UNICOM 3.0

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Introduction

UNICOM is a complete data communications package especially designed for users of the Microsoft Windows 3 operating environment.

All program features have been designed to operate within the Windows multitasking environment. That is, you can instruct UNICOM to perform a task then switch to another Window application while UNICOM does it's job.

Built-in are many advanced features only found in software costing hundreds of dollars more. In UNICOM you will find:

Many Popular File Transfer Protocols:

Xmodem, Ymodem, Zmodem and their variations, Kermit, CompuServe B, QuickB

and ASCII.

Of these, CompuServe B, Quick B and Zmodem protocols have been implemented for automatic downloading.

Color Terminal Emulation with special attribute support. Emulations include: DEC VT102 (ANSI), DEC VT52, ANSI-BBS and TTY. Screen fonts, colors and attributes are user selectable. Fonts installed by type managers can be readily used.

A Scrollback Buffer that can hold up to 1500 lines of information is provided. This buffer can be integrated into the window display or remain hidden until it is needed.

WinScript Windows Script Language. 200 statements and commands are included to provide you with the ability to create complex applications for use with UNICOM.

Script Recording Capability can be used to create command files automatically as you interact with a remote computer.

Script Scheduling allows up to eight WinScript command files to be executed at specific days and times. Programming the scheduler is just like programming your VCR.

Convenient Screen Toolbar gives you quick access to many of UNICOM's menu selected features.

Easy screen editing. Highlight text on the screen using the mouse. You may then copy this selected text to the clipboard, erase it, mark as a file or send it back to the

host.

An Expanded Dialing Directory will hold an unlimited number of entries, maintain statistics, program settings and a dialing string for each entry. A directory editor is provided for maintaining the directory. Only disk space limits the number of directories that can be stored and retrieved.

Expanded Host Mode allows remote access to the files in your computer or to DOS. User ID's, passwords, access levels, login path and time limits may be assigned to each user.

The sysop may monitor interaction, log events, operate in dial-back mode and chat with a remote user.

Hardware and Software Requirements

To effectively use UNICOM 3.0, you will need:

* *Microsoft Windows Version 3.*

* *A personal computer equipped to run Microsoft Windows 3 efficiently**:

- *An 80386 DX CPU (or higher is recommended, but a fast 286 may suffice)*

- *2 mb of physical ram available to Windows (after smartdrive and ramdrive)*

- *A hard disk (28ms or faster) with disk caching software.*

- *A Monitor and Video Adapter operating in an efficient video mode: Even with the fastest video board, 256 color display modes may produce a slow scroll or screen response. Sixteen color modes are recommended since performance is*

usually much faster.

Very high resolution modes (above 640x480) can also slow performance. Any 'standard' video mode (VGA, EGA) is recommended.

* *A Hayes Compatible Modem.*

* *A Serial Communications Port (if using an external modem).*

***UNICOM is a real time application, that is, it must be able to respond to time critical events. If Windows runs 'slowly' on your 286 or 386sx, it is a sign that UNICOM may not be able to operate efficiently, especially when using baud rates above 2400. Loss of data and/or unreliable operation may result if your computer is poorly equipped to run Microsoft Windows.*

Users with High Speed Modems (above 2400 bps) will need:

* *An 80386 DX CPU (or higher) to deliver the extra performance necessary to run*

Windows while performing high speed transfers.

Configuring Your Communications Port

IMPORTANT!

The Microsoft communication port driver (comm.drv) requires that your communications port be set to operate using a unique interrupt (IRQ). Unfortunately, COM1 and COM3 usually share IRQ 4 and COM 2 and COM 4 usually share IRQ 3. If your communication port is set to an IRQ used by another device, the Microsoft driver may lock when you try to access the port.

Communication port assignments and IRQs are usually jumper selectable on your computer motherboard, plug-in serial interface card or plug-in internal modem card.

Consult your hardware reference manual for information on how to configure these

devices.

If your computer is not equipped with COM3 or COM4, the above conflict may not be a problem. You should be aware that other devices may exist in your computer that can be set to operate at a conflicting IRQ. Some devices include : a bus mouse interface card and a sound board.

Version 3.0 of Windows will not allow reassignment of communication port IRQ's to anything other than IRQ 3 or IRQ 4 for AT class machines. This means that at most TWO serial ports can be enabled in your computer at any time. DOS comm packages are not affected by this limitation, only Window applications which use the Microsoft serial communication driver (such as Terminal and UNICOM).

The following table lists the default base port and interrupt levels for COM1 - COM4.

Device	*Base Port*	*Default IRQ*
COM1	*3F8*	*IRQ 4 - conflicts with COM3 if it exists*
COM2	*2F8*	*IRQ 3 - conflicts with COM4 if it exists*
COM3	*3E8*	*IRQ 4 - conflicts with COM1 if it exists*
COM4	*2E8*	*IRQ 3 - conflicts with COM2 if it exists*

To configure your communications port:

1) Determine which communication port you intend to use:(COM1, COM2, COM3 or COM4)

Configure your serial port to the base port and IRQ for the desired COMx device. This involves setting jumpers or switches on the device. Consult your hardware reference manual.

Ensure that this port is configured to a unique and appropriate IRQ.

Windows versions above 3.0 may support reassignment of IRQ's (and Base Ports) for each COMx device using the control panel. For AT class machines, this will allow Window applications access to all 4 communications ports . Ensure that each port is physically set to a unique IRQ, then use control panel to designate the IRQ for each port.

Installing UNICOM

The UNICOM 3.0 distribution disk should contain the following files:

File	*Description*
UNICOM.EXE	*The UNICOM executable program.*
UNICOM.DIR	*A sample dialing directory.*
UNICOM.KEY	*A sample keyboard macro file*
UNICOM.CFG	*A default program configuration file.*
UNICOM.MNU	*A sample utility menu configuration file.*
UNICOM.HLP	*UNICOM 'Windows' Help File.*
UNICOM.FON	*VT-102 special fonts.*

UNICOM.SND	*A sound file used to generate notification music*
UC3READ.ME	*Program release notes.*
UC3ORDER.WRI	*Product order form in Windows Write format.*
UC3ORDER.TXT	*Product order form in ASCII text file format*
GDI.SCR	*Example script demonstrating graphics.*
CMPUSRV.SCR	*Example CompuServe login script.*
MCI.SCR	*Example MCI login script.*
	Other example script files may be included.

Software Installation Procedure

Copy the UNICOM distribution any subdirectory on your disk drive.

Install UNICOM into a program group within Program Manager:

1) Activate Program Manager and highlight the program group where UNICOM is to be stored.

2) From the Program Manager file menu, select 'New..."

3) A New Program Object Window appears prompting you for the object type. Select the Program Item button.

4) A window appears prompting you for the program item properties.

a) In the description field enter "UNICOM"

b) In the command line field, enter the complete pathname of the installed UNICOM executable. For example, if you stored

UNICOM in your windows directory the entry would look like:

C:\WINDOWS\UNICOM.EXE

5) Installation is complete.

Starting UNICOM

UNICOM may be activated in a number of ways as shown below:

From a RUN command line in Program Manager or File Manager enter:

UNICOM [configfile.cfg][scriptfile.scr]

From Program Manager as an installed program item in a program group:

Double Click on the UNICOM Icon

From File Manager

a) Double click on a UNICOM script file, -OR-

b) Double click on a UNICOM config file, -OR-

c) Double click on the executable file UNICOM.EXE

When UNICOM is activated for the first time, a file path setup window will appear (shown in Figure 1) prompting you to enter a UNICOM files, upload and download directory.

(see manual)

Figure 1. File Path Setup Window

The files directory should be set to the drive and directory where UNICOM has been installed. The download directory should be set to the drive and directory where files received from data transfers are to be stored. The upload directory should be set to the drive and directory where UNICOM will first look to locate files for upload selection.

Enter the pathnames into the edit fields within the Window. Paths defined here are valid only for the current UNICOM session. To make the paths permanent, activate the SAVE SETUP option from within the SETUP menu. Paths are stored in your Windows WIN.INI file.

An error message will be displayed if any of the path fields contain an invalid directory or if UNICOM could not locate its executable file in the directory specified in the files directory field.

At the start of each UNICOM session, a configuration file will be accessed (from the UNICOM files directory) to determine what communication port will be used and other operating parameters. This configuration file will default to UNICOM.CFG if no file was

specified when invoking UNICOM. If UNICOM cannot locate any configuration file, the port will default to COM2, 2400 baud, No Parity, 8 data bits and 1 stop bit.

Should a communication port fail to open, UNICOM will display a message box to indicate the failure. The port configuration window will then be displayed automatically.

At this point, a valid communication port should be selected. If no communication ports can be opened and you're sure the port is there, the port IRQ may be set to conflict with another device or port.

When a communication port is successfully opened, UNICOM will try to initialize the modem if the port was configured for a modem connection. Should the message "Modem Not Responding" appear, UNICOM failed to obtain an 'OK' response from the

modem. Make sure the communications port and modem are configured properly.

Ensure that the modem is set to return VERBOSE responses and that it is not already

'online' connected to a remote computer.

Screen Regions

The top buttons	*Description*
	Erases selected screen text or the whole terminal screen.
	*Search for text in the scroll buffer.*
	*Transmit selected screen text back to the host.*
	*Download a file into your computer.*
	*Upload selected files to a remote computer.*
	*Access the Dialing Directory.*
	*Access the Manual Phone Dialer.*
	*Instruct the modem to hang up.*
	

Activates the Comm Port configuration window.

Activates the Terminal Setup window.

Displays the Modem Setup window.

Displays the Keyboard Macro Editor.

Displays the Zmodem Setup window.

Toggle Host Mode operation on or off.

Toggle Chat Mode operation on or off.

Mark a file on the screen for download.

Answer an incoming data call

Terminal auto wrap mode toggle.

Terminal local echo toggle.

Terminal CR->CRLF toggle.

Terminal erase on backspace toggle.

Status Line

Program messages, communication settings, terminal settings and menu definitions are displayed on this line located at the bottom of the UNICOM window. If the Dialing Directory is visible, status line messages will be displayed in it's window caption.

Scroll bars

Vertical and horizontal scroll bars allow the user to position the UNICOM screen using a mouse (or via the control menu). The vertical scroll bar allows viewing of the

scroll back buffer. The horizontal scroll bar is useful for viewing any columns beyond the right edge of the window.

User Keys

Any of the twenty two keyboard keys may be user defined as hot keys, macros or for activating script command files. The keyboard macro editor is used to define the meaning and screen button label of the twenty two keys which include: F1-F12 and the keypad keys.

Terminal Screen

Characters sent from a remote host are displayed on a 24 line terminal screen. If your window is sized too small to view all the lines, the scroll bar must be used to

scroll the terminal top into view. If your window is sized to support more than 24 lines, the scroll buffer can be set to occupy these extra lines starting at the top of your screen.

Scroll Buffer

When your terminal scrolls, lines which scroll of the top are placed in the scroll buffer for later review. This buffer is configurable in size from 80 to 1500 lines. The bottom of the scroll buffer can be integrated into the UNICOM window (on top of the terminal) or hidden from view.

Modem Initialization

UNICOM will automatically send a modem initialization string to your Hayes compatible modem at the start of each session if the connection type is set to 'modem' in UNICOM's communication port setup screen.

Auto Start Script Execution

UNICOM can execute a predefined WinScript command file at the start of each program session To enable this feature, enter the file name of the auto-start script into the corresponding edit box within the general setup window. This window is activated by selecting General from the setup menu.

To disable auto-start script operation, activate the general setup window and remove the filename from the auto-start edit box.

Positioning the Startup Window

The position of and dimensions of UNICOM's startup window is determined by the Startup Window setting in the General Setup window. Three selections are available as described below:

Normal: UNICOM reads its stored window position and dimension from your win.ini file.

This information is saved during a Save Setup operation. UNICOM records the position and dimension of the window at the time of the last Save Setup. The next activation (in this mode) will cause UNICOM to examine win.ini for the position and size information. If found, the window will

be positioned and sized accordingly.

