

# *AccuTerm* 2000

## Users Guide

### MultiValue Edition



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# INTRODUCTION

Welcome to **AccuTerm 2000 – MultiValue Edition**. We've worked hard to give you the fastest and most accurate terminal emulation package on the market. We have also tried to make it easy to use. Our philosophy has been to add the features that will be most useful without sacrificing ease of use, accuracy or performance.

This User Guide is intended to help you install, configure and use AccuTerm 2000. A separate Programmers Guide is available, and it includes information on programming AccuTerm, control codes, escape sequences, scripting, ActiveX/OLE features and Windows/host integration.

## **Features of AccuTerm 2000**

**Multiple sessions** using **MDI** (Multiple Document Interface). This means that you can run two or more terminal sessions at the same time without running two copies of AccuTerm. It works the same as other programs that allow you to work with more than one document at a time like word processors, spreadsheets, etc. so it's easy to work with. You don't have to learn a new way of working. Also, by using MDI instead of running multiple copies of AccuTerm, you use less system resources and memory. You can still run multiple copies if you choose, we just think MDI works better.

**User interface** has Office 2000 look and feel, including context menus accessed by clicking with the right mouse button. The new toolbar can be hidden completely and also features balloon help that shows you what the buttons mean. Tool bar, menu and status bar can be customized by the user.

**Full OLE Automation / ActiveX** support allows integration with other Windows applications. AccuTerm 2000 acts as both automation client and automation server. AccuTerm exposes its application and session objects, which allows other applications complete control of AccuTerm.

**ActiveX component** (OCX) terminal emulation & communications engine may be used in custom VB applications where accurate terminal emulation is required.

**Secure Shell** connections ensure privacy using public key encryption technology.

**Accurate emulations.** When you use AccuTerm everything will work just like the terminal being emulated. No strange problems with word processors or spreadsheets. No messed up screens. No hassles.

**Modem connections** use the built-in dialer, and unlimited phone directory entries.

**Fast File Transfer** capabilities using industry standard protocols like Xmodem, Ymodem, Zmodem, and Kermit. MultiValue file transfer utilities import and export MultiValue data in a variety of formats. And direct Host-to-Host file transfer, too!

**Scripting language** allows users to write scripts and macros using Visual Basic for Applications

**Enhanced scroll back** window saves up to 2500 lines for instant recall.

**Extended screen support** of up to 160 columns by 60 rows.

**Automatic font scaling** so that you can always see the full screen. This is a great feature that once you get used to it, you'll never want to go without.

**Enhanced network support** for Telnet , Secure Shell (ssh) and PicLan.

**GUI Development Environment** helps you build user-friendly GUI front-ends for your MultiValue applications.

**Tabbed setup screens** efficiently organize settings and preferences.

**Image and sound support** lets you to display images anywhere on the terminal screen. You can also play Wave and MIDI sound files.

**Tektronix graphics** terminal emulation in both color and monochrome.

**wED** Windows based program / data editor includes BASIC syntax highlighting in an MDI environment.

**Full color mapping** lets you choose any foreground and background color combination for any terminal visual attribute.

**Easy to use.** We've followed the Windows Interface Application Design Guide more closely than many other terminal emulation programs. This makes AccuTerm easier to learn and use.

## **Hardware and Software Requirements**

|            |  |
|------------|--|
| Memory:    | 32MB   |
| Processor: | Pentium 200 or better  |
| Windows:   | 95, 98, ME, NT 4.0, 2000                                       |
| COM port:  | Any serial port, modem or network adaptor supported by Windows |
| Mouse:     | Any mouse supported by Windows                                 |



# GETTING STARTED

This manual assumes that you have a working knowledge of the Windows environment. If you are new to Windows, there are many good books available. They do a much better job of explaining the basics than we could do in this manual.

## Installation

To install AccuTerm 2000, insert the AccuTerm 2000 program CD and click the “Install AccuTerm 2000” button when the startup screen is displayed. If the startup screen does not display, select “Run” from the Start Menu, and enter “D:\Setup.exe” in the “Open” text box, then click OK (change D: to the letter for your CD drive).

- 1) The AccuTerm 2000 installation wizard will guide through the installation process. You will be prompted to enter your authorization key, registration information, select the destination directory and select a start menu program folder. You move forward through the installation process by clicking the **N**ext button. You can click the **B**ack button to move back, or the **C**ancel button to cancel the installation.
- 2) The first item you need to enter is your Authorization Key. Enter each half of the key into two text boxes. Click **C**ontinue after you have entered your key. After clicking on the **C**ontinue button, the software license agreement will be displayed. You can scroll through text of the license and if you agree to the license terms, click the **O**K button.
- 3) The *Welcome* dialog is displayed. Click the **N**ext button.

- 4) The **Registration Information** dialog box is displayed. Please enter the user, company and location in this dialog, then click the **Next** button. Depending on your software license, some fields may not be displayed.
- 5) Select the directory where you want the AccuTerm program files to be installed, then click the **Next** button.
- 6) Select a “home” directory. The default “home” directory is the current user’s “My Documents” directory. This is the directory where AccuTerm will start from when using Open and Save for reading and writing session configuration files. After selecting the home directory, click the **Next** button.
- 7) Choose whether you want files which are replaced during installation to be saved in a backup directory. If you select this option, when you click the **Next** button, you can select the directory where replaced files are saved.
- 8) Select a “Start Menu” folder for the AccuTerm 2000 shortcut. If you would like a shortcut to AccuTerm 2000 placed on your desktop, select the “Place shortcut on desktop” option. Click the **Next** button.
- 9) To begin installing files, click the **Next** button. The installation progress will be displayed.
- 10) Some features of AccuTerm 2000 utilize the Microsoft Data Access Components (mainly importing and exporting data to and from Access databases). If you do not already have version 2.5 of the Microsoft Data Access Components installed on your computer, you can select to have these components install at this time. A system reboot will be required during this installation.
- 11) When the installation is complete, you can view the release notes by checking the “View release notes” box, and clicking **Finish**. If you do not want to view the release notes at this time, simply clear the “View release notes” box and click **Finish**.

During installation, you may get a message indicating that the OLE or system files are in use and need to be updated. If this occurs, please shut down all other applications, then click the **OK** button to restart Windows. After Windows restarts, the installation process will resume (if it does not resume automatically, simply start the installation over again; this time the OLE or System files should have already been updated and you will not get this message again).

## **Network Installation**

If you have a network and are installing a site license version of AccuTerm from CD, you can select the “Copy setup files to server” option from the startup screen displayed when the CD is inserted. You will need to enter your registration information and CD Key at this time.

After copying the setup files to the shared directory, go to each workstation on which you want to install AccuTerm, and run SETUP.EXE from the shared directory. Use Windows Explorer to find the shared directory, then double-click on the SETUP.EXE file name.

Even if you are installing AccuTerm on a network, you still *must install it on each workstation*. This is because some files are installed in non-shared directories such as WINDOWS and WINDOWS\SYSTEM.

### **Sharing AccuTerm on a network**

If you want to install a single, shared copy of AccuTerm, you will need a local or private, non-shared directory where AccuTerm can store its settings and configuration files. Specify this directory in step 6 above.

## Running AccuTerm 2000

AccuTerm 2000 uses the Windows MDI (Multiple Document Interface) standard for handling more than one session. It works the same as other popular Windows applications like Word 2000, Excel 2000, Lotus 123, except that instead of opening documents, you open terminal session configuration files. Each configuration file that you open becomes one session. Normally, terminal session configuration files are saved with the *.atcf* extension.

To run AccuTerm 2000, simply select  from the Start menu, or click the AccuTerm icon  on the desktop. AccuTerm's main window will be displayed. At the start, AccuTerm shows a blank screen with only the **F**ile, **V**iew, **T**ools and **H**elp menu options available. This is because no terminal sessions are open.

If this is the first time you have run AccuTerm 2000, you will be prompted to create a new terminal session using the **C**onnection **W**izard. To create a session, click the **Y**es button at this time. You can always create a session at later time by choosing **N**ew from the **F**ile menu.

### Creating a New Session

After starting AccuTerm, you can use the **C**onnection **W**izard to guide you through the process of creating a new session. To start the **C**onnection **W**izard, select **N**ew from the **F**ile menu or click the  button on the toolbar. When the *New Connection* dialog is displayed, click the **C**onnection **W**izard button to start the wizard, then follow the step by step instructions for creating a new session. If you prefer to configure the terminal settings manually, click the **N**ew **C**onnection button instead.

Once a session has been opened, the menu changes to **F**ile, **E**dit, **V**iew, **T**ools, **R**eset, **W**indow, and **H**elp. The status bar is also displayed at the bottom of the main window.

## Shortcut

To automatically open a terminal session when starting AccuTerm from the desktop shortcut icon, you can add the name of a saved terminal session configuration file (*.atcf*) to the *Target* field of the shortcut. Note: other file types can also be used in the *Target* field – layout (*.atly*) and script (*.atsc*) files may be specified as well.

To modify the shortcut *Target*, click the desktop icon with the *right* mouse button, then select **P**roperties. Click on the **S**hortcut tab. Click in the **T**arget field text box. Press the **E**ND key, then type a space followed by the name of the *.atcf* (or *.atly* or *.atsc*) file which you want to open automatically. Click the **O**K button to save changes.

You can also create a shortcut to any session configuration file by dragging the file from Windows Explorer and dropping it on the desktop while holding the **C**TRL + **S**HIFT keys.

*Note: to load a layout and run a script, open the layout file, load the script, then save the layout. Append the layout file name to the command line as described above. When opening the layout file, first all session files contained in the layout will be opened, then the script's Main subroutine will be run.*

## **AccuTerm Main Menu**

### **File Menu**

The AccuTerm **F**ile menu contains options for creating new terminal sessions, opening saved session configuration files, closing a terminal session, saving a session configuration file, setting up the printer setup, enabling or disabling the slave printer function, printing the screen and saving and loading *layout* files. The most common menu options may also be executed by clicking a button on the toolbar.

#### **File New**

To create a new terminal session, select the **N**ew option or click the  button on the toolbar. The **New Connection** dialog will be displayed. Select **C**onnection **W**izard to use the connection wizard to help you build a new session, or select **N**ew **C**onnection to create a new session.

#### **File Open**

To open an existing configuration file, select the **O**pen option or click the  button on the toolbar. This creates a new session with the settings saved in the selected configuration file.

#### **File Close**

To close the active session, select the **C**lose option. If you have made any changes to the session settings, you will have the opportunity to save them in a configuration file before closing the session.

#### **File Save and File Save As**

After adjusting session settings, save the new settings in a configuration file by selecting the **S**ave or **S**ave **A**s option, or by clicking the  button.

#### **File Save Layout and File Save Layout As**

If you have several sessions open, you can save them as a group, or *layout*, by selecting the **S**ave **L**ayout or **S**ave **L**ayout **A**s options.

### **File Printer On**

Selecting this option toggles the slave printer port on and off. When the slave printer is on, received data is printed on the selected printer and displayed on the terminal screen. You can also press **ALT + P** to toggle the slave printer port state.

### **File Print Screen**

Selecting this option or clicking the  button causes the current terminal screen to be printed on the selected printer. You can also press **ALT + G** to print the terminal screen.

### **File Print Setup**

Select this option to set up printer information. See the section on “Printer Selection” in the next chapter for details.

### **Recent files**

Opens one of the most recently opened terminal session configuration or layout files. By default, the last four files are shown. The number of files to show is customizable (see General Settings in the next chapter).

### **File Exit**

Select this option to terminate AccuTerm 2000.

## **Edit Menu**

The AccuTerm **Edit** menu contains commands to copy and paste from the Windows clipboard.

### **Edit Copy**

This command will copy a selected block of text from the terminal screen to the Windows clipboard. If there is no selection, the entire screen is copied. To select a block on the screen, position the mouse on the upper left corner of the desired block. Press and hold the left mouse button for about one half second, then drag the mouse to the lower right corner, and release the button. The selected area will be indicated by a dotted rectangle. To remove the selection, click the left mouse button anywhere on the screen. If the screen needs to be scrolled to select the desired data, move the mouse to the edge of the window and the window will automatically scroll in that direction.

### **Edit Paste**

This command will send the clipboard contents to the host computer. Each line is terminated as specified in the ASCII file transfer settings (see **Miscellaneous Settings**).

### **Edit Paste From**

This command will send the contents of a text file to the host computer. A file selection dialog box will be opened when you select this command.

## **View Menu**

The AccuTerm **View** menu contains options to select screen size, display or hide the toolbar and status line.

