system. Press “Y” for Yes. You will be prompted if you like to leave Feedback, press “N” for No. The system will log you off and save your new access information.

You are now a System Operator. Good Luck!

5.4.2 NEW USER APPLICATION

Entering NEW (which you will have to do initially to become a user of your own system) will begin the new user application process. The status window will display ‘new user login in progress’ to the left of the time remaining (TIME=) display until the new user login process has been completed, or, if it is aborted, another user logs on. The file ‘sys.new user’ (if present on your system disk) will be displayed at this time. The new user login

process consists of these four parts:

(1) General information (a handle to use on the system, a real name, a phone number, a password, two lines of address, and a birth date).

(2) Terminal parameters (computer type, whether or not lower case will be used, screen width in columns, screen length in rows, whether or not linefeeds are required after carriage returns, whether or not the 'More?' option will be used, the user's chosen level of system help, the user's time zone, and whether or not the user is 'private'). Several of these parameters require further explanation:

'MORE?' OPTION: If enabled, will cause screen output to be paused after the screen is filled, until the user presses a key. If the 'N' key is pressed at a 'More?' prompt, an attempt will be made to abort the output.

HELP LEVEL: If set at 'beginner' will cause the system to display important commands before every command level prompt. If set at 'novice' these command helps are suppressed. If set at 'expert' other system files, such as entry information to message bases and file transfer areas is also suppressed.

TIME ZONE: A use may select a number of hours (-23 to +23) that his particular time zone is different relative to the system will display all dates (normally displayed in system time) relative to any given user's time zone -- as if the system were in his own time zone.

PRIVATE: If a user selects that he does not want his info private, all other users are able to perform commands to display his real name, address, phone number and birth date. That is, the user does not mind that other people on your system can view his normally confidential information.

(3) Miscellaneous questions. As initially programmed the system requests the user's occupation and favorite color for your information. This information (along with the personal statement to follow) is written into a file for your review -- it is not retained by the system. You may alter the miscellaneous questions by changing the DATA statement on line 62048 of the file 'prg.new user'. The first data element, an integer, tells how many questions (in quotation marks) are to follow.

(4) A personal statement (a chance to type a paragraph or two briefly explaining anything else that needs explaining).

The 'prg.new user' has been updated a bit. It now allows zip codes of 9 digits. That allows for the new zip codes, as well as the Canadian Postal Code. The program also defaults to 'new Commodore' prompts for new users. It doesn't ask the user for his state/province, since it already has that information from the phone number area code that the user inputs. It does allow the user to change the state/province when it verifies the data from

the user in case there is an error. Users must put something in the address question, and when asked for the user's personal name, it prompts the user to input both first and last name.

If you create a file 'sys.badnames' on your system disk, the system will allow you to disallow certain handles or handle fragments from being used on the system. Again, refer to section 16.1 for information about creating files. Each line of the file should be written to contain a separate pattern. Use the left arrow character (underneath the ESC key) to represent spaces, before, after, or contained within patterns. For example, if you enter TOM on one line, the system will not allow TOM TURKEY, ATOM or ATOMIZER to be used as handles. Using _TOM instead will allow ATOM and ATOMIZER, but not TOM TURKEY because the line _TOM must match a space before TOM. Entering _BAG_ will not allow handles containing the word BAG, but will allow BAGGAGE and ABAGALE, because the line _BAG_ must match spaces on either side of the word BAG.

When the new user process has completely finished, the user is automatically given an access grouping of 0. Local callers, however, may have a way around this!

When the system is fully operational, you may configure a feature known as AUTO CALL-BACK VALIDATION. Auto call-back validation allows you to have your system automatically use the modem to call new users back who live within your system's local calling area, and give them a predetermined access grouping other than zero. Use the program file 'prg.utilities' to configure this feature. A program file like 'prg.utilities' must be added to a system p-files library and executed (see chapter 11) to be usable. This feature is only available for use with the Hayes compatible and the 1670 modems.

If there are prefixes of another area code besides your own that are also local to you, you must enter the second area code followed immediately by the prefix within the second area code for each such prefix when asked for prefixes by the 'prg.utilities' configuration program.

A new mod that has been made for C-Net 128, is one called 'prg.send welcome'. After a new user has used the auto-validation, the next time they log on, the program asks for his last four digits of his/her phone number. It then writes your 'sys.aboard' to their mail box automatically. So be sure you have written a 'sys.aboard' text file welcoming your new users.

5.4.3 LOGON FLOW

The following occur once a user has successfully logged on to the system (not aborted by INSTANT login):

(1) The user is informed of the number of calls that he has remaining to make to the system this day (only if not an infinite number more).

(2) The file 'sys.welcome' will be displayed (if present on the SYSTEM DISK). Note: if the user used '!' following his logon ID when signing on, this file will be suppressed. Another way to go through this file quickly is to hit the space bar as soon as it appears, and then the file will abort.

(3) The system will check the directory of system news files, to see if there are any new files to be displayed to the user. If so, there will be at this time.

(4) If the user hasn't called since his last birthday, the system will greet him with "Happy Birthday!" All new users fall into this category.

(5) The system will offer to check all message bases for new messages. If the user selects to do so, the system will construct a table of message base names, the number of messages on each, followed by the number of new messages on each.

(6) If the user new mail waiting for him, he will be informed of the new mail.

(7) Another handy feature in C-Net, is what is called the instant logon. A user may use their Login ID followed by an exclamation mark (!) (e.g. EC251!). The BBS will then ask for the user's password. Once that has been verified, the user is taken directly to e-mail if he/she has any waiting for them, otherwise, they are taken directly to the Main Prompt. That way, the user can bypass all the questions that are asked in the logon process.

The MAIN command level is where the user is normally placed after this has been completed.

Another handy little item, is when the sysop is in system maintenance, and he/she is reading the new user information, the sysop can use the 'X' command to automatically send a welcome e-mail to the new user. That way, the user feels that he/she is welcome to the board and may spend more time with your board instead of calling other boards.

5.5 C-NET 'WAITING FOR CALL' SCREEN

5.5.1 THE STATUS WINDOW

The status window consists of the bottom five lines of the screen, which is displayed at all times, except during usage of C-NET's built-in terminal program and the visual editor. When a user calls into the system, the status window will display many variables and statistics of his account. His status will remain displayed even after he signs off -- up until another user calls in.

The first half of the first line contains the 'on-line' functions menu, "SY AC LO TR CH NW PR UD MB FX" which is explained in detail in chapter 5. At the far right of the first line, appears the number of minutes remaining for the user until automatic log-off (TIME = xx). If a user has no time limit, TIME = 95 will constantly be displayed. Between the on-line functions menu and the time remaining display, exists space, which will, while a user is using the system, contain the most recently executed command, and the system prompt the command was entered from.

The next three lines will contain information about the most recent user's account, which will be separated into sections for easy interpretation. The sections are coded as follows:

ID The user's ID number, then the users address. An ID number of 0 always indicates that the user HAS NO ACCOUNT -- he's just browsing the system.

AC The user's access group (0-15), followed by the user's city/state. Access groups 10 to 15 are displayed as a single HEX digit, "a" to "f".

TZ The user's TIME ZONE (-23 to 23; your time zone is always 0), followed by the user's phone number, then birth date.

CALL Will be a series of numbers of the form CCC:TTTTT DD/MM:EEEE, such as 086:51866 01/03:0012, where CCC is the number of calls your system has received since setup, TTTTT is the number of calls your system has ever received, DD is the number of calls the user has made today, MM is the maximum number he can make in one day, and EEEE is the number of calls he has ever made to the system.

LAST Is simply the date and time of the user's last call to the system.

PARM Contains the user's screen dimensions, in the form WW:LL, where WW is the width in columns, and LL is the length in lines or rows.

ON@ Simply tells the time at which the user connected as well as the method of connection (such as a local logon).

BAL Is a positive or negative measure of the user's account balance (for the accounting system, described further later), measured in cents (1/100) of a dollar.

CMP Is the user's computer type, abbreviated to 5 letters.

IDLE Is the number of minutes and seconds the user has sat at a command prompt without pressing a key. If this timer reaches the maximum number of minutes idle (I) that has been specified for the user's access group, the system will automatically log the user off.

MIN Minutes used by the user during previous calls today, followed by the maximum number of minutes the user may use in one day, as specified by his access group setting.

CPS Characters per second (the user's connect baud rate, divided by 10)

USR The number of user accounts being used on your system (including deleted accounts).

MR Check marked if the 'more?' mode is enabled.

CG Check marked if the user has selected Commodore graphics.

XP Check marked if the user has selected Novice experience; an '!' appears if the user has selected full expert mode.

LF If line-feeds are sent after each carriage return.

AN Shows if ANSI color was selected by user.

U The number of blocks the user has ever uploaded.

D The number of blocks the user has ever downloaded.

M The number of private messages the user has ever left.

P The number of public messages the user has ever left.

PAGE! The letters 'PAGE!' will flash if the user has requested to chat with you.

The space following 'PAGE!' is reserved for the user's reason for chatting.

Also, there is a status line at the top of the screen. This line gives you the current date, time, the word pause (to be covered shortly), the last user's handle (or the user on-line), and the user's real name.

If a user has used a Control-S or the clear/home key to pause the screen, then the word 'PAUSE' at the top of the screen will flash to show that the screen has been paused.

5.5.2 THE SYSTEM ACTIVITY MONITOR (S.A.M.)

While waiting for a call, the text output window will be filled with the System Monitor screen. The Monitor is just one part of the C-NET 128 System Activity Monitor (S.A.M., for short).

When C-NET 128 is 'Waiting for call' (this is displayed on the bottom 'Status' line in the lower right hand corner of the screen) there are 5 different S.A.M. screens, a HELP screen and a toggle screen of User Information available. To access the different screens press the associated key listed in the chart below.

5.5.2.1 System Monitor: The System Monitor is like a life monitor in a hospital. I tests and reports on the vital systems of the system and reports it's finding graphically. The three areas the Monitor reports on are; the Modem, C-NET critical Disks, Memory and Disk Space by DEVICE and DRIVE

5.5.2.2 S.A.M. Screen 1 (System Variables): S.A.M. keeps track of 16 system activities: feedback, e-mail sent to the sysop, message base posts, responses to posts, g-files read, p-files ran, system errors, new users, files uploaded, blocks uploaded, files downloaded, blocks downloaded, minutes of system usage minutes of system idleness, and accounting system total charges. Each of these variables is tracked in five different ways:

LAST: What the last user of the system did on-line.

SETUP: What all users have done since the system was last set-up.

PERIOD: This column of numbers only re-sets when you want it to -- by pressing C=P described below.

TOTAL: Running totals of everything that has happened on the system since first configuring the system.

CURRENT: Tells you the amount of an item present at any given time. For example, a number 5 under CURRENT across from feedback, tells you that you now have 5 pieces of feedback waiting to be read. The total number of files and blocks present in the file transfer system is placed under CURRENT across from files uploaded and blocks uploaded. These numbers are not repeated (and wouldn't make any sense) following files and blocks downloaded.

On the line directly below the chart, SAM displays the dates and times that each of the four accumulating columns has last been reset.

5.5.2.3 S.A.M. Screen 2 (Communications Statistics): Number of local calls, 2400 users, 1200 users, 300 users, carrier disconnects, chat disconnects, exceeded time logoffs, RES users, auto-validation (avalid) attempts, auto-validation (avalid) failures,

network linkups.

5.5.2.4 Large Clock: The large digit time-of-day clock. Neat to watch!

5.5.2.5 System Activity Graph. Each 20-minute period of the day is marked along the x-axis (the horizontal bar at the bottom of the window), beginning with midnight, noon in the center, and 11:40 PM at the far right. For each of these 20-minute periods, a vertical column shows how active the system has been (i.e., a user logged on) during this time of the day as a percentage of the total minutes the system has been on-line during this time of day. At a quick glance, you are able to determine your system's busiest and least busy times during the day.

5.5.3 MONITORING AND CONTROL SYSTEM (M.A.C.S.)

The MACS control panel is displayed by pressing C= M from the 'Waiting for call' screen. There are 24 system options available from this screen, each of which you may configure for your individual system needs. These include:

1. Phone number check at logon
2. Reserved accounts
3. The Wall feature
4. AM Copyfiles Backup
5. C-NET networking
6. Main Quips and Quotes
7. Today in history
8. The Wall feature
9. Scan for new at logon
10. Quote of the day
11. Allow 'GUEST' users
12. Status window OFF at logon
13. Feedback goes to sysop mailbox
14. Status window OFF at logon for ID 1
15. User list at LOGON prompt
16. 80 column sys.start
17. DOS Command Lockout
18. Free Mem Readout at Main
19. Statistics at logon
20. Biorhythm at Logon
21. Pack up E-Mail at Night
22. Unused
23. Run A-Maint
24. Modem off-hook at Local

To activate/deactivate any one of these options, press the corresponding letter or number appearing on the screen. To exit MACS, press the back-arrow key.

* Be sure that item 'N' on the MACS screen is active. This turns on your auto-maintenance.

For more advanced users, you may wish to add your own variables to this list, by editing PRG.SERVICES, listing following line 63000. The variable MA(x) determine whether a feature is SET ON or OFF.

5.6 OPTIONS WHEN LOGGING ON TO THE SYSTEM

You may either wait for someone to call in 'remotely' (through your phone modem) or sign on to the system from 'local' mode. To call 'Locally' you must move the small on-line functions light-bar to 'LO' by pressing the right arrow key (above INST/DEL), then activate the 'LO' option by using the cursor up key.

When someone has called either remotely or locally, the program detects connect and then attempts to configure the correct graphics mode by prompting the caller to depress certain keys. A Commodore caller should press his/her INS/DEL while all others would press their ESCAPE key. If a

user just presses the RETURN key, then the board defaults to ASCII. By analyzing the character that is received here, C-NET is able to determine whether the caller is using a Commodore Color & Graphics translation, a straight ASCII translation or an IBM ANSI translation. The file 'SYS.START' (if present on the system disk -- see system maintenance, chapter 17 for instructions on how to write a file) will be displayed here.

Next, the program will instruct the user to enter his handle or login ID. If the user makes a mistake entering any of this information, or simply presses RETURN here, he will be told to enter NEW in order to receive an account, and is then given another chance to enter his login information. If the user makes three incorrect login attempts, without entering NEW, the system will automatically disconnect him.

A way to INSTANTLY log on from local mode as account number 1 (usually the SysOP and presumably your account) is to hold down the CONTROL key as you select the LOC option on the on-line functions light-bar, and keep the CONTROL key held down until the cursor drops to the middle of the screen. Doing this skips all logon prompts. If you continue to hold down the CONTROL key while the system reads your account from disk, all other logon procedures will also be avoided, taking you instead directly to the system maintenance prompt.

6.0 ON-LINE FUNCTIONS

You are able to change a user's access group, how much time he has remaining, and toggle on or off several other system functions at any time without interfering with the system's operation The menu of these functions is located at the upper left corner of the status window. A function is 'activated' if there is a checkmark to the left of the function's abbreviation on the menu. To move the light bar across the menu, use the left and right arrow keys. To activate or deactivate any function, use the up arrow key. The on-line functions menu is not active while the system is 'thinking' -- only when printing information or waiting at a command prompt.

6.1 (SY) SYSOP STATUS

Activating this function indicates to users that you are available for on-line conversation with them. With this function activated, a user requesting chat mode will be given the message 'Ringing SysOp!' and a whistle will be made on your monitor if the volume is turned up. Otherwise, the user will be told that you are not available, and will be asked if he would like to leave feedback, instead.

6.2 (AC) ACCESS CHANGE

When active, this function allows you to change the user's access group while on-line -- sometimes know as 'on-line validation'. Use the left and right arrow keys to change the access group number. In order for a user to take full advantage of his new access group, he must execute the 'ST' command at the main command level, which forces C-NET to reconfigure all access group variables.

6.3 (LO) LOCAL MODE

Activate this function from the 'waiting for call' screen to log on to the system in local mode. Activating this function while a user is remotely on the system will cause the system to enter local mode, disabling his terminal completely, until you deactivate the function. If you are logged on in local mode, deactivating this function will cause the system to reset and return to the 'waiting for call' screen without logging your call to disk -- use 'O' or 'O!' to log off normally.

6.4 (TR) TIME STILL REMAINING

When this function is activated, you are able to use the left and right arrow keys to change the number of minutes that the user has remaining on the system for his current call. The time remaining change will simultaneously be reflected on the top line of the status window. When altering the time remaining, you may use the down arrow key to immediately bring the time remaining to 0 -- usually immediately logging the user off of the system.

6.5 (CH) CHAT MODE

Activating this function while at any input prompt, will display the message 'Chatting with SysOp', and place the user into 'chat mode'. In chat mode, you and the user may freely type to one another until the chat mode is deactivated, when the message 'Returning to system' will be displayed, and the user will be placed at the command prompt from which he came. During chat mode, the user's time remaining will not decrease.

6.6 (NW) NEW USERS

Activating this function will make your system a 'private' system. That is, callers will not be able to log on as NEW to become a user of your system -- only previously registered users will be able to log on.

6.7 (PR) PRINTER

While this function is active, complete lines of text that are printed to the screen will also be sent to the printer. The printer must be turned on, and configured correctly (refer to section 3.3).

6.8 (UD) UPLOAD/DOWNLOAD

While this function is active, all users will be denied access to the file transfer section of C-NET regardless of which access group they are a member of.

6.9 (MB) MESSAGE BASES

While this function is active, all users will be denied access to the message base section of C-NET regardless of which access group they are a member of.

6.10 (FX) C-NET FAX

Still under construction at the release date of C-NET v7.0.

6.11 UPLOAD CREDITS

At times it may be convenient to add or subtract from the number of credits a user on-line has (this appears in the lower left corner of the status box labeled 'U:'). For instance, if a user is allowed to download 10 blocks for each block uploaded, and has overextended that ratio, and you wish to increase his 'credit' while he's on-line, you may do so. Here's how: hold down the ALT key, and then use the left and right arrow keys to add or subtract credits. Once activated, an offset number that ranges from -128 to +127 will replace the number of credits. As soon as a command is entered, this offset number will be added to the number of credits the user owns and the new total will appear in place of the offset number.

6.12 REMOVING THE STATUS WINDOW

The status window may be toggled on and off by holding down the C= key and tapping the CONTROL key. The status window is automatically removed when entering either terminal mode or the visual editor, or if specified in the M.A.C.S. to turn off after the sysop or users logon. While using terminal mode or the visual editor, the status window CAN NOT be replaced using C= CONTROL.

6.13 SPECIAL KEYS

Following is a list of special keys for the System Operator and their functions at the "Waiting for call" screen:

HELP Bring up a menu of these Special Keys

ESCAPE Load C-Term (C-NET's Built-In Terminal Program)
Left arrow Toggle screen blanking on/off
TAB Toggle to Between Status Window and the Last 10 Callers Screen.
C= A Run Auto-Maintenance.
C= C Add S.A.M. Currents
C= E Run Net-Now
C= N Run Net-Assemble.
C= P Reset S.A.M. Period.
C= Q Shut Down the System.

1. System Monitor
2. S.A.M. Chart 1
3. S.A.M. Chart 2
4. Large Clock
5. System Activity Chart

LIGHT BAR CONTROLS

(The controls for the light bar are the four arrow keys above the minus key, the English pound key, the CLR/HOME key and the INST/DEL key.

Left arrow move light bar left
Right arrow move light bar right

Up arrow toggle option on/off

7.0 COMMANDS AVAILABLE AT ALL LEVELS

There are several commands which are available to a user no matter which command level (main, bulletin board, electronic mail, system news, general text files, file transfer, program files, or system maintenance, etc.) he is currently at. Each of these commands will be explained in this chapter.

There are several commands throughout the system that require 'verification'. That is, the system will pause to ask "Are you sure?" before executing many unrecoverable commands such as deletions, replacements, logoffs, etc. You may avoid these verifications, however, by adding '!' to the end of a command which would normally pause for verification. For example, 'O!' will logoff without asking "Want to logoff the system?" and 'K4!' will kill the fourth bulletin in a message base without asking "Want to kill this bulletin?", etc.

If you ever wish to enter several commands at once, you may type them all at any command prompt, substituting the character "^" (up arrow) where the RETURN key would normally be used. The character "^" is not required to separate commands which do not require a RETURN. For example, 'O^YN' will select logoff, answer 'Y' when asked "Want to logoff the system?: then answer 'N' when asked "Want to leave feedback?". This 'command stacking' ability is only limited by the amount of room you have to type at a command prompt.

7.1 CHAT REQUEST/CHAT MODE

The 'C' command allows a user to request a chat with the system operator. If the SYS function on the on-line menu is activated, the message 'Paging sysop!' will be displayed, and a whistle will be made on the system monitor. If SYS is not activated, the user will be told that you are not available, and will be asked if he would like to leave feedback instead. In either case, the word 'PAGE' at the bottom of the status window will flash to let you know that the user has requested a chat with you. The first time that a chat is requested, the user will be asked for a reason why he wants to chat, which will be displayed in the status window next to the flashing word PAGE. The second and third chat requests will not prompt for a reason. If a user requests a chat a fourth time, he is obviously being a pest, so the system will inform him to 'Enter 'C' to logoff the system'. If the user persists and requests a chat a fifth time, he will be automatically logged off the system.

7.2 FEEDBACK

Feedback is a message sent directly to the system operator; it is often faster and easier to use than electronic mail. The 'F' command is used to leave feedback from any command level. The user will be placed into the editor subsystem to write his message. The system operator using a command at the system maintenance command level reads feedback.

7.3 HELP

Many specific definitions of terms and descriptions of commands are

available through the help utility. The ‘H’ or ‘HELP’ command is used to enter the help utility from any command level. There are several topics that the system can offer help with. After each help file has been displayed, the user is prompted for another topic. If the help topic is already known, the help command may be entered in the form HELP TOPIC. For example, instead of entering HELP, waiting for completion of the introductory help file, then entering BBS to find out about the BBS section, simply entering ‘HELP BBS’ will immediately supply a description of the BBS section.

7.4 SYSTEM INFORMATION

The ‘I’ command displays the file ‘sys.info’ from the system disk if it has been written. Generally, this file is used to contain general information about your system -- what it is running on (hardware and software), as well as anything else interesting about it. Don’t forget to mention C-NET and where you got it!

7.5 LAST CALL DATE

A user can change his effective last call date by using the ‘LD’ command at any command level. C-NET uses the last call date to determine which messages are new since a user’s last call. Changing your last call date will change which messages are termed as ‘new’ and which are termed to be ‘old’. If a user logs off before he reads all new messages, he may use the ‘LD’ command the next time he calls to move his effective last call date back.

7.6 NEW USER FILE

The ‘NU’ command displays the ‘sys.new user’ that was initially displayed to the user when he logged on as ‘NEW’ to the system.

7.7 LOGOFF

The ‘O’ command is used to leave the system. Before the user is logged off, he is asked if he really wants to. If so, he is able to first leave feedback to the system operators.

7.8 PASSWORD CHANGE

A user with the proper access can change his password from any command level by using the ‘PW’ command. Before the password may be changed, the current password must be entered, followed by the new password twice, to insure that no errors were made.

7.9 QUIT

The ‘Q’ command from any command level will return the user to the main command level. If ‘Q’ is used at the main command level, the user will be taken to logoff.

7.10 STATUS

The ‘ST’ command at any command level will display the user’s current status on the system. A user’s status includes his handle, phone number, real name, address, login ID, access group name, last call date, number of

calls to the system today, number of calls he has made total to the system, and the total number of calls the system itself has ever received. In addition, a table of numbers is also displayed, which concisely details file transfer (blocks and files) and message (public and private) activity, for all that has ever occurred, for the current call, and what remains that he is still able to do on this call. If a value is infinite, a dash (-) will be substituted.

7.11 TIME AND CHARGES

The 'T' command at any command level displays time and date information: the current time, the time of log on, the number of minutes since logon, and the number of minutes remaining on the system for this call. User accounting system information is also displayed (to be discussed more fully in a chapter to follow): the user's per minute access rate, the charges resulting from connection, a combined charges and credits figure resulting from other system activity, the user's maximum allowed negative balance, and finally his current balance.

7.12 USER INFORMATION

A user can find out information about any other user account by using the 'UI' command at any command level, or 'UI' followed by the ID number of the account to examine. User information given includes login ID, handle, last call date, area code, and computer type. System operators using the 'UI' command also always receive the real name, address, birthdate, phone number and access group of the account. If a 'UI' is performed on a non-private user's account, any user may view the real name, address, birthdate and phone number of that account.

7.13 COLOR/GRAPHICS MODE

Color/graphics mode allows users of Commodore computers using color/graphic capable terminal packages to see text and the Commodore keyboard graphic characters in all 16 colors available for text on the Commodore computers. Color/graphics mode was initially selected at login by the pressing of the backspace key. It becomes necessary, however, to sometimes toggle this mode on or off. The 'AT' command may be used from any command level to do this.

7.14 ACTIVITY QUEUE

The 'AQ' command, used at any command prompt, will display a list of the last 15 commands that have been used by the user. The real teleology of this command is realized by the error logging routine -- when a system error occurs, the 'AQ' is written to the disk following the error description. This information has proven to be immensely helpful in tracking down problems.

7.15 ACCOUNT INFORMATION

By using the 'AC' command, a user can check his account balance and summary of charges for the call. This command is used mainly for BBS' that charge for use of their systems.

7.16 CREDIT INFORMATION

The user can use the ‘CR’ command to check his credits for messages that the user has sent, calls, downloads and uploads, as well as how many minutes on his present call and daily calls.