If this info is not found, Windows will determine the position and dimension of the startup window.

Full Screen: The window is zoomed to occupy the entire screen.

Iconic: UNICOM is minimized to an iconic state.

Communication Port Settings

The physical communication link is described to UNICOM using the setup window below in Figure 2. To activate this window, select Comm Port from the setup menu.

For most uses, your communication settings will be Word:8, Parity: NONE and Stop: One -OR-

Word:7, Parity: EVEN and Stop: One.

To establish successful communication with a remote computer, the following settings must exactly match those of the remote computer: Baud Rate, Parity, Stop, and Word.

If any of these settings are improperly set, the Windows port driver will detect a communication error. UNICOM will report these errors as PORT STATE messages on

the status line at the bottom of the window.

(see manual)

Figure 2. Communication Port Setup Window

Select the desired communication settings from this window using a mouse or keyboard.

COM1 through COM4 are shown as available options. If your computer does not support a particular port, an error message will be displayed if an attempt is made to configure it. If another device (or port) is assigned the same IRQ of device you select, the Microsoft Port driver may lock up and appear to freeze UNICOM.

Configuration Option Descriptions:

Port: Specifies the DOS name of your communications port. (COM1 - COM4)

Baud Rate: Port Operating Speed (bits transmitted per second) (300 bps to 128kb)

Parity: Specifies the character parity for the currently selected port. NONE means no parity bit is provided. EVEN, ODD, MARK, SPACE specify that parity will be set as follows: NONE is the usual setting but EVEN is commonly used.

EVEN Parity bit set to provide an even number of set bits.

ODD Parity bit set to provide an odd number of set bits.

MARK Parity bit always set.

SPACE Parity bit always clear.

Stop: 1 or 2 Stop Synchronization Bits, 1 is the usual setting.

Word: Defines the number of data bits that make up the character size.

Eight bit words are commonly used with no parity.

Seven bit words are commonly used with even parity.

Handshake: Is a means by which your computer (and the remote host) will control incoming and outgoing data. Some modems require a handshake to avoid losing data. Handshakes may be performed using hardware (RS-232 pins) or via software using special ASCII control characters. UNICOM provides selection of the following handshake types as supported by the Windows comm port driver:

Hardware: specifies that RS-232 pin 4: Request to Send (RTS) performs receive flow control and pin 5: clear to send (CTS) for transmit flow control. RTS will be dropped

when the receive queue is full and raised otherwise. Character transmission will be suspended when CTS is dropped by the external device and resumed when it is raised.

None: specifies no handshake. A software specific handshake is up to the application program (such as an XMODEM protocol transfer) driving each end of the communication link.

Xon/Xoff: interprets DC1 (CTL Q) and DC3 (CTL S) characters as special flow control characters. When UNICOM receives a DC3 (Xoff), it will suspend any transmission until a DC1 (Xon) is encountered. Likewise, when UNICOM's receive buffer is full, a DC3 (Xoff) is transmitted to the remote computer to cause it to suspend (provided the

remote recognizes XON/XOFF) transmission. UNICOM resumes the suspended

remote transmission (when ready) by transmitting a DC1.

Connection:

Instructs UNICOM to treat the remote connection as a modem or a direct computer-to-

computer link. If set to MODEM, UNICOM will transmit an init string at the start of

each program session and when invoking host mode. A modem reset command will

be issued upon terminating UNICOM.

Disable Error Report:

Controls the reporting of hardware detected communication errors from the

communication port driver being used with Windows.

Parity: When selected, disables reporting of parity errors detected in received characters.

Framing:When selected, disables reporting of improperly synchronized transmissions due to poor line quality or mismatched communication settings.

Overrun:When selected, disables reporting of a UNICOM transmit or receive buffer overflow conditions.

Select the port and the desired characteristics from the above options and press the CONFIGURE button to activate the port. To restore the port settings to the original configuration (as stored in the program configuration file), press the DEFAULT button

then press CONFIGURE.

Baud rates up to 19,200 are supported by the Windows 3.0 port driver. Special drivers and or hardware are required to use baud rates above 19,200.

NOTE: The Windows 3.0 port driver may become unreliable when operating at speeds above 9600. If UNICOM complains of CRC errors during file transfers above 9600 when you switch to another application that references a drive, the port driver may be at fault. If your version of Windows does not correct this problem, contact Microsoft at (206)637-7098. If no replacement driver (comm.drv) is available, 3rd party communication port drivers are available.

Terminal Settings

UNICOM's terminal setup window lets you control all aspects of your terminal screen.

Terminal type, fonts, colors, attributes, scroll buffer, terminal modes, terminal width and cursor type can be configured by selecting terminal from the setup menu. The terminal setup window will be displayed as shown below in Figure 3.

.

(see manual)

Figure 3. Terminal Setup Window

Options provided in the terminal setup window are described as follows:

Terminal Type:

DEC VT102 -(ANSI) :Emulates an ANSI compatible terminal including VT-100.

Supports special DEC character sets and double size chars.

DEC VT52: Emulates a DEC VT52 terminal.

ANSI-BBS: Provides an ANSI emulation compatible with that used in

dial-up bulletin board systems. Supports color.

TTY: No emulation, responds to ASCII control codes for cursor

movement, line control and character display.

Terminal Modes:

Newline: This option will automatically generate a linefeed upon receipt of a

carriage return. If characters seem to wrap around on a single line with your

particular host, enable this option. If lines always appear double-spaced, disable this option.

Local Echo: Some hosts do not echo characters back when typed from the keyboard. Half duplex systems typically operate this way (such as GEnie). Enable this option to instruct UNICOM to echo characters to the screen as they are typed from your keyboard. Likewise, should characters appear double on your screen, disable this option.

Autowrap: Some remote hosts do not position the cursor to the start of the next line after reaching the end of the current line. If enabled, this option will instruct UNICOM to move the cursor to the 1st column of the next line after the end of line is reached.

Erase on

Backspace: Once enabled, backspace characters received will be translated into BS-SPACE-BS to erase the character on your screen. This translation is normally performed by the remote host. If characters are not erased using backspace with your particular host, enable this option. This option has no effect if the backspace key is defined as a delete key (except for tty operation).

Backspace Controls the meaning of your backspace key. If checked, the key will operate as a

Key is DEL: delete key. When unchecked, the backspace key operates normally.

Scroll Buffer:

Lines edit box: The size and positioning of the scroll buffer is selected here. Enter the desired size (in lines) of the scroll buffer in the edit box. The scroll buffer can be sized from a minimum of 80 to a maximum of 1500 lines. Values entered that are outside this range will be reset to the closest limit.

Visible @ Top, if selected, the scroll buffer will be visibly integrated into the UNICOM window above the terminal screen. The bottom of the scroll buffer will occupy as many lines over 24 that can be displayed in the window. This will allow your video hardware to display the maximum number of lines possible.

Some remote hosts do not make clean use of your scroll buffer. Instead, the scroll

buffer may appear to contain useless junk. The scroll buffer can be hidden from view : just un-check the Visible @ Top option. This dedicates the entire window real estate to the 24 line terminal screen. The scroll buffer may still be accessed using the vertical scroll bar or paging options in the control menu.

Columns:

80 or 132 column widths are supported. This option will not automatically select an appropriate font size to allow viewing of the entire line. The user selected font (and size) will determine if the entire line can be viewed. In any case, the horizontal scroll bar will let you position the screen to scroll any obscured columns into view.

Terminal Font

All font facenames are enumerated for selection in the listbox on the left. These fonts are all available fonts installed by Windows, type managers or Window applications.

UNICOM loads its own fonts prefixed with VT100 you may access like any other font.

However, some of these fonts contain only special characters and symbols required by the VT102 emulation.

NOTE: The facename of the font also determines what character set is used.

The OEM (IBM) character set contains block drawing and line drawing characters in the high order ASCII range. The ANSI character set contains special symbols, accented characters and empty blocks in the high order ASCII range.

The Terminal font should be normally be used (in the U.S.) since many hosts and BBS computers use the line drawing characters to format their displays.

All other fonts use the ANSI character set.

See Appendix H for a description of the ASCII and OEM character sets.

WxH *All font sizes for the selected facename are enumerated in this listbox. As you select a different font name, this listbox is automatically updated to reflect the available sizes.*

Override

Width *An override width edit box is provided to allow you request a variation in font width. Entering an override width does not guarantee success. The resulting*

font size will be determined by Windows (not UNICOM).

Height An override height edit box allows you to request a variation in the font height. Like above, entering an override height will be considered (not guaranteed) by Windows when creating the font

Screen Color

Foreground: A rectangular window displays the currently selected text color to be used when UNICOM displays text to the screen. A horizontal scroll bar is provided for user selection of all supported text colors.

Background: A rectangular window displays the currently selected background color to be used when UNICOM displays text to the screen. A horizontal scroll bar is provided

for user selection of all supported text colors.

Foreground and background colors include:

Black, Red, Green , Blue, Cyan, Magenta, Yellow and White.

Char Spacing:

This option controls the spacing of proportional fonts such as roman and helv.

These fonts look nice but vary in their individual character widths. All known terminal emulations assume a fixed size font - the width (and height) of each character is equal. To use proportional fonts, each character must be positioned to a cell that can hold the widest character in the font. The resulting extra space is wasteful and it just doesn't look nice.

This character spacing option allows you to reduce this extra spacing at the risk of losing parts of wide characters such as uppercase W or X.

Normal: Characters are mapped to fixed size cells that can hold the widest character.

7/8: Characters are mapped to a fixed size cell sized 7/8 of the widest character.

3/4: Characters are mapped to a fixed size cell sized 3/4 of the widest character.

2/3 Characters are mapped to a fixed size cell sized 2/3 of the widest character.

This option has no affect on character placement for fixed sized fonts such as Terminal or Courier.

Cursor Blink *Cursor Type*

None: The cursor does not blink *Underline: Choose*

100: Blinks every 100 msec. *Vert Bar: your*

200: ' ' 200 msec. *Block: preference*

400: ' ' 400 msec.

It is a good idea to use blinking as the cursor may temporally disappear when activating other windows.

Initial Font Attribute

Normal: Characters are displayed with no special attributes

Underline: All characters will be underlined, screen erases will initialize all rows to underlined spaces.

Italic: Characters are displayed in italics. This attribute is a substitute for blinking.

Bold: All characters will be displayed bold.

These attributes are normally controlled by the remote computer that supports ANSI emulation. UNICOM will display subsequent characters using the selected attribute, until this attribute is overridden by the remote.

Normal is the suggested setting.

_____

_____

Modem Settings

UNICOM provides a modem setup window containing user selectable options for Hayes compatible modems. Select the MODEM option from the Setup menu. A Modem Setup window will appear (shown in Figure 4.) containing the current modem settings.

(see manual)

Figure 4. Modem Setup Window

The purpose of this window is to construct a modem init string that will be sent to the modem upon activating UNICOM or by pressing Accept. The modem setup window supports two types of init strings: User Entered and Selected. The two radio buttons located at the top of the window are used to determine which init string will be used by

UNICOM.

When selected, the User Entered radio button will instruct UNICOM to transmit the modem init string defined in the edit box. If the Selected radio button is chosen, UNICOM will construct a modem init string from the menu selections in the Selected Init String section.

User Entered Init String:

An edit box is provided so that you may define your own modem init string. You must prefix the string with an AT. Though not visible, UNICOM will append a terminating carriage return to the end of the string placed here. No user entered control

character prefixing is supported in this edit field.

Selected Init String:

A modem init string is constructed automatically based upon the configurable modem options contained in the Selected Init String section. These options are defined as follows:

Wait for dial tone: (2-255 seconds) DEFAULT = 2 determines the maximum time the modem will wait for a dial tone during dialing operations.

Wait for answer: (1-255 seconds) DEFAULT = 30 determines the time the modem will wait for an answer after dialing has commenced.

Dial Type: Tone or Pulse operation.

Speaker Control: Always OFF, ON for dialing or ON while the phone is off hook.

Auto Answer: ON or OFF.