### **View Normal Screen Size and View Extended Screen Size**

Changes the number of columns and rows on the terminal screen to the Normal size (usually 80 columns) or Extended size (usually 132 columns). See Screen Settings for information on setting the number of columns and rows. The screen size may also be

changed by clicking the  or  buttons.

### **View Status Line**

Check this option to display the active session status at the bottom of AccuTerm's main window. Un-check this option if you do not want the status displayed.

### **View Toolbar**

Check this option if you want the toolbar displayed in AccuTerm's main window. Un-check this option if you want the toolbar hidden.

## **Tools Menu**

The **Tools** menu contains options for modifying AccuTerm's settings, dialing a number, initiating file transfers and data capture, and opening the script window. Each of these options opens a dialog box where the desired function is performed. See the appropriate section in this manual for details on each function.

### **Tools Settings**

Select this option or click the  button to open the Settings dialog box. This dialog is used to modify all of AccuTerm's settings and preferences, such as communications device, terminal type, screen colors, etc.

### **Tools Auto Dial**

Select the **Auto Dial** option to enter or choose a phone number to dial when using a Modem connection. Also choose this option to disconnect a Modem connection. Note: this option will be disabled unless the connection device type is "Modem". You can quickly call up the Auto Dial dialog by clicking the  button on the toolbar.

### **Tools Upload**

Selecting this option displays the AccuTerm File Upload dialog box. Use this dialog to select files to upload, select a transfer protocol, initiate an upload and specify other options. You can quickly call up the Upload dialog by clicking the  button on the toolbar.

### **Tools Download**

Selecting this option displays the AccuTerm File Download dialog box. Use this dialog to select the destination download directory, select a transfer protocol, initiate a download and specify other options. You can quickly call up the Download dialog by clicking the  button on the toolbar.

### **Tools Capture**

Selecting this option displays the Begin Capture or End Capture dialog box. Use the Begin Capture dialog to select the destination file and specify other options. Use the End Capture dialog to terminate the capture operation. You can quickly call up the Capture dialog by clicking the  button on the toolbar.

### **Tools Script**

This option opens the AccuTerm Script Window, where you can load script files and edit and run macros.

### **Reset Menu**

This menu has options to reset the terminal or the connection.

#### **Reset Terminal**

Resets the terminal (clears screen, restores default character set and emulation, etc. You can quickly reset the terminal by clicking the  button on the toolbar.

#### **Reset Connection**

Resets the connection. If the session has been disconnected, this command will attempt to reconnect. You can quickly reset the connection by clicking the  button on the toolbar.

### **Window Menu**

The Window menu contains options for re-arranging the open sessions within the main window, and for switching from one session to another.

#### **Window Cascade**

This option arranges all open session windows so that they overlap. The session title of all sessions remains visible.

#### **Window Tile Horizontally and Window Tile Vertically**

These options arrange all open session windows so that no windows overlap.

## **Windows**

The open sessions are shown at the end of the **Window** menu. You can switch to any session by clicking on its entry in this menu.

## **Help Menu**

You can get context sensitive help at any time by pulling down the **Help** menu and selecting the **Index** or **Contents** option or by clicking the  button. To display information about AccuTerm, including version, release, serial number and licensed user, select the **About AccuTerm 2000** option.

## **Other Keyboard Commands**

### **Toggle Status Line - ALT + L**

This command toggles the *terminal's* status line, displayed as the last line on the terminal screen, between function key labels, host message and none. This command does not affect the AccuTerm status bar shown at the bottom of the session window. Use the **View** menu to show or hide the AccuTerm status bar.

### **Print Screen - ALT + G**

Prints the contents of the terminal screen to the printer using the currently selected printer. The screen is printed in text mode (not graphic mode).

### **Data Capture - ALT + C**

This is a shortcut to open up the Capture dialog box.

### **Toggle Slave Printer Port- ALT + P**

Toggle slave printer port on and off.

### **Previous Page - CTRL + PGUP**

Displays the previous terminal page. To use this command, the session must be setup with more than one video page.

### **Next Page - CTRL + PGDN**

Displays the next terminal page.

**Pause / Resume - SCROLL LOCK**

This command pauses or resumes the processing of received data by the terminal. The keyboard “Scroll Lock” LED indicates the current status.

**Scanning the History Buffer**

Use **CTRL + SHIFT + PGUP**, **CTRL + SHIFT + PGDN**, **CTRL + SHIFT + UP**, **CTRL + SHIFT + DOWN**, **CTRL + SHIFT + HOME**, and **CTRL + SHIFT + END** to navigate the history buffer.

*Note: you must specify a number of history rows to enable history scanning. To specify the number of history rows to utilize, choose **Settings** from the **Tools** menu, Click on the **Screen** tab. Enter the desired number of rows.*

# CONFIGURING ACCUTERM

Before you can use AccuTerm, you must configure the program. The configuration process is used to tailor AccuTerm to your specific environment: workstation, printers, network and host computer. You can also choose certain preferences. This chapter describes the configuration process.

To modify AccuTerm's settings choose the **S**ettings item from the **T**ools menu or click the  button on the toolbar.

The **S**ettings dialog box is organized into ten categories, with each category on a separate index tab. Click on one of the index tabs to display the settings for that category. You can also press the number of the category while holding the **ALT** key (use **ALT** + 0 for **10** – **Misc**).

When you have completed your changes, simply press **ENTER** (or click the **OK** or **Apply** button) to save changes, or press **ESC** (or click the **Cancel** button) to discard changes and close the **S**ettings dialog box.

## **General Settings**

The **General** tab is used to specify settings that affect the AccuTerm application overall, rather than a specific session.

### **Default phone book**

This field contains the file name to be used as the default phone book for the Auto Dialer. If no directory is specified, the current directory is assumed. All dial-up sessions share this phone book.

The phone book file is a tab delimited ASCII file, with one line per entry; name and phone number are the two fields.

### **TCP/IP hosts file**

The TCP/IP hosts file is an information file used to supply a list of host names to choose from when configuring a telnet or ssh connection. It is not necessary to define this entry, but if you know that your system has a hosts file, you can specify it here.

### **Default upload/download directory**

Enter the drive and directory where you want to use as your default directory for sending and receiving files. When you create a new session, you can override this directory in the File Transfer tab.

### **Default capture directory**

Enter the drive and directory where you want to store your “capture” files. When you create a new session, you can override this directory in the File Transfer tab.

### **Single instance of AccuTerm**

If this option is checked, only one instance of the AccuTerm program is allowed to be running. If you try to start AccuTerm from the Start menu or desktop shortcut, and an instance of AccuTerm is already running, the currently running program will be activated. When this option is not checked, a new instance of the AccuTerm program will be started; that is you will have two or more AccuTerm applications running.

**Close AccuTerm when all sessions closed**

If this option is checked, when the last open session is closed, the AccuTerm program will automatically close. This option is useful for network users when opening a configuration or layout file from a shortcut so that when all network sessions have been disconnected, AccuTerm will close automatically, without user intervention.

**Warn before disconnecting**

If this option is checked, when you attempt to close a session which is still connected to the host, you will be warned that the connection is still active and you can cancel the close operation. If this option is not checked, you will not be warned and the connection will be closed immediately. This warning does not apply to serial port connections.

**Recent file size size**

Specify the number of files to be shown at the end of the **F**ile menu for quickly opening your most frequently used sessions. Normally, the last four files are shown.

## Connection Settings

### **Connection Method**

The **Connection Method** is used to select what type of connection or communications device you use between your computer and the host system. You will always be able to select **Serial Port** as a connection type. Depending on the hardware and software you have installed in your computer, you may also be able to select **Modem, Telnet, Secure Shell** or **PicLan**.

After selecting or changing the connection type, settings relating to the selected connection type are enabled. For example, if **Serial Port** is selected, various options for a serial port connection, such as the port number, baud rate, parity, etc. will be enabled. The settings for each connection type will be described later in this section.

### **Duplex**

There are three duplex options: **Full, Half** and **Local**. In **Full** duplex, all characters typed on your keyboard are sent to the host computer. They are not printed on the screen. The host usually sends (echoes) the same character back; this is what is displayed on the screen. This is by far the most common configuration. In **Half** duplex, the characters you type are sent to the host machine and displayed on the screen. If the host system is configured for **Full** duplex and you select **Half** duplex on your computer, you will see each character that you type two times!. In **Local** mode, characters you type are displayed directly on the screen and are not sent to the host computer.

### **Strip Eighth Bit**

Most connection types use eight bits to represent each character. When using eight bits, the computer can send up to 256 different character codes. Some older host computers use the eighth bit for parity (an error detecting scheme used with serial communications), others may simply “set” the eighth bit for each character.

Most terminal types accept 8-bit characters, and characters with the eighth bit set (character codes 128 - 255) usually represent international characters, line drawing symbols or other graphic symbols.

In order to communicate properly with older systems which do not use the eighth bit for data, select this option. When this option is selected, any character received from the host with the eighth bit set will behave just like the eighth bit is not set.

**Close session on disconnect**

This option is most useful when using Telnet or Secure Shell connections. If this option is checked, when the connection is terminated by the host computer, the session will automatically close. This option may be used in conjunction with the general setting “Close AccuTerm when all sessions closed” option.

**Display communication errors**

When this option is checked, you will be notified when any communications error is detected. For network connections (Telnet, Secure Shell, PicLan) it is a good idea to enable this option. For Serial Port and Modembetter connections you may want to disable this option, since “UART Overrun” errors are common and usually do not indicate a real problem. If you suspect you are encountering errors, for example, if columns do not line up on a formatted screen, try setting this option.

## **Connection Settings – Serial Port**

### **Port**

Select the port on your computer which is connected to your host system. If you select the wrong port, you may get an error such as “Communication Port Unavailable”, or your terminal session may act like it is not connected.

*Note: although AccuTerm allows you to select from port number 1 to 8, most computers only have one or two ports installed. To use any port with AccuTerm, it must first be correctly installed with the correct device driver.*

### **Baud Rate**

The baud rate is the speed that the serial port communicates with the host computer. AccuTerm supports baud rates from 300 to 115,000 baud. This setting must match the setting of the host computer’s serial port to which your computer is connected. Baud rates of 9600 or 19,200 are most common.

### **Data Bits**

Data Bits refers to the number of bits the serial port sends to represent each character. The options are 7 or 8 bits (the default is 8 bits). This setting must match your host system’s serial port setting.

### **Stop Bits**

This is the number of bits that the serial port uses to separate each character. The options are 1 or 2 stop bits (default is 1). This setting must match your host system’s serial port setting.

### **Parity**

Parity is an error checking scheme performed by the serial port. The options are: None, Odd, Even, Mark and Space. Parity is rarely used, so selecting None (this is the default) is usually correct. This setting must match your host system’s serial port setting.

## Handshake

Computers can send information very quickly. However, there are situations where one computer can send data faster than the other computer can process it. In these cases, the computer on the receiving end needs to inform the sending computer to suspend transmission until the slower computer is able to catch up. A technique called “handshaking” is used to accomplish this task.

AccuTerm supports three methods of handshaking. The first and most common is. Xon/Xoff (or *software handshake*). With this method, AccuTerm sends a special Xoff character (**DC3**) to the host system when it wants the host to stop sending characters. When the AccuTerm has caught up, it sends the Xon character (**DC1**). AccuTerm normally uses “inbound” Xon/Xoff handshake; that is, AccuTerm can control flow of data from the host, but the host cannot control the flow of data from AccuTerm. If you check the “bidirectional” option, then AccuTerm will use both “inbound” and “outbound” Xon/Xoff handshake allowing the host to control the flow of data from AccuTerm as well.

The second handshake method supported by AccuTerm is DTR/DSR. This method is referred to as *hardware handshake* because it physically changes the voltages on the serial port to indicate whether the receiving computer is ready.

The third handshake method, RTS/CTS, is similar to DTR/DSR handshake, except it uses a different pair of signals (pins) on the serial port.

For the DTR/DSR or RTS/CTS protocols to work, the cable which connects your computer and the host computer must connect the appropriate handshake signals at both ends. Physical cable wiring is beyond the scope of this manual.

This setting must match your host system’s serial port setting.

## **Connection Settings - Modem**

AccuTerm 2000 supports dial-up connections using any modem you have installed on your computer. AccuTerm uses TAPI (a service built into Windows for supporting telephony) to communicate with your modem. By using TAPI, AccuTerm can share the modem with other TAPI enabled applications, like Windows fax applications.