The user will get his credit info totals set for today, limit, credits left and total.

7.17 EDIT EVERYTHING

Use of the ‘EE’ command allows the user to edit his system information. This includes his password, name, phone number, address and all other pertinent information. Some of the system files don’t have this command, however, most of the files do have this command. The ‘EE’ command has replaced the ‘ET’ and ‘EP’ commands. Therefore, whatever a user types, they wil be taken to the ‘EE’ command menu.

7.18 EDIT PREFERENCES

The user can use the ‘EP’ command to edit his preferences, including the screen width and length.

7.19 EDIT TERMINAL

The command ‘ET’ allows the user to edit his terminal parameters. As we all know, a lot of users will change their computers from time to time, and this command allows the user to keep his parameters current.

7.20 EDIT USER PROFILE

By using the ‘EU’ command, it allows the user to edit his profile, items such as handle, name, address, phone number, etc. This command is similar to ‘EE’, but does not allow the user to change everything.

7.21 SEND MAIL

A user can send E-mail from any prompt by using the ‘M’ command. This command will put the user into the electronic mail system, and the user can then send mail to any other user on the same system. More will be discussed later about the electronic mail system. One other command that should be mentioned here, is the ‘NS’ command. This allows the user to send mail to another user on another system as long as the system is in the same network (such as the Pearako Network). More about this command will be forthcoming in the chapter on networking.

7.22 C-NET VERSION

Another nifty little command that can be used is the command ‘V’. This allows the software to check on itself, and report what version of C-NET the system is running. As there are a number of versions of C-NET out there, it is nice to see what version any specific system is using. Maybe a system you call has things that you would like to add to your system. By using the ‘V’ command, you can see what version is running, and by knowing the version, you might be able to see if the item will run with your system.

7.23 EXTRA COMMANDS

The following are other commands that can be used at all levels:

AG This command allows the user to see a graph of system activity by showing a percentage of use during the different time of day. Some users use this graph as an indication as to when the system is slowest, so they can call in and not interfere with other users.

BT This command allows a baud rate change for 2400-baud callers only.

ID Remote sysops must use this to gain maintenance access. This feature is also password protected. The default password is 'CNET'. This password can be changed by the sysop as well. However, it is recommended that the new password be written down so it does not get lost.

TC This command calls up the caller log for the current day. This command will show who has called to the system since the last auto-maintenance routine.

C This is the command for a real time chat mode with the sysop.

RE This command allows the user to re-logon without first disconnecting from the system. If this command is turned on in the user groups, then the user can continue his call without disconnecting. However, if the command is turned off, then the user must log off the system and call back to continue.

QR This command allows the user to Quick Read new messages in all the joined message bases.

QS This command allows the user to Quick Scan new files in the U/D section.

W This command allows the user to see and add graffiti to the Wall. All MCI commands can be used on the wall to add a touch of class.

X If a sysop has the call-back verifier turned on, this command will allow new users to have the system call them back to receive higher access. Some modifications have been made to some of the files that allow a default higher access level to a new user if the user meets certain criteria.

7.24 SUMMARY OF COMMANDS

For a summary of commands that are available at any given command level, a user may enter a question mark ('?') which displays the appropriate menu file from the system disk.

7.25 CONTROL CHARACTERS

There are several control characters that are useful throughout the system. They are the following:

CONTROL S - may be used to pause the output from C-NET. In local mode, and when using many Commodore terminal packages, the CLR/HOME key may be used instead. Any key may be used to re- start the output.

CONTROL V - may be used to 'verify' the current input line by reprinting it. If there is a lot of 'line noise' interference, verifying the input line helps to insure correct input.

CONTROL W - may be used to delete an entire word on the current input line.

CONTROL X - may be used to cancel the current input line entirely,

to begin from a blank line.

To abort many messages, either the SPACE BAR or the '/' character may be used.

- THE MAIN COMMAND LEVEL -

8.0 THE MAIN COMMAND LEVEL

The main command level is the 'central point' of the system. From here, a user may branch to any of the many other system command levels.

Another little touch of class, if you have used the p-file called utilities, and entered your system name, then your board name will automatically appear at the main prompt. Just another small item to personalize your board.

8.1 BULLETIN BOARD

The bulletin board command level is C-NET's public message base, where public conversations may take place. Entering 'B' from the main command level will move the user to the bulletin board command level, at the first subboard which has been 'joined' (see chapter 13.2 for 'join' details). A user may request moving to a specific subboard by appending the subboard number to the end of the 'B' command. For example, using 'B7' moves the user to subboard seven. If the user does not have access to the subboard that he specifies, he will be moved to subboard one. Furthermore, if the user has access to no subboards at all he will be told that the bulletin board system is empty, and will be returned to the main command level. See chapter 14.0 for bulletin board subsystem details.

8.2 EDIT TERMINAL PARAMETERS

The 'ET' command from the main level will display all of the user's current terminal parameter settings, and then give the user an opportunity to change as many of his parameters settings as he desires. For a review of all of the terminal parameters, consult the section concerning new user login, 4.7.

8.3 GENERAL TEXT FILES

The 'G' command from the main level will take the user to the general text file system. See chapter 11 for general text file system details.

8.4 ELECTRONIC MAIL

The 'M' command from the main level will take the user to the inter-user message 'electronic mail' system. See chapter 9 for a detailed discussion of the electronic mail system.

8.5 SYSTEM NEWS

The 'N' command from the main level will take the user to the system news system. Refer to chapter 12 for a detailed discussion of the system news system.

8.6 PROGRAM FILES

The ‘P’ command from the main level will take the user to the program file system (on-line games). See chapter 11 for program file system details.

8.7 SYSTEM MAINTENANCE

The ‘SM’ command from the main level will take a user (with proper access group having system maintenance access) to the system maintenance system. Refer to chapter 16 for a complete description of the system maintenance system.

8.8 UPLOADING/DOWNLOADING

The ‘UD’ command used from the main level will take the user to the file transfer level, at the first ‘joined’ (see chapter 13 for details) subboard. A user may request to move to a specific subboard by appending a subboard number to the end of the ‘UD’ command. For example, using ‘UD7’ will move the user to subboard seven. If the user does not have access to the subboard that he specifies, an attempt will be made to move to subboard one instead. Furthermore, if the user has access to no subboards at all, he will be told that the file transfer system is empty, and will be returned to the main command level. Remember that no users will be allowed to enter the file transfer area if the ‘U/D’ function of the on-line functions menu is checkmarked. See chapter 14 for complete details of file transfer system.

8.9 USER LIST

The ‘UL’ command from the main level will take the user to the user list system. See chapter 10 for further user list system details.

8.10 DATING SYSTEM

The ‘D’ command from the main level will take the user to the dating system. The dating system must first be configured by a sysop (simply entering using the ‘D’ command) before other users may use the system. Once configured, a sysop may change the access group setting of the system by using the ‘A’ command at the dating prompt. The configured dating system creates a new system file ‘sys.dating’ to hold information that the users enter -- age range, weight range, interests -- the usual dating type of information.

Only users who use the dating system become participants of the system. A user may even delete himself from participation in the dating system by using the ‘K’ command. For a complete list of other dating commands, use the ‘?’ command. If you do not wish to use the dating system on your system, simply do not have the file ‘prg.dating’ on your p-files disk or RAM expander.

8.11 VOTING SYSTEM

The ‘V’ command from the main level will take the user to the voting system. Users are allowed to vote on topics entered by the sysops. Once the user has voted (at most once per topic) a tally of percentages for each vote choice is displayed. The program is fairly user-friendly and easy to use. If you do not wish to use the voting system on your system, simply do

not have the file ‘prg.vote’ on your p-files disk or RAM expander.

8.12 BBS LISTING SYSTEM

A full featured BBS listing system is available to users by using the ‘L’ command from the main level prompt. This program uses a B-tree data structure, which should allow more than 20,000 BBS listings to be entered, stored in numerical order, edited, deleted, and searched for. Each entry includes location, baud rate, and a space for comments. Whenever this program asks for a number, a literal 10 digit phone number is what is being requested, without spaces or other delimiters. If you do not wish to use the BBS listing system on your system, simply do not have the file ‘prg.bbs list’ on your p-files disk or in your RAM expander.

8.13 EDIT PROFILE

The ‘EU’ command from the main level will allow a user to change what he had previously entered as his real name, phone number, address, and even handle without sysop intervention. This was designed to avoid the ever popular feedback “please change my handle” and “I’ve moved -- please change my address and phone number” requests. Of course, this feature may not be suitable for your needs and system. If you do not wish to use the edit profile system on your system, simply do not have the file ‘prg.profile’ on your p-files disk or in your RAM expander.

8.14 AUTOVALIDATION

If a user wishes to be auto-validated (that is, have the system call him back by modem to verify the phone number he entered as a new user, then assign him a predetermined access group, as was described in the new user login section, 4.7), but failed to take advantage of the opportunity then, may now have a second chance to do so now by using the ‘X’ command from the main level prompt. To operate correctly, the auto callback validation system must be configured, the user must be in your local calling area, and he must have new user (group 0) status. If you do not wish to use the auto-validation system on your system, simply do not include the file ‘prg.avalid’ on your p-files disk or in your RAM expander.

8.15 ACCOUNTING SUMMARY

C-NET allows you to attach a charge or credit to 15 different system functions, including the use of p-files per minute, the reading of g-files per minute, per every line of text posted in the message base, per every block uploaded or downloaded, and more. See the complete description of the accounting system in chapter 8 for more details. By using the ‘AC’ command from the main level, a user is able to display the amounts that you are charging (or crediting) him for each of these 15 system activities. If a sysop uses the ‘AC’ command, he will first be asked if he would like to edit the table of charges for al access groups. If you do not wish to use the accounting summary command on your system, simply do not have the file ‘prg.charges’ on your p-files disk or in your RAM expander.

8.16 RELOGON

The ‘RE’ command from the main level will allow a user to sign off the system, and return him to the initial sign-on prompt, “press the INST/DEL or ESC key”, depending on the user’s computer system without ever disconnecting the modem. This is useful if several users are at one place,

or if users are allowed to hold multiple accounts. A user must belong to an access group with access to the relogon command (one of the several 0 or 1 settings) in order to be able to use it.

8.17 ACCOUNT SUMMARY

One feature that 'CR' offers is a table of numbers which details file transfer and message activity, for all that has occurred, for the current call, and what he is still able to do on this call. If a value is infinite, a dash (-) will be substituted.

8.18 ACTIVITY QUEUE

The 'AQ' command displays the last 16 commands that have been used by the user. The real technology of this command is realized by the error logging routine; when a system error occurs, the 'AQ' is written to the disk along with the error's description. This information can be immensely helpful in tracking down problems.

8.19 TODAY'S CALLERS

The 'TC' command displays a list of that day's callers after system cleanup.

8.20 IMMEDIATE PROCESSING

There are several commands that require an answer to an "are you sure?" before executing, such as when deleting a post. You may avoid these verifications by adding a '!' to the ends of your commands. For example, 'O!' will log off without asking "are you sure?" and will also bypass the option for the user to leave feedback before disconnection.

8.21 COMMAND STACKING

C-NET allows you the ability to enter several commands at once ('stack' them), by typing them all at any command prompt, substituting the character '^' (up arrow) where the RETURN key would normally be used. The up arrow is not required for commands where returns are not needed. For example, entering 'O^YN' will select 'O' at the current prompt, select 'Y' at the "are you sure?" prompt, and will answer 'N' for the feedback option.

8.22 MAINTENANCE COMMANDS

Several commands that are only accessible to system operators are available exclusively at the Main command prompt.

ID To use any of the following commands you must use the 'ID' command first if you have called in from another computer, rather than logging on from the main console. After selecting 'ID', the system will ask for a password. The default password is 'PASS'. There is a command in system maintenance to change this. It is not necessary to use this command when the user is logged on in local mode.

EX Execute a prg.* (program file -- any file that starts with prg.*). This provides you with the ability to run a prg. file (one that is compatible with C-NET) without having to add it to a p-file directory beforehand. When asked for the program name, type in the name of the prg. file leaving off the 'prg.' prefix.

SM Move to the system maintenance subsystem. See chapter 16 for more details.

SY Enter the BASIC shell and Monitor. Here, you may actually use BASIC on-line! You may use the shell to write programs, edit programs (even C-NET files), and even run programs. The used areas in the 128's memory banks 0 and 1 are 'blocked off' from BASIC access by manipulation of the start of basic text and variables memory locations. All BASIC I/O, however, is still routed through C-NET's ML, allowing CONTROL-S pausing, SPACEBAR aborting of text output, etc. C-NET runs in COMPLETE and total Commodore screen emulation, allowing cursor movement, quote mode, insert mode, and everything else. C-Term has been adapted to do the same (using the CG+ mode). Because C-NET itself must still reside in BASIC memory, there are restrictions. These include:

(1) Lt. Kernel commands MAY NOT be used (because of conflict of memory problems). Use DLOAD, SCRATCH, DSAVE, DIRECTORY instead.

(2) Files #131, #6, and #4 may not be used (a CLOSE131 or CLOSE6 will disable your system completely).

(3) Graphics/Music/Sprites will cause sure disaster! A simple matter of no extra memory to put that type of program.

(4) Poke/SYS calls are asking for trouble. Even SYSO isn't guaranteed to work; this means that MCI commands are not usable. Use control codes directly within PRINT statements to move the cursor or change colors.

(5) Approximately 85 blocks (the same as for a p-file) is the amount of BASIC workspace available. Attempting to DLOAD a file that is too long will crash the system.

(6) To exit back to the Main command level, enter 'q' (must be lowercase) at the first column of a BASIC input line.

EM This command controls entering the Main Macro editor. You will be prompted to edit each macro by number. There is a maximum of 25 allowed at the Main prompt, but may be changed by editing the CN file at line 1301.

NT This command allows you to 'test' any of the Multi-Net files without having to run the entire network. It will prompt you for a file name. When you enter the file name, you only need to add the portion AFTER the dash in the file name. For example, if you would like to see the 'prg.net-subs' in action, then you only need to enter 'NT' and when prompted, enter 'subs'. The 'NT' file will automatically add the 'net-' portion of the file name for you, and then ask if you would like to have the TRACE command active (makes things difficult to read, but it is an EXTREMELY useful de-bugging tool). It is important to note here that 'Testing' the p-file assemble will cause C-NET to run all the way through the network.

9.0 THE ACCOUNTING SYSTEM

You may use C-NET's accounting system to 'charge' users or to give them 'credit' for thirteen items:

1) For each minute connected to the system
2) For each minute using the P-files section
3) For each minute using the G-files section
4) For each line of post in the bulletin board system
5) For each line of response in the BBS
6) For each 20 lines read in the bulletin board system
7) For each line of private e-mail sent
8) For each 20 lines of e-mail received
9) For each block downloaded
10) For each block uploaded
11) For each minute using the UL (user list) system
12) For each vote cast in the vote system
13) For each BBS added to the BBS list system.

For now, ignore references to 'expansion' charges -- they may be used sometime in the future for new system features.

To edit these charges, use the 'AC' command (prg.charges) from the main level, and then press 'Y' at the 'edit charges?' prompt. Each group of users may have a set of charges different from the other groups. The numbers you enter here are by default CHARGES (that is, subtracted from the users account balance) unless a number is made negative, in which case that amount is made a CREDIT (that is, added to the user's account). In addition these numbers are in units of 1/10,000ths (one ten-thousandths) of a dollar, or 1/100ths of a penny. For example, the number 1000 represents a dime, the number 33, about a third of a penny, the number -250, a two and a half cent CREDIT. To charge per minute access, you must use the 'EG' command (edit access group data) from system maintenance, or the access group configuration screen of the system utilities program. The "$/Mn" option (per minute access) works the same way as the other charges (in 1/10,000 of a dollar) except it MAY NOT be a negative number -- you may not credit users for access to the system. The maximum value for per minute access is 9999, which is $0.9999 (very close to $1.00).

In order to track each user's 'spending' and 'savings', each user's account is given a BALANCE. The RANGE for a user's balance is from -$49.99 to +$49.99. When a new user logs on, his balance is set to $0.00. To manually alter a user's balance, you must use the 'A' (account edit) command from system maintenance, or the 'E' command while reading feedback or new user information. The balance here is represented in CENTS (1/100 of $1.00). Give a user a balance of 2500 to represent $25.00, or a balance of -50 to represent a balance of -$0.50. Remember that the balance must be within -4999 and 4999 at all times.

One other thing -- in order to restrict the extent to which a user's balance may drop below zero (be negative), you may specify a MAXIMUM DEBT ($Dbt) for each access group. This option appears on the access group configurations screen (the EG command here, or with system utilities). $Dbt, like the balance, is measured in CENTS. $Dbt may only be positive, from 0000 to 9999. A value of 3400 represents a maximum debt of $34.00 (a minimum balance of -$34.00). Because a user's balance may not drop below -$49.99, a $Dbt setting of anything above $49.99 will still allow a user to 'spend' until that debt value on a given call to the system, but after he signs off, his balance will be re-set to the lowest value, -4999 (-$49.99). Also, if credits are accumulated above $49.99, the balance will be limited to 4999 ($49.99). This may be useful if you want to run the accounting system, but never actually RESTRICT the user from access.

If you are charging a user for access to your system (per minute access is not 0), access time to the system will be restricted if the user doesn't have enough money in his account. In addition, before a user is able to perform any function with a CHARGE attached to it, his balance will be examined. If he hasn't enough money, that function will be denied. A user may display the amounts that you are charging (or crediting) him for each system function by using the 'AC' command from the main level. The 'T' command, will, in addition to displaying the time and date information, display information about the users balance and charges. Here, the per minute access charge is given for the user's access group, and the charges that have been incurred for this call due to this charge. A composite total of charges and credits for all of the other system functions is given in a value 'other charges'. The access charges and other charges are summed to produce a 'cost of this call' value. Taking these charges into consideration, the user is then informed of his remaining balance. In addition, he is given his maximum credit ($Dbt) value, telling him how far below $0 he may spend.

You may, of course, actually use this system for money -- add money to a user's account when he sends you a check or something. However, the entire accounting system may simply be used as a type of CREDIT system, where the credits are in units of dollars and cents. When used as a credit system, the possibilities for control over user activities are endless!

For example, if you wish to allow an access group to be able to download exactly 6 blocks for every block that he uploads, with no 'free' blocks at all, simply set that group's per block uploaded CREDIT to -600, and per block downloaded CHARGE to 100. Also make sure you don't allow a DEBT value (set to 0000). $0.06 is credited when a block is uploaded, and $0.01 is charged when a block is downloaded. You may set these charges and credits to tenths or hundredths of a penny, but remember that the user's balance will be rounded to the nearest penny when he logs off. If you want to give the user 10 'free' blocks to begin with, for this example, set the $Dbt value for his group to 0010 ($0.10).

Many other relationships such as this one may be established through the accounting system -- post a certain number of lines in the BBS before downloading so many blocks, upload so many blocks before being able to use so many minutes worth of time in the P-files section, etc. Be creative!

- ELECTRONIC MAIL SUBSYSTEM -

10.0 ELECTRONIC MAIL SUBSYSTEM

The electronic mail (e-mail) subsystem is C-NET's inter-user private message exchange system. A flag in an access group's configuration controls access to the e-mail subsystem.

10.1 MESSAGE NOTIFICATION

Entering the e-mail subsystem, the user is told how many messages there are waiting for him/her in each mailbox. If there are any messages in the In-Box they are unread and considered new.

10.2 MAILBOXES

C-NET 128 V7 electronic mail uses a mailbox scheme for storing and organizing a user's mail. Each user is allocated an In-Box as a receptacle for new messages, a Sent Mail folder to save messages for future forwarding and an Archive to store messages received for later reference. There are various options depending on which mailbox you are currently in. But the entire e-mail system is broken down in to 2 levels; a main level and a reading level for each mailbox.

10.3 PERSONAL ADDRESS BOOK

Each user may create his/her own Personal Address Book of frequently used e-mail addresses. Both Local and Network addresses may be stored in the Personal Address Book.

10.4 THE MAIN LEVEL OF MAILBOXES

From the main level of any mailbox the following commands are available:

?	Call up the help menu for Electronic Mail
I	Switch to In-Box (if in Sent Mail or Archive mailbox)
S	Switch to Sent Mail (if in In-Box or Archive mailbox)
A	Switch to Archive (if in In-Box or Sent Mail mailbox)
L	List messages in current mailbox
N	Read message #N
C	Compose a new message
SF	Compose a new message with a file attachment
Q	Quit to the BBS

10.5 LISTING MESSAGES

To obtain a list of the messages a user has waiting for him/her, the 'L' command is used. E-mail messages are always displayed in the same order in which they were received.

10.6 READING MESSAGES

To read any specific message, simply enter its number at the MAIL prompt.

10.7 OPTIONS AFTER READING A MESSAGE

10.7.1 RESPONDING TO A MESSAGE

NOTE: This command is only valid in the In-Box or Archive mailbox.

To respond to the message that you've just read, use the 'R' command at the <MAILBOX>-READING prompt.

You will be given the option to "Quote text?" This allows you to include selected lines from the original message at the beginning of your reply. If included, the quoted lines are preceded by a '>' character for easy identification.

The versatile C-Net text editor (see section 16.0) is used to enter your reply, just as it was used to create the original message. If you quote text, you can simply append your response to it, or you can insert your comments to follow particular quoted lines. The convenience of the quote

text system makes it unnecessary to return the whole message with a reply.

10.7.2 FORWARDING A MESSAGE

To forward a message you have just read, use the ‘F’ command. You will follow the steps of composing a new message as outline in section 10.8. When your message is sent, the body of the message you composed will appear on top, separated from the message you are forwarding on the bottom.

10.7.3 DOWNLOADING AN ATTACHED FILE

If there is a file attached to the message you are currently reading then the “D” command will become active on the menu. If you select the “D” command you will be shown the filename and type of the attached file and will have the option to change the current download protocol, abort the transfer or begin the download. If you abort you are brought back to the READING LEVEL of the current mailbox for the current message. If you select to change the current protocol you will have the opportunity to select a new one from the possible alternatives (New Punter, X-MODEM, X-MODEM CRC, X-MODEM 1K, Y-MODEM or ASCII). If you select to begin the transfer the system will tell you when to start receiving the file. After a successful download will be brought back to the READING LEVEL of the current mailbox and the current message.

NOTE: The attached file is not deleted until you exit to the MAIN LEVEL of the current mailbox. Also you should note that attached files cannot be saved to the Sent Mail or Archive mailbox.

System Operators in LOCAL MODE can specify a filename and file type for download but must manually copy the actual file to the E-MAIL DISK for the recipient to download.

10.7.4 ADDING AN ADDRESS TO YOUR PERSONAL ADDRESS BOOK

10.7.5 ARCHIVING A MESSAGE

After you have finished reading a message you can hit the RETURN key to go back to the main level of the current mailbox. Before leaving the READING LEVEL the system will prompt you to archive the current message.

WARNING: All In-Box messages that are not archived are DELETED! Also if there is a file attached to the message it is deleted as well.

10.8 COMPOSING A PRIVATE MESSAGE

To send e-mail to another user, use the ‘C’ command at the MAIL prompt. The system will request either a handle or a user ID number to send the message to. After you have addressed the message you will be placed in the C-NET Editor where you will compose the body of your message. When you have finished writing exit the Editor with the period S command.

Next you will be prompted if you would like a Return Receipt.

After answering “Yes” or “No” to the Return Receipt prompt the mail is sent. You will be prompted it you wish save the message to your Sent Mail

folder. If you answer “Yes” an exact copy of your message is saved to your Sent Mail folder for later review or forwarding. Otherwise, you are returned to the main level of the current mailbox.

10.9 SENDING A FILE

The flow of Sending a File is basically the same as Composing a message except after you are prompted for a Return Receipt you are then placed into upload mode.

In upload mode you are basically supplying the system with the necessary information it needs to receive the file.

You will be prompted for a “Filename to Attach?” After the filename the system will ask the file type; “S” for a sequential (text file) or “P” for a program (binary file).

Next you will have the option to select and upload protocol, abort the transfer or begin uploading. If you abort you are brought back to the MAIN LEVEL of the current mailbox. If you select to change the current protocol you will have the opportunity to select a new one from the possible alternatives (New Punter, X-MODEM, X-MODEM CRC, X-MODEM 1K, Y-MODEM or ASCII). If you select to begin the transfer the system will tell you when to begin sending the file. After a successful upload your file and message will be saved to the E-MAIL DISK on the system to await download by the recipient.

10.10 DELETING MAIL

The ‘K’ command may be used to delete all of your messages. Any specific message may be deleted by appending a message number to the end of the ‘K’ command. For example, the command “K 1” would kill message number 1.

10.11 ELECTRONIC MAIL MAINTENANCE

System Operators may access Electronic Mail Maintenance by going to System Maintenance and selecting the “EC” option; Electronic Mail Controls.

There are currently two options available in Electronic Mail Controls; E-Mail Configuration and Pack Up E-Mail.

10.11.1 E-MAIL CONFIGURATION

Before anyone can use Electronic Mail in V7 the E-Mail Configuration program must be run. E-Mail Configuration allows the system operator to define which specific options he/she wants allow his/her users access to. Following is a list of the configurable items:

```
Enable/Disable Electronic Mail    Ability to shut down the entire e-
                                  mail subsystem.
Allow/Deny Return Receipts   Can users request return receipts or not.
Allow/Deny File Attachments  Can users send file attachments
Message Limits
In-Box Limit     How many messages are allowed?
Sent Mail Limit  How many messages are allowed?
Archive Limit    How many message are allowed?
Allow/Deny Personal Address  Can users have Personal Address Books?
```

Allow/Deny Net Mail Can users send mail over the network?