Answer on ring [x]: If Auto Answer is enabled, the modem will pick up the phone on ring x (if x > 0).

Dialer Speed: Slow, Medium or Fast. This affects the dialing rate for tone operation only.

Call Waiting

Protection: ON or OFF.

When enabled, this feature will prevent the modem from breaking a phone connection because of a call waiting 'click' associated with incoming calls. The loss of carrier

time is extended to 10 seconds to prevent the modem from hanging up during this type of interruption. This method does not instruct the phone system to block waiting calls.

*Many local phone systems will allow you to dial *70 to block call waiting when dialing. The prefix/suffix dialing feature may be used for this purpose. See the Dialing Directory section for information on how to use prefix dialing.*

For more detailed information regarding these (and other) modem settings, refer to your modem reference manual.

Hayes compatible modems may differ in modem responses when attempting a

connection or hanging up by dropping the RS-232 data terminal ready signal.

A modem-specific setup window has been provided to describe responses and timing behavior that can vary from one Hayes compatible brand of modem to another.

To activate the modem-specific setup window, press the MORE pushbutton from the modem setup window. Figure 5.illustrates the Modem Specific Setup Window.

(see manual)

Figure 5. Modem Specific Setup Window

Connect String: This field should contain your modems response upon making a successful connection. When dialing, UNICOM examines modem responses to determine the result. The typical default string is uppercase CONNECT for most

Hayes compatible modems. Some modems respond with CARRIER followed by the connect baud rate. If UNICOM displays the message 'Connection Established' on the status line when using a program dialer, you can be sure the connect string is set properly.

No Connect Responses: Enter the possible responses produced by your modem that indicate unsuccessful dialing. If UNICOM encounters one of these strings during dialing, the specific response will be reported to the user. The most common responses are listed in the illustration above. Consult your modem reference manual for these response strings.

Hang Up String: Should UNICOM fail to hang up by dropping DTR, it will perform a

software hang up procedure. This involves sending the escape to command character sequence '+++' to bring the modem into command mode. Once in command mode, the modem is instructed to hang up using the string defined in this field.

Escape Guard Time: (0.5,1.0,1.5 Sec) This is the amount of time UNICOM will delay before and after sending the modem attention '+++' sequence to bring the modem into command mode during a software hangup attempt.

Response to DTR drop: Modems typically produce a response string once a connection is dropped for reasons that include loss of DTR. UNICOM drops DTR (RS-232 pin 20) for hang up operations and watches for the response defined here to determine if the attempt was successful.

To allow UNICOM to hang up quickly using the DTR drop method, you must provide this hardware signal to your modem using an RS-232 cable that supports pin 20. The modem must also be commanded to drop the line upon loss of DTR. This command is typically provided from the modem init string which is loaded at program initialization. Consult your modem reference for the particular modem command.

Entering a value in this field is not necessary if your modem cable provides Data Carrier Detect (DCD or RLSD). UNICOM will watch for this line to transition after dropping DTR. If this line changes state, UNICOM will consider the hangup successful. If no DTR drop response string or DCD transition is encountered after dropping DTR, UNICOM will perform a software hangup procedure.

Command Speed: (Slow,Med,Fast) Some Hayes compatible modems become confused when commands arrive too quickly to the modem. This option controls the amount of time to delay per character when commands are issued to the modem. A Fast setting means no character delay. Medium introduces a 30 msec delay and Slow introduces a 60 msec delay. For most modems, the Command Speed can be set to Fast.

Keyboard Settings

The meaning of your keyboard function and keypad keys are user definable. Function keys F1 through F12 and the keypad keys may be defined as keyboard macros, program hot keys or for launching script command files. To activate the keyboard macro editor, select Keyboard from the setup menu. The keyboard editor window will appear as shown in Figure 6.

Keyboard macros are simply character definitions that UNICOM will type for you.

Program hot keys are nothing more that predefined UNICOM menu picks, that when activated, perform the same action as if you selected the menu pick with the mouse or keyboard. A key may also be defined to launch a script command language file.

The entry you provide in definition field for each key will determine if the key is a macro, hot key or script launcher.

The following codes are used to define the key (^^ codes must appear in the first and second columns):

Script Launcher ^^Sscriptfile.ext

Executes the script file specified in the scriptfile.ext argument. The file is expected to reside in the UNICOM files directory. Example: ^^Sunicom.scr - activates unicom.scr.

No space is allowed between ^^S and the filename. The filename must not contain a drive and/or directory.

Hot Key ^^colrow

col is the position of the UNICOM menu. 1 = File, 2=Edit,... 8 = Utility.

row is the position within the selected menu that is to be activated.

No space is allowed between col and row.

Examples:

^^11 selects UNICOM's file logging feature in the file menu.

^^42 selects UNICOM's Transfer Upload menu pick.

For menu picks that are in positions greater than 9, position 10 or greater must be designated with reference to the characters that follow 9 in the ASCII character set. Position 10 = ':', 11 = ';', 12 = '<' and so on.

Please refer to Appendix C.

Macro Any text and/or control characters may be defined up to a maximum size of 80.

*Certain keys (marked with an asterisk *) have special meaning when using VT102 or VT52 emulations. You may override this special meaning by leaving the checkbox at the lower right of the Keyboard Macro editor unchecked. Once unchecked, these special keys operate with the definitions you provide.*

If the checkbox is set, F1-F4 operate as VT102 PF1 through PF4 keys. The arrow keys are used for cursor positioning.

(see manual)

Figure 6. Keyboard Macro Editor

To define a key, place the keystrokes into the definition editbox. Control characters can be inserted into macros and are denoted with the ^ character prefix. For example: ^C will output a control-C (ASCII 03). Control characters may be mixed with printable ASCII characters. Each macro is limited to a maximum of 80 characters. For a complete list of all possible prefix character combinations see Appendix I.

The label field for each key will be displayed in the corresponding screen button to identify the key. The key may be activated by pressing the key itself or by activating the screen button with your mouse. Screen buttons containing user defined labels

assigned to each function key are displayed at the bottom of the screen above the status line. To toggle display of these button on or off, select the User Keys item from the Control Menu.

Hot keys may be used to 'launch' utility applications stored in the Utility menu. Just add the desired applications to the Utility menu and note the position of the applications within the menu. The first position in the Utility menu is reserved for passing parameters.

As an example, a hot key to activate the first application stored in the Utility menu is: ^^82. ^^83 activates the second, ^^84 - the third and so on.

Figure 7 illustrates the use of the user defined screen buttons. The two rows of buttons

contain key

labels defined using the Keyboard Macro Editor.

(see manual)

Figure 7. Macro Screen Buttons

Host Mode Settings

Host mode allows remote access to your computer similar to that of a mini BBS. At a minimum, UNICOM requires that you establish a user id and password for each remote user. To activate the Host setup window, select Host from the Setup Menu. The Host Setup window will be displayed as shown below in Figure 8.

(see manual)

Figure 8. Host Setup Window

There are two types of settings : User and System. The User Maintenance section is used to maintain information about each remote user who will be allowed to login to your computer. All other settings are system settings that control how host mode

behaves for all users.

Host System Settings

Host Identification

String (80 chars max): This field contains the string that identifies your system to a remote user who is attempting to login. It is displayed when UNICOM detects a CONNECT response from the modem (if one is used). If the connection is set to computer in the comm port setup window, this message is displayed after the remote user enters 2 consecutive carriage returns. This string indicates the start of the login process.

Greeting File: This file contains text information that will be transmitted to the

remote user once a connection has been established but before a user logs in. This file may contain embedded escape codes to format the remote terminal screen. At each screenful of text (23 lines), the remote user is prompted: More? (Y/n).

A blank entry or invalid filename in this field will disable this option.

UNICOM will look for this file to be located in the UNICOM Files Directory as defined in the File Path Setup Window.

Bulletin File: This file is transmitted to the remote user after each successful user login. At each screenful of text, the remote user is prompted: More? (Y/n).

A blank entry or invalid filename in this field will disable this option.

UNICOM will look for this file to be located in the UNICOM Files Directory as defined in the File Path Setup Window.

Menu Filename: UNICOM provides a default remote user menu. You may define your own menu and cause UNICOM to display it to the remote user. The menu can be created using a text editor. Special control characters may be embedded in the file.

A blank entry or invalid filename in this field will cause UNICOM to display a default menu.

UNICOM will look for this file to be located in the UNICOM Files Directory as defined in the File Path Setup Window.

Help Filename: *A help option exists on the default menu presented to the remote user. When the user selects the help option, UNICOM will transmit the file named in this field to the user. A default help file is not provided with UNICOM. The help file must reside in the UNICOM files directory.*

Monitor Mode: *Allows viewing of the remote users session from the host display. The sysop may use the host keyboard to interact with the host menu. All characters type by the remote user (including passwords) can be viewed.*

No Activity Check: *Automatically logs out a remote user who does not respond to an input prompt for approximately 5 minutes. In all cases, the user will receive a lack of activity warning if no response has been received to a prompt after 45 seconds.*

Log User Activity: If enabled, UNICOM will log all user actions to the event file defined in the general setup window. User responses to the log in process, responses to menu picks, file and directory activity will be logged.

Dial Back Mode: This mode will allow a remote user to log in then UNICOM hangs up and calls the user back within 60 seconds. Each user record includes a phone number which is used to dial the user back. Dial back mode (once enabled) will be in effect for all users.

Time Limits: Remote users are limited in amount of time they may be logged in to your computer. Remote users are classified by access level (described in the next section). Level 3 is the most restrictive and Level 1 is the least restrictive access level.

Enter a time limit in minutes for each access level. A value of 0 will prohibit all users with the particular access level from logging in. A limit of 45 minutes is a suggested value.

Host User Settings

The user maintenance section of the host setup window lets you maintain information for each user authorized to access your computer through host mode. The listbox visible in this section contains the User IDs of all authorized users. By highlighting an entry in this listbox with a mouse or keyboard, existing entries may be changed or removed. New user records are created using the Add button.

Pushbutton

Add Used to create a new user record. Displays the Host User Setup window shown in Figure 9 below.

Delete Removes the user record associated with the User ID selected in the listbox.

Change Activates the Host User Setup window and fills in all fields with the user information of the User ID selected in the listbox.

(see manual)

Figure 9. Host User Setup window.

The Host User Setup window is displayed by selecting Add or Change from the user maintenance section of the Host Setup window. At a minimum, you must enter a User

ID, Password and Login Drive & Path. The Name and Address fields are not used by UNICOM and are for your reference only.

The telephone field is required if you intend to operate in dial back mode. UNICOM dials the number exactly as stored in this field. No modem commands are allowed in this field.

Each Host User field and option is defined as follows:

User ID : Identifies the remote user. UNICOM prompts the remote user for this name during login. Once logged in, the user id is displayed on UNICOM's status line to identify the current user.

Password: Validates the user attempting to log in with a particular User ID.

User Information

Name The real name of the user who is allowed remote access.

UNICOM does not use this field. It can be used anyway you choose.

Telephone The telephone number of the remote user. If operating in dialback mode, a modem must exist and be set to answer mode at this phone number.

Address The street address of the remote user can go here. Like the Name field, UNICOM does not use this field. It can be used anyway you choose.

Login Drive This field determines the initial drive and directory which the remote user will

& Path access once logged in. Users with access level 3 will be confined to this path.

Access

Level 1 Full access allowed. Can shell to DOS if running in 386 enhanced mode.

Level 2 Partial access. Same as Level 1, but user cannot shell to DOS.

Level 3 Limited access. Cannot upload, shell to DOS, or change directories.

File Paths

UNICOM must be told where its operating files are stored, where files received from data transfers are to be stored and where to look for files for upload selection. These three file paths are user selectable and altered by selecting File Paths from the Setup Menu.

A window will appear as shown in Figure 10. An edit box is provided for the following paths:

UNICOM Files Holds the executable UNICOM program, configuration files, script files, host mode

Directory support files, dialing directories, key files, menu files and other support

files.