### **Modem Name**

To use a dial-up connection, select a modem from the Modem Name list.

*Note: if you change the modem installed in your computer (or sometime just install an updated driver for your modem), the modem name saved in your terminal session configuration file may not match the new modem name. If this happens, open the Settings dialog and select the new modem name from the Modem Name list.*

### **Auto Answer**

If you want AccuTerm to answer incoming calls, enable this setting", otherwise disable (the default) this setting.

### **Override Port Settings**

Normally, AccuTerm configures the modem based on settings that are set up in Control Panel. Selecting this option allows you to override those settings. When this option is checked, options for selecting the modem baud rate, data bits, stop bits, parity and handshake become available.

See the previous section (**Connection Settings - Serial Port**) for details about baud rate, data bits, stop bits, parity and handshake settings.

### **Dialing Options**

To modify the dialing properties for the selected modem, such as your current location, area code, dialing prefixes, etc., click the "Dialing Options" button.

### **Connect Only at This Speed**

If the "Override port settings" option is selected, the "Connect only at this speed" option will be available. Normally, the baud rate of the modem's

serial port is set to the speed selected in the baud rate setting. However, the baud rate used to communicate between your modem and the host computer's modem is negotiated by the two modems, and may not be the same as the baud rate setting. By selecting the "Connect only at this speed" option, AccuTerm will attempt to lock the modem-to-modem baud rate at the same speed as the baud rate setting.

This option is useful if you are able to dial and connect to the host computer modem, but the characters you receive are unintelligible garbage. This usually indicates a mismatch in the baud rate, usually between the host computer and its modem.

*Please note that this option does not work with all modems. You can determine if your modem supports this option by opening Control Panel, double-click on Modems, select your modem and click on Properties. If the "Only connect at this speed" option is available (i.e. not gray) then your modem supports this option.*

## **Connection Settings - Telnet**

AccuTerm supports Telnet connections to host systems over a TCP/IP network. Any Telnet server on the network (including hosts on the Internet) can be accessed.

When using AccuTerm with a network connection such as Telnet, it is recommended that the **Display communication errors** option be set. If this option is not set and a network error occurs, you may not see an indication of the error; the terminal session may appear to hang.

### **Host Name**

A valid TCP/IP host name or IP address must be entered in this field. If a hosts file is available, you can click on the down-arrow to display a list of available hosts.

### **Host Type**

If your type of host you are connecting to is listed in the Host Type list, please select it, otherwise just use the default host type. By selecting a host type from this list, certain advanced options are set up to be compatible with the specified host type. To see the advanced options, click on the Advanced button.

### **Port**

If the Port field is left blank, or set to “default”, AccuTerm will use TCP port 23 (the default for Telnet). If a different port is used for Telnet on your desired host machine, enter that port number in this field.

Certain host systems, such as Pick D3 and mvBase, allow a host process number (PIB) to be mapped to a specific TCP port number. You can use the Host Port setting to specify the port number mapped to your process number. Consult with your system administrator for this setting.

### **Connect Timeout**

When establishing a connection to a host computer, AccuTerm will wait for a specified time for a response from the selected host system. You can specify the number of seconds AccuTerm should wait. If this field is left blank, or zero, the default timeout is 15 seconds.

## Advanced Options

By clicking on the Advanced... button, you can modify various Telnet options. These options are generally set by selecting a Host Type, but may be modified if necessary.

If you change any settings in the Advanced Telnet Options, the host type you have previously selected will be changed to “custom”.

### Echo (advanced option)

Most systems require the host to “echo” characters it receives back to the client (terminal). That is, when you press a key, a character is sent to the host, and the host sends that same character back to the terminal, at which time it is displayed on the screen. If this behavior is desired, then select the echo option (default). If the echo option is not selected, then the **Duplex** setting should be changed to “half” to enable local echo of typed characters.

### Binary (advanced option)

When the binary option is selected, data is transferred between the host and terminal without modification. This is useful when transferring binary data such as graphics. When this option is not selected, the Telnet protocol treats **CR** characters in a special way, inserting a **NUL** character after any **CR** character while sending data to the host, and removing the extra **NUL** character when receiving data from the host. *Note: when this option is selected, some servers expect lines to be terminated with **LF** instead of **CR**.*

### Use alternate break signal (advanced option)

When this option is selected, pressing the **CTRL+BREAK** sends the Telnet *Break* command. Otherwise the Telnet *Interrupt Process* (default) command is sent.

### Bypass option negotiation (advanced option)

When this option is selected, Telnet option negotiation, which normally occurs when establishing a connection, is skipped. Certain Telnet servers, like Pick’s D3, do not support Telnet option negotiation, and require this option.

### Send keepalives

When this option is selected, AccuTerm will send a dummy “keepalive” message to the host periodically (about every 2 minutes). This dummy message is discarded by the host and is transparent to the terminal session.

This feature may be useful when the host system (or network equipment such as a router) disconnects an idle connection.

*Note: certain Telnet servers, like Pick's D3 running on NT, do not work properly when receiving AccuTerm's dummy keepalive messages.*

#### **Disable outbound coalescing**

Use this option to improve terminal response over the network, at the expense of increased network traffic.

#### **Use U2 device licensing**

By selecting this option, multiple connections (sessions) to Enterprise versions of UniData and UniVerse consume only a single user license. This option is only available when the u2licn.dll file is installed on your computer. The u2licn.dll file is not available from AccuSoft. Contact your Informix/Ardent dealer for information regarding device licensing.

#### **Terminal Type (advanced option)**

Many Telnet servers allow the client (terminal) to specify a terminal type when a connection is established. AccuTerm uses the default terminal types of *tty*, *viewpoint*, *viewpoint60*, *wyse50*, *wyse60*, *vt100*, *vt220*, *vt320*, *vt420*, *vt52*, *ansi*, *linux* and *pickmon*, depending upon the selected terminal emulation. If a different terminal type is required, you can enter it in this field.

## **Connection Settings – Secure Shell (ssh)**

AccuTerm supports secure connections to host systems over a TCP/IP network using Secure Shell (ssh). Any ssh server on the network (including hosts on the Internet) can be accessed.

Secure Shell employs public key encryption technology to ensure that your connection to the host is secure, even over the Internet. When you set up a Secure Shell connection, all information, including your user ID, password and session data is encrypted before transmission over the network.

In order to create a connection using Secure Shell, you must have Internet Explorer with 128 bit encryption installed on your computer. To verify that you have the 128 bit encryption installed, open Internet Explorer, and select **A**bout Internet Explorer from the **H**elp menu. If Cipher Strength is 128-bit, then you should be able to create a Secure Shell connection. If it is not, you may need to upgrade your version of Internet Explorer and/or install the High Encryption Pack (available on Microsoft's web site at [www.microsoft.com/windows/ie](http://www.microsoft.com/windows/ie)).

When using AccuTerm with a network connection such as Secure Shell, it is recommended that the **Display communication errors** option be set. If this option is not set and a network error occurs, you may not see an indication of the error; the terminal session may appear to hang.

### **Host Name**

A valid TCP/IP host name or IP address must be entered in this field. If a hosts file is available, you can click on the down-arrow to display a list of available hosts.

### **Port**

If the Port field is left blank, or set to "default", AccuTerm will use TCP port 22 (the default for ssh). If a different port is used for ssh on your desired host machine, enter that port number in this field.

### **Connect Timeout**

When establishing a connection to a host computer, AccuTerm will wait for a specified time for a response from the selected host system. You can

specify the number of seconds AccuTerm should wait. If this field is left blank, or zero, the default timeout is 15 seconds.

### **Advanced Options**

By clicking on the Advanced... button, you can modify various Secure Shell options.

#### **Break character (advanced option)**

Specify the character used to indicate a Break in this field. The default is 3 (CTRL + C).

#### **Terminal Type (advanced option)**

Many Telnet servers allow the client (terminal) to specify a terminal type when a connection is established. AccuTerm uses the default terminal types of *tty*, *viewpoint*, *viewpoint60*, *wyse50*, *wyse60*, *vt100*, *vt220*, *vt320*, *vt420*, *vt52*, *ansi*, *linux* and *pickmon*, depending upon the selected terminal emulation. If a different terminal type is required, you can enter it in this field.

#### **Send keepalives**

When this option is selected, AccuTerm will send a dummy “keepalive” message to the host periodically (about every 2 minutes). This dummy message is usually discarded by the host and is transparent to the terminal session. This feature may be useful when the host system (or network equipment such as routers) disconnects an idle connection.

#### **Disable outbound coalescing**

Use this option to improve terminal response over the network, at the expense of increased network traffic.

## **Connection Settings -PicLan**

AccuTerm supports Modular Software's PicLan network for Pick hosts. Any PicLan enabled host (server) on the network can be accessed.

In order to use a PicLan connection, the PicLan client software must first be installed. Since PicLan utilizes the IPX network protocol, you must also install the IPX protocol in your network configuration.

AccuTerm supports up to ten PicLan connections allowing up to ten concurrent PicLan sessions.

When using AccuTerm with a network connection such as PicLan, it is recommended that the **Display comm errors** option be set. If this option is not set and a network error occurs, you will not see any indication of the error; the terminal session may appear to hang.

### **Host Name**

A PicLan host (server) name must be entered in this field. Click on the down-arrow to display a list of available PicLan hosts (AccuTerm queries the network to assemble this list, it may take several seconds for this to occur).

### **Port**

Enter the port (host process, PIB or port number) to be used to connect to the PicLan host. This field may be left blank or may be set to "default" to indicate that any available port may be used.

### **Connect Timeout**

When establishing a connection to a host computer, AccuTerm will wait for a specified time for a response from the selected host system. You can specify the number of seconds AccuTerm should wait. If this field is left blank, or zero, the default timeout is 15 seconds.

## Terminal Type Settings

AccuTerm emulates a variety of terminals. In order to use AccuTerm with your host applications, you must select the correct terminal type for AccuTerm to emulate. The correct terminal type depends on the terminal type your host and/or application software requires. If you are unsure, you might type “TERM” at a Pick command (TCL) prompt, or type “echo \$TERM” at a Unix command prompt. The response may help you “guess” the correct type. If the application screens look correct, then you probably have the correct type; otherwise, try another terminal type.

### **Terminal Emulation**

**Wyse 50:** emulates a Wyse 50 terminal with “Enhanced” enabled. Wyse 50 emulation may also be used for Wyse 30, 99, 125 and 350 terminals.

**Wyse 60:** emulates a Wyse 60 terminal with “Enhanced” enabled. Wyse 60 emulation is similar to Wyse 50 with non-embedded visual attributes (the visual attribute codes do not take a position on the screen). Wyse 60 emulation may also be used for Wyse 150, 160 and 320 terminals.

**ADDS Viewpoint A2:** emulates an ADDS Viewpoint A2 terminal. This is the original A2 terminal, with no enhancements.

**ADDS Viewpoint 60:** emulates an ADDS Viewpoint 60 terminal. The Viewpoint 60 is similar to the A2, but uses embedded visual attributes (the visual attribute codes take a position on the screen).

**Procomm VP60:** emulates an ADDS Viewpoint 60 terminal, but with non-embedded visual attributes. This emulation is similar to the Viewpoint 60 emulation provided by Procomm.

**Viewpoint A2 Enhanced:** emulates a Wyse 50 terminal in ADDS Viewpoint mode with “Enhanced” enabled. This is basically a hybrid of Wyse 50 and ADDS Viewpoint A2. Viewpoint A2 Enhanced may also be used for ADDS 2020 and 4000, and NCR 2900 terminals.

**VT52:** emulates the DEC VT52 terminal.

**VT100:** emulates the DEC VT100 terminal. VT100 is a 7-bit emulation, and can also be used for applications which require VT102 terminals.

**VT220:** emulates the DEC VT220 terminal. The VT220 emulation provides a super-set of the VT100 commands, and includes support for a host-writable status line, protected characters, multiple character sets and multiple pages.

**VT320:** emulates the DEC VT320 terminal. The VT320 emulation provides a super-set of the VT220 commands, and includes support for reporting and restoring various terminal states.

**VT420:** emulates the DEC VT420 terminal. The VT420 emulation provides a super-set of the VT320 commands, and includes support for rectangle operations, left & right margins, and horizontal split screen.

**ANSI BBS:** emulates the old MS-DOS ANSI.SYS device driver. This emulation may be useful when connecting to older bulletin board systems.

**Linux Console:** emulates the Linux console, including function keys and colors.

**SCO Console:** emulates the SCO Unix console.

**Pick PC Monitor:** emulates the original Pick PC Monitor (“mm-mon” or “P” terminal type), including color and function keys.