10.11.2 PACKUP E-MAIL

To pack up the mail, means to redo the relative file that the e-mail is stored in. As users write e-mail and delete the mail, sections of the relative file become empty. By using the 'P' command, you rewrite the relative file into a smaller file. Some caution is advised however, as sometimes the e-mail may get scrambled.

One last thought on e-mail, when you set up your BBS system, put the e-mail into its own partition. Remember that the e-mail file is a relative file. The file grows as required. Sometimes, the file may encroach onto another file and you can get some real weird things happening.

11.0 USER LIST

Using the user list system, you are able to perform a search for a very specifically defined group of users, list account data in tabular form, or simply display a list of handles.

11.1 OUTPUT ORDER AND TRANSVERSE DIRECTION

Searching and listing of accounts can be performed in either alphabetic user handle order, or in user ID number order. Alphabetic handle order searches and listings cause C-NET to have to jump all around the user data file according to the alphabetic order of your user's handles -- THE BORDER, then THE BOSS, then THE BROTHER, etc. To perform an ID number order search or listing, C-NET merely has to move through the user data file in a sequential manner -- account number 1, then 2, etc. If you are searching your entire user base for an end list of matching accounts that is anticipated to be very small, ID number searching is generally much faster and easier on the disk drive than is alphabetic searching.

You also have an option to move through (transverse) the data in either ascending or descending order. Descending order will search and list in DECREASING ID number order or alphabetic handles order.

11.2 QUICK LIST

You are given the option to perform a simple 'quick list' by selecting 'Y'

at a prompt “List handles & ID’s only?”. This type of searching and listing is generally much faster than a normal search because only the handle of each account is read from the disk and displayed. If search restrictions are set for the search, the quick list’s speed benefits are lost, however, because C-NET must again examine entire user records to see if restrictions are satisfied.

11.3 SEARCH RESTRICTIONS

You may set search restrictions on a listing to find specified characters within a handle or real name, access group, computer type or area code. Only system operators may set restrictions on characters in the real name and access groups. A very elaborate combination of these fields may have restrictions set upon them will be displayed to pick from. Press RETURN when asked for another restriction variable to end the ‘set’ of restrictions.

A search may consist of several ‘sets’ of search restrictions. An account is matched and displayed if it matches the restrictions set in ANY one of the search sets that is specified (an OR condition). When you do not wish to specify another set of restrictions, press RETURN when you are asked if you want “Another set of restrictions?”.

Any given set of restrictions will only be matched if every variable component of the set is matched (an OR condition).

Each variable of any given set may have one or several possibilities of text to match because you may set multiple restrictions on the same variable of any given set. Each restriction of the same variable in a given set is taken as an OR condition.

With this ability, it is possible to search for such combinations as:

```
                (SET 1)
ACCESS = 5 OR ACCESS = 7
                AND
AREA = 313 OR AREA = 517
       --   OR   ---
                (SET 2)
ACCESS = 1 OR ACCESS = 2
                AND
NAME = TOM OR NAME = JIM
```

11.4 WHERE THE SEARCH BEGINS

If the search is by ID number order, you must specify a user account number to start listing or searching from. If the search is alphabetic handle order, you must specify a handle to begin listing or searching from. For example, entering ‘D’ would begin with users whose handles begin with ‘D’, entering ‘THE’ would begin with users whose handles begin with ‘THE’, etc.

11.5 THE LISTING

Before the search begins, the set restriction information is summarized. Once the search has begun, user information is displayed across the screen in tabular 80-column format if the user’s defined column width is anything less than 80. The ID number, handle, last call date, phone number, access (under the A column), computer type (under the C column), real name, and

birthdate are displayed. If the user performing the search is not a system operator, and a user whose account is being displayed has selected that he is private, the phone number will only display the area code, and the real name and birthdate will not be displayed at all. ONLY system operators will be able to see the access group at all times.

The search ends when either the end of the use data file has been reached or the user hits the space bar or the '/' key. When the search is finished, the user is returned to the main command level.

12.0 G-FILES AND P-FILES SUBSYSTEMS

C-NET's G-files and P-files systems use the same command structure, so will be discussed together in this chapter.

12.1 LEVEL COMMANDS

A Add an item to the list. When you choose to add a new item to the list, you'll be prompted for a title. Secondly, you'll be prompted if this is a new subdirectory, then a short description, and if the entry is a program file, next to allow word wrapping, and line inserts, then a date to when the file appeared, a password, lock out time, so that a user cannot read/run the file until a certain amount of time has passed, access groups, age requirements, to lock (close) a file, and what disk, and device the file is located, and to put this item in last, or alphabetically.

Ex Edit an item on the list. A user with P-file/G-file maintenance privileges can change any of the above data that was entered when first added.

Kx Kill an item on the list. A user with P-file/G-file maintenance privileges can delete an item from the list by using the command 'K' followed by the number of the entry he wishes to kill.

S/L Scan the available items. Shows the files available to the user. A user with P- file/G-file maintenance privileges can see all the files available.

Xx Move a file from the list to the bottom of the list. By using the 'X' command followed by the number of the entry he wishes to move, the user can move files around, top to bottom.

N Read about the new file. This command lets the user read a SEQ file that the SYSOP must install that can detail a new file, or give instructions.

V List with Access Requirements. Usually a directory is shown without access requirements this lets a user with G-file/P-file maintenance privileges see what the actual access requirements are for each entry, works similar to the 'S' command or the 'L' command.

- Read the G-file/P-file execution log. This log simply shows who accessed what, and at what time. The option to restart the log is

prompted when the log has been completely read back to a user with G-file/P-file maintenance privileges.

Z Edit the entry file for the current area, or subdirectory of an area. The entry files are displayed to users as they enter the area, unless their help levels are set to “expert”.

12.2 SELECTING AN ITEM

An item may be ‘selected’ (G-files read P-files ran) by entering its number from the list of items at the command prompt.

12.3 ADDITIONAL COMMANDS AVAILABLE IN G-FILES/P-FILES

In addition, many other commands, which are listed under the main menu, are also available here. These include: Chat, Feedback, Help, MSend, STatus, and Time.

12.5 G-FILE AND P-FILE MAINTENANCE HELP

As with much of C-NET you are able to control many aspects of each system/subsystem within the BBS. The G-files/P-files are no exception to this. You are able to control how long a user must be on-line, to how much to charge (if using the accounting system), and just about anything in-between. For this reason, some of the prompts for the files editing system need a little explaining.

First, if you want a particular access group to be on-line for at least ten minutes before playing games, you may code each type of game (e.g., role-playing games). To do this, just edit the DIRECTORY for those games, and the user will not be allowed into that directory until he has been on-line for ten minutes. This is for all of the games in a directory. You may elect to allow users to play SOME games, but not others. Those that you wish to ‘lock’ for a time, must be edited individually.

You may also elect to keep a game from an access group until you get it fully tested on your system. This is exactly the purpose of the Date prompt. Just as you would ‘predate’ a news file, you may also do so with a game or G-file. Simply enter the number of days you would like the game to not appear in relation to the CURRENT date, and that game will NOT appear to your users (unless that user has G-file/P-file maintenance access).

You may elect to have a game alphabetized, or not when adding it. This feature allows you to keep those games that you would like to appear first at the top of the list, and those you aren’t quite as concerned about can be just about anywhere. You may elect to have a game at the bottom of the list, this too can be accomplished by transferring it to the bottom.

12.6 G-FILES - ON-LINE STORE EDITING

One of C-NET’s abilities (also Multi-Net’s), is the ability to process orders for products and services that you or an associate can provide. For this reason, there is a P-file on your original master disk entitled ‘prg.Order Here’, whose purpose is to process orders taken by C-NET.

Multi-Net is capable of transmitting these orders to another node in the network, using its powerful mapping routines. It is done by simply adding

that item to a network order list.

To enter an item for the On-Line Store to process, you must first have an entry in the G-files, explaining about your product. To have the On-Line Store process each order, it must reside in the same directory as your product. Simply add the item as you would any other entry in the G-files area, only the description must follow a special format. Below is a sample entry in the G-files On-Line Store:

```
##    Title                Date       Description
1.    C-Net 128 v6.0   21-Mar-92  $89.95, (5.05), #1, Mar 30, 92
```

The description is the key to making the On-Line Store recognize the item. First, you would want to put the price for the item, appending it with a comma. Secondly, add the amount of shipping and handling (if any), again followed by a comma, followed by the weight of the item (the # and then the number of pounds), and finally the date that the item is made available.

You must also have in the directory the entry Order Here, and as you would add any G-file, specify it as a program file, and it will be executed. 'Prg.Order Here' simply 'remembers' what items are in that directory, and will prompt the user on-line for which item he is interested in. The order routine is very uncomplicated, he will be asked for how many, whether his address is correct, and ask for a method of payment.

***NOTE: It is very important that you do not allow a credit card order if you are not able to process this function. It is also NOT recommended that you allow the network to process a credit card order.

12.7 MULTI-NET AND THE ON-LINE STORE

The network looks at the on-line store much like feedback, as that is where the orders get placed, in the 'etc.fback' file. It will send the file to another system under the filename "Nordr.NODE/ ID".

To add a product to the network, as a SYSOP, the program Order Here will ask if you would like to enter the 'editor'. Answering yes will display a list of the items in that directory that you would like to add to or remove from the directory. Simply enter that number from the list. If the item has already been added to the network, it will show you the NODE/ ID of the system where it should go. If it is NOT in the network, it will say (None). To place it in the network to go somewhere, enter the number of the node you want it to go to. For example, if you were to sell something for the system at node 5, simply enter 5 as the destination when adding it to the network.

When you are finished editing the list for the network, simply enter return, and answer 'No' to the 'Enter Sysop Editor?' prompt.

13.0 NEWS SYSTEM

The news subsystem is where all system news files and news bulletins are written and read. All new news messages are automatically displayed to a user as soon as he signs on. Use the 'N' command from MAIN to enter the

news subsystem. Only news files that you have access to will appear as part of the news subsystem. If you are not a system operator, and there are no accessible system news files, you will be told “the news subsystem is empty” and returned to the MAIN prompt. If news files exist, you will be told how many there are, and of those, how many are new since your last call, before being placed at the NEWS prompt.

13.1 LISTING NEWS FILES

Use the ‘L’ command to display a list of news files, the dates they were created, and, if you are a system operator, the access coding and individual message “type” (to be discussed soon) of each. Follow the ‘L’ command with a file number to begin the listing at any specific news file. Messages which have been posted with future dates, and are not yet accessible by any users, are marked with an asterisk (*).

13.2 READING NEWS FILES

To read a specific news file, enter its file number at the NEWS prompt. By appending a news file number to the end of the ‘N’ command from the MAIN prompt, any specific news file may be displayed immediately after entering the news subsystem.

13.3 ADDING NEWS FILES

A system operator may use the ‘A’ command to create a new news file. First, a title and access coding must be selected for the file. There are three news file “types” you must then choose from:

UNAB -unabortable. Answer ‘Y’ at the prompt to have your file “force-read”. When a user reads this file for the first time, he will be unable to press the spacebar to abort it.

RECU -recurring. Answer ‘Y’ at the prompt to have your file recurring. The file will be displayed to users each time they sign on, new or not. The first time it appears, it will be unabortable as well.

NORM -normal. Do not select either of the above news types. The news file will be displayed abortable once when new.

After using the editor subsystem to write the text of the news file, you must select two “date offsets” for the file.

The first is the number of days by which to alter the “posting” date. Simply pressing RETURN here will use today’s date as the date of creation for the news file. Entering a positive number (in days) will hold the news file invisible to users until the specified number of days has gone by. You may instead enter a negative number to have it seem that the news file was created any number of days in the past.

The second offset may be used to specify the life span of the news file in days. Simply pressing RETURN here will cause the news file to remain indefinitely until it is killed, section 12.4). Entering a positive number (of days) will cause the file to be automatically deleted (by automaintenance, section 17.0) after that number of days from TODAY’S date.

13.4 KILLING NEWS FILES

To remove a system news file, use the 'K' command followed by the news file number. Only system operators may remove files.

13.5 EDITING NEWS FILES

By using the 'E' command followed by the news file number, a system operator is able to change anything about an existing news file. First, the title and access coding may be changed. By pressing RETURN when asked for either a new title or news access coding, the old value is retained. Next, you must select again if the file will be force-read or recurring. You may NOT press return here to retain old values -- what you enter will replace the file's previous "type" status. Then, the editor subsystem may be used to change the file's contents. After exiting from the editor, you then have the option to reset the dates (post date, and auto-delete date) of the file.

-THE MESSAGE AND FILE BASES -

14.0 THE MESSAGE AND FILE BASES

C-NET's filing system uses a subdirectory system, which makes possible a large number of subboards. Each subboard list may contain a maximum of at least 40 subboards, some or all of which may be subdirectories. There are two separate "base" areas, the UD Base and the Message Base. There is one special type of UD Base subboard, the "direct exchange" which will be discussed later in this chapter.

Each message base may contain up to 232 posts, and a total of 718 messages (posts and responses). Each UD Base may contain a total of 143 files.

Entering the Base or UD Base, you may optionally add a subboard number, or path of subboard numbers (in the case of subdirectories) to the command to move immediately into a particular subboard. For example, to move immediately to the 5 subboard, type: 'B5', or to move to the 3rd, which is a subdirectory, and then to the 6th subboard in that subdirectory, type: 'B3;6".

14.1 ESSENTIAL COMMANDS

If you wish to simply read the next item, you may press RETURN at any time. When all items have been read, reading will begin again from the beginning. All commands that act on an individual item will default to the previous item read, unless an item number is specified following the command. Here are the more important of the Base commands:

R n Read an item and its responses, if any. First, the "header" of the message will be read, consisting of the name of the author (or uploader), the date the item was created, and an optional "to" heading. If the item is a file, additional information such as the length of the file, its last download, number of downloads, and estimated time of download will also be displayed. If responses are enabled for this subboard, a prompt "End of item option?" will be displayed following the reading of any item.

Most of the commands listed below are available from this prompt (About, Download, etc.) in addition to several others, namely:

P n Leave a private message for the author of response #n (just entering 'P' will allow you to post a message only).

R Respond to the item. See the Post command below for some of the message options. One item that is not mentioned in the Post command (because it can only be done when responding to a post), is the ability of C-NET to allow the user to quote the text of the sender. One thing that should be noted, is that with v6.6S,

the user should only quote a maximum of 10 lines of text. When you use the 'R'
command, the first question that you will be asked, is if you wish to "quote text".
By using the 'Y' command, the program will load up the text of the sender so the
user can edit the quote that he wishes to comment on. The quote option cannot
be disabled, however, you do not have to quote the text. If you do not wish to
quote text, then use the 'N' command. Users with sysop access, can use the 'A'
command to quote ALL the text and then using the Visual Editor, edit the quoted
text and response.

P Post a new item. This command is only active on a subboard which allows messages. You will be asked for a title, and depending on various privilege and subboard flags:

(1) If you would like to address this message to a user. The benefit here is that the user you address the message to will be informed of its presence at logon. The message is NOT automatically a private one. Others can still read it.
(2) If you would like to use an alias. With proper access, you can write a message under an alias. The message bases will NOT allow you to enter a users handle that is presently on the BBS if you choose to use a different handle. If you have several accounts for the system operators, this might be a handy feature for you.
(3) If you would like the message to be private. If the subboard is so configured, you may leave "private" messages in the public message area. Only the intended recipient of such messages will be able to view them. In the case of a file, only this person will be able to download it!
(4) If you would like the message to be anonymous. The subboard must allow anonymous messages, and the user must have the access to leave anonymous messages. Someone with "trace anonymous" access will be able to view the name of an anonymous author, having a "*" placed beside his name to signify his intentions.

D n Download an item's file. If an item has an attached file (in the case of a files only
area, they probably all do), this will allow a user to request to download a
particular file. Such a request may be denied for MANY reasons, including not enough time, not enough credits according to either the byte ratio or the file ratio, time-of-day restrictions, the item is private, and others - the appropriate condition will be reported to the user. If all is OK, the user may be given several options before actually commencing the transfer, such as changing protocol, etc.

Credits are subtracted ONLY if the transfer was successful, in full. If an item is marked as a free download (see the 'Y' command), no credits or accounting will be altered. When a user is a system operator, or a sub-operator of a particular board, credits or charges will NEVER be subtracted for downloads from (or uploads to) a file area.

U Upload a file to the system. When the subboard allows files, a user may use the 'U' command to send files to the system.

UM For Punter and Ymodem, this will allow the user to upload MULTIPLE files to the system at once. The user's terminal program must support this feature.

Note that when a file is unvalidated, either because it was uploaded to a subboard which requires validation, or a description was not provided, credits for the file will NOT be awarded until these conditions are each met.

RN n Read all NEW items (beginning at item number, normally 1). Items will be displayed that are new since your New Items date. New responses to old items will also be displayed. SN (scan all subboards) is a variation of this command.

SE Search items for occurrences of text. This feature will search text messages for several specified text strings. The search is NOT case sensitive. You will be prompted to an item number, or 'A' for all items, or 'G' for global (all subboards accessible from the current list of subboards).

Q Quit back to the MAIN prompt.

14.2 MOVING AROUND THE BASE

L List available subboards. Along with the list of subboards, the messages DWN" (meaning the subboard is closed, see the 'EL' command), and "DIR" (the item is actually a subdirectory, housing more subboards) are printed. In order to move from one subboard to another, it is only necessary to enter that subboard number (from the list of subboards) at the prompt.

>or< Move to the next or previous subboard according to their order on the list of available subboards. '>' moves you forward and '<' moves you back one.

? If inside a subdirectory, this command will immediately return to the listing from which that subdirectory was chosen. That is, in the

'path' of subdirectories you chose to arrive where you are now.

B/UD If you are in the UD Base, UD will simply read the subboard information (see the maintenance section below). If you are in the message base, UD will transport you to the UD Base directly, bypassing MAIN. The same holds true for the 'B' command. In the Message Base, this will read the subboard information. In the UD Base this will transport you to the Message Base.

P Move directly to the P-files area, bypassing MAIN. See the maintenance section to select a default P-file path to move to.

J n Join/drop a subboard (which subboard, defaults to the current subboard). When a subboard is 'dropped', all commands which globally process (such as Read All, Search Globally, and others) will skip "go around" dropped subboards.

VI View the name of the sub-operators. If you have designated individuals to be 'sub-operators' for a particular subboard, this command will list these people. See the 'EL' command for information concerning adding sub-operators.

M Mail to a sub-operator. Again, the View list will be displayed, and a prompt will be given to choose which one of the sub-operators you would like to leave mail for. Generally, it is desirable that users leave the sub-operator messages concerning his subboard, instead of leaving them in general feedback.

+ or - Forward, reverse read direction. Normally, the order of reading messages and scanning their titles is in the "forward" direction, from 1 to 2, to 3, etc. The - (minus sign) command can be used to reverse this, reading from the newest (highest numbered) to the oldest. '+' (pus sign) will restore things to normal.

WU n Write to the uploader of file number n in the UD Base.

AR Read the list of archived files in the UD Base.

BL Display the number of free blocks on the UD Base subboards drive.

14.3 SELECTING ITEMS

*n Select or unselect an item. This option simply adds an item to a list of 'selected' items which may be operated on as a group. If an item is again selected, the effect is actually to 'unselect' it. Note that a selection request may be denied for the same reasons that a download request may be.

SS Scan selections displays the list of selected items so far. A summary is displayed of the total number of items, their length in bytes, and estimated download time.

DS Download selected files. If you are using a batch protocol (Ymodem or MultiPunter), this command may be used to transfer all files at once. As a file is successfully transferred, it is removed from the selection list so that transfer may be resumed if ever it is interrupted.

*C Clear selection list resets the selection list. Note that selecting to Download a single file using the ‘D’ command, or uploading will automatically reset the selection list.

14.4 OTHER COMMANDS

ED n Edit the contents of a Post in the message base.

N n This command is equivalent to the Read command with the exception that only New responses will be displayed. If there are no new responses, this command is completely equivalent to the Read command.

E n Examine an item’s contents. You will be prompted as to whether you’d like an ASCII or a Hex display. Only text files meant to be read (typed) may be displayed legibly in ASCII.

K n Kill an item. A system operator, or a user with the proper privilege flag set may delete any file or item. In addition, a user with the proper privilege flag set may delete his own files and messages. At this time, individual responses to an item may not be killed.

When a file is killed, an option is provided to be able to “remove” upload credits that were given for a file. Credits subtracted in this way will take effect the next time the user calls.

Y n Edit item’s attributes. Using this command, a system operator (or sub-operator) can mark any file with any of several flags, or edit parts of its header.

F Free download. Credits will not be subtracted, and charges will not be made for such a file.
P Protected, Auto-maintenance will “skip” this file, even if it is “old”.
R Response disabled. Only system operators will be able to respond to this item.
S Sysop favorite. When a user reads this item “sysop favorite” will be displayed.
N Re-name the item.
I Change the short description of a file.
D Change the date of an item.

A n About an item. This provides a simple tabular list of all users who have written responses for the item, along with the dates of these messages.

W n Write file info after upload. In the case of a batch upload, and the user misses his chance to add descriptions to his uploads immediately after the upload (ran out of time or simply aborted the process), he may use this command to “go back” and provide the descriptions necessary to receive credit for his uploads.

Note that in addition, many other important commands which are listed on the main level menu are also available here. These include; Chat, Feedback, Help, MSend, Off, Status, Time. See chapter 6 for a complete list.

14.5 MAINTENANCE COMMANDS

AL Add a subboard to the current list of subboards. Note that it is necessary that you NOT be “within” a subboard at the time you use this command. You MUST either be at the BASE or UD BASE prompt, or just have entered a subdirectory. You will only be prompted for a title -- what you’d like to call it. Note that ALL subboard titles must be unique, regardless of whether they are members of subdirectories or not.

If you wish to edit any one of the many other subboard configuration options, you must use the ‘EL’ command.

AO Adopt orphan files. When you first configure your C-NET BBS, or anytime after that point, you wish to add new files into the list of items for a subboard, you may do so with this command, and the proper privilege flag set. First, copy the file(s) into the subboards directory, then select the command. After asking for a filename pattern (press RETURN for all files), C-NET will prompt you with the files on the directory (that aren’t already part of the subboard). It will then allow you to select whether you’d like to add them.

V Validate a file. This command provides that last step for a subboard on which you require validation. Once all of the requirements are met for file validation, credits will be added to the uploader’s account.

MO n Move an item to another subboard.

KL n Kill subboard from list (you must specify which one). In order to use this command, it is necessary that you not be “within” a subboard, but rather at the BASE, UDBASE, or a subdirectory prompt. All files contained within the subdirectory for this subboard will be erased, including the subdirectory itself. If you wish to save any files, you must copy them out first!

EL n Edit subboard (which subboard, defaults to the current subboard). This command can be used to change many of the subboards options. These include:

N The name of the subboard. C-NET will attempt to rename subdirectory files if the location of the subboard is the default UD BASE or BASE location.
L The location. If you change the location, you are responsible for the creation of whatever subdirectories you specify. See the AL command.
S Sub-operators. You may specify up to 5 sub-operators per subboard, each having complete maintenance access for that area. This includes unlimited u/d ratios, validating files, providing descriptions for files, and killing files.
B Board type. A subboard may be file transfer only (u/d’s),

messages only, "static" meaning that no one can post or upload, or RPG, and NET (see chapter 18).

P Password. If you select a password for your subboard, a user must supply the password each time he wishes to enter. System operators will have the password displayed to them when they enter the subboard.

E Entry access. The list of access groups which may enter the subboard.

W Write access. The list of access groups which may upload to post on the subboard.

Y Youngest age in years of a user to be able to enter this subboard.

O Oldest age in years of a user to be able to enter this subboard.

I Inactive days. This determines the number of days that a post may go un- responded to, or a file may go un-downloaded before it is automatically deleted by auto-maintenance. Files that have been "protected" are excluded (see the 'Y' command in the last section).

C Closed. You may temporarily close the subboard for maintenance operations. Note that system operators and sub-operators are always allowed entry.

V Verification. If you select that you wish new uploads to require validation first before other users may use them, you will need to use the 'V' maintenance command to validate new files. Users will not be given credit for files unless they are validated. A user privilege exists which override this for his uploads in the access group setup.

DE Storage status. Using this "storage status" system of the subboard, the subboard operator is able to control exactly how many disk blocks his subboard will occupy. Disk space here is measured in "lines" (a line here is not necessarily analogous to a line in the editor -- it may consist of 1-80 column line, 2-40 column lines, or even 40-2 character lines.). In the case of message bases, this "storage status" may expand as required for new messages (such as is the case for networked message bases). That means that if you have set the size of a networked subboard to say 2000 lines, if the subboard needs more room to post new messages received from a network call, the subboard will expand in increments of 200 lines.