Download File UNICOM stores files received from data transfers into this directory if a full

Directory pathname was not specified in the transfer. Full pathnames override this path.

Upload File When UNICOM prompts you for upload file selections, files contained this directory will

Directory be offered. See Figure 11. The script command SendFile will examine this directory for files specified in its argument list if the arguments do not contain a full pathname.

(see manual)

Figure 10. File Path Setup Window

All path information is stored in your Windows WIN.INI file under [UNICOM].

If a nonexistent path is entered in any of the fields, or if UNICOM.EXE does not reside in the path specified in the UNICOM files directory edit box, an error message box will be displayed.

Make sure all paths entered in these fields are valid. UNICOM cannot operate properly if any of these fields are incorrect. A batch upload selection window is shown below.

The files displayed in the directory listbox are those in a user selected Upload Directory named c:\win30

(see manual)

Figure 11. File Upload Selection Window

ASCII Transfer Settings

The ASCII transfer setup is divided into operating parameters for uploading and downloading operations. To access the ASCII transfer options, select the ASCII Xfer option from the setup menu. A setup window will appear as shown in Figure 12.

(see manual)

Figure 12. ASCII File Transfer Setup Window

ASCII Upload Parameters

Echo Locally: If enabled, the file data being transferred will be echoed to your screen.

Pace

Character: [0-99] The pace character is the numeric value of an ASCII character that is transmitted by the remote host receiving the file. This character is interpreted by UNICOM as 'send the next line'. UNICOM will wait for the remote to sent this character for each line transmitted.

Char Pacing: [0-999] Represents a delay time (in milliseconds) between transmission of each character to the remote host computer. Setting this value to zero, disables any time delay. A zero value also greatly increases speed.

Line Pacing: [0-999] Represents the time (in 1/10 seconds) to delay after the transmission of each line or carriage return. A zero value in this field disables line pacing.

CR Translation: [None, Strip or Add LF] Carriage return translation can be used to strip carriage returns or insert linefeeds (after carriage returns) for the file being transmitted. Selecting none disables any translation.

LF Translation: [None, Strip or ADD CR] Linefeed translation will strip linefeeds or add carriage returns after linefeeds to the file being transmitted. Selecting none disables any translation.

ASCII Download Parameters

CR translation and LF translation as described above will filter and control these characters received during ASCII file downloads from remote host computers. The selection and definition (as described above) for downloading is the same as for

uploading.

When downloading using ASCII, UNICOM will automatically end the transfer if a control-

Z character is encountered.

Kermit Transfer Setup

The Kermit is a configurable protocol and you may not want to change the settings shown in Figure 13 unless you are an advanced user. Assuming you are, here are the field definitions:

Max Packet Size: This is the maximum length for outbound packets, regardless of what was negotiated with the other Kermit. Normally, you would change this field (from the default) only to send shorter packets than the other Kermit requests, because you know something the other Kermit doesn't know, e.g. there's a device on the communication path with small buffers.

Timeout: This can be used to adjust the normal Kermit timeout parameter for both

local and remote systems. Timeout will occur if a packet is not received after the number of seconds specified in this field.

# of pad chars: This value controls the number of pad chars to be requested form the remote Kermit to precede each packet it sends. Padding is not usually required but may be necessary to keep some intervening communication happy.

Padding Char: Use the specified control character for interpacket padding. Some hosts may require padding characters (normally NULL or DEL) before a packet, and certain front ends or other communication equipment may need certain control characters to put them in the right mode. The number is the ASCII decimal value of the padding character, (0 - 31, or 127).

EOL Char: This field contains the ASCII value of the packet terminator to put on outbound packets. Normally a carriage return (13). Change this field if the other Kermit requires a nonstandard packet terminator.

Quote Char: This field contains the ASCII value of the character to be used to prefix control and other prefix characters. The only reason to change this would be for sending a very long file that contains many '#' characters (the normal control prefix) as data.

Port: (Switch to N-8-1 or No Switch) This option determines if UNICOM will automatically set the port for binary operation before Kermit is initiated. Selecting N-8-1 (the normal default) will allow Kermit to transfer binary data. No Switch should be

used if the remote Kermit does not switch automatically to 8 data bits, No parity and 1 stop bit.

NOTE: UNICOM's implementation of Kermit does not support transfer of 8 bit data through 7 bit links.

Much overhead is built into the design of Kermit. It's performance in UNICOM is limited to under 700 cps even when operating at the fastest baud rate possible. If you need performance, Zmodem and Ymodem G are recommended.

The fixed attribute definitions are not described here. Refer to the Kermit Users Guide from Columbia University.

General Setup Window

The General Setup window provides many user selectable options that affect program operation. This window allows you decide how UNICOM is to behave during many program procedures.

To activate the General Setup window, select General from the setup menu. A window will appear containing the current option settings as shown in Figure 14 below.

Figure 14 (see manual)

Definitions of General Setup Options

UNICOM

Startup Window:

The startup window options control the appearance of the UNICOM window upon program activation.

Normal: UNICOM will position and size its window on the screen according to where it was at the time of the last Save Setup. The values are stored in WIN.INI.

Full Screen: will zoom the UNICOM window to occupy the entire screen.

Iconic UNICOM will be activated in iconic form, the UNICOM icon will be displayed at the bottom of the screen.

User Keys: Controls the display of the user defined function key buttons at the bottom of the screen at program activation.

Scroll Bars: When enabled, UNICOM will display both horizontal and

vertical scroll bars at each program activation.

Logo: Controls the display of UNICOM's opening logo. Disabling the option speeds program startup time. Unregistered users cannot disable this option.

Verification

Prompts: If set, UNICOM will display a message box prompting the user to acknowledge end of file transfers, program termination and modem hangup operations.

Log Events:

to File Controls recording of events such as dialing, hanging up, executing scripts , file transfers and other program activities. Each event is time-

stamped. Events are written to the file whose name you provide in the edit box.

This file is assumed to reside in the UNICOM files directory. The drive and directory is not required in the filename.

Auto Minimize on

File Transfers: When checked, UNICOM will automatically iconize itself at the start of every file transfer. This can be useful for clearing the screen quickly so you may resume operating another windows application. UNICOM will pop back up to the screen after the transfer completes.

Auto Minimize on

Repeat Dialing: Enable this feature to quickly remove UNICOM from the screen

when batch dialing systems that are typically busy. UNICOM will pop back up to the screen when a connection has been established.

Notification Beeps are enabled or disabled with this option. Notification beeps occur at end of file transfers and upon successful dialing. The type of notification beep is determined by the file: UNICOM.SND which contains musical note and duration values.

Log Filter Terminal escape codes may be filtered out of any file or printer logging operation by enabling this feature. When disabled, no filtering is performed - incoming characters are logged exactly as received. This has no effect when using the TTY terminal.

Default File

Transfer Protocol: Choose the protocol to be selected within the upload and download protocol selection window when transferring files.

Auto File

Downloading

Zmodem: Controls detection of a Zmodem init packet. UNICOM will initiate a Zmodem download automatically at the request of the remote computer. Enabling the option will free you from manually selecting Transfer - Download, then Zmodem anytime you wish to receive a file.

CompuServe B Controls automatic detection of CompuServe B and Quick B file

transfers from

& Quick B CompuServe. If enabled, UNICOM will automatically begin download

and upload operations at the request of CompuServe. Automatic uploading is

supported only for these CompuServe protocols.

Dialing

Directory File: Enter the name of the default dialing directory to be loaded each

time you activate the Dialing Directory.

Script Editor: The filename of the script language editor of your choice should be

entered here. UNICOM activates this editor when the Edit, Edit Last or Create items

are selected from the script menu. If this field is empty, UNICOM will activate

Notepad by default.

AutoStart

Script File: A script filename entered in this edit box will automatically execute upon each initial activation of UNICOM. A blank entry or invalid filename in this field will disable the autostart feature. Script command files must be located in the directory defined by the UNICOM files path.

Keyboard

Macro File: The filename of the default keyboard macro file should be entered here. The keyboard macro file defines the meaning of the keyboard function keys either as macros or program Hot Keys.

Log File: UNICOM will default to the filename entered here when file logging is activated. This name is entered in the filename editbox that is displayed

when File Log is selected from the file menu.

Utility Menu Settings

(see manual)

Figure 15. Utility Menu Setup

This setup screen allows configuration of the Utility Menu with application entries of your choice. These applications are then listed by name for quick activation either from a menu selection or with a Hot Key definition. With this configuration screen, you may add many commonly used applications for a quick 'Launch' by UNICOM.

To operate this screen, just use the directory listbox to navigate across drives and directories to make your selections. Selected programs are stored in the right listbox shown in Figure 15 by highlighting the desired application then pressing ADD. This file

selection listbox is very similar to the batch upload file selection listbox used for file transfers.

Applications names may be removed by first highlighting the desired entry in the Selected Applications listbox then press the delete button.

Once you have selected all the desired applications, press Ok to instruct UNICOM to configure the Utility Menu. UNICOM stores the complete path for the application in memory. If the application cannot be found (or for any other activation error) when it is selected from the menu, UNICOM will automatically display this setup window.

Applications may be 'Launched' with the press of a function key by defining a Hot Key for the particular entry in the Utility Menu. For information on setting up hot keys, see

the previous section on Keyboard Macros.

Zmodem Transfer Setup

(see manual)

Figure 16. Zmodem Transfer Settings

UNICOM provides a Zmodem setup window (Figure 16) for advanced users of this protocol. If the setup screen seems confusing to you, don't worry, just select the Defaults push button to ensure correct operation. Advanced Zmodem users may wish to use some of the options provided by the design of this protocol. File management options allow examination of an existing file size and length before a transfer will occur. Other options control the amount of feedback during the transfer. Lot's of feedback could be useful for determining the source of problem transfers. The default is

minimum feedback since the additional reports can be quite confusing if you're not a Zmodem expert.

NOTE: The Zmodem upload option: Unlink After Transmission (if set) will DELETE the file on your disk once it has been uploaded.

Character Translation Tables

UNICOM provides user control over the translation of incoming and outgoing characters with the use of translation tables. Character translation, if enabled, is performed in terminal mode only. Translation is disabled during Chat mode, script operations and modem operations. To activate the translation table setup window, select Translation from the setup menu. A window will appear as shown in Figure 17 below.

(see manual)

Figure 17. Translation Table Setup Window.

A foreign language user may wish to map a special ANSI character the same character in the IBM PC extended character set. To accomplish this, a user would assign a new

value for the desired characters in the Outgoing character table.

Saving All Settings

All program settings listed in the Setup menu (including terminal font selections, keyboard definitions, scheduler settings and prefix/suffix info) may be saved to configuration files and loaded automatically for your next UNICOM session. To save all currently defined settings, select SAVE SETUP from the Setup menu.

UNICOM will update the configuration file which UNICOM was initially activated with. If UNICOM was activated without a configuration file argument, UNICOM.CFG will be used. The configuration file will be created if it does not already exist or cannot be found in the defined UNICOM files path. File path settings are written to the Windows WIN.INI file. Keyboard macro definitions are written to the file currently listed in the

General Setup Window. UNICOM.KEY is the default key filename.

A special configuration file named UNICOM2.CFG can be used to configure additional UNICOM instances. For example, selecting Spawn UNICOM from the files menu activates another copy of UNICOM. This new copy, or instance will need to be configured for a port different from that of the instance that created it.

You may activate additional instances of UNICOM with a configuration file parameter using an external application. Additional UNICOM instances activated from within UNICOM or externally will automatically look for a configuration file named UNICOM2.CFG. If this file cannot be found, previously described defaults apply. If these defaults fail, the new UNICOM instance will activate the communication port setup

window as a last resort.

Connecting to a Remote Computer

Introduction

UNICOM provides your computer with ability to communicate with another using a serial transmission link. The physical connection is typically a direct computer to computer RS-232 cable link or a modem/telephone link:

Computer to Computer Link *You'll need a null modem RS-232 cable (that reverses pin 2 & 3 and 4 & 5) with the appropriate gender that mates your serial DB-25 or DB-9 connector to the remote DB-25 or DB-9 connector. The length of the cable should not exceed 50 feet.*

Modem / A Hayes compatible modem connects to your computer port via RS-232

cable.