**Tektronix Graphics:** emulates the Tektronix 4010/4014 and partial 41xx terminals. Color enhancements as implemented in the CIT467 terminal (from CIE Electronics) are included.

**TTY Emulation:** emulates basic TTY functions.

### **Answerback**

The contents of the Answerback field are sent to the host when AccuTerm receives a request to transmit the answerback string under Wyse and VT emulations. When the answerback message is sent to the host under Wyse emulation, an **ACK** control character follows the message. Under VT emulation, no terminator is sent.

Control characters may be entered into the answerback field by prefixing the character with a caret (^).

## **ANSI Options**

When any of the ANSI emulations (VTxxx, Linux Console or SCO Console) is selected, several additional options may also be selected.

### **Send 8 bit controls**

When this option is selected, AccuTerm will send control characters from the C0 and C1 sets. If the option is not set, C1 controls are sent using an equivalent 7-bit escape sequence.

### **Keypad sends application codes**

When this option is selected, the numeric keypad sends application codes (similar to function keys). When not selected, the numeric keypad sends numbers.

### **Cursor keys send application codes**

When this option is selected, the cursor (arrow) keys send special application codes instead of cursor movement codes.

### **Backspace key sends DEL**

When this option is selected, the **BKSP** key sends the **DEL** control code. When not selected, the **BKSP** key sends the **BS** control code.

## **Screen Settings**

The Screen tab lets you set terminal screen options like the size, cursor type, and history rows. You can also change the session title or the icon used for a minimized session.

### **Session Title**

This is the text that will be displayed on the session window title bar. If the title is blank, the name of the current session configuration file is displayed. When the session is maximized, the session title becomes part of the AccuTerm main window title.

### **Screen Sizes**

There are two separate screen sizes that AccuTerm supports; normal and extended. These sizes are used to emulate the 80 and 132 column modes of the Wyse and VT terminals. AccuTerm has taken the extended and normal modes one step further. With AccuTerm you can define both the normal and extended modes to be any number of columns or rows up to a maximum of 160 columns by 60 rows.

You will probably leave these settings at their default settings of 80 characters by 24 rows for normal mode and 132 characters by 24 rows in extended mode. If you have software that supports other screen sizes, you can experiment with these settings until you find a size that you like.

AccuTerm always allocates one extra row for function key labels, host messages, etc. If you specify 24 rows here, AccuTerm will display 24 data lines and one message line (the Pick PC Monitor and ANSI BBS emulations display 25 data lines).

When AccuTerm switches between the normal and extended modes, one of two things will happen: either the characters will change size to fit the visible screen, or scroll bars will be displayed if the full screen will not fit within the current window at the selected character size. For more information on scaleable fonts, see the section on Fonts.

## Video Pages

Many of the terminals AccuTerm emulates support multiple addressable pages. With AccuTerm, you can have up to 25 pages. Each page requires memory, so if you don't use them, it is better to leave this number set to the default value of 1.

## History Rows

AccuTerm supports a "history buffer", which saves lines that have scrolled off of the terminal screen. To use this feature, specify how many rows (up to 2500) are to be saved. When the history buffer has been enabled (by setting the number of rows), use the vertical scroll bar, mouse wheel, or keyboard commands to scan history.

You can use **CTRL + SHIFT + PGUP**, **CTRL + SHIFT + PGDN**, **CTRL + SHIFT + UP**, **CTRL + SHIFT + DOWN**, **CTRL + SHIFT + HOME**, and **CTRL + SHIFT + END** to scan the history buffer.

## History Scroll Bar

When a history buffer has been enabled, the vertical scroll bar may be used to scan through the history. AccuTerm supports three scroll-bar settings.

**Auto:** when "Auto" (the default mode) is selected, placing the mouse near the right edge of the screen will cause the scroll bar to "slide" into place. Moving the mouse away from this area causes the scroll bar to disappear.

**On:** when "On" is selected, the scroll bar will always be present.

**Off:** when "Off" is selected the scroll bar will only be present if the window height is not large enough to display the current screen height.

*Note: when Auto or Off are selected, using the keyboard commands or mouse wheel to scan history causes the scroll bar to be displayed briefly. This is so that you can see the position of the scroll button after scrolling the window.*

## Enable Graphic Mode

Checking this box enables the Tektronix 4010/4014/41xx graphic terminal emulation. If the graphics mode is enabled, AccuTerm will automatically switch to the Tektronix graphic emulation when it receives the appropriate

command from the host computer. AccuTerm will return to the previous emulation mode when graphics mode is terminated.

There may be times when you want to disable the graphic emulation. If you have a bad modem connection and are getting random garbage characters on the screen, AccuTerm may accidentally switch into graphics mode. Sometimes a software program may send the graphics mode control sequence at the wrong time. If this happens, disable the graphics mode until you need it.

#### **Enable Mouse**

This option determines whether host mouse support is enabled. Under normal operation, if you click on the terminal screen with the mouse, nothing happens. If a “mouse on” command is received from the host while this option is checked, AccuTerm sends a special code informing the host of the mouse location when the button was pressed, and which mouse button was pressed. The mouse cursor is also changed to a “pointing hand” to indicate that the mouse is active.

#### **Block Cursor**

Checking this option turns the cursor into a blinking block instead of an underline.

#### **Extended Mode**

Checking this option sets the screen to extended (132 column) mode. This can be used to manually switch between extended and normal (80 column) modes.

#### **Disable Line Wrap**

Checking this option disables the automatic wrapping at the end of a line. When this option is set, when the cursor is on the last position of a line, typing a character does not wrap to the next line.

#### **Disable Blinking**

Checking this option disables the “blinking” visual attribute.

#### **Disable Underling**

Checking this option disables the “underline” visual attribute.

### **Session Icon**

Any terminal session can be minimized (click the minimize button in the session title bar or select **Minimize** from the system menu (**ALT + -**)). All minimized sessions are shown as icons at the bottom of the AccuTerm main window. To change the icon used to represent the current session, click the **Change Icon** button then select an icon file (files ending in *.ico*) to represent this session when it is minimized.

## **Font Settings**

AccuTerm displays text received from the host computer using a fixed-pitch (all characters are the same size) font. Using a fixed-pitch font is necessary because applications written to display on real terminals expect each character to be the same width in order to align columns of data on the screen.

AccuTerm supplies a custom font which is selected by default. You are free to choose another fixed-pitch font if you desire, however, AccuTerm's font has been designed to scale nicely to different screen sizes.

### **Font**

The font list shows all of the available fixed-pitch fonts installed on your computer. The first font listed is the **AccuTerm** font. This font has been optimized to look good over a wide range of character sizes and screen resolutions. We recommend that you use this font, especially if you have a low resolution screen (640 x 480).

To choose a different font, simply click on the font you want.

### **Font Size**

This box lists all font sizes available for the font selected in the **Font** list. The **Font Size** list is disabled if the **Scale Font to Fit** option is checked.

### **Scale Font to Fit**

When this option is checked, AccuTerm automatically re-sizes the selected font so that the entire terminal screen is visible. This allows you to re-size the screen or change between normal and extended video mode without having to deal with scroll bars to see everything. However, if for some reason, you need lock the characters at a specific size, you can un-check this setting and then pick the size you want from the **Font Size** list.

### **Use Bold Font Style**

If this option is checked, AccuTerm uses the **Bold** font style if it's available in the selected font.

**Keep Font Legible**

If this option is checked, and the **Scale Font to Fit** option is checked, AccuTerm will never scale a font smaller than 6 pixels wide by 9 pixels high.

## Color Settings

Windows is capable of displaying text in a wide variety of colors. The colors are separated into character color and the background color. Most of the terminals being emulated do not support color. Instead, they have visual attributes like normal, reverse, dim, blink, underline, etc. AccuTerm allows you to map the various terminal visual attributes into a combination of character and background colors.

### **Color Palette**

AccuTerm uses a palette of 16 colors. Since most systems are capable of displaying more than 16 colors, AccuTerm allows you to customize its palette by using the “System” color settings as chosen in the Appearance tab of your Display properties (right-click on your desktop and select Properties, then click on the Appearance tab). To use the System colors, click the **Use System Colors** button.

You can also create your own custom palette. To adjust one of the palette entries, double-click on one of the palette colors shown in the Character Color or Background Color samples. The “Choose Color” dialog box will be displayed. In the “Choose Color” dialog, you can select a system color, standard color, or custom color. The system colors are described in the previous paragraph. The standard colors are the 16 original palette colors (except for dark gray, which is a custom color). To choose a custom color, click the **Select Custom Color** button and select a color from the entire spectrum of available display colors.

To restore the palette to AccuTerm’s default colors, click on the **Use Defaults** button.

*Note: if you modify the palette, explicit color commands used in some emulations may display the wrong color. For example, if you change the light-blue palette color to green, then an application which uses a color command to select light-blue text will instead display the text in green!*

## Color Mapping

Terminals use visual attributes (normal, dim, blink, etc). to highlight text. AccuTerm supports these visual attributes, and also allows you to map the attribute to a character and background color combination.

To change the color mapping, first click on the **Visual Attribute** whose colors you want to change. The sample box to the right of the attribute name shows the current color combination selected for that attribute. Next, click on the desired character and background colors in the palette shown at the bottom of the dialog box. The selected character and background colors are indicated by a large X in the palette.

The Wyse 50 and Wyse 60 emulations require a visual attribute to be assigned as the “Protected” attribute. To select the **Protected Attribute**, click on the drop-down arrow, then select which visual attribute should be used as the default protected attribute.

## Keyboard Settings

AccuTerm supports a programmable keyboard. All of the function keys and most of the keypad editing keys can be programmed.

Each terminal type has default programming for all of the keys which are native to that terminal. You do not need to program the default key codes.

If you wish to override the default programming, or to program keys that are not native to the currently selected terminal type, you can enter your own codes here. Any key can be programmed with a character sequence (which is transmitted to the host when the key is pressed), or a macro command, which is executed when the key is pressed.

The programmable keys are divided into eight categories: **Normal**, **Shifted**, **Control**, **Shift+Control**, **Alt**, **Shift+Alt**, **Keypad** and **Shifted Keypad**. The **Normal** key sequence is sent when one of the function keys is pressed by itself. The **Control** sequence is sent when a function key is pressed while holding down the **CTRL** key. The **Alt** sequence is sent if the **ALT** key is held down while pressing a function key. The **Keypad** sequence is sent when one of the editing keys is pressed. The **Shifted**, **Shift+Control**, **Shift+Alt**, and **Shifted Keypad** sequences are sent when the **SHIFT** key is held down in combination with any of the previous keys.

The **Keypad** and **Shifted Keypad** tabs are used for programming the special editing keys: **BKSP**, **TAB**, **INS**, **DEL**, **HOME**, **END**, **PGUP**, **PGDN**, **LEFT**, **RIGHT**, **UP**, and **DOWN**.

To reset the selected group of keys to their default values, click the **Clear All** button.

To manually program function and keypad keys, first select the **Key Type** from the tabs at the top of the panel. Next, enter the desired sequence into the text box next to the key name. To enter control characters (and special prefix characters) in a key sequence, use the notation shown in the following table:

| Key sequence | Control code | AccuTerm notation | Key sequence | Control code | AccuTerm notation |
|--------------|--------------|-------------------|--------------|--------------|-------------------|
| CTRL + @     | <i>NUL</i>   | ^@                | CTRL + P     | <i>DLE</i>   | ^P                |
| CTRL + A     | <i>SOH</i>   | ^A                | CTRL + Q     | <i>DC1</i>   | ^Q                |
| CTRL + B     | <i>STX</i>   | ^B                | CTRL + R     | <i>DC2</i>   | ^R                |
| CTRL + C     | <i>ETX</i>   | ^C                | CTRL + S     | <i>DC3</i>   | ^S                |
| CTRL + D     | <i>EOT</i>   | ^D                | CTRL + T     | <i>DC4</i>   | ^T                |
| CTRL + E     | <i>ENQ</i>   | ^E                | CTRL + U     | <i>NAK</i>   | ^U                |
| CTRL + F     | <i>ACK</i>   | ^F                | CTRL + V     | <i>SYN</i>   | ^V                |
| CTRL + G     | <i>BEL</i>   | ^G                | CTRL + W     | <i>ETB</i>   | ^W                |
| CTRL + H     | <i>BS</i>    | ^H                | CTRL + X     | <i>CAN</i>   | ^X                |
| CTRL + I     | <i>HT</i>    | ^I                | CTRL + Y     | <i>EM</i>    | ^Y                |
| CTRL + J     | <i>LF</i>    | ^J                | CTRL + Z     | <i>SUB</i>   | ^Z                |
| CTRL + K     | <i>VT</i>    | ^K                | CTRL + [     | <i>ESC</i>   | ^[                |
| CTRL + L     | <i>FF</i>    | ^L                | CTRL + \     | <i>FS</i>    | ^\                |
| CTRL + M     | <i>CR</i>    | ^M                | CTRL + ]     | <i>GS</i>    | ^]                |
| CTRL + N     | <i>SO</i>    | ^N                | CTRL + ^     | <i>RS</i>    | ^~                |
| CTRL + O     | <i>SI</i>    | ^O                | CTRL + _     | <i>US</i>    | ^_                |
| ^            |              | ^^                | \            |              | \\                |
| DELETE       | <i>DEL</i>   | ^?                |              |              |                   |

To program a key with a macro, enclose the macro command in square brackets ([ ]). See the **Scripting** section of the **Programmers Guide** for more information on macros.