For each subboard, a MAXLINES setting specifies how many lines maximum a subboard may contain (each 100 lines in MAXLINES is approximately equal to 33 disk blocks). A second measure, LINES USED, tells you how many lines have actually contained text at some point. LINES USED is never more than MAXLINES. LINES USED does not decrease. LINES USED may actually be a misnomer, because USED lines are not necessarily IN USE at all times -- some may currently be DELETED (no longer part of a message) lines. This brings us to a third storage status measure, DELETE LINES, which tells you how many lines out of the LINES USED are not currently occupied by valid subboard message text. DELETED LINES, therefore will never exceed LINES USED. DELETED LINES are now available for new text posts or responses. When a message is deleted, the number of lines that it occupied is added to DELETED LINES. When a message is added to a subboard, it must be placed

contiguously (all together, not part here, part there) in the relative file. Because messages are generally deleted in an order differing from that which they were written in, DELETED LINES may be found in several different places throughout the file, in varying lengths. If two adjoining messages

are deleted from the message base, their lengths are summed as one larger DELETED LINES location. The file measure LARGEST AVAILABLE is simply the largest patch of DELETED LINES among all DELETED LINES. This is important to know since only contiguous deleted space is any use, because a message may only be placed contiguously.

Now, in determining the maximum of editor lines that should be made available to a user writing a message, we have two limiting factors -- the number of “unused lines” (that is, MAXLINES - LINES USED) and the LARGEST AVAILABLE patch of DELETED LINES. If either is greater than 100, 100 will be the limit for the editor. If neither is greater than 6, the user will not be able to write his message, given the error “not enough disk space.” If everything else is still in check, the greater of the two will be used.

To add to the number of maxlines, hit ‘Y’ at the “change maxlines?” prompt.

*NOTE: Max lines for network bases should be set to only 100 lines. This is so C-NET can connect to Commodore 64 based software.

RO Reorganize text. While you are inside a subboard, you may elect to have C-NET ‘pack’ the message base to reclaim space that might otherwise be wasted by a single line or two that would not normally be used. When you use the ‘RO’ command, it will read all the messages that are presently contained in your subboard, and copy them into a new relative file. It will then update the file pointers in memory, and when completed, will advise you of the new storage status of the newly created relative file. You will be responsible for adding back in the original size of the file (if you elect to keep it at one size, and one size only). Also, when you use the ‘RO’ command, you MUST have at least enough empty blocks (on your disk). That means that if your relative file is 1500 blocks long, you must have at least 2000 blocks free otherwise, you cannot use the ‘RO’ command. This applies to both floppy disks and hard drives.

*NOTE: Multi-Net will take care of your networked bases by itself. It will expand the message base on an ‘as-needed’ basis. If, when Multi-Net makes an attempt to install a network message, there are fewer than 100 lines, it will automatically increase the size of the base by 200 lines. This serves two purposes -- it ensures that there are always SOME lines left when Multi-Net is finished, and it also ensures that Multi-Net will be able to install the messages that are received.

Z Write or edit the subboards “entry” file. Entry files are displayed to users as they enter the subboard. The exception is that the user has selected “expert” help level, in which case entry files will be replaced with simply the name of the subboard or subdirectory. The ‘B’ command from the prompt will always display the entry file, however.

13.6 THE DIRECT DISK EXCHANGE MODE

C-NET provides a way for you to operate a subboard which requires no special “adopting” of files in order for them to be used. If you run this subboard on a floppy disk, you are able to directly swap disks in and out while users are on-line, and possibly “trade” with them in this way.

The disadvantage of this type of subboard is the fact that it doesn’t track the uploader’s name with the file (although it still will enter into the logs), or provide some secondary information (long descriptions, number of times downloaded, last download, etc.). C-NET is also unable to use it as a verification subboard, or kill the files during automaintenance. However, the following command variations are made while in a direct mode subboard:

S Scan items will actually read the titles from the disk, and also display filenotes, is available.
* Select will prompt for a file pattern, and prompt for files to select directly from the disk directory.

In addition, such commands as Download and Kill will prompt for a filename to act upon.

15.0 MESSAGE COMMAND INTERPRETER (MCI)

The MCI is used to change the text color in 64 color/graphics mode, create special effects like backspacing, ask questions in the middle of a message, etc. The character that is used to trigger the MCI is the English pound key (the key to the right of the minus key and to the left of the CLR/HOME

key). Outside of the editor system, this key may not be used. Within the editor system, only users with access groups configured to use MCI may hit this key. Only high level access groups and system operators should be given access to the MCI as it is easily over used and misused. These commands can be placed anywhere in the text. The '#' has been used in place of the English pound sign in these explanations. These commands are always used as #Xn where 'X' is a command letter and 'n' is a single digit number.

#a1 Disable the use of the spacebar or the '/' key to abort the current message.
#bn Print number of beeps to the user on-line.
#cn Change the text color display in color graphics mode. (NOTE) You may simply use the CONTROL key plus the color key, or the C= key plus the color key while in CG Editor mode. Programming mode requires the '#cn' command and the appropriate MCI number in the list below:

0	Black	1	White	2	Red	3	Cyan
4	Purple	5	Green	6	Blue	7	Yellow
8	Orange	9	Brown	J	Pink	K	Gray 1
L	Gray 2	M	Lt. Green	N	Lt. Blue	O	Gray 3

On the 128, 8 is dark purple, and K is dark cyan. (NOTE): Not all of these colors show up in ANSI mode.

NOTE: Place a double pound sign '##' in any text where you want the pound sign to be displayed in the actual text.

#dn After a '#t' (test) MCI command, branch to the label number indicated (see the '#mn' command for information about labels) if the test was not equal.
#en After a '#t' (test) MCI command, branch to the label number indicated it test succeeded.
#f0 Move the cursor to the home position (don't clear the screen first).
#f1 Clear screen and Home the cursor.
#g1 Stop printing until a character is pressed. The input will be considered as (an$) for programming, and converted to upper case if necessary.
#hn Will print a specified number of backspaces.

NOTE: The maximum number that MCI will accept is 9 (nine). If more than 9 spaces are required, you MUST issue the command again with the extra spaces added. Example: you want 14 backspaces, you enter '#h9#h5'.
#in Stop printing until a full line in input and return pressed. The line will go into (an$) and will be converted to upper case as necessary.
#jn Jump directly to label specified by a number or letter.
#k1 Turn multi-color on.
#k2 Turn multi-color off.
#l1 Turn the printer on.
#l2 Turn the printer off.
#mn A label mark. This command marks the spot in a message where the cursor must jump to after a '#tn' (test) and followed by the 'J', 'E', or 'D' command. If the 'J' command is used by

itself, there will be a direct jump without a test. See the '#tn" command for the different tests which trigger a jump.

#nn Print a number of blank lines/carriage returns.

#on Toggle the flash mode on or off (1=on 2=off). This only works with true 128 graphics terms. Will not work with ANSI or ASCII modes.

#pn Change the screen print mode to one of the following:

0 - Normal output
1 - Print letter, backspace, then print letter again
2 - Print letter, run 8 spaces out then back space to the letter again
3 - Print letter, backspace over it
4 - Print letter, backspace, print letter
5 - Print letter, run line, backspace, print next letter.

NOTE: These codes cause all sorts of delays, and should not be used in the subboards.

#qn Cancel all MCI codes currently in memory. Return to normal text print.

#rn Toggle reverse video. (1=Rev on 2=Rev off). Only good for a single line of text. Must be entered on each line you want this effect to appear on. A carriage return auto cancels this mode.

#sn Change the screen print output speed. Each number over 0 adds a delay of 1/20th of a second between each character printed.

#tn Used to test variables (tests to be used with the Jump routines and Labels)

1. (an$) Testing for 'an$' must end with an additional pound sign to mark it's end (i.e., '#t1a#' tests for an$ beginning with the letter a, etc.).
2. Access group test. The character following the number 2 will indicate the access group to compare the user on-line with. '@' represents group 0, lower case letter 'a' through 'o' represent the others. Example; '#t2g#EA jumps to label A if the user on-line is access group 7.
3. Sysop access. This is used in menus, etc., to only display commands and such to the Sysop group. Example; System Maintenance commands will not be displayed to the users who don't have that access.
4. Test for true CG mode. Allows you to place color graphics screens and pure text screens in a single MCI file (such as sys.welcome). If the test for CG mode is true, the graphic will be displayed, if not, a jump to a pure text line is possible for ANSI and ASCII users.
5. Test for 80 column mode. Will test the users system for 80 column, and allows a jump to another line if 40 column is in use. Can be used in conjunction with the test for true CG mode to add additional text and graphics or NOT as the case may be.

#un Toggle underline mode on and off (1=on 2=off). Works in true 128 graphics mode only.

#vn Prints out variables currently in memory as specified by the number as listed below:

0. Current date and time.

1. Last call date and time the user was on-line.
2. Handle of the user on-line.
3. Real name of the user on-line.
4. Phone number of the user on-line.
5. The variable a$. Use in programming mode only.
6. The variable b$. Use in programming mode only.
7. The variable an$ when used as the last '#g1' or '#I1'.
8. The variable d2$. Use in programming mode only.
9. The variable d3$. Use in programming mode only.
J. The user's password.
K. The user's current access group name.

#wn Wait a number of seconds before continuing (a delay).

#x1 Exit the message at this point. Return to system from a message.

#y1 Disable automatic word wrapping.

#zn Toggle to the upper case mode. Used when upper case and graphics are required. (1=upper case and graphics, 0=upper and lower case letters)

#^n (up arrow) Move the cursor up number of lines.

#!n Move the cursor down a number of lines.

#<n Move the cursor left a number of columns.

#>n Move the cursor right a number of columns.

#-n (minus sign) Print (number) of blank spaces on the line.

Actually print the English pound sign.

Note that the MCI commands may be placed one after another on a single line and anywhere in the middle of any text. If a branch command is encountered but not taken, the rest of the line after the branch will still be executed.

The MCI commands can not only be placed in messages, but anywhere in the program if you are modifying it. For example, if you are making a routine which requires a four second pause, you can use '#w4' in any output statement.

Following is a sample message containing MCI commands that will ask a user if he is interested in a board event. If he is, he will be asked questions which will be printed to the printer, otherwise the message will be aborted.

```
Hello #v3#w1, I mean #v2!
Are you interested in the board dinner? #g1#t1Y##e1#x1
#l1
I am glad that you can make it #v2.
How many people are you bringing? 3I1
Do you own your own car? #I1
#l0
OK, Thanks again, #v2, a SysOp will be contacting you at #v4...
```


16.0 THE EDITOR SYSTEM

C-NET's text editor is 100% machine language for fast, powerful text entry and manipulation (file proto 7). A maximum number of lines is set for the editor by different sections of the program. For a new user's initial

personal statement, up to 30 lines of text may be entered. For feedback, news files and entry files, 100 lines may be used. For the electronic mail and message subboards, the maximum number of lines is set according to the amount of free disk and file space.

When a user runs out of time while in the editor system, he is not logged off of the system. The system waits until the message is finished, or until the user has not typed a key for the amount of time specified by his access group's idle time.

The editor system works by 'dot commands'. To access as editor command, a user must hit a period (.) at the first column of any line. He will then be further prompted with ">>" after which he may type a command letter, hit backspace, or another period to put a period at the first column. For example, '.' followed by '>' will allow a user to change the right hand margin for text manipulation and shaping functions.

16.1 SAVING/LOADING TEXT IN THE EDITOR

.S is used to save all text.
.A is used to exit the editor as if it were never entered, without saving anything. Attempting to save (.S) from the editor when there is no text to save, or hanging up on the system, is the same as aborting.
.N may be used to start over. This will erase all text that was entered.

The following functions are only accessible by system operators.

.G To read any C-NET compatible file into the editor, '.G' (get) may be used. Follow the command with a filename. The default drive unit is 8. Follow the filename with a comma, then an alternate unit specification if necessary.
.P is used to put the text from the editor into a sequential file. Alternate device specification may be used as with '.G'. Precede the filename with a plus sign (+) to append an existing file.

16.2 SEEING WHAT HAS BEEN ENTERED

.R is used to read the text. Read will print text as it will appear as a formatted message (see section 15.6).
.L is used to list the text. List prints lines exactly as they were entered, except that it will print line numbers before each line and a reverse video left arrow at the end if that line marks the end of a paragraph.
.M is used exactly like read, except text is put through C-NET's Message Command interpreter (MCI) described in chapter 14.

Not specifying a range for .R, .L, or .M will cause all of text to be displayed.

16.3 MANIPULATING TEXT

.D is used to delete lines from text. Not specifying a range will cause '.D' to delete the last line of text.
.E is used to edit lines of text. Not specifying a range will cause '.E' to edit the last line of text. As a line is edited, the original

line is printed, and the user may type the line over, and/or use the CONTROL-U key sequence to re-type the character that is directly above the cursor. If RETURN or backspace is hit at the beginning of an editing line, no change will be made. To abort a range of edited lines, press the period key at the first column to display “>>Exit” then press RETURN.
.K is used to replace lines. What is entered will replace the old lines. If no range is specified, ‘.K’ will replace the last line of text. To abort a replace range, press the period key at the first column to display “>>Exit” then press RETURN.
.F is used to search for a string of characters within text.
.$ is used to search and replace that string. The search and replace commands will not locate text that is broken from the end of one line to the beginning of the next.
.C is used to copy text. This command will copy the selected line range to the end of text, or to the insert point if insert mode is on.

16.4 INSERT MODE

.I followed by a line number is used to insert text before a specified line number. If no line is specified, inserting will be performed at the beginning of text. All subsequent entered lines will be placed at the point of insertion. To exit insert mode, and begin to place lines at the bottom of text, ‘.X’ is used.

16.5 LINE NUMBERS

It is sometimes convenient to be prompted with the current line number before each line is entered. ‘.O’ is used to turn line numbering on and off. When you are in insert mode, a letter ‘I’ will be displayed before the line number.

16.6 WORD WRAPAROUND/TEXT FORMATTING

Word wraparound is on when the editor is entered. ‘.W’ is used to turn word wraparound on and off. When word wraparound is on, a word which will not fit onto the end of a line is automatically brought to the next line to be continued. When it is off, the editor will beep at the end of the line.

C-NET has been designed to automatically format text for the current user’s column width, so as to avoid broken words at the end of lines, regardless of what column width it was written with. To effectively accomplish this, it is necessary that the editor system know where paragraph breaks are. Whenever the RETURN key is pressed in the editor, it is assumed that the user is at the end of a paragraph, and will always perform a carriage return during output. Conversely, all lines which required a word to be wrapped to the next line will be taken as paragraph body and will be printed as to fill the current reader’s column width as far as possible. ‘.T’ (toggle) may be used to place or remove paragraph markers from specified lines.

16.7 SHAPING THE TEXT

.B is used to place a border around the entire text. C-NET will first check to see that there are two free lines for the top and bottom border.

.J is used to justify text. There are five ways to justify text: left,

right, center, expand, and pack. After '.J' is used, 'L' must be hit to left justify text (move to the left border), 'R' must be hit to right justify text (move to the right border), 'C' must be used to center justify text (move to the center of the screen), 'P' must be hit to pack text (remove all extra spaces between words), or 'E' must be hit to expand text (insert spaces between words to align text along both the left and right margins).

16.8 SPECIFYING A LINE RANGE

For many editor commands, such as deleting, editing, justification, replacing, reading, and listing, a line range can be specified. Here is how it's done:

x	line x only
,y	from beginning to line y
x,	from line x to end
x,y	from line x to line y
x;y,z	line x and line y to line z
w,x;y,z	lines w to x and lines y to z

16.9 VT-100 VISUAL EDITOR

A very powerful feature of the C-NET 128 is its VT-100 visual editor implementation. '.V' is used to enter the visual editor. It may always be used in local mode, but may only be used on-line if the caller is using a DEC VT-100 compatible terminal emulator program. Such terminal emulators are available for most personal computers. Once in the visual editor, full cursor movement is possible throughout the document. There are several control code commands available in the visual editor. They are as follows:

Control X Exit the visual editor mode and return to the standard line editor.

Control K Kill the current line and pull all following text up one line.

Control L Insert a blank line at the current cursor position moving all following text down one line.

Control I Insert a single-space at the current cursor position. (Shift INS/DEL from local mode)

Control D Delete a character at the current cursor position. That is, pull text into the cursor. (Hex $FF DEL may be used from remote)

Control H Backspace and pull text back one space, deleting the preceding character. (Most terminals have a BACKSPACE key or INS/DEL from local mode.)

Control R Reprints the current line only to verify its contents or to mend damage caused by line noise.

Control S Clear and re-print the entire screen from the beginning of the text buffer.

16.10 EXTRA EDITOR COMMANDS

If you are in the editor, you may append to text already in the editor by using the following dot command:

‘.G +sys.start’

This command would get your file sys.start off your system drive, and APPEND it to the end of the text already in your editor.

When saving your work as a temporary file, you may use this command structure to append the text you would like to save as well as the text of the original file you wish to append to:

‘.P +sys.temp’

You may log a new disk (or LU) to work from in the editor as follows:

‘.@’

The editor will respond with “Disk:”, you may elect to see the directory of the disk by entering the ‘$’ command (pattern matching is allowed). If you wish to pull text from another drive, you may select it by using the ‘/’ key after the file name you wish to ask for, and before the drive and LU you wish to check, i.e.:

‘.@ $#:sys.?tart /8’

This will cause the editor to look at the directory of LU # for all files that start with sys. and have any character, then the letters ‘tart’ from the disk drive assigned as unit 8.

You may also substitute a DOS command for the directory command ($) in the editor. Scratch, rename, copy, format (n#:), etc., all are valid commands. Using the editor DOS command prompt is very much like issuing its equivalent from the lower case command prompts (as in system maintenance).

*NOTE: Depending on where you got your mods from, the quote mode will be a little different. For the Lt. Kernel mods from Ron Fick, you will be prompted line by line when you choose to quote text. This cuts down on the volume of quoted text.

The sysop can quote the entire text by pressing ‘A’ for all on the first line when prompted “yes/no/quit”.

- MAINTENANCE SYSTEM -

17.0 MAINTENANCE SYSTEM

A flag in the access group configuration controls access to the maintenance system. The maintenance system should be reserved for use by the system operators (sysops) of the system only.

17.1 ACCESS CONFIGURATION

Access configuration here, and in the rest of the system must be entered using a comma/semicolon range scheme. For example:

0,15	all 15 access groups
1,10;15	groups 1 through 10 and 15

2,7;9,14 groups 2 through 7 and 9 through 14
4;9;10;15 groups 4, 9, 10 and 15 only

17.2 SYSTEM COMMANDS

17.2.1 View System Activity Graph (AG)

This feature monitors usage compared to non-usage of the system over the course of the day, broken into 72 20-minute periods. When displayed with percentage along the 'Y' axis and the day along the 'X' axis, one can easily determine the busiest and least busy times for the system. Users may wish to use this information to attempt to avoid the busy signal when calling in. The graph is continually running, and should become smoother as more system time is logged. The graph can be reset to all 0's by resetting the SAM period while in the "waiting for a call" mode. See chapter 3 for more detail on doing this.

17.2.2 View System Activity Monitor (AM)

This will display the screen of information that is normally displayed while the system is waiting for a call. SAM monitors many system activities, through several separate "time frames" of reference -- last call, since setup, specific time period, total, and current.

17.2.3 Edit System Activity Monitor (ES n)

Edit a SAM variable (which variable). If you notice that any one of your SAM 'current' values has become inaccurate, you can manually adjust it by using this command. Use n=0 for feedback, n=1 for mail sent, etc.

17.2.4 Edit Time Restrictions (ER)

The 'ER' command has the ability to restrict by particular access groups or restrict access to the UD area by particular access groups during certain hours of the day. Also, 300 baud may be excluded from either at any hour. To edit the current time restrictions, use the '.' command. Once the screen has been displayed, enter the hour number for AM or hour number followed by a letter 'P' for PM hours. Then, enter strings of 15 0's and 1's -- moving from group 0 to 14, putting a 0 to deny access or a 1 to allow access. Simply press 'Y' to allow 300-baud callers, if desired, when prompted. For example, a value of 111111111111111 denotes all 15 access groups have access, while 000001111111111 denotes that only groups 5 and higher have access, etc.

17.2.5 Re-loads the CN file (RL)

After you make any changes to the CN file in the basic shell, you may elect to have it reloaded into memory using this command in System Maintenance. REMEMBER that the CN file is always in memory.

17.2.6 Time correction (SE).

This will let the operator correct the time and date. If the system is running on a CMD hard drive, the program will read the internal clock of the drive to get the time. If the time is wrong reset the internal clock in the drive. If the time continues to be wrong, then it would be wise to have the battery changed by a technician.

17.2.7 Change the Maintenance Password (SP)

This password must be entered if you are calling from a remote system and have system operator access. You cannot access the SM or and DOS command until you have entered the 'ID' command from the main. REMEMBER this does not apply if you are calling from local mode.

17.2.8 Change System Font (SS(n))
Will select an alternative character font. There are four provided on your original disk.

17.2.9 View feedback (VF)
This will let you read the feedback that users left using the 'F' command. After the file has been read, you have the option to delete the file.

17.3 USER COMMANDS

17.3.1 Edit User Account (EA n)

This will allow you the ability to edit a user's access, password, calls today, total calls, minutes today, balance (cents), Game points, network credits, u/d counters, as well as his custom ratios and privilege flags (see EG for a complete list of these). The basic idea is that you can edit everything that the user can't edit himself. You are also able to kill an account from here.

17.3.2 Edit Access Group (EG n)
Edit an access group (which group). This will allow you to change any of the default values for an access group, including the title of the group. You will be able to edit the following ratios and limits:

Calls per day	:	0 = infinite
Minutes per call	:	999 = infinite
Minutes per day	:	0 = infinite
Downloads/call	:	0 = infinite
Uploads/call	:	0 = infinite
U/D File Ratio	:	0 = infinite. The number of files that one is able to download for every file that is uploaded. Note that if this value is NON-ZERO, a user MUST upload at least ONE file before downloading at all.
UD/Byte ratio	:	0 = infinite. The number of bytes that one is able to download for every byte that is uploaded.
Free Bytes	:	The number of bytes one may download before the u/d byte ratio comes into effect.
Messages/call	:	The number of posts, responses and e-mail one may leave per call. 0 = infinite.
Feedbacks/call	:	The number of feedbacks one may leave per call. No infinite value possible.
Editor Lines	:	A value between 7 and 250, for the maximum number of lines a user may use in the editor.

And the following privilege flags:

Use of the e-mail system
Use of the p-files (on-line games) system

Use of the g-files (on-line text files) system
User list command
MCI level 1 (most commands)
MCI level 2 (sysop or privileged access commands)
Ability to re-logon to the system
Ability to edit personal data (the 'Z' command)
System maintenance (sysop)
Bypass of U/D ratios
Bypass of calls per day
Bypass of minutes per call
Bypass to all time restrictions
Ability to send urgent mail
Ability to Alias when writing messages (use another name as the author)
Ability to 'adopt orphans' -- that is, allow files to be added from the disk into the list of items for an area
Read private messages, if private messages are allowed in your message area
Delete any U/D file
Delete your own U/D files
No inactive purge (will not be auto-deleted by auto-maintenance)
Auto-validate files -- user's files are instantly validated even in areas requiring validation
Write anonymous messages, and then, only if anonymous messages are allowed in a particular message area
Trace anonymous -- ability to see the author of anonymous messages. Anonymous messages are marked with '*' beside the author's name
Ability to leave private messages in the public message areas. This includes private uploads
Forward your mail to their accounts
Ability to write to the wall
Ability to restart the wall.

17.3.3 New Account Creator (NA)
Create New Account. This lets the operator create a new account without the hassle of going through the new user logon.

17.3.4 Reserved Account Creator (RE)
Reservation system. The reservation system of C-NET allows you to assign a pre-authorized access level to desirable new users. A new user with a reservation may enter "RES" at the 'Enter your Handle or Login ID' prompt after which he will be asked to enter his invitation number. If this is a valid reservation number, he will then be asked to enter his temporary re-assigned password (which should usually be his name). If the password is valid, he will then be taken through the normal new user applications, and then be given instant access to the system. The RES system is even available when the Private System option is active.

17.3.4 View System New User Information (VN)
View new user applications. This will read new user applications, and allow you to edit the new accounts as well. After the file has been read, you will be given the option to delete the file.

Each message is displayed beginning with a header, containing the user's name, ID number, real name, phone number & birthdate, and date the message was sent. At the end of each message, there are several one key options

available:

A Again. Re-read the message
R Reply. To write a message to the user in e-mail
S Send. To send the message to any user's e-mail account (your account included)
E Edit. To edit the user's entire account (to delete it, change his handle, etc.)
K Keep. To save that message and go on to the next one.
N Next. Just to go on to the next message (the message will be deleted it the 'Q' command is never used). The default is the RETURN key. If you just press the RETURN key, you will go onto the next message.
Q Quit. Abort and return the system maintenance command prompt - no messages will be deleted. However, you will be given the option to delete ALL the messages if you wish.

17.3.5 Update User Groups (UP)

Updates all accounts by user group with the exception of account number one. Handy if you make a change to an access group as a whole, and then want to update each account. This feature may be aborted by holding down the space bar. It will stop shortly.

17.4 LOG COMMANDS

After each log is read, you will be given the option to delete the log if you wish.

17.4.1 Auto-Maintenance Log (LA)

Read/reset log of auto-maintenance. This file contains information detailing the works of the auto-maintenance function. If files are deleted, or users purged, a note of it will be made in this file. After the log has been read, you will be given the option to delete the file.

17.4.2 System Error Log (LE)

Two types of errors are placed in this file; DISK errors and PROGRAM errors.