Telephone: Cable pins 2,3,1,7 and 20 are required as a minimum. If you intend to use hardware handshaking, pins 4 and 5 are required.

Connect the modem to the phone system. If the phone line supports call waiting, 'clicks' associated with an incoming call may interrupt (and drop) an active transmission link. For information about solving this problem: See Modem Settings in the section titled Setting Up UNICOM.

UNICOM is most commonly used to connect to other computers with the use of a modem and telephone line Most modems are "Hayes Compatible', that is, they recognize an established set of commands that include dialing, hanging up and

configuring various options supported by the modem.

Two dialing methods are provided in this software to allow you to easily connect to another remote computer using a modem.

Manual UNICOM will prompt the user for a phone number then command the modem

Dialing to dial the number.

Directory A directory of remote hosts is maintained by the user. Any directory entry is

Assisted easily dialed by just double-clicking on the entry with a mouse. Entries must

Dialing be first added to the directory before they can be dialed from the directory.

Using the Phone Dialer

The phone dialer is useful for manually dialing a single phone number. To activate the phone dialer, select the telephone icon on the tool bar or select the Dial option from the phone menu.

A window will appear as shown below in Figure 18.

(see manual)

Figure 18. Phone dialer window

Enter the desired number then press dial. The Dial button turns into an abort button when dialing has been initiated. If the modem reports that a connection has been made, UNICOM destroys this window automatically. The exit button may be pressed at

any time to remove the window from the screen (dialing will not be interrupted if in progress).

Answering an Incoming Data Call

There are two methods by which to answer an incoming data call.

1) Set your modem to auto answer by sending an init string to the modem. This is done from the Modem Setup Window. The modem will answer all calls after the set number of rings until another init string is sent to disable the option.

2) Command the modem to immediately answer an incoming call. This method is useful if your data call arrived before you had time to set the modem to auto-answer.

UNICOM supports both methods, the second method is initiated by selecting Answer Now! from the phone menu or by selecting the telephone pickup icon from the toolbar.

UNICOM will send an ATA command to the modem causing it to immediately answer

the incoming call.

Sending a 'BREAK'

Some remote host computers require the user to set the line to a break state in order to signal an event (such as aborting a display operation). You may instruct UNICOM to send this signal by selecting 'Break' from the Phone menu. The communication line will enter a break condition for 350 milliseconds.

Hanging Up

You may command the modem to hang up the phone by selecting the HANG UP option from the Control menu. UNICOM will attempt to hang up the line by dropping the data terminal ready line (DTR) to cause the modem to drop the line. UNICOM watches for a modem response string to determine if the operation was successful. The specific modem response must have been stored in the modem specific setup window in the Response to DTR drop field. UNICOM will also monitor the Data Carrier Detect (DCD) line for a state transition. If DCD transitions or the modem response to DTR drop was encountered, UNICOM will consider the hangup operation successful.

Should the modem fail to hang up using the hardware method described above, a

software hangup sequence will be initiated. The Hayes attention sequence ('+++') is transmitted to the modem in order to place it into command mode. Once in command mode, the modem is commanded to hang up using the hang up string defined in the Modem Specific Setup window.

The message 'MODEM READY' should appear indicating that the operation completed successfully. Should the message 'MODEM NOT RESPONDING' appear on the status line, the modem may still be online. If necessary, invoke the HANG UP command again.

Using The Dialing Directory

The dialing directory is a useful tool for automating the task of connecting to many different host computers. After adding a host to the directory, dialing becomes easy - just double-click on the desired directory entry with your mouse. UNICOM will automatically dial the remote host and configure itself to the various settings provided in the directory entry. A directory editor is easily accessed from the directory. An example directory is shown below in Figure 19.

Many different directories may be created and loaded. The number of entries in a directory is limited only by the amount of available memory in you computer.

(see manual)

Figure 19. Dialing Directory

Each directory entry contains a number of fields as described below. The horizontal scrollbar below the listbox will allow you to scroll obscured fields (right of the script-file column) into view. The vertical scrollbar is used to scroll hidden entries into view.

Directory Field		*Description*
System Name:	*(22 chars max)*	*Identifies the remote host system*
Number :	*(15 chars max)*	*Telephone number (The dial string can be used to extend this)*
Duplex	*(Full or Half)*	*Normally set to Full.*

Baud: (300,1200,2400,4800,9600,19200 or 38400)

P (arity): E(ven) or O(dd)

D (ata bits): 7 or 8

S (top bits): 1 or 2 - Normally 1

Script-File: This field contains the name of script file in the UNICOM files directory to be executed upon successful dialing. If the directory entry does not include a phone number, UNICOM will not attempt to dial but will immediately execute any script file defined here.

Dialing String: (24 chars max) Contains a modem dialing command and can be

used to extend a phone number beyond the 15 character limit.

This field allows you to use your own modem dial command and include specific modem settings that may be necessary to dial the remote host. The phone number listed above is appended to this string. If blank, UNICOM provides it's own dial string. A typical dial string is ATDT. No control prefixing is supported here.

Password: (16 chars max) Displays the host password during dialing as a reminder for logging in.

Terminal: (VT102, ANSI-BBS, VT52 or TTY) Desired emulation for use with the remote host.

Protocol: Default file transfer protocol for the remote system.

Last-on-

Date/Time: Time stamp of last access to the host system (Maintained by UNICOM)

Sessions: Count of the total number of access attempts to this host (Maintained by UNICOM)

Maintaining the Directory

The directory maintenance section of dialing directory lets you: add, change, delete and locate entries in the current directory. Directories may be loaded and saved by name.

The pushbuttons contained in the directory maintenance section are describe as follows:

Pushbutton	*Description*
Find:	*Activates a search window to allow the user to locate a directory entry using a specified pattern. An edit box is displayed to accept the pattern. All directory fields are searched. The first directory entry containing a pattern match will be highlighted and scrolled into view.*

Open: *A directory file selection window is activated.*

Add: *Activates the directory editor.*

Change: *Activates the directory editor with the current directly selection.*

Delete: *Removes all highlighted entries from the dialing directory listbox.*

Save: *Displays a file save window for saving the current directory.*

Adding a Directory Entry

Adding entries to the directory is made simple with the use of the directory editor. To activate the directory editor, select the ADD button from the directory. The editor window will appear as shown in Figure 20. After creating the host entry, select the ADD button. This record will be added to the directory listbox containing the current

directory.

(see manual)

Figure 20. Dialing Directory Editor

Deleting a Directory Entry

To remove an entry from the dialing directory, scroll the entry into view (if necessary) and highlight your selection with the mouse or keyboard. Press the DELETE button to remove the entry. Multiple entries may be removed in a single delete operation. Just highlight all the desired entries then press DELETE. To restore the directory to its original contents, just exit the dialing directory without saving your changes. Any deleted entries will re-appear the next time the dialing directory is displayed.

Changing a Directory Entry

To edit an existing entry, highlight the desired directory listbox entry and press CHANGE. The directory editor will appear displaying the settings for the selected entry. Make any necessary changes then press Change from within the directory editor. The entry in the directory listbox will be immediately updated. To make changes permanent, the directory must be saved (see below).

Saving the Directory

Changes to the directory can be made permanent by selecting SAVE from the dialing directory window. A file save window will appear prompting you for the name of the file to receive the current directory. The edit box in this window will be preset to that of the

current directory filename by default.

UNICOM will prompt you to save the directory if you attempt to exit the directory without saving your changes.

The directory window is automatically closed upon successful dialing. If this occurs, any unsaved changes will be written to the current directory file.

Opening a Directory

Many dialing directories may be maintained and stored on disk for retrieval into the directory display. To load a UNICOM dialing directory, select the OPEN option from within the directory maintenance section. A file selection listbox will appear. Once a valid directory file has been selected, the directory listbox will be updated with the file

contents.

You may begin dialing or editing operations with any directory file once it has been loaded.

Searching the Directory

The current dialing directory may be search for a specific pattern in any field. To activate the directory search window, press the Find button. An edit box is displayed within the window (see Figure 21) for input of a search string. Check the Match Case option for a case sensitive search.

If a directory entry contains a matching pattern, the entry will be highlighted and, if necessary, scrolled into view.

(see manual)

Figure 21 Directory Search Window

Dialing from the Directory

To connect to a system listed in the dialing directory, highlight the target system and press DIAL. Dialing may be also be performed with a double mouse click on the listbox entry. UNICOM sets the communication parameters to that of the target system BEFORE dialing is attempted. Please note: In order for your modem to receive commands properly, the communication parameters must be as follows:

BAUD	Word Size	Parity	Stop Bits
0 - 300	7 or 8	Even	1 or 2
	7 or 8	Odd	1 or 2
	7 or 8	None	1 or 2

1200 or	*7*	*Even*	*1 or 2*
greater	*7*	*Odd*	*1 or 2*
	8	*None*	*1 or 2*

Should you attempt to dial a system with communication settings different from above, or if the modem does not support the baud rate listed in the directory entry, the modem may not receive commands properly and a PORT STATE message could appear.

The PORT STATE message is displayed on the status line along with an error code any time an error occurs during communication. Reporting of PORT STATE Parity, Framing and Overrun messages may be enabled or disabled from the user selectable options in the Comm Port setup window.

For a complete list of these error codes and their meaning, see Appendix E.

Dialing a Remote Computer

When the DIAL button is pressed after making a directory selection, the communication port is configured using the port parameters listed in the directory entry. The modem is then commanded to dial using the phone number selected from the directory.

A dialing message will appear on the status line indicating that UNICOM has entered the dialing state. This message also displays host specific information. If the dialing directory is displayed, it's window title will receive the same messages shown on the status line.

Once connected to the remote system, UNICOM checks to see if a script file has been

defined in the directory to automate the login process. This script file must be located in the defined UNICOM files directory. If found, UNICOM begins processing the script file until it successfully completes or is aborted by selecting STOP from the Script menu.

If dialing is initiated without a number listed in the directory entry, UNICOM will check the entry for a script file. If one is found, UNICOM will close the directory and immediately execute the script file.

Directory Options

Redial Delay: This checkbox and editbox option: Redial with ____ second delay controls the amount of time UNICOM will pause when redialing a number due to a no connect response. The edit box ___ is provided to let you enter the desired amount of delay. If this is enabled during batch dialing, the specified delay will be introduced before dialing the next number.

Set port to Modem Connect Speed: UNICOM sets the communication port to the baud rate specified in the directory entry before dialing. If this feature is set, UNICOM watches for the modem CONNECT speed report then sets the computer port baud rate to match. This feature is useful for modems that cannot lock the baud rate between the

computer and modem. This feature eliminates the need to manually change the port speed if the remote answered at a different baud rate than expected.

View Modem Response To Commands: If set, UNICOM will echo all modem responses produced by the modem during dialing directly to the screen.

Sort Directory: Controls the ordering of the directory entries. If enabled, entries are displayed alphabetically. New entries are added in sorted order. If disabled, new entries are added at the top of the directory listbox.

Apply to All Determines if prefix / suffix dialing will be used for all directory entries. See below:

Dialing Using a Prefix / Suffix

Prefix and suffix dialing is useful for special dialing operations like credit card dialing or dialing to 'get out' to a real telephone system. Normally UNICOM commands the modem to dial a number from the directory using one dial command. When using Prefix / Suffix dialing, UNICOM commands the modem to dial up to three times.

*If the system being dialed is designated for prefix dialing (* in column1 of the name field), UNICOM will transmit a dialing string followed by the user defined prefix string. UNICOM appends a semicolon to the dialing command to instruct the modem to return to command mode. Normally embedded in the prefix string are commas (1-3) which allow a minimum of 2 seconds of delay time before dialing again. Some modems*

support a W command which will allow you to eliminate the need for commas since the modem can wait until a second dial tone is detected.