### **Locking Programmed Keys**

Most terminal types provide commands for the host to program function keys. If you would like the host to be able to reset and reprogram the keys, select the **Unlocked – host can reset or reprogram key** option. If you would like the host to be able reprogram keys, but not reset them to their default values, select the **Locked – host cannot reset keys to defaults** option. If you would like to prevent the host from resetting or reprogramming key, select the **Locked – host cannot reset or reprogram keys** option.

### **Mapping F11 through F16**

Some terminals (like Wyse 50 and 60) have more than 12 function keys on their native keyboard. Since the PC keyboard only has 12 function keys, AccuTerm allows you to map the native **F11** through **F16** keys to PC keyboard **CTRL + F1** through **CTRL + F6** (and native **SHIFT + F11** to **SHIFT + F16** to PC **CTRL + SHIFT + F1** through **CTRL + SHIFT + F6**).

## Printer Settings

AccuTerm 2000 uses the printer in two ways: First, AccuTerm can print the contents of the terminal screen by using **File Print Screen** menu command (or toolbar button), the **ALT + G** keyboard command, or by receipt of the appropriate command from the host computer.

The other way AccuTerm uses the printer is to emulate a “slave” or “aux” printer attached to a terminal’s Aux, or Printer port. This mode is enabled by using the **File Printer On** menu command, the **ALT + P** keyboard command, or by receipt of the Printer On command from the host. The state of the “slave printer” is indicated on the status bar (Idle, Off or On).

When AccuTerm receives a Printer On command from the host (or by using the **File Printer On** menu command or **ALT + P** keyboard command), the printer status shown in the status bar is changed to “On”. When the Printer Off command is received, the status changes to “Off”. If another Printer On command is not received before the number of seconds specified in **Printer Close Timeout**, the print job is closed, and the status changes to “Idle”.

AccuTerm can print in two modes: text and graphics. Text is the mode used by “real” terminals. This mode is different from normal Windows printing in that the Windows printer driver is not used. For screen printing, text mode sends the screen text to the printer. For slave printing, AccuTerm passes raw data, including control characters and escape sequences from the host directly to the printer (or spooler). In text mode, the host computer is responsible for setting printer font sizes and page orientation by sending the appropriate printer commands.

In graphics mode, AccuTerm prints an image of the screen on the printer, using the Windows printer driver. When the screen is printed in graphics mode, the printed image includes text, line drawing characters, and may optionally include the screen background and colors. For slave printing, AccuTerm understands **CR** (carriage return), **LF** (line feed) and **FF** (form feed) control characters, but other control characters and escape sequences are ignored. You can select the font, paper size and page orientation used

for graphics mode slave printing by clicking the Page Setup button in the printer settings panel.

### **Printer Selection**

By default, AccuTerm uses the system default printer (the **Use Windows Default Printer** option selected). If you want to select a different printer, select the **Use Specific Printer** option, then select a printer from the drop-down list. If you want to disable printing from AccuTerm, select the **Disable printing** option.

### **Screen Print Settings**

AccuTerm can print the screen in **Text** or **Graphics** modes. In **Text** mode, only the text characters currently displayed on the screen are printed. In **Text** mode, you can elect to **eject** the page from the printer before the printout, after the printout or both.

In **Graphics** mode, an “image” of the current screen is printed, including special symbols like line drawing characters. You can elect to print the **background** (shading and highlighting) or print the screen in **color** if you have a color printer.

### **Slave Printer Settings**

AccuTerm can print to the slave printer in either **Text** or **Graphics** mode. In **Text** mode, you can **eject** the page from the printer before the printout, after the printout or both. In **Graphics** mode, you can select the font, page orientation, paper size and paper source by clicking the **Page Setup** button.

### **Printer Close Timeout**

Enter the number of seconds to wait after receiving a Printer Off command before closing the print job. Usually, when the host computer needs to print a report, it usually sends a Printer On command, sends the printer data and then sends a Printer Off command. But some host programs send a Printer On command, send some data to the printer, send a Printer Off command, and send some other data to the screen, and then send another Printer On command, and send more data to the printer, etc. Because of this, AccuTerm has no way of knowing when the host is finished sending the print job. The only way it can determine this is to wait for a set amount of time after the Printer Off command before closing the job. If this field is set

to the default of 5 seconds, AccuTerm waits 5 seconds after the Printer Off command has been received before closing the print job.

This causes a delay when printing under AccuTerm. If all your host programs always turn the aux port on, send all the data and then turn it off, you can reduce this number to 1 or 0. If you have programs that are constantly turning the aux port on and off, you may need to adjust this number until things work correctly.

## **File Transfer Settings**

AccuTerm supports several file transfer protocols. The **File Transfer** tab allows you to adjust some of the parameters used control the various protocols, select default operating modes and specify default directories. There are sections for ASCII options, X/Y/Zmodem options, Kermit options, as well as options for default modes and directories. The default values for most of these options should not be changed without an understanding of the protocol and the companion file transfer program on the host computer.

### **ASCII Settings**

When transferring a file from your computer to the host computer (upload) using the ASCII protocol, the each line may be terminated with a **CR**, **LF** or **CR LF** combination. Select the appropriate end of line for the host computer by checking the appropriate button.

ASCII is a “blind” protocol. The receiving computer cannot inform the sending computer when it is safe to transmit data. In order to perform reliable ASCII uploads, you may need to specify an appropriate **Interline delay** time. After each line is sent to the receiving computer, AccuTerm will wait for the specified time before sending the next line. Specify this value in milliseconds.

The **Interline delay** setting also applies to the **Edit Paste** and **Edit Paste From** commands.

### **Timeout Settings**

When using any of the X/Y/Zmodem protocols, you can specify the number of seconds before a timeout occurs. If the other machine fails to respond within the number of seconds specified here, the protocol will attempt to resend the previously sent message.

## **Kermit Settings**

The Kermit file transfer protocol is popular with minicomputer and mainframe systems. There have been many revisions of this protocol, and it may be necessary occasionally to modify some of these settings to communicate with another Kermit program.

### **Kermit settings: Defaults**

These default options may be set (checked) or reset (un-checked) as desired. When AccuTerm Kermit is negotiating with the other Kermit program, any of the checked options will be requested, and if the other Kermit is capable, the option will be used.

The “Quote eighth bit” option should be used when the communications path only supports 7 data bits, or when the other machine is not capable of processing eight bit data.

The “Compress data” option may be used to perform rudimentary data compression. Not all Kermit programs perform data compression.

The “CRC block check” option instructs Kermit to use CRC error detection instead of the standard simple checksum error check. This results in more reliable transfers, especially over noisy phone lines. Not all Kermit programs perform CRC error checking.

### **Default Mode**

Select **Text** or **Binary** as the default transfer mode (used only for Kermit and Zmodem protocols). When you select Upload or Download from the main menu or toolbar, the default mode will be selected. Also, select whether to overwrite existing files when downloading. You also can change any of these options in the Upload or Download dialog before performing the transfer.

### **Default Upload/Download Directory**

Enter the drive and directory where you want received files to be stored by default. You can change this directory in the Download dialog before performing the transfer. If you set the **Automatic Zmodem download** option, then this is the directory where the received files are stored.

**Automatic Zmodem Download**

If this option is set, then AccuTerm will automatically begin receiving files using the Zmodem protocol when the other machine begins sending files using the Zmodem protocol. The files are saved in the **Default Upload/Download directory**.

## Miscellaneous Settings

The Miscellaneous Settings tab is used for setting various options, such as how paste operations are handled and the sound of the terminal bell.

### **Paste Options: line end**

When the clipboard is “pasted” to an AccuTerm session, AccuTerm transmits the clipboard text to the host computer. The **line end** options specify what is transmitted at the end of a line of text. Options include **CR** (default), **LF**, **CF+LF**, **TAB**, none or a user-defined character. To specify a user-defined character, select the **User defined** option and enter the ASCII code of the character to be transmitted at the end of each line.

### **Paste Options: do not send line end after last line**

If you want to suppress the final end-of-line (or only end-of-line if only a single line is in the clipboard), select this option.

### **Paste Options: paste end**

After pasting the clipboard to an AccuTerm session, AccuTerm can transmit an optional **paste end** character. Normally, AccuTerm does not transmit any character at this time, but you can select **EOF** (which is the **SUB** or **CTRL + Z** control code), or a user-defined character. To specify a user-defined character, select the **User defined** option and enter the ASCII code of the character to be transmitted at the end of a paste operation.

### **Terminal Bell Sound**

The sound generated by AccuTerm upon receipt of the ASCII **BEL** control code can be customized. The **default sound** depends upon whether a sound card is installed or not. If a sound card is not installed, a “beep” is produced; otherwise the sound defined by the Control Panel Sounds applet as the “Default Beep” is played.

Other options which may be selected are: **play wave file**, **system event**, **beep** or **silent**. To play a wave file, select this option and enter the full path for the wave file to be played. To use a sound associated with a system event, select the event from the dropdown list. System events are associated

with wave files in the Control Panel Sounds applet. To use a true beep, enter the frequency of the beep in Hz, and the duration in milliseconds. The default is 400Hz for 500ms. The frequency must be between 200Hz and 4000Hz. The duration must be between 100ms and 5000ms.

**Advanced (Custom Features)**

Click the **Advanced** button to show any custom features that can be selected. See the **Programmers Guide** for more information on the custom features of AccuTerm 2000.



# AUTO DIALER

The AccuTerm Auto Dialer gives you an easy way to store and dial phone numbers. The **Phone directory** list contains all the phone numbers in the current directory file. You can have as many phone numbers in a directory file as you want. You can also have any number of directory files. The default directory file name is set in the **General** tab of the **Settings** dialog box (**T**ools **S**ettings menu).

To access the Auto Dialer, select the **T**ools **A**utodial menu item or click the  button on the toolbar.

*Note: the Auto Dialer is only available if the current session is configured to use a Modem for its connection.*

## Dialing

Using the Auto Dialer is very simple. To dial a number, double click an entry in the phone directory, or highlight the desired number in the phone directory list then click the **D**ial button.

If you want to dial a number which is not in the directory, simply enter the desired phone number in the **N**umber field, then click **D**ial.

## Hanging Up

To terminate a connection, click the **H**ang **U**p button.

## Adding a new entry

To add a new entry to the directory, click on the **N**ew button. Enter a phone number and optional description, then click the **A**dd button.

## Deleting an entry

To delete the selected entry, click the **D**ele~~t~~e button.

### **Modifying an entry**

To change an existing description or number, select the entry you want to change, modify the description or number and click the **Edit** button.

### **Creating a new directory file**

To create a new phone directory file, click the **Change Directory** button. From the **Open Phone Directory File** dialog, select the drive and directory for the new phone directory file, and enter the new phone directory file name. Click **OK** to create the new phone directory file.

### **Changing directory files**

To select a different phone directory file, click the **Change Directory** button, then select the new phone directory file. Click **OK**.

### **Changing dialing options**

To change the dialing options such as your current location, area code, dialing prefix, credit card information, etc., click the **Dialing Options** button.

### **Directory file format**

Phone directory entries are stored in a standard tab delimited ASCII text file with a file extension of *.dat*. The name is the first field and the phone number is the second field. Each entry has its own line. Many applications have the ability to export data to ASCII files so it may be possible to use your existing phone directories from other applications with the Auto Dialer.