17.4.3 Caller Log (LC)

Read/reset log of callers. For every logon or logoff to the system, a note is made into this file. At the beginning of the line is the serial caller number, noting the total number of calls to your system. Because local calls do not count towards this total, a -1 will be displayed for local calls. After reading the caller log, you will be given the option to delete the log. Several various sign-on and signoff methods are also noted in the log. Here's a key:

SON Normal sign-on
REL Re-logon command used
NEW New user
ACB Auto-called back
TIM Ran out of time
CAR Carrier was dropped
ACB Auto-call back failed to make connection
IDL Idle timer ran out

INS Used instant logoff (O!)
SOF Normal sign-off
INF Informational entry to the log

17.4.4 Auto-Backup Log (LF)
Reads log generated by the auto-backup utility.

17.4.5 P/G-File Log (LG)
Log of G-file and P-file activity. Each time a user accesses a G-file or P-file, it is noted in this log.

17.4.6 Upload/Download Log (LU)
Notes will be made to this file detailing the who, what, and where of a file transfer.

17.4.7 Network Activity Log (NL)

17.4.8 New User/Guest Log
Read the master log of new user applications. This file comes in handy when a user goes and changes all of his account information to invalid information and then begins to cause problems to the users and the board itself. You can go back and use the file as a reference to the person's real name, and phone number.

17.5 MAIL COMMANDS

MC Forced mail creation. A forced mail file is a file that is read to a user as soon as he signs on to the system. Forced mail may not be aborted. To create a forced mail file for a user, use the 'MC' command. To remove a forced mail file, use the 'MR' command.

There are four meta-commands that may be used in a forced mail file. Each command used must be placed on a line by itself.

%e Will erase the file after the user has read it.
%o Will disconnect after the user has read the file.
%s Will suspend a user after he has read the file until a specific date. The date should be laced immediately following the '%s' command YYMMDD format, such as 920101 for January 1st, 1992.
%f Will give the user option of leaving feedback before continuing with the rest of the file.

17.6 FILE MANIPULATION

17.6.1 Read a file (RF)
You will be prompted for a filename or path to read. Adding '+p' will force the file read to read a PRG file or '+b' to force read the file as a BASIC file. If the filename has any spaces in it, it MUST be put in quotes.

17.6.2 Write/Edit a file (WF)
You will be prompted for a filename (or path) to edit. The file will be loaded into memory for editing. If you 'abort' the file, you will have an opportunity to delete it altogether. This provides an easy way to edit menus and other text files on-line. If the file does not exist, then C-NET will make a file with the specified filename, and wait for you to enter

your text. When you use the 'WF' command, you are placed into the editor system to type in your text, so all editor commands are used here for editing, saving, etc.

17.7 DOS INTERFACE

17.7.1 Execute DOS Command (@)

Commands to the floppy drive or hard drive are communicated this way. If the command has spaces in it, then you MUST add quote ("") marks to it to ensure that it is issued correctly.

17.7.2 Read Disk Directory ($)

You can specify a pattern by adding '*' or '?' to the command.

17.7.3 Change the current drive (CD d,u)

(I.e.: CD 9,0) changes the default device 9, drive 0.

17.7.4 Move files (MF d,u "*")

Example (MF 9,0 sys.*) specifies that all files on the default drive with the sys. prefix be copied onto drive 9,0. However, before the files are moved, you will be prompted for a 'Y', 'N', 'D', or 'A' for each file. The files on the default drive will be called up from the directory, and each one will need to be answered to before they can be transferred the next drive. This is a good check to make sure that you do not copy the wrong files.

17.7.5 Blocks free (BF)

You can check the free blocks on all drives. C-NET usually checks all the drives for free space during log-off procedures after every five calls and updates the free blocks.

17.7.6 Read blocks free and update to disk (BF!)

17.8 EDITING THE FUNCTION KEY MACROS

Using your text editor, you can edit the file 'sys.fkeys' to change the function key macros. Each line of this file represents a function key, numbered from 1 to 8. For example, create a logon macro for yourself (your ID number). You may define the eight function keys at the top right corner of the keyboard to print any text you desire. This file must contain no more than eight lines, one line for each function key. You may use the arrow key at the top left corner of the keyboard to represent a carriage return. The length of all function keys combined must not exceed 254 characters. You are not required to define all eight of the function keys.

17.9 READING FILES AND TYPES OF FILES C-NET CAN READ

When reading a text file, especially one created within C-NET's normal editor, you may use the following syntax:

```
SM (8,0); rf sys.start /p
```

The '/p' parameter elects that you wish the file be listed to your printer (on-line and ready) as well as to your screen.

You may also use this combination of commands when reading a file:

SM (8,0); rf prg.maint +p /p

This command line will allow you to read the PRoGram file prg.maint as an ASCII dump to your screen, and will also simultaneously list it to your printer.

17.10 MANUAL USER WEED PROGRAM

The program prg.weed has been added to the files. This should be set up in the sysop utilities section of your P-files. Prg.weed is a manual user weed system. This utility allows you to set a weed date (number of days) and go through all your user accounts and choose 'Yes/No' as to delete that user. It also takes care of killing their Email and dating accounts.

The autoweed file in automaintenance does work, but many sysops prefer to handle the weed process manually.

18.0 CONFIGURATION OF AUTOMAINTENANCE

Automaintenance is a very powerful C-NET feature that allows your system to perform several maintenance functions at a specified time during the day. Set this time from the general parameters screen of system configuration (see section 4.3). C-NET will limit callers before this hour to insure that automaintenance occurs at the proper time. Automaintenance must occur each day -- so the file prg.amaint must be placed on your P-files disk or into your RAM expander at all times. The functions that automaintenance performs includes:

1) News file weed. If you selected for news files to be deleted after a specified number of days when you added them, it is automaintenance which checks the news directory and removes old files.

(2) Message base subboard weeds. If any of your subboards have 'inactivity day' settings, automaintenance will search for and remove old posts and old responses to posts from those subboards.

(3) File transfer subboard weeds. If any of your UD subboards have 'delete days' settings, automaintenance will search for and remove old files from those subboards.

Additional automaintenance features that may be enabled by using the 'prg.utilities' menu option to do so include:

(1) User weed. Automaintenance is able to perform a check for users who haven't called for a specified number of days or more, and delete them. A starting account number and an access coding (weed only certain groups) may also be specified.

(2) Display SAM table, with the option to reset the period column on a specific day of the week, or every day.

(3) Display the System Activity Graph, with the option to reset the graph to all zeros on a specific day of the week, or on every day.

(4) Display and delete the call log.

(5) Display and delete the error log.

(6) Display and delete the feedback.
(7) Display and delete the new user information.
(8) Display and delete the main file transfer log.
(9) Display and delete the P-file/G-file reader log.
(10) Validate (COLLECT) a series of disk drives.

If your printer is connected (and powered on), C-NET will print everything that you have chosen to be displayed. In this manner, you may have your call log printed and restarted, automatically, each day.

C-NET will keep a log of everything that occurred during the last automaintenance occurrence in the file 'sys.am log'.

Everything that is displayed will NOT be written to this log. Its purpose is mainly to inform you of deletions (user weeds, message and file weeds) if they are not logged to printer.

18.1 UTILITIES P-FILE OVERVIEW

For your convenience, there is a P-file on your original master disk called 'prg.utilities'. In it, you will find several options available to you for executing any of the commands available in 'prg.utilities'. One way to gain access to the P-file, is to add it to the Sysop directory in your P-files area on your system. Another way to use this program, is to use the 'EX' (execute) command at the MAIN command prompt.

18.2 CREATE SYSTEM POINTERS FILE

Your BBS is set up to find a user either by handle or account ID number. It uses a file called 'sys.pointers' to hold the correlating data between handle and ID number. At times, this file can be corrupted in memory, and may be improperly saved. This will be evidenced by handles not being found (even though shown in the user listing), to 'missing' areas in your user base. To correct this problem, the 'C' command in prg.utilities will re-create this file for you. It first reads all pertinent data from your sys.udata file, and then sorts it to its proper format, then resaves the sys.pointers file to disk. This command is normally not needed, and is not recommended for routine use. Use only if you suspect a problem with your user base.

18.3 PREFERENCES EDITOR

C-NET has many flags that can be set and/or changed to make your BBS more individualized. There are some things that might suit you better than others. For this reason, you may elect to run a 'closed' system, or one that does not accept new users, or you may elect to have the U/D area closed at all times. This function of the prg.utilities is available to edit these parameters and others. Options include:

Sysop in/out — Would you rather have the 'SY' flag default to being on at all times (while still being able to turn it off if desired)?

U/D area open/closed — You may elect to have the entire U/D area closed at all times (if for example you don't have enough space to operate a U/D area).

NW flag on/off — If you wish to have a closed (private) system, you may turn the 'NW' flag on using this option.

Screen Blanking on/off — You can tell C-NET whether to turn on screen blanking at all times (upon bootup) with this option.

Default color change — You may select a new color without having to take the BBS down to change it in the setup utility.

Modem String at Logon — You may send a particular string to the modem when you logon locally (in addition to the in-place off-hook command).

Modem String at Logoff — You may send another string to the modem at local logoff time, in addition to the re-initialization string sent regardless of whether or not the last caller was local or remote.

System 'Line' — The system 'line' is the line that is displayed at the beginning of the E-mail scan routine and again at the end of the list. It is NORMALLY 38 equal signs (=) followed by a carriage return. You may change it to anything you'd like to have. A maximum of five characters may be used.

System Name — You may edit the system name as you would like it to appear to your users. It defaults to 'C-Net 128 v6.0'. Note to programmers: The system name is kept in the variable sn$.

Password mask — You can change the mask for the password character (defaults to '*') to another character if you wish. NOTE: Some of the characters, namely the upper case graphics, will not necessarily be displayed. You may get the upper case character (the shifted letter) of some graphics.

System password — You may also change the system REMOTE maintenance password in the preferences editor.

18.4 AUTO-BACKUP UTILITY CONFIGURATION

For your convenience, a file is included with your C-NET v6.* to allow you to back up essential files automatically during Automaintenance. This command in prg.utilities is available to configure the system so that automaintenance will know what files to copy from what drive to what drive.

*NOTE: The backup should not be made to the same drive number as the one that C- NET is running on. If C-NET is running on drive 8, then the backup should be made to drive 9.

Several filename structures are allowed using the autocopy feature of C-NET. You may select a specific filename, such as sys.udata, or you may specify a group of files by entering just enough characters to flag the autocopy routine to 'tag' all files matching that pattern. For example, you may wish to have EVERY system file copied to another drive. To do this, you might enter a file pattern such as sys.*, which would copy over every file beginning with sys. but would not include such files as menu e1.

You will be first prompted to tell the configuration utility what drive to copy from. Enter the device and LU/drive to copy from. Then you will be prompted for a target device/drive. This is entered the same way as the source drive. Finally, you will be prompted for a file pattern to match.

*NOTE: It is not recommended that you copy from one LU on your hard drive

to another for using the Auto-Backup utility. It for some reason does not like to do this.

When you have finished with the autocopy configuration utility, enter quit, which will prompt the software to ask if you want to save your work in this area. Press the 'Y' key if this is correct, or the 'N' key it not. You will be placed back at the MAIN prompt when the program is finished.

18.5 MESSAGE GENERATOR

The message Generator is new for v6.0. It is a relative file that contains all the messages that the CN file used to have in text. For example, if you do not have the dating area on-line and configured, if a user tries to enter the area, C-NET simply tells the user that the area is not on-line. It uses this message file to tell the user that.

When you first get your v6.*, you should immediately run the Message Generator from the utilities menu, to create all the needed message records that CN will use to tell your users what is going on.

NOTE: Your failure to do this will cause C-NET to not print these messages to your users.

When you run the file for the first time, it will tell you that it is creating the messages, and to please wait. Your drive will run for a few minutes, and you will be placed at a prompt where you can add new records, delete a record, edit a record, or list records.

The most important thing to remember about adding a new record, is that the record number shown is one less than the actual number of records in use. This is because the first record in the relative file is used to hold the highest used record. Therefore, if you wish to create a record, and the number shown on your screen is 30, when you add the record for C-NET to look up to tell your users the message, you will need to add on to it, or have it look at record 31. The format for looking up a record in the sys.messages file is as follows:

```
x=[your number]:gosub [or goto]1515:end of routine
```

This will prompt C-NET to look up record #x in the file sys.messages.

Listing the messages will cause C-NET to simply start at the beginning of the file and display all the messages it contains.

Editing one will allow you to change one of the messages that it already contains.

Deleting one will remove it from the file. NOTE: If you delete a record, whatever line in CN used to pull that message out of the file will cause C-NET to print a null character instead.

```
*******     It is your responsibility to remember what records you  *******
*******     delete.  There is NO map for this file other than the
*******
*******     highest record used.                                    *******
```

Selecting the Quit function will ask if you are sure, and put you at the

MAIN command level.

Restart e-mail is no longer a valid option for v6.*. It will still do everything it says it will, but, your e-mail system will NOT be restarted due to a difference in file structures.

18.6 CALL-BACK VALIDATION CONFIGURATION

Once your C-NET is fully functioning and operational, you may elect to have C-NET help you with validating accounts by calling back your users assigned to the New User access level. To create this file, you should have a list of all the local exchanges that your system can reach. You will first be asked for your area code, and then whether you have tone or pulse dialing. Finally, it will prompt you for an exchange area to dial, and you should enter only the exchanges that are valid for your area.

When you are finished entering exchanges, press RETURN without entering anything, and C-NET will save the numbers file for you. You will be placed at the MAIN command level when it is finished.

18.7 BAD NUMBERS FILE CREATION

Once your C-NET is fully functioning, it is possible to have C-NET restrict certain phone numbers from users trying to 'break into' the BBS. Numbers such as network services, or other dial in services can be entered here to restrict the user from entering them. You might also have your BBS phone number in here so that it won't be entered either.

To create the file, simply follow the prompts that C-NET will ask you to create the file. When you are finished entering phone numbers to restrict, press RETURN. C-NET will save the file and return you to the Main Command level.

- NETWORKING -

19.0 NETWORKING

Welcome to the world of networking! Multi-Net is an extremely powerful, and economical networking package designed with you, the Sysop, in mind. It has many features that make it very simple to operate, as much of the hard work is built-in to the package. First, an introduction to the software, what it can do, and then we will describe what you can do.

19.1 WHAT IS A NETWORK?

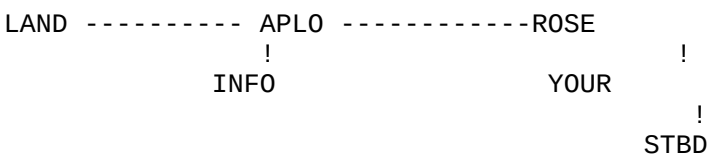
Simply put, a network is a means by which two computers can automatically pass information. It is automated to the point that there need not be a human sitting at either computer, the computer has the ability to 'think' for itself, and based on a variety of possibilities, can come to the desired conclusion.

Multi-Net can do all of that, with both public and private messages. It is fully automated in that it is nearly totally transparent to the user. In fact, your users only need to learn one more C-NET command, and they have mastered Multi-Net. The new command is 'NS' (for Net-Mail Send), to send a private (E-mail) message to another user on another system. Public

messages are posted and responded to in the usual way with C-NET, without the user having to know what system to send it to, or execute a separate P-file, or any other difficult (or awkward) commands.

19.2 NETWORK MAPPING

Using a mapping routine similar to several IBM-style network systems, Multi-Net uses a multiple-branching system of mapping messages throughout its network. Below is a sample of what a typical map might look like. In this map, keep in mind that the system titled 'YOUR' can be your BBS system.



Now, it might seem that it would be impossible to get a message quickly from the system labeled 'INFO' to the one labeled 'STBD'. In fact, it is very simple for Multi-Net to so this, and takes no more time for it to figure out how to get it to there, as it does to get from 'INFO' to 'LAND'. This brief example is merely a reference to show you what a map MIGHT look like if you were to draw one out. It can be as complicated or as simple as you would like it to be.

It is also economical to use, as messages only go to those systems who either the message is intended, or is in the routing of each message. Take again the example of 'INFO' to 'STBD'. The message would never be sent to 'ROSE', as it is not in the shortest path to 'STBD', yet, if it were to go from 'INFO' to 'LAND', it would go no further than those two systems. In this way, Multi-Net is able to keep the cost of sending messages to a minimum.

19.3 NETWORK SECURITY

Great care has been taken to discourage a hacker from breaking into your computer through the network. Using special characters to indicate a Multi-Net call, passwords, and close-tolerant timing, it is difficult to say the least to 'hack' your way into the Multi-Net network.

19.4 COMMON QUESTIONS ASKED

Are there any complicated steps to using Multi-Net?
No, as we mentioned, almost all the guesswork has been taken care of in the network. In this way, you (the Sysop) can enjoy the network as much as your users can by spending more time in your message bases, rather than wondering what went wrong.

Is it possible for the network to 'hang' when calling?
We have taken as many precautions as possible to prevent this from happening, however, it would be impractical (and nearly impossible) to prevent it from EVER happening. It is unlikely that the network would, under most conditions, 'hang' with the modem connected. The receiver would eventually 'time-out' and would break the connection should the sending system hang. In the event that the receiver be the one to 'crash', the sender would run out of time waiting for the receiver to figure out it was being called.

19.5 MULTI-NET SUPPORT

At the present time, there is no network administrator. However, support is available by contacting the sysop (Caped Crusader) at the Batcave in Denver. The phone number of the Batcave is (303)252-0735. Another way to contact Caped Crusader, is email via the Internet. His email address is rfick@nyx.net.

19.6 SETTING UP MULTI-NET

Of the files you downloaded or received on your disk, please note the following filenames, and where they should go:

sys.menu 4
.....Your System Drive
All files beginning with prg.net(filename).....Your P-files Drive

It is important to note that some of your prg.* files will be replaced to incorporate the network (at the present time, all files that are required to operate the network are included in your copy of C-NET v6.* along with the BBS files). We felt that some of the changes to be made were simply too big to be done as mod.files, so we elected to just replace the entire file. There is NO additional mods, or colors added to the new files, and you are free to put those mods and colors back in. Keep in mind the length of the files are a little longer, and you'll have less room to work.

That is originally all you need to do to set Multi-Net up. Next, call the Batcave BBS, and leave the Sysop this information either in feedback, the network application (in the P-files), or in your new user comment area:

1. Handle you use on YOUR BBS
2. Your real name
3. Your BBS name
4. Your BBS number
5. Where you are geographically located (your city and state/prov)
6. A four letter ID that you would like to have your system know as
   (for example, the Batcave BBS is know as CAVE)
7. Your maximum baud rate
8. Your voice phone number (used if we need to contact you).
9. A password for network connections (see 18.7 for more info)

Within a few days, after you advise the Node Administrator that you have the software, and have it installed on your system, you will receive a call from who your 'previous connection' will be (covered later on in this manual). You will receive a file called "Nacti.LLLL/ **" (where the 'LLLL' represents your four letter ID, and the '**' representing your node number). This file is the file that will activate your system onto the network. Once your system is 'activated', you'll be able to set up the remainder of your network node. To activate your networking, you must turn on the flag from your MACS screen. Once that is done, use the 'Commodore Key N' to force a network routine. The "Nacti.LLLL/ **" file will make the

extra files that Multi-Net needs in order to operate.

It would be foolish to think that every one can have the network and not have a long distance connection. There simply aren't enough C-NET BBS systems in North America to support that idea. When you consider having the network on your system, it would be prudent for you to consider the probability of your having a long distance connection. If there are several C-NET 128 systems in your local calling area, it is possible that one could carry the majority of the message traffic, and the remainder of the systems would simply be run off that one connection. Please refer to the end of the network documentation for other suggestions in this area of networking.

19.7 NETWORK MAINTENANCE

Now that we are activated, we can edit your portion of the network. It would be best to start by editing your own system. To do so, enter the command 'NP' at the System Maintenance prompt. Below is a list of the possible commands and a brief explanation of each:

A Is your System Identifier for the network (not to be confused with the two-letter identifier you created in the setup utility). It tells other systems where the messages are coming from, and also contains your place in the network. This is shown for your info only, and cannot be changed.

B System Name: The name of your BBS. This you may change, should you ever change the name of your BBS.

C System Location: Where your system is located, in reference to a town or city. This you may change in the event you move.

D Compile Time: This is the minute after the hour that you wish for Multi-Net to take the BBS down to compile messages. It is not necessary to change this, but, is allowed if you feel the need to. It defaults to 30 minutes past the hour for every hour you wish for Multi-Net to compile messages. One important note here, is that Multi-Net will NOT kick a user off the system to compile messages. Multi- Net will wait until the user has logged off before it compiles messages.

E System Password: This command is to allow you to enter a password that your connections will need to connect and transfer messages to you and beyond (if any systems are 'after' yours). It is suggested that you use a password not related to your system (or any of your connections), and that you spell it out to each of your connections when it is given to them.

F Net-Access: What access groups you wish to have access to the functions of the network. This requires a bit of explaining. Lets assume you don't want access groups 0 or 1 to have access to the network. This means you do not want either of these access groups to have access to INITIATE sending a private or public message through the network. It does NOT mean that Multi-Net will discard any message that is sent to them. Their access to the functions of the network is limited to only responding to messages left to them (with the exception of the public message bases, as you are able to limit their access there through editing each sub-board detail).

G Net-News Parameters: Occasionally, the Node Administrator will send down a news file, or varying subjects, and this is where you will have access to reading it, and whether or not it is recurring, etc., as in the 'normal' news routines.

H System Tagline: At the present time, this option is not used by this version of Multi-Net, however, it is here for future expansion. Please refer to the section dealing with setting up your networked message bases for more information on use of taglines.

1-24 The numbers side of the screen is for setting up what hours you wish to have Multi-Net take the BBS down to compile messages. If you do NOT wish for Multi-Net to compile during a certain hour, type that number to toggle it off. For example, you may not wish to have the network do anything but save messages to its temporary files during prime time hours, and compile the messages going out after midnight. Multi-Net is 'smart' enough to do that, if you wish.

19.8 GENERAL NETWORK COMMANDS IN SYSTEM MAINTENANCE

NL Net Log: Will display a concise report on the activities of the Network, specifically, its calling out and receiving activity. The number of posts/responses, and number of private message traffic, map updates, connect and disconnect times for each system, will also be displayed from this command.

NC Net Connections: This command is rather long, and you may wish to follow with your system running to follow along as each option is explained. The most important thing to remember about your net-connections, is that your previous connection MUST be the first connection you have listed in the 'NC' command. The first thing to do is decide which of your connections you want to edit. Each one is edited the same way, so just which one to edit is not important. For most new systems, this is a moot point, as they will only have one connection to begin with. However, if the network were to expand quickly, then you could land up with as many as four connections. Simply select a connection form the list by number, and in a moment, it will be displayed for you. Each parameter on the edit connection screen is edited by number, with the exception of the right side of the screen (covered soon). If you wish to have another connection there, select option one, and when prompted for a new system ID, enter the 4 letter ID of the new system (or, to kill this connection, enter 'KILL'). The program will ask if you would like to load new parameters for that node. Each of the commands that follow it (numerically) are self-explanatory, and need no real explanation other than the following:

Password: This is the password that you will need to get from the other connections you have, so they will be able to pass messages onto your system. At the same time, the other connections will need your password as well.

Flags: At the present, only three of the twelve flags are used for Multi-Net. The remaining are in-place for future expansion. The first flag is for Sendback-files, or a two way transfer on the same call. This system is designed to help cut costs for all users, and is

recommended to be used by all network nodes. This flag should be turned on.

The second flag is to simply turn off that particular node without having to 'kill' the connection. If the node is an 'active' node (meaning that you will be calling it, or the node will be calling you, then this flag should be turned on.

The third flag is to turn off or turn on the pauq routines. The pauq routines will pack all your N* files into one file for transmission. The nodes that you connect with must have the pauq routines turned on as well. The pauq routines do not have to be used for Multi-Net to work. The pauq routines are contained in Multi-Net v1.9.

A-G Each of the letter commands are to control WHEN Multi-Net will call that particular node. The letter is equal to the day of the week that you are editing (A=Sunday, G=Saturday). It is recommended that you set Multi-Net to call out every day. When the network gets busy, you could have a rather large block of files to download if your system does not call out every day. Also, if another node calls you, you do NOT have to set the call out times for it, as that is done from the other system.

CD: Calls per day. How many times should Multi-Net be allowed to call this system on this day (each day is adjustable)? For a local system (where you do not have to call long distance), it might be beneficial to have it call whenever there are new messages to go out. Multi-Net will not call more times per day than it is allowed to. If the Calls per day are set to zero (0), it will NOT call that system, and conversely, if it is set to 9, it will call every time it compiles and has something to send.

IMPORTANT NOTE: Multi-Net WILL NOT call out if there is nothing to send. Multi-Net must have net mail, or messages to send, or it will not call out.

FH: First Calling Hour Allowed: When Multi-Net begins to pack up messages to go out, it will first distribute all messages to go out to where, and then look at each connection to see if it is allowed to call any of them. Each connection that you might have may or may not be active, at that hour, however, to make the network as fast as possible, we still keep packing the messages whenever Multi-Net is allowed to compile them. If, when it completes compiling messages, it finds that it is allowed to call, it will make three attempts to connect to that system. The 'FC' column holds that hour of the day that will allow Multi-Net to call out. There is a catch to this and the last hour. The hour is during that day ONLY, meaning if you want it to call from 11:00 P.M. until 6 A.M. the next morning, you will have to use 11 PM on the first

day, and as the last hour (LH) you need to use 2400 (or midnight), OTHERWISE, Multi-Net will attempt to call from 6 AM until 11 PM (exactly the opposite). The window you define for each system will need to fit into each day. (RECOMMENDATION: Use 1 AM to 6 AM for your long distance connection windows. It will attempt to call out every hour from 1 AM until 6:59 AM.)