After the delay, UNICOM commands the modem to dial a second time using the phone number for the entry being dialed. If a suffix will be dialed, the phone number should contain a modem command to allow for any necessary delay (like 3rd dial tone). If no suffix is defined, UNICOM issues no further dialing commands and the wait for a connection begins.

If a suffix is defined, UNICOM appends a semicolon to the end of the dialing command for the phone number to return the modem to command mode. Once in command mode, the modem is commanded to dial using the suffix and a wait for a connection

begins.

Long Distance Services

UNICOM may be used to dial systems using most long distance services. Long distance services require that you perform the following:

1) Dial the local long distance access number & wait for a tone

2) Touch tone the desired long distance number.

3) Wait for another tone

3) Touch tone your secret access code

4) Wait for a connection

This procedure may be accomplished with the use of UNICOM's dialing prefix/suffix

capability. To setup this special dialing feature: identify the directory entry to be dialed for special dialing. Enter or edit a system entry in the Dialing Directory and place an asterisk in column one of the name field. UNICOM will recognize the entry for special dialing when it is selected.

Create the dialing prefix and suffix. In this case, the prefix should contain the local long distance access number to be dialed and some trailing modem pause command characters for an additional connection wait. The suffix will contain some leading modem pause command characters since the phone number is limited in length. The remaining suffix will contain the secret access code to authorize your use of the service.

To create the dialing prefix and suffix, select the EDIT button from within the dialing

directory.

Figure 22 shows a pop up window that will appear displaying the currently defined dialing prefix and suffix. To make changes, place your desired strings into the corresponding edit boxes and press Ok. The stored dialing prefix and suffix will be made permanent once the system configuration is saved by selecting Save Setup from the setup menu.

(see manual)

Figure 22. Modem Dialing Prefix/Suffix Edit Window

The prefix string in the Window above contains the local access number for MCI.

Trailing commas instruct the modem to wait additional seconds for the connection to be

made. UNICOM appends a semicolon to the prefix to command the modem to re-enter command mode. This allows full use of the modems command buffer which typically is limited to 40 characters - not enough to hold the prefix, phone number and suffix for one-shot dialing.

In other words, when using special dialing, UNICOM commands the modem to dial up to three times. Once for the prefix, once for the phone number and once for the suffix (if defined). To use this feature, your modem must have the capability to reenter command mode after a dialing command. Most Hayes compatible modems support the semicolon to return to command mode when dialing.

Dialing may be performed with just a prefix, in which case UNICOM will not append a

semicolon to the phone number. It is not possible to dial the number and suffix less the prefix.

Exiting the Dialing Directory

To exit the dialing directory, press the EXIT button or the ESC key. If any changes were made to the dialing directory, you will be prompted to save them. The dialing directory window is automatically closed upon a successful connection to a remote system.

Automatic Redialing

Some remote systems (such as bulletin boards) may require numerous dialing attempts in order to get through. The automatic redialing feature can be used for this purpose.

When enabled, UNICOM will re-dial until a connection is established or until redialing is disabled. To enable or disable this feature, set or clear the checkbox labeled 'Redial with __ second delay' as shown in Figure 23. This checkbox is located below the DIAL button from within the dialing directory.

Once set, redialing will occur whenever the modem returns no connect responses as defined in the No Connect fields within the Modem Specific Setup Window.

Aborting a Call in Progress

To ABORT a call initiated from the dialing directory, press the ABORT button from the dialing directory or press the ESC key repeatedly. Since the escape key is also used to close windows (such as the dialing directory) that may be visible, UNICOM will not recognize the ESC key as an abort until these windows have been closed.

Batch Dialing

A batch dialing feature has been included for dialing within the dialing directory. This feature is useful when trying to connect with one of any number of typically 'busy' remote systems (such as bulletin boards). Batch dialing will terminate if one of the systems being dialed answers or after the last system has been dialed. The batch operation may be repeated if no connection could be established after dialing all the specified numbers by selecting the redial checkbox.

Selecting systems to be dialed in batch can be accomplished as follows:

(see manual)

Figure 23. Batch Dialing Selections

For Keyboard Users

To make a batch selection, hold down the CTRL key and press the UP or Down Arrow key to move to the system to be selected. Select and highlight the entry by holding down the SHIFT key and pressing the SPACEBAR. Repeat these steps to make more selections. Figure 23 above illustrates (highlighted) batch dialing selections.

For Mouse Users

Scroll the listbox entry into view using the scrollbar and position the mouse to the desired entry. Hold down the SHIFT key and press the LEFT mouse button to highlight the entry. Repeat this step to select additional systems to be dialed. When all the systems have been selected, begin dialing by activating the DIAL button with the mouse, or entering ALT D using the keyboard.

Screen Editing

UNICOM release 3.0 allows you to edit the screen buffer directly with your mouse.

Text may be highlighted using the mouse then erased, copied to the clipboard,

transmitted back to the host or marked as a download file.

To highlight a screen selection for editing, move the cursor the desired starting position.

Hold down the left mouse button (the cursor changes to a hand) and move the cursor to

the ending position. Let up on the left mouse button and select an editing operation

from the edit menu.

Erasing the Terminal

To clear the terminal screen, select ERASE TERMINAL from the Edit menu. The cursor will move to the first row and column of the active terminal screen. If the cursor should disappear after clearing the screen, the 1st row of the terminal screen may be located above the top of the window. Should this happen, use the scroll bar to bring the top line into view. This command does not erase the contents of the terminal scroll back buffer. If characters remain on the screen after an erase, they belong to the scroll back buffer.

Erasing the Scroll Buffer

The scroll back buffer is user selectable in size and can hold a maximum of 1500 lines of text including the 24 lines of the active terminal screen. To erase the entire scroll buffer contents, select Erase Buffer from the edit menu.

Erasing Selected Text

Highlight a selected area on the screen then select Erase from the edit menu. The highlighted rows and columns will be cleared using the current background color. Once a selection has been erased, there is no way to recover the erased area.

Copying Selected Text to the Clipboard

You can copy screen text to the Clipboard then paste this text into other applications.

Select the COPY option from the Edit menu. The entire terminal screen (excluding the scroll back buffer) will be copied, including any rows and columns obscured by a small sized window.

Copying the Window to the Clipboard

The entire window contents may be copied to the clipboard as text by selecting Copy Window from the Edit menu. Text obscured by any side of the window will not be copied. This is a wysiwyg option.

Copying the Scroll Buffer to the Clipboard

The contents of the entire scroll buffer may be copied to the Clipboard as text. Once on the Clipboard, this text may be saved to a file using the Clipboard file save option.

The text may also be copied to any other application that supports a paste option.

Pasting Clipboard Text to a Remote Computer

Clipboard text may be pasted (transmitted) to the remote host computer. This operation is equivalent to uploading an ASCII file. An ASCII file can be copied to the Clipboard using a program such as Notepad. The text can then be pasted (uploaded) to the remote host by selecting PASTE from the Edit menu. The file transfer information window will appear once pasting has begun. A moving bar graph gives a visual readout as to the number of bytes remaining to be transferred at any given time.

Sending Selected Text

Selected portions of your screen may be transmitted back to the remote computer.

Just highlight the desired area using the mouse then select Send from the edit menu.

Selecting Send with CR will append a carriage return to the transmitted text.

Selecting All Text

The entire scroll buffer can be selected (highlighted) at once by activating the Select All menu option from the Edit menu. The text can then be copied to the clipboard, transmitted to the remote or erased.

Searching the Screen Buffer

The scroll buffer may be searched for the occurrence of a user entered pattern. Select the Find option from the Edit menu. A window will appear as shown in Figure 24 to prompt the user for a pattern. Enter the pattern into the edit box. If the search is to be case sensitive, select the Match Case checkbox. Press Begin to initiate a top to bottom search. Subsequent searches may be performed by selecting Find Next from the edit menu.

(see manual)

Figure 24 Search Buffer Window.

Printing Operations

Printer Logging

Incoming characters may be echoed directly to a printer. To activate printer logging, select the Printer Logging toggle from the files menu. A checkmark will appear next to the menu item to show that it is active. The printer used by this feature is the current (active) printer defined by configuration settings in your WIN.INI file as set using the Windows Control Panel.

Printer logging and file logging may operate simultaneously. UNICOM logs to the printer on a per page basis. The printer will produce output only when logging has exceeded the current printer page size.

To disable printer logging, again, select the Printer Logging toggle from the files menu.

UNICOM provides a log filter that when enabled, filters terminal escape sequences when logging to a printer or file. Select General from the Setup Menu to locate this option.

Printing the Terminal Screen

A UNICOM screen snapshot may be sent to the printer at any time by selecting PRINT from the File menu. A message box containing a CANCEL button will appear to inform you of the print operation. Press the CANCEL button to abort printing.

Printing the Screen Buffer

The entire contents of the terminal scroll back buffer can be printed by selecting the PRINT BUFFER option from the files menu. Blank lines are not filtered out when printing. The buffer print is a snapshot in time - what you see at the instant the print was initiated is what you get when printing is finished. Any updates to the terminal or scroll back buffer are ignored during printing.

Configuring the Active Printer

To view or change the current printer settings, activate the Printer Setup option from within UNICOM's file menu. A printer setup window will appear that will allow you to configure specific options for your particular printer.

Figure 25 illustrates the setup window obtained for a HP LaserJet Series III printer.

(see manual)

Figure 25. Example Printer Setup Window

Transferring Files

Introduction

File exchange between your computer and another is what UNICOM readily provides.

Many popular file transfer protocols are built-in and fully implemented for background operation, they include: X-Y-ZMODEM, Kermit, CompuServe B , Quick B and ASCII.

Before a file exchange can take place, you must decide on the particular protocol to use between both computers. If the remote computer does not support any of the protocols provided with your communication package, binary file transfers cannot take place.

Fortunately, UNICOM provides the most popular and widely used protocols.

Those who are performance minded should use ZMODEM or YMODEM - G protocols.

ZMODEM offers the best all around performance and reliability. Users with high speed error correcting modems can use YMODEM-G to obtain very impressive throughput.

Once you have determined which transfer protocol to use with the remote computer, the next step is to instruct both computers to begin the transfer. The computer transmitting the file needs to be instructed to begin. The computer receiving the file usually needs to be instructed to receive. If this process is not completed in a timely manner, one or both computers will 'time out'. Some communication packages (like UNICOM) can detect the download operation and start automatically when ZMODEM or CompuServe protocols are used.

Downloading Files

To download a file into your computer, instruct the remote system to send the desired file(s) then select the DOWNLOAD FILE option from the Control menu. The PgDn key (if not macro defined) may also be used. UNICOM will then prompt you to select a protocol from window as shown in Figure 26.

If automatic downloading is enabled for Zmodem or CompuServe B /Quick B, UNICOM will detect the transfer request and automatically start the download on your end.

Otherwise, UNICOM will display the protocol selection window below.

(see manual)

Figure 26. Download Protocol Selection Window

You may choose from XMODEM, YMODEM, ZMODEM, Kermit, CompuServe B, Quick B or ASCII protocols. After a selection has been made, the UNICOM will initiate the download. If ASCII was selected, UNICOM will prompt you for a filename in which to store the file.

The download filename is obtained by the remote host for YMODEM, ZMODEM, KERMIT and CompuServe B & QuickB protocols. UNICOM automatically scans the scroll buffer to obtain a download filename when using XMODEM. If no valid filename is found, UNICOM will prompt you for the name.

Throughout the course of the file transfer, an information window is displayed so that you may easily monitor the transfer operation. This window (shown in Figure 27 below)

provides the following information: the name of the file, number of bytes transferred, current block number, error count, estimated transfer time, estimated remaining transfer time, elapsed time, characters per second (CPS), % efficiency and any messages generated from the use of the selected protocol.

(see manual)

Figure 27. File Transfer Information Window

A graphical bar display gives a visual report regarding the amount of data transferred at any time. For uploading, the bar moves down on a scale that reflects the bytes remaining to be transferred.

Downloading causes the bar to move up on a scale indicating the number of bytes

received. To abort a transfer in progress, mouse users may select the ABORT button from the information window. Keyboard users must press the ESC key or hit the space bar.