# FILE TRANSFER

AccuTerm has the ability to transfer files between your computer and a remote machine using one of the five built in file transfer protocols: ASCII, Kermit, Xmodem, Ymodem and Zmodem. The standard (non-MultiValue) file transfer functions are accessed from the **T**ools menu by selecting the **U**pload or **D**ownload items or by clicking on the  or  buttons on the toolbar.

AccuTerm also includes a library of file transfer utility programs designed to integrate with MultiValue based host systems. For users of MultiValue based systems, using these utilities is the recommended method of exchanging data between your computer and the host system.

## MultiValue File Transfer

To make the most effective use of AccuTerm with your MultiValue based host system, you should install the host utility programs. These programs implement the Kermit and ASCII file transfer protocols, coordinate the transfer of data between your computer and the host, import and export data in a variety of formats and provide a simple host-to-host transfer facility.

In order to understand how to best use AccuTerm's MultiValue file transfer features, the differences between the PC and MultiValue file systems must be examined. Traditional PC files may be programs, documents or data files; in the typical MultiValue system, programs and documents are stored as individual items (records) in a file, whereas a data file is collection of related items (records) in a file, with an associated file dictionary.

When exchanging data between your computer and your MultiValue host, it is important to realize the difference between "document files" and "data files".

When transferring “document files” between the PC and MultiValue host, use AccuTerm’s **FT** utility. This utility transfers MultiValue *items* to PC *files* and vice versa. The key concept is that each MultiValue *item* becomes a separate *file* on the PC.

When transferring “data files” between your PC and your MultiValue host, use the **FTD** utility. This utility transfers a set of MultiValue *items* to a single PC *file* and vice versa. The key concept is that a *set of items* on the host becomes a *single file* on the PC.

You can also use AccuTerm to transfer data between two MultiValue hosts. The **FTPICK** utility is used to transfer data from one MultiValue machine to another, either directly (using two concurrent AccuTerm sessions), or using an intermediate PC file.

Kermit is the recommended file transfer protocol because of the automatic error detection and correction. Also, even with the increased overhead ensuing from Kermit, because the sender and receiver are synchronized and no time delays are required, the Kermit protocol usually performs better than the ASCII protocol when receiving a file.

### **Installing the MultiValue Host Programs**

The AccuTerm host programs for MultiValue systems are written entirely in BASIC. AccuSoft recommends that the host programs be installed into a dedicated account on your host system. Once installed, the programs can be shared with other accounts on the system. To install the host programs on your MultiValue system, perform the following steps:

- 1) Open a terminal session and connect to your MultiValue host system. Log on to the ACCUTERM account, or another account where you want to install the AccuTerm host programs..Check the following items before beginning the installation:
  - a) Make sure you are at a command prompt (TCL, ECL, etc.)
  - b) If your system has a “case inversion” feature, disable it. For uniVerse systems, type PTERM CASE NOI NVERT at the command prompt.
  - c) If your system blocks control characters, disable the blocking. For General Automation systems, type CONTROL-CHARS ON at the command prompt.

- d) If your system is running on a Unix host, make sure that the **CTRL + A** control character can be input. Check by typing `stty -a` at a Unix prompt – look for `^A` - if you find it, either disable that function or map it to a different control character. For example if you see something like `susp = ^A` you can type `stty susp \^-` to disable the suspend function.
- e) Enable type-ahead. Most systems have type-ahead enabled all the time, however you might need to enable type-ahead on a per-port basis on McDonnell Douglas systems (`TYPEAHEAD-ON` at TCL).

2) Create the AccuTerm host program file:

For Pick, ADDS, G/A, mvBase, McDonnell Douglas, Ultimate, Altos and other native Pick platforms:

```
CREATE-FILE FTBP 1, 1 3, 1
```

For jBase platforms:

```
CREATE-FILE FTBP 1 3
```

For uniVerse platforms (IDEAL flavor accounts):

```
CREATE-FILE FTBP 1 3
```

For uniVerse platforms (non-IDEAL flavor accounts):

```
CREATE-FILE FTBP 1 1, 1, 1
```

For UniData platforms:

```
CREATE-FILE DIR FTBP 3
```

- 3) If you want to install AccuTerm ObjectBridge, create the ObjectBridge host program file. Use the syntax from step 2, but use `OBJBP` as the file name. ObjectBridge is a technology that extends Windows' OLE/Automation to MultiValue systems, allowing MultiValue developers to access many Windows applications.

- 4) If you want to install the AccuTerm GUI environment, create the GUI host program file. Use the syntax from step 2, but use GUI BP as the file name. AccuTerm GUI is a development and runtime environment which provides GUI front-end support for MultiValue applications.

AccuTerm GUI also includes some sample applications and data files. If you want to install these samples, please create the sample application file (we recommend GUI APPS as the file name) and sample data files (CUST. SAMPLE, PROD. SAMPLE and I NV. SAMPLE)

These files can be created with a modulo of 1 for all platforms:

```
CREATE-FILE filename 1 1
```

- 5) While at the command prompt (TCL, ECL, etc.), click on the **Edit** menu and select **Paste From**.
- 6) Browse to the **PickBP** folder.
- 7) Click on the install script for your platform:

|                |                                       |
|----------------|---------------------------------------|
| FTPINSADDS.TXT | - Mentor, Mentor Pro, MOE             |
| FTPINSAP.TXT   | - Advanced Pick                       |
| FTPINS D3.TXT  | - D3                                  |
| FTPINSENH.TXT  | - Enhanced R83 (Altos, Fujitsu, etc.) |
| FTPINSJB.TXT   | - jBase                               |
| FTPINSMD.TXT   | - McDonnell Douglas, RealityX         |
| FTPINSMV.TXT   | - mvBase                              |
| FTPINSR83.TXT  | - Pick R83                            |
| FTPINSUD.TXT   | - UniData                             |
| FTPINSULT.TXT  | - Ultimate Plus                       |
| FTPINSUV.TXT   | - uniVerse                            |

- 8) Click the **Open** button. AccuTerm will install a small PROC and program which will be used to install the host programs.
- 9) You should again be at a command prompt. If you are not, press **ENTER** once or twice to get to a command prompt.

- 10) At the command prompt, type FTPINST and press **ENTER**. You will be prompted for the path of the host programs. Press **ENTER**. The transfer of the host programs will commence.
- 11) When uploading of the host programs is complete, the programs will automatically be compiled and cataloged.
- 12) If you want to load ObjectBridge, answer Y to the ObjectBridge prompt. You will be prompted for several file names and paths. The default value for these prompts is shown in parentheses. If the default value is correct (it should be), just press **ENTER**. When prompted to load the sample programs, answer Y if you would like the samples loaded.
- 13) If you want to install the GUI environment, answer Y to the GUI prompt. You will be prompted for several file names and paths. The default value for these prompts is shown in parentheses. If the default value is correct (it should be), just press **ENTER**. When prompted to load the sample applications and data, answer Y if you would like the samples loaded.
- 14) If you have previously installed another file transfer utility (such as ViaDuct) which uses the same names as some of the AccuTerm host programs, you may have to remove those entries from your MD or VOC, then re-catalog the programs in the FTBP file.

### **Activating Other Accounts to use the Host Programs**

After installing the host programs on one account on your host system (usually the ACCUTERM account), you can easily activate these programs on other accounts. To activate the programs on another account, perform the following steps:

- 1) Log on to the account which you want to activate.
- 2) At TCL, type `SET-FILE ACCUTERM FTBP` (change "ACCUTERM" to the name of the account where you originally installed the host programs)
- 3) At TCL, type `COPY MD QFILE (D`
- 4) At the "TO:" prompt, enter `FTBP`
- 5) At TCL, type `CATALOG FTBP *`

You may receive some warning messages about some object pointers not found. You can ignore these warnings.

*Note: for some host platforms, you may need to modify these instructions.*

### Downloading Documents to Your PC

Use the **FT** utility to send items (documents) from your MultiValue host to your PC. **FT** downloads each item (document) into a separate PC file. Normally, **FT** uses *text* mode, converting attribute marks to **CRLF** during the download process.

To download using **FT**, enter FT at the command prompt. When prompted:

```
(S)end, (R)eceive, (C)onfigure, (O)ptions,  
(H)elp or (E)xit ?
```

Answer S to send, then select the file transfer protocol:

```
File transfer protocol: (A)SCII or (K)ermit ?
```

Kermit is recommended.

```
Enter source (Pick) file name:
```

Enter the name of the host file which contains the items to be sent.

```
Enter source (Pick) item list:
```

Enter the item-IDs to be sent. If you do not enter item-IDs, any previously selected (SELECT, GET-LIST, etc.) items will be transferred; if you enter an asterisk (\*), all items in the file will be transferred. To specify a saved list, enter an open parenthesis followed by the list name. Separate item-IDs with blanks.

```
Enter target (DOS) directory name:
```

Enter the PC directory name including drive letter if desired. Separate directory names in a full path using back-slashes. UNC-style file names are acceptable.

```
Enter target (DOS) file name:
```

Enter the PC file name, including extension. If multiple items are being sent, multiple file names may be specified here. Each host item will be written to a separate PC file. If no file names are specified here, the item-ID will be used as the PC file name.

When the transfer is complete, you may see a message like:

```
Converting file to ANSI character set ...
```

This indicates that the raw data has been downloaded and is being converted from the OEM character set to the ANSI (Windows native) character set.

### Uploading Documents From Your PC to the Host

Use the **FT** utility to send PC files to your MultiValue host. Each PC file uploaded is saved as an *item* in the host file you specify.

To upload using **FT**, enter FT at the command prompt and follow the prompts.

```
(S)end, (R)eceive, (C)onfigure, (O)ptions,  
(H)elp or (E)xit ?
```

Answer R to receive, then select the file transfer protocol:

```
File transfer protocol: (A)SCII or (K)ermit ?
```

Kermit is recommended.

```
Enter source (DOS) directory name:
```

Enter the name of the PC directory which contains the files to be uploaded.

```
Enter source (DOS) file name:
```

Enter the name(s) of the PC file(s) to be received. Separate multiple file names with blanks. Wildcard characters (? and \*) are valid.

```
Enter target (Pick) file name:
```

Enter the host file name where the uploaded files are to be saved. Each uploaded file is stored as an *item* in this file.

```
Enter target (Pick) item list:
```

Enter the item-ID(s) for the uploaded file(s). If multiple files are being uploaded, multiple item-IDs may be specified here. If no item-IDs are specified here, the PC file name will be used as the item-ID.

Before the transfer begins, you may see a message like:

```
Converting file to OEM character set ...
```

This indicates that the PC file, which uses the ANSI (Windows native) character set is being translated into the OEM character set prior to transfer to your host computer.

## FT Options and Settings

Several configuration (permanent) and option (temporary) settings are available for the FT utility. To change configuration (permanent) settings, enter C in response to the first prompt. A list of configuration settings will be displayed:

```
Current parameter settings are:
  1. Transfer mode           Text
  2. Preserve file extension Yes
  3. Overwrite existing item Yes
  4. Large item treatment    Truncate
  5. Convert OEM char set to ANSI No
```

Enter parameter number (1-5) to modify:

The setting for any of these parameters may be changed by entering the parameter number. Possible transfer modes are *text* and *binary*. Text causes attribute mark characters to be translated to carriage return / line feeds and vice versa. Large item treatment may be set to truncate items at about 30000 bytes, split large items into multiple items of about 30000 bytes each, or no action (for those systems with no item size limitation). Split items use a special item-id generated by concatenating the original item-id, an underscore (\_), and a sequential number starting with 001.

If you enable OEM/ANSI character set conversion, the file you upload or download is a temporary file. The actual file is converted before uploading and after downloading. You should not enable this option unless you use international characters on your MultiValue host, and those characters are stored using the OEM character set (the set used by ADDS Viewpoint, Wyse, ANSI BBS and PC Monitor emulations).

To change option settings, enter O in response to the first prompt. A list of option settings will be displayed. Note that the default value of the options is stored in the configuration settings:

```
Current parameter settings are:
  1. Transfer mode           Text
  2. Preserve file extension Yes
  3. Overwrite existing item Yes
```

An alternate way to set the value of a configuration or option setting is to answer the prompt with the parameter number, an equal sign, and the first letter of the value to which the parameter is to be set. For example, to set

the first configuration parameter to "binary", respond to "Enter parameter..." with 1=B. This alternate method is useful in cases where the FT utility is being "driven" by a PROC or by another program using the EXECUTE statement.

### Downloading Data Files to Your PC (Export)

Use the **FTD** utility to download a set of specified (or selected) items from your host database to a PC file. You can specify which fields (attributes) to download. The target PC file format is determined by the file name you specify.