LH: Last Calling Hour: This is the last hour of the day that Multi-Net will attempt to call that particular connection. It is important to remember that it will try to call to the 59th minute of that hour, so, if you don't want it to call starting at 7 AM (for example), remember to set the last hour at 6 AM.

When you are finished editing that connection, entering RETURN at the "Item to Change" prompt will cause the network to ask if you would like to save any changes you might have made. Hit the 'Y' to save the information, and return to the list of your connections to edit more or to exit the editing, just hit the RETURN again.

NB This command is to make a Bridge Connection to anther node that you do not connect with directly. It is not recommended that you use this command, as any messages or net mail that has to go to another node, will pass through your connecting node to the receiving node.

19.9 EDITING NETWORK MESSAGE BASES

Now comes the fun part of setting up the network, namely the networked message bases. It is VERY IMPORTANT that every thing mentioned here is done properly, otherwise, all you will get is a lot of grief. Setting up the message bases is a simple procedure, however, there are items that need to be done one way and ONE way only.

You can get a list of the networked message bases from your connecting BBS. From this list, you can decide which message subs you wish to carry. It is not necessary to carry all of the subs, however, there are two (2) that each and every node MUST carry. Those two message subs are called C-NET and SYSOP2.

Both of these subs carry information for the Sysop of each network node to keep them abreast of what is happening both with the C-NET 128 software as well as what is happening in the Multi-Net. Both of these message subs should only have Sysop or co-sysop access only. These subs are not meant for the general public.

Okay, once you have decided which message subs you wish to carry, you have to add them to the message base using the 'AL' command. Once you have done that, then you must edit each of the message subs, using the 'Eln' command (where 'n' is the number of the message sub you wish to edit). The main difference between these subs and your local message bases, is that when it come time to edit the type of board, you use the '4' to make it a networked board. Once you do that, you will notice that there is more to edit than your local message subs. This is where you MUST do things properly.

For this example, we will use the message sub C-NET as the one we will edit. Each message sub will be edited in the same manner. The only differences will be the connection, the net name, or the access group

levels. One note here, is that you can call the message subs anything you wish on your system. For example, you can call the C-NET sub C-net Information. You DO NOT have to call each message sub the same as the network name.

On my system, I call the CNET sub CNET Updates. It is recommended that you keep you message subs on another LU or drive other than your system drive. The reason for this is that the message subs use relative files, and sometimes they can expand into your program files and corrupt your system. Another reason is that sometimes you can get a corrupt subs file from your connection, and this in turn can corrupt your system files.
Remember this when you are setting up the location (drive and device numbers). The following are the items that you edit when editing your networked message sub along with the commands:

B Board Name: This is the name you wish to call the message sub on your system.

L Location: This is the LU or drive that you wish to have your message subs on. It is recommended that you do not put your message subs on the same LU or drive as your system files. Occasionally the relative files can get corrupted and therefore corrupt your system files.

M Max Lines: This is the amount of maximum lines that users are allowed to use in the message bases.

T Type of board: This is where you use the '4' to make the board a networked board.

P Password: This is the same as the local message bases.

E Entry Access: Once again, the same as the local message bases.

W Write Access: I repeat again, same as local bases.

Y Youngest Age: Been covered before.

O Oldest Age: Covered before.

F Flags: Covered under chapter 3.5.

I Inactive days: Covered in chapter 3.5.

N Net Name: Okay, this is IMPORTANT. The net name MUST be exactly as given to you by your connection. This is how Multi-Net finds where to put the messages that it receives from your connections.

C Connection 1-6:This is where you put in the numerical node number you wish to have this message sub sent to, as well as who you will receive new
messages from. You will be prompted if the connection is '(board name). If it is the correct board name, then you answer 'Y' and that board will be installed as the connection.

S Source Line: Another name for a tagline. You should put something here to identify that the message came from your system. Another reason for the tagline, is that occasionally, some of the message may get cut off, and if there is a tagline, then only the tagline will get cut off, and not any of the message. A typical tagline is either a humorous saying or it could be an advertisement for your system. What you put there is limited to 74 characters (MCI is allowed on the tagline).

Once you are finished editing each of your message subs, hit the RETURN to save the configuration. Continue with each network message sub that you wish to carry until you are finished.

Now, you are set up to start sending and receiving messages. Simple wasn't it?

19.10 SAVING YOUR NETWORK MESSAGE BASE

Just like you would save a non-networked message base, simply hit RETURN at the change prompt, and all changes to the normal and network parameters of that sub will be resaved.

19.11 CHANGING A NETWORKED SUB INTO A NORMAL SUB

Just like you changed a normal sub to a network sub, so would you change a networked sub into a normal one. Simply change the type of subboard to other than a network sub, and it will be removed from the network. If you have no intention of having the sub as part of the network again, you will also have to remove the 'nc.*' file as well. This will be covered in a following area.

19.12 MULTI-NET AND THE E-MAIL SYSTEM

Multi-Net is capable of private E-Mail between two or more systems, and is activated by the ONLY new command that Multi-Net incorporates into C-NET, the command 'NS'. To send e-mail to another system, the user must enter this command, and C-NET will prompt the user for the handle of whom the intended receiver is, and what system he is trying to send it to. To get the message to that user without any sysop intervention, he must have these parameters correct, else the message will be put into a 'deadmail' file. This will be handled in a future version of Multi-Net.

If a user would like to send a message to the Sysop of another BBS, he may address the message to 'SYSOP' and it will AUTOMATICALLY go to the sysop of the destination system. If you wish to send the same mail to another Sysop in the network, you will be prompted for this. Just use the 'Y' key to send the same mail to the next sysop.

19.13 THE FUTURE OF MULTI-NET

Multi-Net is a full-fledged network package for C-NET, yet, it is not limited to its present form. There are a multitude of changes that could be made to make it faster, even more reliable, and a more envious package for other BBS systems.

A new item that is being worked on at the present time, is the formation of CommNet. What is CommNet? CommNet is a network of all the different software programs that run on the Commodore 64 and Commodore 128. At the present time, CommNet includes C-NET 128, Image, DS2 and Color 128. CommNet at this time is still going through growing pains, but with luck will be on-line full time.

19.14 WHAT HAPPENS WHEN THE NETWORK RUNS

The conditions under which the program net-assemble runs is varied and dependent on two conditions:

1. A net call is made to your system
2. Net-assemble is allowed to run (its hourly check set up by you in System Maintenance).

For the purpose of this portion of the manual, we will assume that the network will find a file for every portion of the BBS that is supported by the network.

The very first thing it looks for is the file 'net.connect'. This file is the one that tells Multi-Net that there are networked boards in the system and what and where these boards are.

The next file that Multi-Net looks for is the 'Nstrt.LLLL/ **' (where LLLL is the net letter ID of your system, and ** is the numerical ID of your system). This file is an update to the network node list. Multi-Net will automatically update the node list if this file is found.

The third file that will be looked for is 'Nmail.LLLL/ **'. If Multi-Net finds this file, the net mail will be distributed to the users on your board. NO mail for other boards will be in this file. If there is mail for a down line connection, it will be in its own file.

The next file that Multi-Net looks for is 'Nnews.LLLL/ **'. This file is a network news file that was discussed earlier. Any network news sent by the network Administrator will be here, and distributed to your news files.

The fifth file that Multi-Net looks for is the 'nt.*' files. These are the temporary files that are generated by the message subs. Multi-Net will compile these 'nt.*' files into a

'Nsubs.CCCC/ **' (where CCCC is the four letter ID of your connection, and ** is the numerical ID of that system) file for sending to your connecting board. Once these files have been compiled, Multi-Net moves on to the next step.

The next step in the process, is to check for any 'Nsubs.LLLL/ **' files. This file is the message subs file. If this file is found, then Multi-Net will go into the sub distribution routine. Here, Multi-Net will break the main file down into the ones that can be distributed to your message base. These files will have a prefix of 'nr.*' (such as nr.CNET). Multi-Net will then take these 'nr.*' files and distribute them to the proper message base files.

The next step in the network process, is for Multi-Net to look for a 'Nmaps.LLLL/ **' file. If this file is found, the network map will be automatically updated. Generally, the only time you will receive one of

these files, is if there is also an ‘Nstrt*’ file, as the two go hand in hand.

The ninth step is to look for ‘Nordr*’. This file is for ordering things from network nodes that are commercial nodes. At the present time, this file is not used, as all the nodes are message nodes only.

Now comes an important one. Multi-Net looks for the file ‘Nfback.LLLL/ **’. This file is for network feedback to the Sysop of the boards. The network administrator generally sends this. It can contain things such as notices of network violations (to be discussed later) and other items of importance.

The eleventh step is to look for a file called ‘Nlist.LLLL/ **’. This file is an update to the BBS list file. When you add board names to your BBS list, they form into this file and can be sent to other boards in the network. The same is true with all the networked boards. That way, your BBS listing is not just local.

Now there are only two steps left for Multi-Net to do. The second last step, is to look for a ‘Nsend.’ file. This file is made by your system if there is any messages, BBS listings, or net mail to send out. When Multi-Net gets to this step, it will look for anything to send, and if there is something to send, it will make a ‘Nsend.CCCC/ **’ file. That file is the last step in the process.

Once Multi-Net finds the ‘Nsend.CCCC/ **’ file, it will check to see what connections you have, and if it is allowed to call out. If it is not time to call out, then Multi-Net will respond with “before/after times” or “no calls allowed”. However, if it is time for your system to call out, then Multi-Net will attempt to connect with your connection.

There you go. Just what happens when Multi-Net goes through its routines. Very simple and very automated. You CANNOT stop Multi-Net once it has started its network routines.

19.15 NETWORK GUIDELINES

As with many functions of the BBS, your personal tastes, and the respect for other systems, this chapter will help you in determining what should and should not ‘go out through the network’. At the end of this chapter, are what you can expect to have happen should any of these guidelines be disrupted.

First, let’s go over some of the dos and don’ts:

In any other than an adult message base, there will be NO profanity. There may well be an occasional ‘damn’ or two, those can be tolerated To a degree, however, there will be NO hard-core profanity at any time in a public message base that the majority of your users will see.

Messages should not contain inflammatory remarks regarding sex, color, race, religious beliefs, national origin, etc. You just never know who is going to be on your BBS as far as a user goes.

‘Graphic Handles’ should be kept to an absolute minimum. Some users have long and lengthy handles, and while they look nice, they just tend to get

expensive to send out from system to system. Remember that one of Multi-Net's features is its cost-saving ability.

Absolutely NO copywritten software will be transferred through the network. This is a violation of Federal Law, and is not THAT difficult to determine where the file originated. C-NET mods, games, etc., aren't a problem as long as it doesn't get out of hand. The ability to send program files has been added to send out updates without the need for everyone to call out and get it.

One of the Message Bases available for ALL Network Sysops is net-titled 'SYSOP2'. This sub is primarily for BOTH Sysops *AND* Co-Sysops. The reason this sub was originally created was to have a forum to discuss problems and offer suggestions to improve the network (either technical or user related). If your Co-Sysop has access to this sub, he or she may post and respond as they see fit.

And under the 'Do' heading:

Encourage your users to participate in the network. There will be LOTS of messages floating around the network (most of the systems we have had in the network tend to produce upwards of 60 messages per week. 60 times 10 systems is a lot of messages).

Promote the network to other C-NET Sysops. Be honest with them, telling them what you like about Multi-Net, and if there is something you don't like, tell them that, too (and tell the net administrator as well).

Try to resolve a problem with another BBS between yourselves first, if you don't get the desired results, then bring it to the attention of the Network Administrator.

Finally, the 'Punishment list':

Most punishments will take the form of the following steps:

First offense: A letter of reprisal will find its way to your E-Mail Box telling you what is originating from your system isn't tolerated, and an urging to cease. If it is an abusive user, you will be advised to send that user mail to cease. If that user in your opinion is abusing the network, you should remove the network from that user before it gets to this point.

Second offense: Your node in the network will be closed for a week or two, depending on the severity of the abuse.

Third and last offense: (Is that a hint or not?) Your permanent removal from the network.

Any and all questions may be directed to the Network Administrator.

19.16 MULTI-NET v2.0

C-NET V7 uses a modified form of v1.9 called v2.0. 2.0 has Swiftlink/Turbo232 support and has been cleaned up.

Okay, version 1.9 of Multi-Net is now out and working. Soon to be released

will be version 2.0. v1.9 is the same as v1.5, however, the coding has been cleaned up so the programs run faster. As well, pauq routines have been included as explained under flags in section 18.8.

****NOTE****
You do not have to run the pauq routines for v1.9 to run properly. The one time that you should use the pauq routines is if you call your connection long distance. By sending only one file, you save a little bit on long distance charges.

Another nice touch with Multi-Net v1.9, is that everything is done in a windows environment. It also makes it easier for the sysop to see what is happening while the board goes through it's network routine.

You can now send program files over the modem to another node. You use the 'NX' command to do this. Generally, other nodes ask that you keep the size of the programs down. REMEMBER that the other nodes are paying for the long distance charges.

The network routines are the same as with Multi-Net v1.5 with the exception that the very first and last thing the board does, is either un-pauq or pauq the files. Other than that, everything is done in the same manner.

Another nice touch to Multi-Net v1.9, is the ability for the sysop to abort a callout. If you have to abort a callout, just hit the 'ESC' key. The 'ESC' key must be pressed for each of the three tries that the board will try to make before quitting the callout.

Multi-Net v1.9 works faster as well as in prg.net-trans, the computer quits looking for connections after it sees an up arrow (^) in the file net.connections. With version 1.5, the computer would continue to look through ALL the nodes before deciding there was only one or two connections.

19.17 ADDED PROGRAMS

There have been a few P-files added to the main files that can assist a sysop in the performance of his duties. One of the files that have been added is called prg.net-dist. This program file will look at your networked message bases, and send a copy of your connections to a specific networked board. At the present time, The Northern Outpost is the board that carries and compiles a master list of all networked message bases and who carries which ones. That does not mean that you contact The Northern Outpost to change the message bases that you carry. It only means you send a copy of your network bases to that sysop.

The program works this way: First off, you run the program, then you set the parameters by using the 'P' command. That will be the person and board you want to send the file to. The handle you use is 'sysop' and the network node number is '11'. Then you use the 'S' command to send the file. That is all there is to it. Easy as pie.

Another file that has been added is prg.net-easy. This program will allow you to check and fix any problems that may arise with your net.Subs file. Any time that you make a change to your networked bases, you should run prg.net-easy to double check that there has not been any corruption of your net.Subs file. The program is menu driven and self-explanatory.

As other programs are written to assist a sysop in his/her networking, these will be added here.

- C-TERMINAL -

20.0 C-TERMINAL

For added convenience, the C-NET BBS is equipped with a built-in terminal program. To activate the terminal, you must be at the waiting for a call screen and press the ESC key, which is located in the upper left hand corner of the keyboard. The message “Loading C-Term” will be displayed, and soon the C-Term main menu will appear.

To ‘log’ a different drive other than 8,0 (or the first drive logged at the waiting for a call screen), enter the number that is displayed immediately after the red ‘>‘ character. For example, if you have 5 drives, numbered 8,0 to 8,4, to change to 8,1, you would enter the number 2 (it would be the second drive in the list.

You may change your on-line baud timing (even if not logged onto another C-NET 128!) using the familiar BT command. It will also work even if you ARE on another C-NET 128.

You will also be told how many bytes presently occupy the buffer area, by noting the number next to the letters BU.

20.1 CONTROL IN TERMINAL MODE

While inside C-Term, you have the following commands available to you. Note that ALL commands in the terminal mode of C-Term require that you hold the ALT key down as you press each of these keys:

C Turns the Capture buffer on and off. You must exit the term to determine how much buffer space you have used (C-Term is able to support approximately 20K of buffer space).

E Toggles the Echo mode. When you are in terminal mode and on a BBS, everything you type (normally) is echoed back to you. That means that normally, you cannot see what you are typing if you are not connected to a BBS, but rather are connected to someone else’s terminal software. You may enter Chat mode by typing the ALT/E keys, so that you can see what you are typing to another person. If you are connected to another BBS, that BBS will automatically return what you type to you so you would type the ALT/E combination again to turn off the echo.

X Exits terminal mode to the C-Term menu, then you use just the letter to activate any menu commands.

B Toggles the baud rate from 300-1200-2400 operation.

T Toggles the terminal mode type. There are three modes to C-Term. They are ASCII/ANSI (color is automatically interpreted), C/G mode (which is a normal C/G mode, meaning that all color changes/cursor movements are executed), and lastly there is CG+ mode (which works similarly to C/G, but it usually does NOT interpret the color

changes/cursor movements).

D Toggles on the download function. Allows downloading of files and programs from another BBS.

H Hangs up the phone line.

20.2 OTHER PARAMETERS

C-Term has other optional parameters (O from the terminal Main Menu) which include:

I Input Linefeeds. (Required or automatic). This feature applies only to the ASCII/ANSI terminal mode. Some ASCII systems you call may expect your cursor to move to the beginning of the next line when they send your terminal a carriage return, that is, linefeeds are assumed AUTOMATIC. Other systems however, only expect your cursor to move to the beginning of the SAME line, when carriage return is sent, so they go on to send a linefeed to actually move your cursor down to a new line. In the later example, linefeeds are 'REQUIRED'.

O Output linefeeds (sent after carriage return, or not sent). If output linefeeds are enabled, a linefeed character will be sent to the system that you are connected to after each carriage return has been sent.

20.3 DISK OPTIONS

As disks are sent to a work drive inside the BBS itself, so are commands sent to a logged drive while in the term. To change to a different drive while inside C-Term, you must only enter the number next to the drive that you wish to select, or work with. These drives are read in while C-Term is setting up for use, and are listed in the order shown on your 'Waiting for a Call' screen.

Some of the highlighted commands are:

$ Directory of logged drive (pattern matching is available).

@ Send a DOS command to the drive (i.e., s#:filename, r#:newname=oldname, etc.).

RF/WF/MF Read file, Write file, Move file between drives available. Reading a file will NOT cause it to be sent over the modem.

20.4 SELECTING FILES

To pre-select files for multi-uploading in C-Term, use the 'SF' command at the main menu. It will prompt you for a file pattern initially, use as many characters as needed to select as many files as needed. Once you have finished selecting that file pattern, you may continue to select file patterns by answering 'Yes' to the 'Use previous selection List?' and the 'Append Previous list?' prompts. It will prompt you again for another file patters. It is important to note that this routine will NOT 'remember' where you selected the file from, and that if you elect to select from a different drive than the one currently selected, it will clear the list. If, after selecting files, you change to a different work drive, and do NOT

select any files, it will cause C-Term to upload an empty file.

20.5 CAPTURE BUFFER

A terminal buffer allows you to capture data to a place in memory for later saving and retrieval. C-Term is able to support approximately 20K of storage (or roughly 20,480 bytes). Enter 'CB' from the Main Menu to pull up C-Term's buffer menu. The options include:

Toggle open/close: Just as you may open and close the buffer while in C-Term with the ALT/C command, you may also close and open the buffer from the buffer menu. To open the buffer means to allow the computer to 'remember' what the modem is sending it.

Clear buffer: Erase the contents of the buffer. WARNING!! Once the buffer is cleared, it is NOT recoverable.

Save buffer to disk: The captured text may be saved to disk as a program (prg) or sequential (seq) file format.

Load buffer from disk: This will allow you to load a file from disk into the capture buffer. It is useful to load a file into memory, such as a long message, and 'printing' it to the modem after loading.

Print buffer: When the capture buffer is displayed, the option is given to send the file simultaneously to the modem. This is useful to send a message received from another system. While the capture buffer is being displayed, output may be paused (using the CLR/HOME key or Control/S keys), or aborted (using the spacebar or the '/' key).

Edit Buffer: This command loads a text file into the editor buffer so that it may be edited. A couple of restrictions apply; the editor holds a maximum of 250 lines -- anything past that if 'saved' using the editor '.s' command will be lost. Also each line is limited to 78 characters -- anything past that will be cut off, or forced onto another line. C-Term uses the same editor system as C-NET does, so therefore, the 'dot' commands work here.

20.6 PHONEBOOK/AUTODIALER

C-Term is able to house up to 39 of your most frequently called numbers, each with a name, number, baud rate, wait time to connect, last call date, and what form of translation to use (CG, CG+, ASCII/ANSI). To enter the autodialer, enter 'AD' at the main menu. A short menu of options will appear, to either Add, Remove, Save, Dial or Quit back to the main menu.

To add a BBS to the phonebook, enter the 'A' command from the second menu. You will be asked for:

- A name for the BBS to remember by.
- The maximum baud rate of the BBS (remember, do NOT exceed the maximum baud rate YOU support), up to 2400 baud.
- The translation you would like to use, C/G, CG+, ASCII/ANSI mode.
- A pre-defined amount of time to wait for the BBS to get you connected to the BBS (generally 20 seconds seems average for a local system, while long distance BBS's usually average 45 seconds for a connection).

You are also allowed two macros per entry in the list, they are assigned to the F7 and F8 keys. One might be good for your Login ID, while the other could be used for your password.

Finally, you will be prompted for a phone number to call the BBS with. If it is out of your area code, you do not need to insert a '1' (for long distance), however, if it is a long distance connection within your area code, you will need to add the one to the autodialer. Also, don't forget that now things have changed a little, with the long distance companies, you now have to add the area code whenever you call long distance, even if the number is in the same area code as yours.

When you are finished adding the BBS's to the autodialer, pressing any key NOT listed will return you to the main menu. To dial a number you have entered, enter the 'D' command to dial, where you will be presented with a list of the first ten choices to dial. To dial a number shown, you may enter the digit in the ones column, or you may 'cursor' down to it using the '+' and '-' signs, and you may also optionally 'select' it into a batch of numbers to dial. If you wish to dial the one number, place the white cursor bar on that BBS and enter the 'D' key. To abort the call in progress of any BBS you are dialing, press the spacebar.

NOTE: Pressing the SPACEBAR during a 'multi-dial' will cause C-Term to abort dialing ALL the numbers you have selected.

Once you are connected to a remote system, C-Term will beep at you a few times to alert you to the connection, and move to terminal mode at the specified baud rate.

21.0 TECHNICAL INFORMATION

The information in this section is provided for any user interested in making modifications to the C-NET program, or just to better understand how it all operates.

21.1 PROGRAMMING TIPS

Here are some tips for 'safe' C-NET modification and application programming:

1) Before you begin, define your variables on paper, their purpose, and check with the BASIC variables chapter to insure the safety of their use.

2) Memory is not an infinite resource, especially on the 128. As a general rule, the size (in blocks) of the CN file added to the size of your largest program file, plus 84 should not exceed 245. Unexplained 'hangs' will occur if this rule is not adhered to!

3) Attempt to avoid infinite loops. Specifically, this means you should somehow account for the chance that the user will simply 'hang up' during a GOSUB2100 (input) or GOSUB2200 (get one character), C-NET immediately returns control to BASIC, with an effective input of null (" "), or chr$ (1 (RETURN)) for GOSUB2200. If your routine loops around waiting for the user to enter either 'Y' or 'N', for example, the program will loop without escape. If you must have an input (RETURN isn't enough) for a default of something, giving AUTOMATIC fall-through for user-hang-ups, you must then insert a check for a carrier. This is done as follows:

```
10 GOSUB2100:  IF TR%=0 THEN 30
20 IF AN$ <> "Y" AND AN$ <> "N" THEN PRINT "TRY AGAIN":GOTO 10
30 ........
```

Actually, if you FORGET this protection, C-NET will automatically break out of the infinite loop after seven iterations. This, however, results in a "can't continue" error to be logged by C-NET. The error line number will ALWAYS be 2102 or 2202. Therefore, from the log alone, it is not possible to determine exactly where the infinite loop occurs in the program.