The efficiency report is based on the baud rate of your communications port. If the modem to modem baud rate is lower than your computer to modem baud rate, an unusually low efficiency report will result which may fool you to believe that performance is bad when it is not. If this is the case, use the CPS report to measure performance.

Uploading Files

To upload a file to the remote system, instruct the remote computer to receive a file from you. Initiate the file upload on your computer by selecting UPLOAD FILE from the transfer menu. A protocol selection window will appear as shown in Figure 28.

(see manual)

Figure 28. Upload Protocol Selection Window

The PgUp key (if not macro defined) or the UPLOAD screen button may also be used.

After selecting an upload protocol, an upload file selection window will appear to allow you to search your disk for file(s) to be transferred. The file(s) to be uploaded may be entered by name or selected from the listbox containing directory entries. The file

selection window shown in Figure 29 will be displayed for non-batch upload protocols.

(see manual)

Figure 29. Non-Batch File Upload Selection Window

The Upload Path determines the default directory for making upload file selections.

The upload file directory listbox may be set to display files from a different drive. Just scroll the drive letter into view within the list box and double click on the entry. To change directories, double click on any directory entry displayed.

For ZMODEM or YMODEM file transfers, a Batch Upload File Selection box will appear containing two listboxes as shown below in Figure 30.

(see manual)

Figure 30. Batch Upload File Selection Window

The listbox on the left displays the current directory of files from which to select. The listbox on the right contains the selected files for transfer. Batch selections are made by double clicking the mouse on a selected file. Keyboard users must highlight the selection and use the tab key to activate the ADD button.

Once this is done, the file is added to the right listbox containing selected files. After making the file selection(s), press GO!. The transfer will begin and an information window will appear for transfer monitoring.

Marking a File for Download

UNICOM provides a file marker feature that frees you from remembering the filenames for the files you wish to download. As a BBS displays its list of available files, highlight the filename of a desired file with the mouse, then select Mark File from the transfer menu or select the file mark icon from the toolbar. After marking the 1st file, a File Marker window will be displayed.

The file marker window is titled "Marked Files". In this window you may :

1) Delete the currently highlighted filename selection by pressing the Del button.

2) Transmit the currently highlighted filename to the remote computer. - or-

3) Close the window - thus losing all marked file selections by pressing Exit.

Figure 31 illustrates a common interaction with a BBS requesting filenames for downloading.

(see manual)

Figure 31. File Marking

In the window above, 5 files were selected using the file marker feature. The BBS is requesting filenames. Filenames are transmitted (and emptied) from the filemarker listbox to the BBS one at a time as you press the Send button. When the filemarker listbox is completely emptied, the window is automatically closed. Note: The author lost his license # when creating this example. (UNLICENSED EVALUATION). Don't let

this happen to you.

Automatic Downloading

The typical downloading procedure begins by instructing the remote computer to send a file. Then on your end, you command the communications software to begin receiving after 1st selecting the appropriate protocol. This second step can be avoided by using the automatic download feature provided with UNICOM..

UNICOM supports automatic downloading when using ZMODEM, CompuServe B or Quick B protocols. This option is enabled or disabled from the General Setup window.

When enabled, UNICOM continuously monitors all incoming characters for special signatures that indicate the start of a file transfer. These signatures are unique and can identify the protocol type. Not all file transfer protocols are designed to provide this

capability.

When UNICOM encounters a Zmodem or a CompuServe signature, downloading is automatically initiated.

File Transfer Protocols

Many popular file transfer protocols have been implemented in UNICOM for full

background operation:

XMODEM

XMODEM is a block-oriented error checking protocol introduced to the public domain by Ward Christensen. It is widely used by many electronic bulletin board systems.

XMODEM transfers a single file at a time. The protocol uses a checksum or cyclic redundancy check (CRC) for error checking. XMODEM can handle text or binary files with over 99% accuracy. UNICOM provides three common variations of XMODEM: XMODEM Checksum, XMODEM CRC and XMODEM 1K(old YMODEM).

YMODEM BATCH

The YMODEM Batch protocol is an extension to the XMODEM/CRC protocol that permits transmission of full pathnames, file length, file date, and other attribute information. The design approach of the YMODEM Batch protocol is to use the normal routines for sending and receiving XMODEM blocks in a layered fashion similar to packet switching methods.

YMODEM G

Developing technology is providing phone line data transmission at ever higher speeds using very specialized techniques. These high speed modems, as well as session protocols, provide high speed, nearly error free communications at the expense of

considerably increased delay time.

This delay time is moderate compared to human interactions, but it cripples the throughput of most error correcting protocols.

YMODEM G has proven effective under these circumstances. YMODEM G is driven by the receiver, which initiates the batch transfer by transmitting a G instead of C. When the sender recognizes the G, it bypasses the usual wait for an ACK to each transmitted block, sending succeeding blocks at full speed, subject to XOFF/XON or other flow control exerted by the medium.

The sender expects an initial G to initiate the transmission of a particular file, and also expects an ACK on the EOT sent at the end of each file This synchronization allows

the receiver time to open and close files as necessary.

If an error is detected in a YMODEM G transfer, the receiver aborts the transfer with the multiple CAN abort sequence. The ZMODEM protocol should be used in applications that require both streaming throughput and error recovery.

ZMODEM

ZMODEM is a second generation streaming protocol for text and binary file transmission between applications running on microcomputers and mainframes.

Zmodem is designed for optimum performance with minimum degradation caused by delays introduced by packed switched networks and timesharing systems.

ZMODEM accommodates network and timesharing system delays by continuously transmitting data unless the receiver interrupts the sender to request retransmission of garbled data. ZMODEM in effect uses the entire file as a window. Using the entire file as a window simplifies buffer management, avoiding the window overrun failure modes that affect other windowing protocols.

Resuming an Aborted Zmodem Transfer

UNICOM supports the ZMODEM Crash Recovery feature so aborted transfers may resume at the point of interruption. When ZMODEM Resume is specified by the receiver on the next transfer attempt, the receiver compares the size of the interrupted file to that of the sender. If the sending file is longer, the receiver instructs the sender to resume transmission at the appropriate offset and appends the incoming data to the existing local file.

Kermit

Kermit is a packet-oriented protocol developed at Columbia University and is available on many computer systems. UNICOM supports only the basic implementation of the Kermit protocol. The following Kermit options are fixed in this release of UNICOM.

No 8 bit Prefixing - (means : no 8 bit data thru 7 bit links)

One char checksum

No repeat prefix

CompuServe B and Quick B

CompuServe B is similar to XMODEM in the send/check/reply design but is a host-controlled protocol. The host (CIS) always tells the remote what to do next, no matter what the direction of transfer. Each packet (block) of the transfer contains a header describing the contents of the packet, either information, data or control.

UNICOM will automatically step up to QUICK B (QB) when requested to do so by CompuServe. QB is a thoughtful extension of B. The extensions include two new types of packets and acknowledgment windowing for drastically improved bandwidth.

QB adds CRC-type checksumming capability to the B arithmetic checksum for improved error detection, and extends packet size to 2K (although the current size used is 1K

packets) or reduce packet size to 256 bytes.

ASCII

ASCII is a very basic method of data transfer. No error detection is performed and the file should be free of non-printable characters other than carriage returns or linefeeds.

Some host systems require XON/XOFF flow control to be used for handshaking purposes during ASCII transfers. If the remote host computer requires XON/XOFF flow control, enable this handshake option in the Comm Port setup window.

Using External Protocols

External protocols may be activated by executing a specially constructed UNICOM script file. Though their use is not recommended (or guaranteed), external protocols will require UNICOM to perform the following:

1) Release control of the communications port.

2) Activate the external protocol using specific parameters.

3) Go to sleep.

4) Wake up and re-connect to the communications port when the external protocol has completed.

The script file to accomplish these steps (as described) may resemble the following

example:

```
    INPUTSTRING FILE "Enter a Download Filename"

    INPUTSTRING EXTERN   "Enter the External Protocol"

    PORT NONE        (UNICOM gives up current port)

    RUN  COMMAND.COM   EXTERN "download command" FILE "port cfg"

    SHOWWINDOW          ("UNICOM 2.0",     HIDE)

    WHILE NOT FOUND       ;(Wait till the protocol is done)

      FINDWINDOW ("Command")

    ENDWHILE

                          ;(Re-connect and display UNICOM)
```

PORT "LASTDEVICE;LASTBAUD;LASTPARITY;LASTWORD..."

SHOWWINDOW "UNICOM 2.0" SHOW

EXIT

The above example is presented as a suggestion for constructing script files to support external protocols. It should not be considered as a fully functional model.

External protocols written for DOS may behave poorly in the Windows environment.

Multitasking performance can be drastically reduced when executing DOS (external) applications using Windows 3.

Use of external protocols with UNICOM is possible, but not recommended.

Section 9

WinScript Command Language

Introduction to WinScript

WinScript is a Windows script language that gives you the ability develop custom applications for use with UNICOM. A rich set of functions have been provided that support communication, file management, window control, modem control, system interface, windows graphics and more.

WinScript Language Elements

WinScript provides Conditional Expressions that allow you to make program decisions to alter program control.

WHILE (expression is true)

; do these commands

ENDWHILE

IF (expression is true)

; do these commands if true

ELSE

; do these commands if not true

ENDIF

SWITCH (expression) ; The switch expression is compared to each case

CASE expression1 ; if this case matches control is passed to the next line

; do these commands

ENDCASE

CASE expression2

; do these commands

ENDCASE

DEFAULT ; this is optional

; execute if no cases expressions match the switch expression

ENDSWITCH

Program Control can be directed unconditionally using GOSUB and GOTO

Types and Operators

Types

There are a few data types in WinScript

string a variable length collection of characters no larger than 255 in length

integer a 16bit signed value

word a 16bit unsigned value

long a 32 bit signed value

handle same as word

bool a 16 bit value TRUE is represented as 1, FALSE as 0.

Program variables can be alphanumeric up to 31 characters long

Functions returning values can be passed as function arguments.

Constant expressions are allowed:

Strings should be enclosed in double quotes "i am a string"

integers can be used just as they are, HOWEVER

Negative numbers MUST be enclosed in parenthesis (-1234).

UNICOM 2.0 flags are supported, they are

SUCCESS, WAITFOR, FOUND and CONNECTED

Arithmetic Operators

The binary arithmetic operators are +, - , , / and modulus %*

Relational Operators

>, >=, <, <=

Equality Operators

== , !=

Bitwise Logical Operators

& *bitwise AND*

| *bitwise OR*

<< *left shift*

>> right shift

~ one's complement

Operator Precedence ( ) Parenthesis HIGHEST

! ~ (bitwise not)

** / % (mult,div,mod)*

+ - (add , sub)

<< >> (bitshift)

== != (equality)

| (bitwise or)

&& (logical and)

|| (logical or)

= *(assignment) LOWEST*

Executing WinScript Command Files

WinScript command files are typically executed manually by selecting Execute from the Script menu.

A script file selection window will appear and display all script files found in the UNICOM files directory as shown in Figure 32 below.

Figure 32. Script Selection Window.

To activate a script, enter the filename in the editbox above and select accept, or just double-click using the mouse on the filename within the listbox.

Scripts may also be executed in the following ways:

Assigning a script to a function key: Individual scripts may be assigned to a particular function, that when pressed, begin execution. See the Keyboard Settings topic in the UNICOM setup section for information on assigning scripts to function keys.

User activated from the Dialing directory: Script filenames may be entered in the dialing directory and activated without causing UNICOM to dial. If there is no number defined in the phone number field, UNICOM will immediately execute any script whose filename is listed in the entry.

Automatic execution upon successful dialing: UNICOM provides a script field to be associated with each host system defined within the dialing directory. If a filename is provided in this field, the script will automatically execute upon successful dialing from

the directory.

AutoStart Script execution: The general setup window contains an AutoStart Script file edit box. If a name is defined here, UNICOM will automatically execute the script upon each program activation.