To export data from the host using **FTD**, enter FTD at the command prompt, then answer the prompts. On-line help is provided for each prompt, just enter a question mark and press ENTER.

```
(S)end, (R)eceive, (C)onfigure, (O)ptions,  
(H)elp or (E)xit ?
```

Answer S to send, then select the file transfer protocol:

```
File transfer protocol: (A)SCII or (K)ermit ?
```

Kermit is recommended.

```
Enter source (Pick) file name:
```

Enter the name of the host file which contains the data to be exported.

```
Enter source (Pick) item list:
```

Enter the item-IDs of the items (records) you want to export. If you do not enter any item-IDs, any previously selected (SELECT, GET-LIST, etc.) items will be exported; if you enter an asterisk (\*), all items in the file will be exported. To specify a saved list, enter an open parenthesis followed by the list name. Separate item-IDs with blanks.

```
Enter target (DOS) file (path) name:
```

Enter the full PC file name including drive letter and directory, if desired. Separate directory names in the path using back-slashes. UNC-style file names are acceptable.

For certain file types, you may need to append a modifier after the file name; see the discussion of file types at the end of this section for details.

Attributes to transfer:

Enter the list of fields, or attributes, to be exported. Enter either the attribute number or attribute name as defined in the file dictionary. An asterisk (\*) may be entered here to export all attributes (including the Item-ID), from all selected items. A plus-sign (+) may be entered to export all attributes *except* the Item-ID.

Generate Header Record (<Y>/N):

Answer Y if you want the first record in the PC file to be a “header record”. The header record specifies the names of the fields of each data record in the file and may be used as column or field identifiers by certain Windows applications. If an asterisk was entered for the attribute list, the header record will contain only an asterisk.

If asterisk was not entered for the attribute list,

Explode MultiValue Fields (Y/<N>):

Answer Y to explode all multi-valued fields. When multi-valued fields are exploded, a separate data record will be created for each multi-value, with any single-valued fields repeated for each multi-value.

When the transfer is complete, you may see a message like:

Converting file to Excel file format ...

This indicates that the raw data has been downloaded and is being formatted in the native file format indicated by the file name you entered.

### Uploading Data Files From Your PC to the Host (Import)

Use the **FTD** utility to import data from a file on your PC to your MultiValue database. The PC file being imported should be a “database” such as a spreadsheet, delimited ASCII file, html table, Access database or other database format recognized by AccuTerm.

To import data using **FTD**, enter FTD at the command prompt and follow the prompts.

```
(S)end, (R)eceive, (C)onfigure, (O)ptions,  
(H)elp or (E)xit ?
```

Answer R to receive, then select the file transfer protocol:

```
File transfer protocol: (A)SCII or (K)ermit ?
```

Kermit is recommended.

```
Enter source (DOS) file (path) name:
```

Enter the full PC file name including drive letter and directory, if desired. Separate directory names in the path using back-slashes. UNC-style file names are acceptable.

For certain file types, you may need to append a modifier after the file name; see the discussion of file types at the end of this section for details.

```
Use Header Record (<Y>/N):
```

Answer Y if you want to use the first record in the PC file as a “header record”. The header record specifies the names (or numbers) of the attributes to be imported. If the header record consists of a single asterisk, all fields (attributes) in each record are imported. If you answer Y to this prompt, the next prompt will be “Enter target (Pick) file name”; other prompts will be bypassed.

```
Attributes to transfer:
```

Enter the list of attributes (fields) to be imported. Enter either the attribute number or attribute name as defined in the file dictionary. An asterisk may be entered here to import all attributes (entire record or item). Attribute definitions containing A or F correlatives cannot be specified.

Number of header records to skip:

Enter the number of records at the beginning of the PC file which are to be considered "header records", which should to be ignored when importing the file.

Automatically generate target (Pick) IDs  
(Y/<N>):

Answer Y to generate item-IDs for each record. If the item-ID is not specified in response to the "Attributes to transfer" prompt, you must generate item-IDs. The generated item-ID consists of a constant (possibly null) prefix, followed by a sequential number. If item-IDs are not generated, the next two prompts will be skipped.

Auto ID Prefix:

Enter the constant item-ID prefix. Null is acceptable if the generated item-ID is simply a sequential number.

Auto ID Starting Number:

Enter the starting value for automatically generated item-IDs.

Enter target (Pick) file name:

Enter the name of the host file where the imported data is to be stored.

Before the transfer begins, you may see a message like:

Converting file from Excel format for upload

This indicates that the PC file data is being converted into a delimited ASCII format which can be imported to your MultiValue database prior to transfer to your host computer.

## File Types for Import and Export

The default file format used by the **FTD** utility is ASCII delimited text. In this format, records in the PC file are separated by a carriage return / line feed and fields are separated by tabs or commas. If the field delimiter is a comma, then each field is enclosed in quotation marks. Embedded quotation marks are duplicated. This file format is easily imported by many Windows database and spreadsheet programs.

Certain file extensions are recognized by AccuTerm and are assumed to be a particular format. These extensions are:

|             |                           |
|-------------|---------------------------|
| .db2        | dBase II                  |
| .dbf        | dBase III/IV              |
| .htm, .html | HTML table                |
| .mdb        | Microsoft Access database |
| .sym        | Lotus Symphony            |
| .wb1        | Quattro                   |
| .wk1        | Lotus v1-v2               |
| .wks        | Lotus v3-v5               |
| .xl, .xls   | Microsoft Excel           |

You can customize the file extensions which AccuTerm recognizes, and instruct AccuTerm to perform the automatic conversion to or from one of the supported file formats. To modify the file types, use Windows Explorer, and find the "atedtyp2k.exe" file in AccuTerm's main program folder. Double-click on this file name to start the file type configuration program.

When accessing Excel workbook files, the **FTD** utility has the ability to reference explicit worksheets and ranges of cells. To use this feature, specify the Excel file name as:

```
d:\path\file.xls!sheet!range
```

where `d:\path\file.xls` is the path of the Excel file, `sheet` is the worksheet name or tab number (`sheet` may be null to use the first worksheet in the workbook), `range` is the range of cells to access. Either a named range may be used or a cell location (e.g. A4) or cell range (e.g. B3:F42) may be specified.

When exporting data to Excel, the range identifies the upper-left cell of the target worksheet; the number of columns and rows is determined by the data being sent.

When importing data from Excel, the range specifies the entire block of data to be imported. To specify only the upper-left corner of the block (the number of columns and rows determined by the extent of the worksheet), follow the cell with a trailing colon (e.g. B3: ).

### FTD Options and Settings

Several configuration (permanent) and option (temporary) settings are available for the **FTD** utility. To change configuration settings, enter C in response to the first prompt. A list of configuration settings will be displayed:

```
Current parameter settings are:
  1. Preserve file extension      Yes
  2. Overwrite existing item     No
  3. Large item treatment        No action
  4. Field delimiter              Tab
  5. Convert OEM char set to ANSI No
```

Enter parameter number (1-5) to modify:

The setting for any of these parameters may be changed by entering the parameter number. The field delimiter (PC file) may be set to either “Tab” or “Comma”.

To change option settings, enter O in response to the first prompt. A list of option settings will be displayed. Note that the default value of the options is stored in the configuration settings:

```
Current parameter settings are:
  1. Preserve file extension      Yes
  2. Overwrite existing item     No
  3. Field delimiter              Tab
```

An alternate way to set the value of a configuration or option setting is to answer the prompt with the parameter number, an equal sign, and the first letter of the value to which the parameter is to be set. For example, to set the third configuration parameter to “tab”, respond to “Enter parameter...” with 3=T. This alternate method is useful in cases where the **FTD** utility is being “driven” by a PROC or by another program using the EXECUTE statement.

### Transferring Data Between MultiValue Hosts

The **FTPICK** utility will transfer specified (or selected) items from one MultiValue computer to another. This transfer can be done in one step if you have two AccuTerm sessions open, connected to each of the MultiValue host computers. AccuTerm will also let you transfer data from one host to another using an intermediate file stored on your PC. This transfer requires two steps: transfer from first host to intermediate PC file, then transfer from the intermediate file to the other host.

### Direct Host-to-Host (One Step) Transfer

The direct transfer requires two sessions running on AccuTerm - one session connected to the source host (sending machine), and one session connected to the target host (receiving machine). If you cannot run two sessions, you must use an intermediate PC file to store the data temporarily using the two step method (see next section).

To use the **FTPICK** direct transfer method, activate the AccuTerm session connected to the target host, and start **FTPICK**. When prompted:

```
(S)end, (R)eceive, (C)onfigure, (O)ptions,  
(H)elp or (E)xit ?
```

Answer R to receive files, then select the direct mode:

```
Receive (D)irectly from PICK file or from  
(I)ntermediate DOS file ?
```

by answering D. A panel titled "AccuTerm Pick-to-Pick File Transfer" will be displayed on the target screen. You can cancel the Host-to-Host transfer at any time by pressing the **ESC** key while the target session is active.

Next, activate the AccuTerm session connected to the source host, or sending machine, and start **FTPICK**. When prompted:

```
(S)end, (R)eceive, (C)onfigure, (O)ptions,  
(H)elp or (E)xit ?
```

answer S to send files. Then enter the name of the source host file to be sent:

Enter PICK source file name:

Enter the name of the source host file which contains the items to be sent.

Enter source (Pick) item list:

Enter the item-IDs to be sent. If you do not enter item-IDs, any previously selected (SELECT, GET-LIST, etc.) items will be transferred; if you enter an asterisk (\*), all items in the file will be transferred. To specify a saved list, enter an open parenthesis followed by the list name. Separate item-IDs with blanks.

Send (D)irectly to PICK file or to  
(I)ntermediate DOS file ?

Answer D to send the file directly to the target machine.

Enter target PICK file name:

Enter the file name on the target machine into which the selected items will be written.

Once the target file name has been entered, the receiving session will be activated and the transfer progress will be displayed in the panel. When the transfer is complete, press the **ESC** key to terminate the receiving FTPICK program, or activate the sending session to send another file.

### **Host-to-Host transfer using Intermediate PC File (Two Step)**

If you cannot open one session to each MultiValue host machine, or if you want to send the same file to several target machines, you can save the data in an intermediate PC file. The procedure is similar to the direct method described above, except that the send must be done first, and a PC file must be specified for both the send and receive steps.

#### **Step 1: Transferring From the Source Host to an Intermediate File**

Open an AccuTerm session connected to the source machine, and start **FTPICK**. When prompted:

(S)end, (R)eceive, (C)onfigure, (O)ptions,  
(H)elp or (E)xit ?

answer S to send files. Then enter the name of the source file to be sent:

Enter PICK source file name:

Enter the name of the source file which contains the items to be sent.

Enter source (Pick) item list:

Enter the item-IDs to be sent. If you do not enter item-IDs, any previously selected (SELECT, GET-LIST, etc.) items will be transferred; if you enter an asterisk (\*), all items in the file will be transferred. To specify a saved list, enter an open parenthesis followed by the list name. Separate item-IDs with blanks.

Send (D)irectly to PICK file or to  
(I)ntermediate DOS file ?

Answer I to send the file to an intermediate PC file.

Enter intermediate DOS file name:

Enter the full PC file name of the intermediate file including drive letter and directory, if desired. Separate directory names in a full path using back-slashes.

Upon entering the PC file name, the selected items will be transferred to the specified PC file in a special format used by the **FTPICK** utility.

## **Step 2: Transferring From an Intermediate File to the Target Host**

Open an AccuTerm session connected to the target machine, and start **FTPICK**. When prompted:

(S)end, (R)eceive, (C)onfigure, (O)ptions,  
(H)elp or (E)xit ?

answer R to receive files. Then enter the name of the intermediate PC file which contains the desired data:

Receive (D)irectly from PICK file or from  
(I)ntermediate DOS file ?

Answer I to retrieve data from an intermediate file.

Enter intermediate DOS file name:

Enter the full PC file name of the intermediate file including drive letter and directory, if desired. Separate directory names in a full path using back-slashes.

Enter target PICK file name:

Enter the file name on the target machine into which the retrieved items will be written.

If the intermediate file is in the correct format, the items contained in the intermediate file will be transferred and stored into the target host file.

### **FTPICK Options and Settings**

One configuration setting (permanent) and option setting (temporary) is available for the FTPICK utility. To change configuration setting, enter C in response to the first prompt. A list of configuration settings will be displayed:

Current parameter settings are:  
1. Overwrite existing item      Yes

Enter parameter number (1-1) to modify:

The “overwrite existing file” setting may be changed by entering the parameter number (1).