21.2 MEMORY MAP

This is how memory is utilized in the Commodore 128 version of C-NET:

RAM BANK 0

$0000 - $03FF	C-128 usage
$0400 - $04EF	C-NET 'm4.0' file
$04F0 - $05E9	C-NET Editor Paragraph Markers
$05EA - $05EE	UNUSED?
$05EF - $06E9	C-NET Editor Direct-Color Entry Codes
$06EA - $06EE	UNUSED?
$06EF - $07FF	C-NET usage
$0800 - $09FF	BASIC usage
$0A00 - $0AFF	C-128 usage, however, in practice it has been observed that $0A60 - $0AFF may never be changed during normal C-NET operation. Free for modification use?
$0B00 - $0B3F	C-NET variables usage, maybe some free location scattered

throughout here!
$0B40 - $0B9F C-NET Editor temp string work area
$0BA0 - $0BFF C-NET Editor current line color codes
$0C00 - $0DFF C-NET RS-232 I/O Buffers
$0E00 - $0FFF C-NET 'm2' file
$1000 - $10FF Function Key Information
$1100 - $12FF Graphics/Music Area. Since these features of the 128 are unused while running C-NET, it is possible to use this memory for your own purposes. With the exception possible of $1100-$1130, and $1200-$1221 which may also be used by DOS.
$1300 - $1BAF C-NET 'm3' and its future expansion
$1BB0 - $1BFF C-NET Printer output buffer (80 bytes)
$1C00 - $37FF C-NET 'ml'
$3800 - $53FF C-NET 'proto' files
$5400 - $F4FF C-NET 'cn' file, and one 'p-file'
$F500 - $FDDF C-NET 'uds.o' or 'subs.o'
$FDE0 - $FFFF C-128 usage

RAM BANK 1
$0000 - $03FF Always the same as Bank 0
$0400 - $0BF0 C-NET 'sys.pointers' file
$OBF1 - $0FFF C-NET relative file directories (del.email, and the first part of subboard header files.....)
$1000 - $57FF C-NET subboards and U/D header file
$5800 - $FEFF Normal BASIC Variable Usage
$FF00 - $FFFF C-128 Usage

21.3 PEEK AND POKES COMMANDS

Here's how some of that memory is used by C-NET, through BASIC by the use of PEEK and POKE commands. For example, POKE 231, 11%-1 will set the right border of the output window to the user's line length setting (less 1, because screen measurements include 0), and PEEK(7518) can be used to see whether the checkmark is set next to the on-line function "U/D" etc

Memory address	Usage
47,8	Pointer, start of BASIC variable
51,2	Pointer, end of BASIC arrays +1
125,6	End of BASIC stack (reset during error trap)
135,7	# of bytes transferred upload/download, also used to count position in SEQ when reading it from RAMEX
138,42	Other protocol counters
141	Status word for Kernel I/O
174,5	Pointer; program end (of last load)
198,9	Bank # for load/save, and filename
208	Index to keyboard buffer queue
229	Upper border of window
231	Right border of window (user line length)
236	Current cursor position, column
254	Communication location for several ML routines
512	After upload/download, =1=aborted
991	Overflow marker of FAC1 (reset at error trap)
1036	Is status window on? 19=yes, >19=no.
1264	Editor's paragraph markers (250 bytes) 1=CR pressed
1280	Used by Punter during file transfer

```
1304            ....This too, probably the 'block length'
1309,10         ....Punter stuff again
1775            Storage for 56577 location (to put modem on-line)
1776            Storage for LD$ (so ML can compare date) (11 bytes)
1787            Modem type (1=1650, 2=Hayes, etc.)
1788            Minutes on-line this call
1789            # of files in the RAM expander
1790            Connect baud rate - 3, 12, 24, 96=local mode
2584,5                RS-232 index to the start/end of the input buffer
2816            User's minute per call
2817            User's call per day
2818            User's allowed minutes at idle before logoff
2819            User's allowed number of files to download
2820            User's allowed number of files to upload
2821            User's upload/download ratio
2822            User's allowed public messages per call
2823            User's allowed minutes in the p-files/day
2824            User's allowed feedbacks (by access group)
2825            User's allowed editor lines (by access group)
2826            Number of feedbacks user has left so far this call
2827            Number of minutes user has spent in p-files this call
2828            Number of files uploaded this call
2829            Number of files downloaded this call
2832            Wait for call rate - 3, 12, 24
2833            Hour for amaint (military)
3598,9                Vars, last 51, 52 values
7168            More? mode, 0=no
7169            Current # of lines printed since last More?  or input
7170            Flag:  N was pressed at the More? prompt
7261,2                Baud rate constant for ML, 7262=1=2400 baud
7263,4                Starting address for p-files
7265,6                Starting address for proto file loads
7267            0 or 16, carrier detect 'inverting' register
7268            Local mode, 1=yes
7269            Color/graphics mode, 1=yes
7271            Chat 'page' flag, 1=on
7273            Time still remaining on-line (same as tr%)
7276            For input, maximum # of characters to accept
7278            For input, return code, signal chat mode
7284            Length of ML a$ in storage (7286)
7286            84 bytes storage for ML's copy of a$
7376            Length of ML an$ in storage
7377            84 bytes for ML an$ (used for inputs, etc.)
7462            User's number of screen rows
7465            Flag: file is being read from memory, not disk
7507            User's time zone.  Signed, $ff=-1, etc.
7511  10 bytes flags for the 'on-line functions menu'... 7511=Sysop is in,
                7516=New Users Disabled, 7517=Print is on, 7518=UD
                disabled, 7519, 7520=U1 and U2.
7523            DoMCI flag ... 0=Print MCI, 1=Input MCI, 1 or the other!
7524            Cursor color ($lf selects flashing white), this register
MAY no                        longer be used in 4.0 or 5.0!
7525            For MCI: print mode
7526            For MCI: cmp flag (=1 if last  /t1 worked)
7527            For MCI: printer is on flag.
7528            For MCI: last command.
7529            For MCI: last command's argument.
```

7531 Internal flag, print TAB spaces.
7533 Wordwrap flag, return immediately from line input?
7543 The current 6 digit date (in BCD), so 01 12 03 89 12 42 is Sun 3- Dec-1989, 12:42 a.m.
7555 Terminal buffer, flag =1=open.
7558 Current date in 11 digit format
7596 Flag, user has sysop access (for the MCI Test during file reads..)
7604 Flag, linefeeds 1=Yes.
7608 Flag, ANSI mode 1=Yes.
7612 Flag, file abortion has been disabled (using /al).
7616 Default RGB coding for the default color.
7620 Default color (0 to 15)
7632 Password mask ($2e normally ".") ... here it is! Poke this with an ASCII character value to change the password mask character!!
7687 Scrtbl, 256 bytes for screen output translation.
7943 Tratbl, 256 bytes for Commodore to ASCII translation.
8199 Rectbl, 128 bytes for ASCII to Commodore translation.
8410,1 Upload block counter (signed, $ff=-1), and flag for change, after you do 'on-line credits changing'.
14339 For editor, number of lines maximum.
14340 For editor, number of lines maximum-1.
14341 For editor, right column.
14342 For editor, access flags (Sysop, MCI, etc.).
14343 For editor, device for reading sys.menu 3.
14345,6 For editor, pointer to base of TT$(1) array.
14347 For editor, number of lines coming out, going in.
56328,31 System clock, may be read to figure time for downloads, etc.
56577 Data port (RS-232) for testing carrier, DTR hang-ups.
56579 Data Port (RS-232), set which bits input/output.
62720 Start location of the 'subs.o' and 'uds.o' files, used to see if one's already loaded.

21.4 BASIC SYS COMMANDS

This chapter details each of the BASIC SYS commands found throughout C-NET. For example, SYS4894 will cause the Chat Whistle to ring. Headers are also provided to show the files in which the various routines are located. Where appropriate, the input and output of the routines area is also noted.

SYS #	DESCRIPTION	FUNCTION
0		The BASIC variable "0" should be permanently set at the value 7171, to output the contents of the variable a$ to the screen and modem (GOSUB40 also).
	NOTES: input:	lp=1 ... Carriage Return after output. mw=1 .. Allow abort anywhere in input.
	output:	rc=1 ... SPACEBAR was pressed. sh=47 .. / key was pressed.

1024	Savescreen	Go to 24 line screen

1027 Restorescreen Go back to 19 line screen
1030 Savecursor Save current cursor position. v4.0 uses the BASIC cursor to draw everything. so must keep track of where it goes back after writing in the status window, etc.
1033 Restorecursor Restore last saved cursor position.

-- m2 --
3584 Directory Disk directory, after open 2,8,0,"$"
3590 Putvars Marks which variables are currently in memory so that next Flush (4919) can wipe out any new ones.

-- m3 --
4864 Alphafind Find the pointer position of a given ID within the sys.pointers.

input: p1%=id to location
output: p2%=the pointer to match the ID.
4867 Alphainsert Move the pointer file up one position to make room for a new pointer.

input: p2%=the pointer position.
4870 Alphadelete Remove the pointer at a given position, move others down to fill the gap.
input: p2%=the pointer position.
4873 Alpharead Obtain the ID number associated with a pointer.
input: p1%=the pointer to look up
output: p2%=the counter number.
4876 Alphaput To place an ID number at a particular pointer location.
input: p1%= the ID number
output: p2%=the pointer at which to put it.
4879 Getrecord Read 23 bytes from file 2 into a$, regardless of the character codes, even CR (reads packed data in the user files).
4882 Copy Used in the maintenance sections to copy from one file stream to another.
4885. Check
4888 Alterdt
4891 Clearstack Used during the error trap to remove GOSUBS and FOR/NEXTs from the BASIC stack.
4894 Ringsysop The Chat Whistle!
4897 Directoryfile Read the next file on the directory list. Used with selections of which files to copy/dload.

```
4906        300BAUD                     Set baud rate 300.
4909        1200BAUD                    Set baud rate 1200.
4912        2400BAUD                    Set baud rate 2400.
4916        Startup                          Used to load 'prg.ram' at
program                                           start.
4919        Flush                            Remove all added variables
since                                             3590.
4922        L80                         RAM expander, load SEQ to bank 1.
4925        L81                         RAM expander, reset this to bank 0.
4928        Putc0                            Move what's at c0 real memory
to                                          d0.
4931        Putd0                            Move what's at d0 real memory
to                                          c0.
4936  Screenbeep Flash the screen.  Those of you who don't like this, maybe
                                       inserting an RTS ($60) at the
                                       appropriate place here will appease!
                                        (Then re-save the file).
4939  SwiftInit  Initialize Swiftlink and Wedge NMI Handler.

                                   -- ml --
7171        Output                           Print a$ to screen.
7174        ResetMCI                   Return all MCI things back to
                                   default (in most cases off).
7177        Put1                       Output the single character ASCII
                                       found at location 254.
7180        DoSecs
7183        Onechar                    Wait for 1 character to be pressed,
                                       don't print anything to the
screen,                                       used with gosub2200.
7186        Input                            Wait for a line to be entered.
Used                                         with line 2100 routine.
                                       inputs: at 7276, the # of chars to
                                       enter.
                                       returns: Note that the 'output' is
                                       placed on an internal 'stack'
                                       and to retrieve it, INPUT#6,
                                       (ar) must be used.
7189        Password                   Wait for a password to be entered
                                       (mask the output to hide the
                                       password).
7192        Dotm1
7195        Chatmode                   Enter chat mode (line 7000).
7198        Cmpdates                   Compare the LD$ ML variable to
                                   what's in a$, see line 10000.
7201        Diskina                    Read a line from the open file #2,
                                       returns: stack variable.
7204        Readfilec                  Read the open file #5 from disk, or
                                       from RAMEX, clear screen
first, see                                    gosub15000.
7207        Readfile                   Same as above, but don't clear
                                   screen.
7210        Getdate                    Convert 11 digit date to verbose
                                   form
                                       input:an$=date like 18912030110
                                       output:    stack var like 3-Dec-
1989                                        1:10a
7213        Figline2
```

```
7216        Forty                       Print enough spaces to align
at the                                        column 40 (for two
column lists for                                   80 column
users).
7219        Loadmod                 Load a p-file (see gosub5500).
7222        Loadpro                 Load a proto file (see gosub881)
7228        Setwindow               Set window borders and clear
screen.
7231        Setdate                 Set the date from the information
                                    entered in the C-NET boot program

Setdt2


7237  Figline

7240        Drawscreen0                 Draw the system status window.
7243        Drawscreen1                 Update the system status
window as                                     necessary at logoff.
7246        Dnpcheck                Check to see if a device is
present.
                                    input:     7531=device#
                                    output:    144=system status word.
7252        Pageon                      Enable the flashing chat
message on                                    screen.
7255        Readnoabort                 Read a disk file without
aborting                                      ability for new user
file during new                                     user logon.
7258        Readfile2               Read a disk file, but using file 2,
not                                         5.
7434        Enter1
7437        Dotm
7540        Service                     Update the menu and clock when
we                                          have the time (not in the
interrupt                                     like older 64 versions)!
7549        Scrout
7552        Service
7633        Adout
7636        Getchr
7639        Movea                       Moves a$ into the ML a$
storage                                       location.
7642        Geta                    Puts the ML a$ onto the 'stack' for
                                          INPUT#6'ing.
     7645. Inout
7648        Dopause
7651        aout                    Output the ML a$ directly without
                                    having to set a$ in BASIC (faster
for                                         scanning message titles,
etc.).
8454        Tvarlc                      Translate a$ into lower
case/upper                                    mix.
                                    input:     a$ from BASIC
                                    output:    stack variable.

                              -- protos --
14336       proto1:         XRecvFile       Xmodem
14339       proto1:         XSendFile       Xmodem
```

```
            proto9:          BasicShell
            proto0:          PunterRecv      Punter
14342       proto9:          GetInfo         For BBS list, get a line
            proto0:          PunterSend      Punter
14345       proto9:          PutInfo         For BBS list, put a line
            proto0:          PunterInitRecv  Punter
14348       proto7:          ClearText       Editor
            proto9:          RunBASIC
            proto0:          PunterInitSend  Punter
11357       proto7:          LineEd                Enter the editor (see
gosub11060)
            proto0:          PunterHandshake Punter
14360       proto7:          L11085          Re-enter editor (see
gosub11085)
14363       proto7:          Findspot        Relative files (see gosub8190)
14366       proto7:          Deletespot      Relative files (see gosub8200)
14369       proto7:          FindMax         Relative files (see gosub8350)
11372       proto7:          GetNums         Relative files, find maxlines,
lines                                              used, etc.
14375       proto7:          PutNames        Relative files, put these
values.
14378       proto7:          Pinit                 Relative files, init
locations.
                             -- uds.o, subs.o --
62722       uds.o            GetIt
62725       uds.o            PutIt
62726       subs.o           GetInfo
62728       uds.o            GetPDI
62729       subs.o           PutInfo
62731       uds.o            PutPDI
62732       subs.o           GetFlags
62734       uds.o            GetInfo
62735       subs.o           AddResponse
62737       uds.o            PutInfo
62738       subs.o           AddPost
62740       uds.o            SetDates
62741       subs.o           DeleteResp
62743       uds.o            DeleteFiles
62744       subs.o           DelPosts
62746       uds.o            Validate
62747       subs.o           SetDates
62749       uds.o            IncDLs (Increment a times dload counter)
62750       subs.o           GetTotal
62752       uds.o            Gscan
62753       subs.o           GetTitle
62756       subs.o           PutTitle
62759       subs.o           GScan
62762       subs.o           FindNew
62765       subs.o           GetSum
62830       uds.o            GetSum

                              -- ROM Kernel --
63465       Used by Punter, an RS-232 primitive
65466       SETLFS, A=files#, X=device#, Y=command channel.
65469       SETNAM, A=length, X=<name, Y=>name.
65472       OPEN, A=length of name, X=>name, Y=<name.
65484       CLRCHN, clear I/O channels, print/input from screen.
```

65493 LOAD, A=0, X=>start, Y=<start.
65496 SAVE, A=zpage location of pointer to start of save, X=>end, Y=<end.

21.5 BASIC VARIABLE

This section contains a list of the most common BASIC variables that are in use in the stock C-NET 128 version 4.0 through 7.0. Each variable is given along with a description of how it is used throughout the program.

Version 4.0 through 7.0 are different from older 128 versions in the sense that variables created in sub-program modules (BBS, Mail, etc.) that aren't used by the main program are automatically eliminated from existence when the Main Prompt is again reached. For this reason, you will notice only a small number of variables listed here that are SAFE for your uses. Variables now fall into one of several distinct classes:

1) In a BASIC program file, you may use absolutely ANY variable names and number of variables for your purposes. These variables are automatically removed from the system when the program file is exited. The one drawback, of course, is that useful variables (such as NA$, etc.) can not be used in these files.

2) In a C-NET program file, a LOCAL, or AUTOMATIC variable. Generally, you may use any variable name you wish, as long as it is not found in this list with a (!) next to it. If you suspect that a C-NET BASIC subroutine uses one of the variables marked (-), simply choose another one that's not on this list. NEW variables CREATED by these files are automatically removed from the system when the program file is exited.

3) STATIC variables, ones that aren't destroyed by C-NET as program files are exited. These variables are desirable for program file modifications that must extend between program files are callers (scores in games, or tracking how many times a user has played a game, for example). C-NET sets the 'cut-off' point for variables that will survive through the execution of a program file as those which are present in memory when the program file is initiated. To create your own static variables, you must 'instance' them somewhere before this point, possible in prg.setup, or prg.logon after line 61025. This is exactly the purpose of line 61077 in prg.setup.

4) New modification variables 'created' in the CN file itself automatically become static. If it is not your intention that these variables last forever, it is a good idea to pick (carefully) from the following list for CN file mods to avoid leaving 'trash' in the system, which may slow things down.

Here's a key to the symbols used next to variable names:

"!" Denotes an operating system variable, which must not be interfered with by external programming! There is no problem, however, with reading these variables or using them in calculations, as long as no assignment to them occurs.

"*" Denotes a variable which is used by the program file support routines. If you exit your program file via 'gosub5650' then external

programming must NOT use these variables.

"-" Denotes a variable that is used and/or altered by one or more system subroutines. Depending on which subroutines your modifications make, it may be unsafe to use any of these variables for more than very temporary work.

```
-     A          Temp
!     A5(5)      Gosub 750 "," and ";" routine, temp use.
!     A%         Temp, usually an OUTPUT buffer (syso). MCI variable 5.
!     A1%        Last configured access - used for on-line access changes.
!     AC%        Access group of user on-line 0 to 14,  0 is new user.
*     AC%(41)    For subboards, others, list of entry access codes.
!     AC$(14)    ac$(0)      - ac$(14) is access group information
                 byte 1      - minutes per call
                 byte 2      - call per day
                 byte 3      - minutes max idle
                 byte 4      - dloads per call
                 byte 5      - uloads per call
                 byte 6      - u/d ratio
                 byte 7      - messages per call
                 byte 8      - p-files (minutes) per call
                 byte 9      - feedbacks per call
                 byte 10     - editor lines maximum
                 byte 11     - sf% flags
                 byte 12-14 (ASCII)  minutes per day
                 byte 15-18 (ASCII) 1/100 cents per minute
                 byte 19-22 (ASCII) ag$ group name
!     AG         Age (years) of the user on-line
!     AG$        Access group name for access of user on-line:  MCI
variable
!     AK$        Thirty-eight ='s followed by a carriage return
!     AM(31,5)   SAM variables
                 AM(x,0)     last caller counter
                 AM(x,1)     since setup counter
                 AM(x,2)     since period reset counter
                 AM(x,3)     totals counter
                 AM(x,4)     currents counter
                 Where x is 0=Feedback, 1=Mail sent, 2=Mail to ID1,
3=Posts,                     4=Responses, 5=Gfiles read, 6=Pfiles ran,
7=System errors,                          8=New users, 9=Uploaded files,
10=Uploaded blocks,                            11=Downloaded files,
12=Downloaded blocks, 13=New users,                        14=Minutes used,
15=Charges.  AM(x,5) is used by the ML to                       keep the
dates for "LAST, SETU, PERI, and TOTL".
-     AN$        Temp, usually an INPUT buffer; MCI variable 7
-     B          Temp
!     B%(10)     Gosub750 parser, temp use
-     B$         Gosub3, error name, temp use, MCI variable 6
-     B1$        In subboards, title of current subboard (filename)
!     BD$        User's birthday, 6 digits YYMMDD
!     BN         In the subboards, current subboard number
*     BR         In most systems, last read/manipulated list item, in p-
files/g-files,                  number of items in current list
!     BZ         In the subboards, U/D number of subboards
!     C          Temp
-     C$         Temp
```

```
!     C0%         Tracks the current position in the ring buffer LC$() for
the last 16                       commands
!     CA          Total number of system calls
!     CB          Number of public messages posted by the user before his
current                           call
!     CC          Tracks charges for individual system functions, before
later being                       rounded to the penny and added to Z6%
!     CC%         Flag for u/d, Email, and subboard systems, if cc%=0 no
charges                           were made, if non-zero, directory and pointers
files must be re-                           saved before exiting
!     CC%(14,14) The accounting system variables, 1st index is the access
group,                            2nd is the item (see a command from the Main
Menu).
!     CD          Number of blocks that the user has downloaded before his
current                           call
!     CH%         Number of times that chat has been requested.  When ch%
gets to                           be 5, the user is logged off the system. When
chat mode is enabled,                       ch% is reset.
*     CM$         Set to the current subsystem's name, such as "E-Mail",
"Sub 1", or                       "Pfiles".
!     CN          Number of calls since the system was set-up
!     CO%         Current user's computer type
!     CP$(10)     List of computer types (see prg.setup for definition)
!     CR          P-Files/G-Files, the current rate charged per minute
-     CR%(251)    If the editor is used, these are flags telling whether or
not                               RETURN was pressed on each line.  1=Yes, 0=No.
!     CS          Tracks the time at which a user entered the P-Files area,
to do                             accounting calculations later.
!     CT%         Number of calls the user has made today
!     CU          Number of blocks that the user has uploaded before his
current call
!     CV          Number of private messages that the user has written
before his                        current call
!     D           Temp use
*     D%(41)      Temp use
!     D$          Temp use
!     DO          In subboards, current subboard # + 6
-     D1%         Used to represent a device number.  In maintenance and
term, the                         current work device.
!     D1$         The current date and time, the string is 11 ASCII
characters in                           length, in the form WYYMMDDHHMM, where W
is the day of                           the week (1-7), 1=Sunday, YY is the year,
MM the month, DD the                          date, HH the hour (80 is added if
the hour is PM), and mm is the                          minutes, MCI variable 0.
-     D2%         Used to represent a drive number.  In maintenance, the
current                           work drive.
!     D2$         MCI V8, sub-board name for entry files.
!     D3$         MCI V9, last caller for sys.welcome
*     DC          When entering subs/uds/files, tracks the number of paths
requested                         (like B4;6;7 has 3 paths).
*     DC%         The counter, counts up to DC.
!     DF          Number of files user has downloaded.
!     DN          Number of blocks user has downloaded, including his
current call.                           (Number of blocks this call is obtained
by dn-cd).
!     DP%         Default protocol user has selected (see tp$() list)
!     DS          Disk drive error number.
```

```
!     DS$         Error channel reading.
!     DT$(20)     Temp use.
!     DV%(46)     Device numbers.        dv%(1)=system disk
                                  dv%(2)=email disk
                                  dv%(3)=etcetera disk
                                  dv%(4)=g-files disk
                                  dv%(5)=p-files disk
                                  dv%(6)=feedback printer flags
                                        bit 0 disk, bit 1 printer
                                  dv%(7) to dv%(46) contain subboard device
                                        numbers.
!     DZ          In subs, logon, the current 'depth' in a global
transversal of all                      subboards including directories.
!     DZ$         Used with DZ, the current directory name, like d.DZ$.
!     E           Temp use.
!     E$          Temp use.
*     E%(45)      Temp use.
!     EF          Unused - once used by ML in older versions.
-     EE          Set to the maximum number of lines (no more than 250) that
may                     be used in editor.
!     F$          Temp use, usually filename in u/d and terms.
!     FB(15,9)    Blocks free on any drive, only updated at setup and after
logoff of                   each 5th caller to speed through-put.  For
example, fb(0,2) is                     device     8, LU 0.
!     FC$         User's first call, 6 digits, YYMMDD.
!     FO%         This flag tells whether or not file 7 is open to the
current                           sub-board's relative file.  1=yes, saves
time, not having to re-open                   the file each bulletin read.
!     G           Temp use.
!     GG          The file status byte (st) after a gosub7 to read a line
from a file.
*     GS$(30)     In sub-boards, acts as a 'stack' to move through all sub-
boards, as
                  in RA, etc., g/pfiles also.
!     HD$         Temp use.
*     HD$(90)     Temp use.
!     HI%         Maximum for gosub750, temp use.
-     HJ$(5)            Used in the 2850 routine when doing +,- scans
through the user                        files to find a handle.
*     IB          Used in E-Mail, current mailbox flag.
*     IB$(3)            Used in E-Mail, current mailbox name.
!     ID          The user's ID (account) number.
*     ID$         In p/gfiles, "P" or "G" to distinguish.
!     II$         The system's login identifier.
!     IM%         Modem Type
-     IP%         Gosub 2100: if the input ended with "!" ip%=1.
!     JU$         An 80 bit (ten byte) string containing 80 flags for joined
or                          unjoined status of the 40 sub-boards and 40
possible 'root'                         upload/download libraries.
-     KK          Gosub11060; returns from the editor array number of text
lines                       used in the editor array tt$().  kk=0 if the
editor was "aborted";                   counters.
!     KK$         Temp use.
!     L1$         User's address, line 1.
!     L2$         User's address. line 2.
!     LC$(16)     The activity queue (last 16 commands).
!     LD$         Last call date/time for the current user, see D1$ for date
```

```
format;                        MCI variable 1.
!     LF          Line feeds required (1=yes).
!     LK                    Last Caller Screen Active Flag.
!     LK$()       Last 10 Callers array.
*     LL          In p/gfiles, number of sub-directories deep (each
directory appears                          in dt$()).
!     LL%         User's line length (22 to 80 columns).
!     LN%         Temp use.
-     LP          Gosub40; set LP=1 before a gosub40 to automatically
carriage                       return after a$ is output.
!     LP%         The last PROTO file number loaded, to prevent re-loading.
!     LT$         Sign-on date/time for the current user, see D1$ for the
date and                       time format.
!     MF          Flag: note missing files as missing when doing a file read
(gosub                         15000, 16000).
!     MI$         Used to hold multiple command input, holds the text
entered                        following the " @+@ " character in the input.
Gosub2100,2200                      check this string for input before
keyboard or modem input.
!     MR%         First mail record in the Email's relative file for the
current user.  =0                          if he has no mail.
!     MU(71,1)    Activity graph counters.  1st index is for each 20-minute
period                         during the day, 2nd is for time spent.
-     MW          Gosub40; if mw is set to 1 before a gosub40, a spacebar or
"/"                          press will immediately abort the output where the
key was pressed.
*     MX(3)       Used in E-Mail.  Maximum number of messages allowed in
each                         mailbox.
!     N%          Temp use.
!     N%(90)      Temp use.
!     NA$         The user's handle: MCI variable 2.
!     NL          "More?" prompt option selected, 1=yes.
!     NM%         In the sub-boards, the number of message headers (posts +
                             responses).
*     NN$(102)    In p/gfiles, the 'source' column in the list.
!     O           ALWAYS set to the ML output routine (7171).
-     P1%         Used often or ML communications.
!     P%()        Alphabetical arrangement for ID numbers.
!     PA%         Paranoid flag.
!     PB%         Number of public messages user has left.
!     PH$         Phone number of user.
!     PL          PL=1 before input indicates all uppercase.
!     PR$         Current PRG file name.
!     PV%         Number of private messages user has left.
!     PW$         Password of user.
!     RC          =1 if space bar or / pressed during gosub40.
!     RN$         Real name of user.
!     SF%         Contains access group flags.
!     SH          =47 if / pressed during output.
!     SI$()       Holds u/d and subboard configuration data.
!     SR%         Number of screen rows.
!     SY$         Name of last config file (U/D or Sub).
!     TC%         Total calls.
!     TR%         Time remaining in minutes.
-     TT$()       The editor text array.
!     UF%         Number of files uploaded.
!     UL          Upper/lowercase flag  1=yes.
```

```
!     UP%         Number of uploads user has made.
!     UR          Number of user accounts.
!     US%         Used lines in current del file.
!     V7$(10)     C-NET v7 variables
                        V7$(01) = HD Type
                        V7$(02) = Real-Time Clock Device
                        V7$(03) =
                        V7$(10) = Serial Number
!     WW          Word wraparound for input flag.
!     X$          Contains system drive numbers.
!     XM%         Help level.
!     Z1%         Minutes used today in previous call.
!     Z2%         Money balance for accounting system.
!     Z3%         Maximum minutes per call.
!     Z4%         Charge per minute for the accounting system.
!     Z5%         Maximum debt (credit).
!     Z6%         Other charges.
!     ZZ          ZZ=1 indicates local mode.
```

21.6 ACCESS FLAGS

Below are the bits that are checked for access to different areas of C-NET. If the bit is on (equals one), the user has access to that particular area. Note that a bit can only be on or off.