Script Scheduling: Up to 8 different scripts may be programmed to execute at specific days and times using the Scheduler feature provided with UNICOM. See the section on Script Scheduling for information on how to use this feature.

Script Execution from a Script: A script language file may be executed from another script file with the use of the Execute script command. See the Script Statement and Commands topic.

Debugging a WinScript Program

A trace mode has been provide to let you view each program line as it is being executed. Select trace from UNICOM's script menu then execute your program. The TRACE script command will allow you to control this option from with your script application.

Each command will be displayed to UNICOM's status line as it is being executed. A 1/4 second delay is introduced for each command to allow the user time to view the status line.

WinScript Command Language Definitions

Command arguments contained in [brackets] are optional; all others are required.

Vertical bars are used to separate all supported argument values. Conditional flag(s)

affected by execution of a command are listed in the 'Returns:' description.

Script Recording

UNICOM provides a script recorder that will automatically construct a script command file according to your interaction with a remote host computer. The script recorder may be started manually by user selection or automatically upon connecting to a remote host after dialing. These activation methods are described as follows:

Manual Activation: UNICOM can initiate script recording 'on the fly' whenever you select Record Now from the Script menu. Script recording using the manual method will create a script named 'RECORD.SCR". This name cannot be changed and any previous contents of this file will be lost.

Automatic Activation: When Record on Dial is enabled from the Script menu, UNICOM

will enter record mode immediately upon successful dialing when using the dialing directory. The script filename listed in directory entry being dialed will be recorded (written) to. UNICOM displays a warning when dialing using this mode to warn the user that the script file will be overwritten (if it exists).

The resulting script constructed using this method may contain commands generated by modem connect responses. If this happens, edit the resulting file with a text editor to remove any unwanted commands.

The Script Scheduler

Script scheduling is a means by which UNICOM can (on its own) execute script command files at predetermined days and times. Programming the script scheduler is much like programming recording times on your own video tape recorder.

Eight events can be scheduled. An event is defined as a UNICOM WinScript command language file that will begin execution on a specific day and time. To activate the Script Scheduler configuration window, select Scheduler from the script menu. The configuration window will appear as shown in Figure 33.

(see manual)

Figure 33. Script Command File Scheduler

The Script Scheduler configuration options and controls are defined as follows:

Event Enable: A checkbox is associated with each event 1-8 that can be defined. A check indicates that UNICOM will watch for the event once the timer is armed. No check indicates that the event has already been performed or the event will not be scheduled.

Time Setting: Select the hours (0-23) and minutes (0-59) in the day for which the event will take place. The accuracy of the time setting is plus or minus one minute of the designated time.

Day: Specify the day of the event: Sunday through Saturday.

Script Filename: Enter the UNICOM WinScript command file that will be activated for

this event being defined. The script file must be located in the UNICOM files directory.

Repeat Event: When checked, events that have been performed will be re-scheduled for the following week at the same day and time.

Event Select: This button is used to select the event to be edited. Pressing Event Select will cause the next event to be displayed in the Scheduler window. After reaching the last event, the next press of the Event Select button will cause the first event to be displayed.

Arm Timer: Once all events have been defined and ready to be scheduled, press the ARM TIMER button. UNICOM will return to its previous operation and keep watch for the day and time for the events that have been defined. In order for UNICOM to watch

for a given event, the event enable checkbox must have been selected in the configuration window.

When the day and time has been reached for an event, UNICOM checks to see that it is in terminal operation mode. If not, UNICOM will assume that it is executing another event or operating in some other special mode. The event that was triggered will be placed in a wait state for a maximum of 15 minutes. Should UNICOM return to terminal mode within that amount of time, the event will be processed. If not, the event will be lost.

Disarm Timer: When this button is pressed, any previously scheduled events are cancelled. Pressing the CANCEL button will have the same effect. If the Scheduler

configuration window was activated by mistake, to re-activate the scheduled events, press the ARM TIMER button again.

The scheduler setup information can be saved and restored across UNICOM sessions. Select Save Setup from the setup menu. If the Scheduler is armed when the setup is saved, UNICOM will arm the scheduler at the start of each UNICOM session. To disable scheduler arming at each session startup, Save your setup after first disarming the scheduler.

Remote Access Using Host Mode

Your computer may be accessed remotely with the use of UNICOM's host mode. Host Mode operates very similar to that of a mini bulletin board system. In order to use Host mode it must first be setup with user information and various system settings. See Host Mode Setup in UNICOM's setup section for information on how to configure host mode.

Host mode provides a remote user with the following capabilities.

1) Remote initiated file transfers: Uploading and Downloading with XMODEM, ZMODEM and Kermit.

2) Directory operations: Change directory, List Directory

3) Operator Paging: The sysop can drop into chat mode to talk to the user.

4) Shell to DOS: With the proper access level, a remote user can access the DOS command line.

5) File Display to Screen: A remote user may display the contents of an ASCII file.

Activating Host Mode

Host mode can be activated manually from a menu (or toolbar) selection or automatically using a WinScript command file. Once activated, UNICOM checks its connection type (as set in the Comm Port setup window) to determine if remote access is to be accomplished through a modem or a direct connection.

If the connection type is set to modem, UNICOM will initialize the modem to answer on the number of rings specified in the selected init string section of the modem setup window. This value will be used even if UNICOM is set to operate with the user entered init string. If a modem connect response is encountered, the remote user is prompted to log in. When the user logs out or when host mode is deactivated,

UNICOM will command the modem to hang up.

If the connection type is set to computer, UNICOM monitors the line for two consecutive user entered carriage returns. After detecting these carriage returns, UNICOM will initiate the login process.

After the user is logged in, a menu will be presented to the user as displayed in the screen snapshot in Figure 34 below.

(see manual)

Figure 34. UNICOM Operating in Host Mode.

If configured for monitor mode, the host display will reflect the remote users screen.

You can type at the keyboard to make selections for a remote user. Characters typed

at the host keyboard will override any remote input.

Remote User Operation

Introduction

Once your computer has been configured and set for host mode operation, a remote user may gain access using an assigned userid and password. The level of user access is determined by the access level assigned to the user id.

One of three access levels must be assigned to every host mode user.

Level 1 Full access allowed. Can shell to DOS if host is running in 386 mode.

Level 2 Partial access. Same as Level 1, but user cannot shell to DOS.

Level 3 Limited access. Cannot upload, shell to DOS, or change directories.

A time limit is associated with each access level and is set in the host setup window.

Shell to DOS

Users with level 1 access may shell to DOS if the host is running in 386 enhanced mode. The remote user must type 'EXIT' at the DOS prompt when finished using the shell. There is no guaranteed return to UNICOM's host menu since the modem may drop the connection after the user types 'exit' . If the modem is set to drop the line at the loss of DTR, typing exit at the DOS prompt will cause DTR to drop for a moment before UNICOM regains control. In any event, once a user shells to DOS, UNICOM logs the user out but does not hang up. If exiting DOS does not drop the connection, UNICOM prompt the user to log in.

Chatting with the Sysop

A remote user may request a conversation with anyone who might be at the computer running UNICOM in host mode. When the user selects P(age) Operator, a notification beep will sound. The operator (sysop) can then activate chat mode to converse with the remote user. To terminate this operation, the sysop exits chat mode which will transfer the remote user back to the host command menu.

File Transfers

Files transfers (uploading and downloading) may be initiated by the remote user.

Uploading is not allowed for users with access level 3. Three protocols are available,

XMODEM, ZMODEM and KERMIT. A remote user initiates a transfer by selecting

'(U)pload) or (D)ownload' from the menu. The user will be prompted to select a

protocol as follows:

Select Transfer Protocol

(X)modem CRC (Z)modem (K)ermit (A)bort >

For uploading using Xmodem, the remote user will be prompted for the name of the file.

Zmodem and Kermit will receive this information automatically. After instructing the

UNICOM host to receive a file, the remote user must start the transmission on that end.

For downloading, the remote user will be prompted for a protocol and for the name of the file UNICOM is to transmit. Once activated, UNICOM will display the message: "Start your receiver now". The remote user then initiates the download on that end. If the remote user is using a communication package supporting auto Zmodem downloading (like UNICOM), it will begin downloading automatically.

After the file transfer is complete, UNICOM returns the remote user to the command menu.

Changing Directories

Users with access levels of 1 or 2 may move between any subdirectory on any drive on the UNICOM host computer. When 'C' is selected at the menu prompt, UNICOM will prompt the remote user for a new directory as shown below in the following example:

[60 min left] d:\>change Directory

New Directory>c:\util

Typing Files

A remote user may examine the contents of ASCII text files by selecting '(T)ype' from the command menu. UNICOM will prompt the user for the name of the file. At each screenful of text, UNICOM will prompt: More? (Y/n). After the file is transmitted (or if the operation is aborted) UNICOM returns the user to the command menu.

Displaying Directory Contents

All remote users may examine the contents of the directory which they are currently logged into. Selecting '(L)ist Directory instructs UNICOM to transmit name, size, date and time information for each file in the directory. The following example illustrates the directory format.

[60 min left] c:\>list Directory

COMMAND.COM 47845 4/ 9/91 5: 0: 0

SSTBIO.SYS 18640 6/11/90 9: 0:14

SSTDRIVE.SYS 7733 6/11/90 9: 0:14

SSTSETUP.EXE 185724 5/ 1/91 14: 4:16

BUFFERS.COM 7615 5/ 1/9 14: 4: 2

After each screenful of text the remote user will be prompted for More (Y/n?).

Using Chat Mode

UNICOM's chat mode allows you to easily communicate with a person on the other end of the communications link with your keyboard. To activate chat mode, select Chat from the control menu or activate the Chat Lizard icon from the toolbar. Be careful, the Chat Lizard looks happy enough, but is easily angered when someone pushes his button.

When chat mode is activated, a scrollable input window is created at the bottom of the terminal screen. Input your message into this window one line at a time. Use the backspace key to edit the line before it is sent. To transmit the current line, press the Enter or Return key on your keyboard. After the line is transmitted, it is moved up into

the scroll area of that window.

Characters received from the remote user will be displayed on the terminal screen

above the chat input window. Figure 35 (below) illustrates the use of chat mode.

(see manual)

Figure 35. Chat Mode Operation

To exit Chat Mode, select the Chat Mode option from the Control Menu.

Event Logging

An event recording capability is provided to allow monitoring of program operation and host user interaction. Events are categorized as either program events or host events.

Program events include: Modem Hangup, Modem Initialization, Modem Dialing, Modem Dialing Abort, Script Execution, File Uploading, and File Downloading.

Host events include: File Display, User ID Timeout, Valid Password Entered, Invalid Password Entered, Hangup Performed, User Requested Help, User Examined Directory, User Changed Directory, User Uploaded a File, User Downloaded a File, Operator was Paged, Userid Entered.

All events are recorded with a date and time stamp.

Logging of program events is enabled or disabled using the General setup window.

Placing a check in the checkbox: "Log events to file" will activate logging to the file named in the edit box following this control.

Logging of host events is controlled by the host setup window. If checked, the checkbox labeled "Log Events" will enable recording of host events to the event file listed in the general setup window.

Events are recorded to the event file in ASCII text format. The date and time information is written followed by the event on the following line. Example event entries are shown below:

Thu Aug 08 00:39:48 1991

File Download chess101.zip

Thu Aug 08 14:19:32 1991

File Upload c:\winword\info.wri

File Logging

Incoming screen characters may be captured to a log file. Unwanted terminal escape characters and control characters may be filtered using the Log filter option in the general setup window.. To activate file logging, select the File Log option from the Files menu or activate the Log File button at the bottom of the display. A window will appear to prompt you for the log filename as shown in Figure 36.

(see manual)

Figure 36. Log Filename Window

UNICOM will enter the name of a default log file as listed in the general setup window. Enter a valid filename then press Ok. Should you enter a filename of an existing file,

UNICOM will ask if you wish to append to this file. A NO response will abort the file log request. File logging is disabled should the program leave terminal mode (enter host mode, for example) and will resume upon return.

Using the Utility Menu