	If the byte being checked is:			
And the bit being tested is:	sf%	s1%	s2%	s3%
1	System Maint access	P-file access	Adopt orphans	Write private msg
2	Email access	G-file access	READ pvt message	Not used
4	Ulist access	Bypass UD ratios	Delete ANY UD file	Maint commands
8	Edit profile access (EU)	Bypass calls/day	files	Delete OWN Files Maint commands
16	Subboard maint (msgs)	Bypass min/call	User purge exempt	Write to wall
32	MCI level 1 access	Bypass time restrictions	Auto-validate files	Restart the wall
64	MCI level 2 access	Bypass file lock(Pfiles)	Write anon	Not used messages
128	RE-logon command	Alias Msg author(can	Trace anonymous	Not used

see who messages
actually wrote)

Note that particularly in v6.0, you cannot issue any System Maintenance commands without entering the ID command and successfully entering the system password while at a remote location.

There is also a bypass for the idle timer, that is not being used correctly at the time of this writing, connected to the Bypass times flag.

21.7 BREAKDOWN OF C-NET MAIN PROGRAM ROUTINES

Line #	Description
2	Position relative file
3	Read error channel
4	Check for carrier
7	Read string from disk into a$
9	Expand date in an$
12	File scratch routine
15	Print a period
17	Print one new line
18	Print two new lines
19	Open disk drive command channel
23	Scratch and re-write a file
27	Open etc.recs file
35	Print area in top right corner
40	Output a$
50	Subsystem closed message
220	Initialization/configuration
400	Waiting for call
500	Read free blocks
700	Decipher editor ranges
850	Read a SYS config file
880	Load a U/D protocol program
920	Connection to the system
1300	Main command level
2100	Input a line into an$
2150	Input a password into an$
2200	Get a single character
2250	Read access group information
2300	Various general commands
2850	Searches for the user’s ID number
3000	Check for commands available at all levels
3100	Modem operations
4000	View sysop of current subboard
5500	Read a PRG file into memory
6000	Logoff
7000	Chat mode
8000	Enter bulletin board subsystem
8100	Relative file manipulation
8400	Uploading and downloading
10000	Compare dates for new operations
10500	Send electronic mail routine
11000	Editor subsystem operations
60000	Open file routines
61000	PRG loading space.

21.8 BASIC ERROR CODES

For reference, here are the error number codes for many of the more frequently encountered BASIC errors:

1	Too many files	2	File open
3	File not open	4	File not found
5	Device not present	6	Not input file
7	Not output file	8	Missing file name
9	Illegal device number	10	Next without for
11	Syntax	12	Return without gosub
13	Out of data	14	Illegal quantity
15	Overflow	16	Out of memory
17	Undef'd statement	18	Bad subscript
19	Redim'd array	20	Division by zero
22	Type mismatch	23	String too long
24	File data	25	Formula too complex
36	Bad disk	41	File read.

21.9 SOME FILES YOU MAY WRITE FOR YOUR SYSTEM

Below are some of the sys.* files that C-NET uses that you may write for your system. Note that there is no requirement that you do write them, as C-NET will operate without them.

sys.aboard This file is used when R)eplying to new user applications. If you desire to send a 'Standard" welcome (format letter), this is the file to write.

sys.validation This file is used to inform your users that all the files that are uploaded to a particular subboard requires validation by a Sysop or sub-operator before it can be 'made available' to other users.

sys.start This file is shown to the user after C-NET sorts out whether the user is calling with C/G mode, or ANSI, or using an ASCII terminal mode.

sys.welcome This file is shown to the user after he successfully logs onto the BBS, and is told how many more calls (if any) are allowed for that day.

sys.access# This file is one that can be written to show users of a specific access group information or other items of interest particular to that access group. It must have the access group in numeric form (i.e., groups ten through fourteen must be shown as 10 or 14).

sys.second This screen is available for your use to show users that call more than once per day, much like another sys.welcome, or just to inform them that this is their second call (or higher) for that day.

sys.today This is the Today in History file that you can toggle on and off at the MACS screen. Note: this file should not be messed with!

sys.u/d This file can be shown to users that do NOT have access to the UD area.

e.subboard These files are the intro files for each subboard available to the on- line user. Note that you may have a different file for each subboard that you have on your system.

e.u(s)main These files are the entry files that can be shown to users on the way into the UD bases or the Subboards (message bases).

NOTE: ALL subboard entry files are skipped by setting your help level to greater that level 2.

sys.warning This file is used to advise the user that they are about to run out of time. The system will otherwise tell the on-line user 'Less than x minutes left!' if this file is not found.

sys.new user This file is read off to the user when first calling into the system as a new user.

sys.badnames This file is used by the new user application process to find out if you wish to allow the handle or not. See the New User portion of the manual for more information on this.

sys.badnumbers This file is used by the new user applications process to find out if the phone number they enter is one that is restricted or not. See the New User portion of your manual for more information on this subject.

sys.new @file (where the @ could be for the P-files or G-files). These files may be written to allow use of the 'N' command in the p-files and g- files areas. The intent was to allow news writing for each area of the files system.

sys.info This file can be written to tell the user about what your BBS is run on, e.g., equipment and the like. Don't forget to tell them about the software!

21.10 MENUS BY THE NUMBERS

Below are the menus that are available to your users if they enter a question mark.

sys.menu 1 The Main Command area menu
sys.menu 2 The Message Base area menu
sys.menu 3 The editor Help menu (.h while in the editor)
sys.menu 4 The System Maintenance menu
sys.menu 5 The UD area menu
sys.menu 6 The E-Mail menu
sys.menu 7 The News/G-file/P-file menu
sys.menu 1a The 'All Levels' commands

sys.menu 2a The ‘While reading posts’ menu
sys.menu 2b The ‘End of Post’ menu
sys.mmenu 0 Main menu shown novice users
sys.mmenu 1 Main menu shown intermediate users
sys.mmenu 2 Main menu shown expert users

*NOTE: Users that have logged on as a ‘Superuser’ will not be given any main menu commands shown on the screen.

- ADDITIONAL INFORMATION -

22.0 CHANGES TO PRG.* FILES

You may make certain changes to prg.* files as required to customize your board. Other changes referred to here, will be to help you with certain programs that require changes made in the main programming to operate. From time to time, mods may be made to the program to correct bugs or to make things easier for the sysop. These mods must be added to the particular line in the appropriate program file. If you are new to using BASIC and to programming in general, here is a tip on how to do this until you get comfortable with adding mods. First off, you use the ‘MF’ command (in the system maintenance mode), and move the program file to a floppy disk. Then you must shut down your board and load the program file into memory. Call up the line number and make the change that is required. Once you have done that, list the line again to make sure that the change has taken place. After you have satisfied yourself that the change has taken place, use the save/replace command to save the file. You then re-boot the board, and scratch the old program file from the hard drive, and using the ‘MF’ command, move the file from the floppy to the hard drive. After doing this a few times,
you will become comfortable with doing the changes while you are on-line.

22.1 GALACTIWARS CHANGES

The on-line game ‘Galactiwars’ requires some changes to prg.logon for the game
to work properly. The following are the changes that have to be made for the game to change turns. In prg.logon, renumber line 61286 to line number 61282. Then add in the following lines into the program and then resave the program to disk.

```
61284 poke673,0:iftt$(0)=“REL”thenpoke673,2
61286 ifpeek(156)thenbz=0:a$=“gw turn”:gosub2400:ifpeek(673)=0thenpoke673,1
61288 d3$=na$:poke125,255:poke126,9:sys4891:g=dt:ifg=0theng=3
61289 ul=0:gosub60300:onpeek(673)goto61000,61300:goto61002
```

These changes will allow Galactiwars to change the turn each day. One other item about Galactiwars, is that the game needs a moderator. The moderator can either be a user (with appropriate access levels) or the sysop.

22.2 MAIN EVENT WRESTLING
The following is the proper way to install Main Event Wrestling.

Copy prg. Main Event and the files that begin with prg.me/* onto your system disk. Next, from the ‘Main’ prompt, Execute me/Maint. When prompted, choose which of the lu’s or partitions to use as the game disk. Press ‘Q’

to quit; sys.me/setup will be saved onto your system disk before you are returned to the 'Main" prompt. Then copy txt.me/moves and sys.me/sets files. Press 'Q' to quit. NOTE: you may remove txt.me/moves from your game disk after compiling the moves.Next, type 'SY' at your 'Main' prompt to enter the BASIC shell. On some systems, you may have to do the next part of the installation from 128 basic rather than from the shell. Load bas.me/create and type 'RUN'. Type in the device and drive number of the game disk to create the remaining files needed by the game. Press 'Q' to exit. Lastly, add Main Event to your p-files section.

22.3 USE OF ZED-128 TO EDIT NETWORK FILES

Zed-128 is a public domain text editor that is recommended to use for editing corrupt network files. The network files that I am referring to, are the Nsubs.*, Nlist.*, etc., files. The program files cannot be edited this way. In this section, I will include what the files should look like. I will also include the differences that you will notice with the pauq files. Occasionally, the Nsubs.* files may be corrupted during transmission, or a problem on the sender's drives or the receiver's drives. When this happens, the Nsubs.* file may not dissolve into the nr.* files properly, or the nr.* files may not file into the subs properly. The biggest problem, is the absence of proper program commands.The Nsubs.* file consists of a Header and a Text portion. The header is the information that is in the first 7 lines of the file. The text portion are those that follow the header. The header consists of information that the program needs to file the information into the proper sub.

The following is what the header should look like:

```
       EMRG/ 10              :this line is the sending network node
       HAM                   :this one covers the network name of the sub
       MEDIC ONE @ EMRG      :this is who is sending the message
       Node Shout            :this is the title of the message
       RANGE ROVER @ KAPT    :this is who the message is directed to
       59602080943           :this is the date stamp for filing
       Node Shout            :this is the reply name
```

Each of these lines should be printed exactly as you see it here. There should be no other type of special command.The text part of the message will look a little different. You should notice that there is a (!) exclamation mark at the front of EVERY line. This exclamation mark tells the program that this is text only and should be filed as such. If even one exclamation mark is missing, then the program will look at that line as part of the header. This is where MOST of the errors occur. If the exclamation mark is missing, then the program will look at the next word as the sender of the next message, and the next capitalized word as the network name of the sub. Friends, this can really screw up your system. It can even crash your system. Therefore, it is important to remember that the exclamation mark has to be there if there is text.You CANNOT use the 'rf' command to check the Npauq.* file. You MUST use Zed-128 for this. Trying to use the CNet-128

environment to edit the Npauq.* file will not work. However, if you use Zed-128, then you can read and edit the file. Other than having all the N* files in one file, the only other difference that you will notice, is that there are @@ (reversed) symbols every now and then. This symbol is used as a counter and must be in the pauq file.
NOTE DO NOT try to edit an outgoing Npauq.* file, only edit incoming Npauq.* files. The reason for this, is the proper placement of the counters. The counters must be in the proper place.To edit the incoming Npauq.* file, load it into Zed-128 (remember, you may need to use an REU or RamLink to get enough memory, as some of the Npauq.* files may be a little large). Once you have the Npauq.* file in memory, you then have to manually break down the file. I have found this is the best way to solve any problems. Use the control-M keys to set the mark for delete and the control-D to delete lines as required. Save the files as Nsubs.*, Nlist.*, Nstrt.*, etc., as required. Once you have done that, then you can edit each file as needed. Before you move the files back onto your 8,0 drive, scratch any Npauq.*, Nsubs.*, Nlist.*, etc., files, as well as any nr.* files. The reason for this is to cut down on duplications
Your Nmail.* file will have the same type of setup as the Nsubs.*, except that the header is only five (5) lines long rather than seven (7). The first line will have an asterix and the name of who the mail is being sent to. The next line will be the origin BBS. The third line will be who is sending the net mail and the fourth line will be who sent it. The last line will be the date stamp. Once again, the text will have exclamation marks in front of each line. One item to not forget here, is sometimes net mail is not distributed properly, so when you are checking you net log 'NL', see if there has been any net mail. The log will tell you if the sysop or users have received any mail. If you see that there was some for the sysop or some non-deliverable mail, use the 'ND' command to break down the dead mail. Sometimes an error can happen and mail may not be distributed to the proper individuals.

22.4 FLOW CHARTS

Caped Crusader has been good enough to make up two flow charts to show what happens when a person responds to a message in the base, and what happens when your board receives an incoming message pack from a networked board. These two flow charts will follow at the end of this manual.Also included as extra sheets, is what a sample Nacti* file would look like as well as an Nstrt* file. These are printed out so you have an idea of what information they contain, and are for informational purposes only.

22.5 EXPLANATION OF PRG.* FILES

This chapter will try to explain (in simple and short detail) what each main prg.* file does. This is not meant to be a course on basic programming, just a very short explanation.

C-Net 128 is a marvel as a BBS program. The BBS program is made up of many small programs. The BBS does not have to have the whole program in memory for it to work. The software only loads what required in order to operate. That little feature makes lots of memory room for other things, as well as speeding up the program.

What I will try to do, is to let you know what each program does, but I will do it in alphabetic order. The only exception here is the main program file 'cn'.

cn This is the main program file. This is the file that

stays resident in your computer at all times, and calls up which ever other programs are required as they are needed. This is the reason for using the 'RL' function from time to time, as the cn file sometimes gets corrupted.

prg.amaint This is the program that does the auto-maintenance each and every night. This program also uses prg.amaint1.

APPENDIX A UNDERSTANDING ACCESS GROUPS

A.1 ACCESS GROUP CONFIGURATION

C-NET allows you to have up to 15 separate access groupings, numbered 0 to 14. New users to the system are always placed into group 0. You do not have to use all of the
Groups -- the ones that you do use need not be consecutive or in any specific order. You should choose one of the access groups to be the System Operator's group (for you, and maybe a small select group of highly trusted people) having highest system privileges. I suggest that you use group 14 for the SysOp account. Group 13 can be used for Co-Sysops. For each group you use, you can specify the following information:

Group xName:	A title used on the system instead of simply an access group number.
Calls/Day(0-255):	The number of calls per day that the group can make. 0 indicates infinite.
Min./Call(0-255):	How many minutes per call will be allowed. 0 indicates infinite.
MxM/Day(0-255):	Minutes per day maximum that may be spent on the system, assuming the user has enough calls per day and minutes per day to reach this limit. 0 indicates infinite here.
$/min(1/10000s):	Per minute system access charge in 1/10000 of a dollar (part of the accounting system, which will be described fully in a chapter to follow).
Max/debt(0-9999):	The maximum debt a user may accumulate on the system, in 1/100 of a dollar. Again, this function will also be described fully in a subsequent chapter.
Min./idle(1-9):	How many minutes idle will be allowed (how many minutes may pass without hitting any keys before the system will automatically hang up). This MAY NOT be 0.
Downloads/call:	How many files may be downloaded per call. 0 indicates infinite. I have found the number of 10 to be the best. That way, a user cannot be on all night long downloading files, thereby preventing others from logging on.
Uploads/call:	How many files may be uploaded per call. 0 indicates infinite.
U/D file ratio:	A download ratio -- how many blocks may be downloaded in return for every block uploaded. (A user is allowed to exceed this ratio by 1 file of any length at all times.). 0 indicates no restriction on

downloading based on uploaded blocks.

Free blocks: The number of free blocks allowed to be downloaded before the ratio starts. This number may be set to any number. 0 indicates infinite.

Messages/call: How many messages may be left per call. 0 indicates infinite.

Feedbacks/call: Number of 'feedbacks' a user may leave per call. 0 here means zero.

Minutes/pfiles: Number of minutes that may be spent in the p-files section of the system per call. 0 indicates infinite.

Editor lines: Number of lines that may be normally used when writing a message in the editor, unless limited by some other factor, such as disk space. Only settings from 7 to 250 are valid. The value given for group 0 will be used also for the 'personal statement' section of new user logon.

The following portions of editing the user groups are toggled on/off using the 'Y' or 'N' keys:

Email (private): This allows for a user to receive and send private E-Mail.

Pfiles: This allows for a user to use the p-file section of the system.

Gfiles: This allows for a user to use the g-file section of the system.

Userlist: This allows for a user to see the list of the users of the system.

MCI level 1: This allows the user to use level 1 MCI commands.

MCI level 2: This allows the user full use of all MCI commands.

Relogon: This allows a user to relog onto the system without first disconnecting from the system.

Edit profile: This allows the user to edit his profile information.

Sysop/maintenance: This allows the user sysop maintenance privileges. This should only be given to sysop only.

Bypass u/d ratios: This allows the user to bypass previously set ratios.

Bypass calls/day: This allows the user to call as many times as they wish per day.

Bypass min./call: This allows the user to stay on-line longer that allowed.

Bypass times: This allows the user to bypass any automaintenance times as well as special times set out for the use of 300 baud modems.

Bypass file lock: This allows the user to see locked files.

Alias msg authors: This allows the user to use an alias when sending a message either in the Email or message bases.

Adopt orphans: This allows the user to adopt orphans into the UD section of the system. This command should only be used by Sysops and Co-Sysops.

Read private msgs: This allows the user to read other user's private messages. Once again, this should only be allowed for sysop.

Delete any file: This should only be allowed for Sysop or Co-sysop use.

Delete own files: This allows the user to delete any files that they have uploaded to the system.
User-purge exempt: This exempts the user from being deleted from the system during auto-maintenance if the user purge is activated.
Autovalidate files: This allows for the user to validate his own uploaded files to the UD bases.
Write anonymously: This allows the user to write anonymously.
Trace anonymously: This allows the user to trace who wrote an anonymous message.
Private messages: This allows the user to send and receive private messages from other users.
Forward mail: This allows the user to forward mail to another user's mail box.
BBS/maintenance: This should only be allowed for Sysop or Co-sysop access.
UD/maintenance: This should only be allowed for Sysop and Co-sysop access.
Files/maintenance: This should only be allowed for Sysop and Co-sysop access.
Write to wall: This allows the user to write to the graffiti wall.
Restart wall: This allows the user to restart the wall. This should only be a Sysop or Co-sysop command.

To actually edit your access groups, see chapter 16.3 "Editing accounts and Groups", once the system is on-line.

A.2 MESSAGE BASES AND UPLOAD/DOWNLOAD BOARDS

For each message board or u/d board that you wish to open, you must supply a descriptive title, a device and drive number to tell C-NET where to store the data for the message base, and an access code to tell C-NET which user groups may have access to it. You must use sub-boards in sequential numerical order, beginning at number 1 -- not haphazardly around the screen. To determine which number to enter for an access code, you can use the following chart:

Group	Code	Group	Code	Group	Code
0	0	5	5	10	a
1	1	6	6	11	b
2	2	7	7	12	c
3	3	8	8	13	d
4	4	9	9	14	e

To formulate an access number, first decide which groups get access to the subboard, then when asked for access groups, enter the groups allowed access. For example, if you wanted subboard number 3 to be accessible by only groups 3,4 and 5, you would look at the chart, and enter '3;4;5'. An access code giving access to all 15 access groups would be '1,'.

To actually edit the sub-board and file areas you will need to complete setting up the system, and once actually on-line, you will need to refer to Chapter 13.5 'Maintenance Commands'. This will explain how to set up your sub-board and file transfer bases.

APPENDIX B COMMANDS

C-NET 128 v6.6s COMMANDS

DOS COMMANDS
@ send disk command
$ view disk directory
CD change drive number
BF blocks free
BF! reset blocks free
RF read file
WF write file
MF move file

ACTIVITY LOGS
LA read/reset auto maint log
LC read/reset caller log
LE read/reset error log
LF read auto backup log
LG read/reset P/G-file log
LN read/reset new user log
LU read/reset UD log

FEEDBACK/NEW USER INFO
VF view feedback
VN view new user applications
OPTIONS
A reread message
R reply
S send E-mail
E edit user
K kill user number
N next
Q quit
NA create new account

COMMANDS AT MAIN LEVEL
EX execute program file
SM enter system maintenance
SY enter basic shell

SUBBOARD COMMANDS
RO reorganize message base

NETWORK COMMANDS
NL view network log
NC edit net connections
NB set bridge connections
ND review net dead mail and sortout
NP edit net parameters
NT test net programs
NS send net mail

MAINTENANCE COMMANDS
RL reload CN file
AG view activity graph
AM view activity monitor
EA* edit user account (number)
EG* edit user group (number)
E edit time restrictions
ES edit system activity monitor
MC write forced mail
MR remove forced mail
SP change maintenance password
SE make time adjustment
S change character set
UP update user groups

SAM (SYSTEM ACTIVITY MONITOR)
Screen#1 waiting for a call screen
Screen#2 statistics
Screen#3 big clock
Screen#4 system activity graph

OTHER COMMANDS
C=P reset SAM period column to zero
C=C re-tally the current column
C=N enter network routine
C=T mini term
C=A force auto-maintenance routine
C=S restart SAM
C=M load MACS option
ESC load and run C-Terminal
<- screen blanking on/off

- NACTI FILE FORMAT -

POST/ 11 (your node ID)

```
 4               (1 space)(total number of nodes)
^(up arrow)      (up arrow end of file character)
 ^               (up link connection for node 1)
 9               (up link connection for node 2)
 2               (up link connection for node 3)
 4               (up lind connection for node 4)
^                (node 1 ID)
^                (node 1 city and state/prov - no comma)
^                (node 1 board name)
^                (node 1 phone number)
^                (node 1 baud rate)
^                (node 1 sysop handle)
FRST             (node 2 ID)
OmahaNeb         (node 2 city and state)
First Contact          (node 2 board name)
4023932985       (node 2 phone number)
24               (node 2 baud rate)
Valdar                 (node 2 sysop handle)
EMPR             (node 3 ID)
WoodridgeNJ      (node 3 city and state)
Hidden Empire    (node 3 board name)
2014607955       (node 3 phone number)
24               (node 3 baud rate)
Polish Warrior         (node 3 sysop handle)
CAVE             (node 4 ID)
DenverCO         (node 4 city and state)
Batcave          (node 4 board name)
3032520735       (node 4 phone number)
24               (node 4 baud rate)
Caped Crusader   (node 4 sysop handle)
```

As the network grows, so does the Nacti file. This is just a small illustration of what a Nacti file would look like.

- NSTRT FILE FORMAT -

```
 4               (1 space)(total number of nodes)
^(up arrow)      (up arrow end of file character)
 ^               (up link connection for node 1)
 9               (up link connection for node 2)
 2               (up link connection for node 3)
 4               (up lind connection for node 4)
^                (node 1 ID)
^                (node 1 city and state/prov - no comma)
^                (node 1 board name)
^                (node 1 phone number)
^                (node 1 baud rate)
^                (node 1 sysop handle)
FRST             (node 2 ID)
OmahaNeb         (node 2 city and state)
First Contact          (node 2 board name)
4023932985       (node 2 phone number)
24               (node 2 baud rate)
```

```
Valdar                (node 2 sysop handle)
EMPR            (node 3 ID)
WoodridgeNJ     (node 3 city and state)
Hidden Empire   (node 3 board name)
2014607955      (node 3 phone number)
24              (node 3 baud rate)
Polish Warrior        (node 3 sysop handle)
CAVE            (node 4 ID)
DenverCO        (node 4 city and state)
Batcave         (node 4 board name)
3032520735      (node 4 phone number)
24              (node 4 baud rate)
Caped Crusader  (node 4 sysop handle)
```

As the network grows, so does the Nstrt file. This is just a small illustration of what a Nstrt* file would look like.