*When using the direct mode, both the sender and receiver must have “Overwrite existing file” set to “Yes” in order for existing items to be overwritten. If either the sender or receiver has this settings set to “No”, existing items will not be overwritten.*

*If the receiver has “Overwrite” set to “No” and the sender has it set to “Yes”, the transfer will fail.*

To change option setting, enter O in response to the first prompt. A list of option settings will be displayed. Note that the default value of the options is stored in the configuration settings:

Current parameter settings are:  
1. Overwrite existing item      Yes

Enter parameter number (1-1) to modify:

An alternate way to set the value of a configuration or option setting is to answer the prompt with the parameter number, an equal sign, and the first letter of the value to which the parameter is to be set. For example, to set the first configuration parameter to "binary", respond to "Enter parameter..." with 1=Y. This alternate method is useful in cases where the **FTPICK** utility is being "driven" by a PROC or by another program using the EXECUTE statement.

## **Standard (non-MultiValue) File Upload**

*Upload* transfers a file (or files) from your computer to a remote machine. Uploads may use any of the supported protocols. Usually, to perform a file upload, you would first start the receiving (download) program on the remote computer from normal terminal emulation mode. Then after the remote receiving program has been started, select **Tools Upload**, select the appropriate protocol, select the file(s) to upload, then click the **Upload** button.

### **File Selection**

Click the **Browse** button to select the file(s) to upload. If the currently selected protocol is **Kermit**, **Ymodem**, or **Zmodem**, you can select multiple files, otherwise select only a single file.

### **Protocol**

Select the protocol you want to use to upload the selected file(s) by clicking the appropriate option button: **ASCII**, **Kermit**, **Xmodem**, **Ymodem** or **Zmodem**.

The **ASCII** protocol by its nature has no error checking. This protocol should only be used when there is a local, error free connection, and when the remote system does not support any of the other protocols. The **ASCII** protocol only sends text files, and it is not a “batch” protocol - you can only send one file. You can adjust the line termination to **CR**, **LF** or **CR LF** by selecting the desired option in the **File Transfer** tab of the **Settings** dialog box (**Tools Settings** menu). You can also set the inter-line delay time in the same tab (this is the amount of time AccuTerm waits between lines when sending a file).

The **Kermit** protocol provides error detection and correction. **Kermit** is a “batch” protocol, so you can send multiple files. **Kermit** can send either text or binary files; text files are converted to the format required on the receiving machine. **Kermit** is slower than X/Y/Zmodem, but is the most portable protocol. It often succeeds when the other protocols fail. Several options may be set in the **File Transfer** tab of the **Settings** dialog box.

These include the retry limit, timeout period, end of line character, eighth bit quoting, data compression and block check type (checksum or CRC).

**Xmodem** is a binary protocol which includes error checking. **Xmodem** is not a “batch” protocol; you can only send one file using **Xmodem**, and you need to specify the file name to the receiving program. Files transferred using **Xmodem** “grow” to the next multiple of 128 bytes. The **Xmodem** protocol requires an 8-bit data path, and full 8-bit transparency (you cannot use Xon/Xoff handshaking when using **Xmodem**). You can set the **Xmodem** timeout period in the **File Transfer** tab of the **Settings** dialog box.

**Ymodem** is a binary protocol which includes checksum or CRC error checking. **Ymodem** is available in several “flavors”; the “flavor” used by AccuTerm is Ymodem-G (1K blocks, batch mode). The **Ymodem** protocol requires an 8-bit data path, and full 8-bit transparency (you cannot use Xon/Xoff handshaking when using **Ymodem**). You can set the **Ymodem** timeout period in the **File Transfer** tab of the **Settings** dialog box.

**Zmodem** is a sophisticated file transfer protocol which is popular on PCs and Unix based minicomputers. **Zmodem** provides robust CRC error checking, several options for dealing with existing files and text file conversion. If the receiving machine uses the “rz” program, AccuTerm will send the “rz” command before sending files, to automatically invoke the receiver’s **Zmodem** program. The **Zmodem** protocol requires an 8-bit data path, but full 8-bit transparency is not normally required (you can use Xon/Xoff handshaking when using **Zmodem**). You can set the **Zmodem** timeout period in the **File Transfer** tab of the **Settings** dialog box.

## Mode

When the currently selected protocol is **Kermit** or **Zmodem**, you can select the transfer mode as **text** or **binary**. When **text** mode is selected the line termination is adjusted to match that of the receiving machine. When **binary** mode is selected, the files are transferred without alteration. The **ASCII** protocol always transfers text files, and **Xmodem** and **Ymodem** always transfer in binary mode.

## Overwrite

When the **Zmodem** protocol is selected, the sender can select how to deal with existing files by selecting an **Overwrite** mode. Select **never** if you

want to preserve all existing files. Select **always** to overwrite existing files. **Append** will append onto existing files. The **newer** option replaces existing files only if the file being sent is newer than the existing file. The **update** option overwrites existing files; non-existing files are not transferred. Use the **resume** option for crash recovery after aborted transfers - if a file does not exist on the receiving machine, it is sent; if a file exists, but it is shorter than the file on the sending machine, the remainder of the file is sent; if a file exists, but it is the same length or longer, it is skipped. *Note: the **resume** option may only be used if the transfer mode is binary.*

## **Standard (non-MultiValue) File Download**

*Download* transfers a file (or files) from a remote machine to your computer. Downloads may use any of the supported protocols. Usually, to perform a file download, you would start the sending program on the remote machine while in normal terminal emulation mode. Then after the remote sending program has been started, select **Tools Download**, select the appropriate protocol, select the destination directory (and file name if using **ASCII** or **Xmodem**), then click the **Download** button.

### **Directory and File Selection**

Click the **Browse** button to select the destination directory. If the currently selected protocol is **ASCII** or **Xmodem**, then you also need to specify a file name for the downloaded file.

### **Protocol**

Select the protocol you want to use to download the selected file by clicking the appropriate option button: **ASCII**, **Kermit**, **Xmodem**, **Ymodem** or **Zmodem**. For details about each of the protocols, see the discussion in the previous section.

### **Mode**

When the protocol is set to **ASCII**, the mode is **text**; when it is set to **Xmodem** or **Ymodem**, the mode is **binary**. When using **Kermit**, you can select either **text** or **binary** mode. The mode for Zmodem transfers is determined by the sender.

When **text** mode is selected lines are terminated with **CR/LF**. When **binary** mode is selected, the files are transferred without alteration.

### **Overwrite**

Check this box to allow existing files to be overwritten. *Note: Kermit and Ymodem always overwrite. When Zmodem is selected, the sender controls the action to take if a file exists.*



# DATA CAPTURE

AccuTerm is capable of capturing to a file any data received by the your computer, or any data which would normally be printed to the “slave” printer . To start data capture, select **T**ools from the main menu, then select the **C**apture option or click the  button on the toolbar. Select the capture file and options in the **B**egin **C**apture dialog.

## Capture to File

Enter the capture file name in this field, or click the **B**rowse button to select the folder and file.

## Mode

Select **N**ew file only, **O**verwrite, **A**ppend, or **C**lipboard by clicking the appropriate option button. If you select **O**verwrite or **A**ppend and the file does not exist, AccuTerm will create the file. If you select **N**ew file only and the file does exist, a warning will be displayed.

## Source

Select the data source to be captured as **R**eceived data or **P**rinted data. If **R**eceived data is selected, all data received by AccuTerm (except when a file transfer is occurring) will be captured to the specified file. This includes all control characters. If **P**rinted data is selected, all data which would normally be printed to the slave printer port is captured to the selected file, and not printed.

## Terminating Data Capture

If data capture is already in effect (as indicated in the status bar), selecting **T**ools **C**apture or clicking the  button on the toolbar will display the **E**nd **C**apture dialog. Click the **E**nd **C**apture button to terminate the capture operation, or click the **C**ontinue button to resume capturing.



## WED EDITOR

AccuTerm 2000 MultiValue Edition includes a handy Windows based program / data editor for use with your MultiValue host computer. WED is invoked just like the traditional ED verb, but opens the specified documents in a Windows full-screen editor. If you specify multiple item-IDs, each item is opened in its own window. The windows can be arranged, cascaded, or tiled. You can cut, copy and paste text between documents and other Windows applications.

When you edit BASIC programs using wED, wED highlights various BASIC syntax elements in different colors and text styles for easy recognition. You can even customize the color and text style used for highlighting, specify you own language keyword list and create a user-defined keyword list. wED understands GOTO, GOSUB, CALL and INCLUDE statements, and allows you to easily jump to the target of the statement.

Advanced editing features include block comment / uncomment, block indent / outdent, and a built-in BASIC code formatter. One-click compile is also included.

wED is installed when you install the MultiValue Host Programs (see File Transfer section).

To customize wED, open the Tools menu and select General, Highlight or Tools. Complete online help is included.



# APPENDIX A

## ASCII Codes

---

| <u>ASCII</u> | <u>Decimal</u> | <u>Hex</u> | <u>ASCII</u> | <u>Decimal</u> | <u>Hex</u> |
|--------------|----------------|------------|--------------|----------------|------------|
| <i>NUL</i>   | 0              | 00         | <i>SPACE</i> | 32             | 20         |
| <i>SOH</i>   | 1              | 01         | !            | 33             | 21         |
| <i>STX</i>   | 2              | 02         | "            | 34             | 22         |
| <i>ETX</i>   | 3              | 03         | #            | 35             | 23         |
| <i>EOT</i>   | 4              | 04         | \$           | 36             | 24         |
| <i>ENQ</i>   | 5              | 05         | %            | 37             | 25         |
| <i>ACK</i>   | 6              | 06         | &            | 38             | 26         |
| <i>BEL</i>   | 7              | 07         | '            | 39             | 27         |
| <i>BS</i>    | 8              | 08         | (            | 40             | 28         |
| <i>HT</i>    | 9              | 09         | )            | 41             | 29         |
| <i>LF</i>    | 10             | 0A         | *            | 42             | 2A         |
| <i>VT</i>    | 11             | 0B         | +            | 43             | 2B         |
| <i>FF</i>    | 12             | 0C         | ,            | 44             | 2C         |
| <i>CR</i>    | 13             | 0D         | -            | 45             | 2D         |
| <i>SO</i>    | 14             | 0E         | .            | 46             | 2E         |
| <i>SI</i>    | 15             | 0F         | /            | 47             | 2F         |
| <i>DLE</i>   | 16             | 10         | 0            | 48             | 30         |
| <i>DC1</i>   | 17             | 11         | 1            | 49             | 31         |
| <i>DC2</i>   | 18             | 12         | 2            | 50             | 32         |
| <i>DC3</i>   | 19             | 13         | 3            | 51             | 33         |
| <i>DC4</i>   | 20             | 14         | 4            | 52             | 34         |
| <i>NAK</i>   | 21             | 15         | 5            | 53             | 35         |
| <i>SYN</i>   | 22             | 16         | 6            | 54             | 36         |
| <i>ETB</i>   | 23             | 17         | 7            | 55             | 37         |
| <i>CAN</i>   | 24             | 18         | 8            | 56             | 38         |
| <i>EM</i>    | 25             | 19         | 9            | 57             | 39         |
| <i>SUB</i>   | 26             | 1A         | :            | 58             | 3A         |
| <i>ESC</i>   | 27             | 1B         | ;            | 59             | 3B         |
| <i>FS</i>    | 28             | 1C         | <            | 60             | 3C         |
| <i>GS</i>    | 29             | 1D         | =            | 61             | 3D         |
| <i>RS</i>    | 30             | 1E         | >            | 62             | 3E         |
| <i>US</i>    | 31             | 1F         | ?            | 63             | 3F         |

## ASCII Codes (continued)

---

|   |    |    |            |     |    |
|---|----|----|------------|-----|----|
| @ | 64 | 40 | `          | 96  | 60 |
| A | 65 | 41 | a          | 97  | 61 |
| B | 66 | 42 | b          | 98  | 62 |
| C | 67 | 43 | c          | 99  | 63 |
| D | 68 | 44 | d          | 100 | 64 |
| E | 69 | 45 | e          | 101 | 65 |
| F | 70 | 46 | f          | 102 | 66 |
| G | 71 | 47 | g          | 103 | 67 |
| H | 72 | 48 | h          | 104 | 68 |
| I | 73 | 49 | i          | 105 | 69 |
| J | 74 | 4A | j          | 106 | 6A |
| K | 75 | 4B | k          | 107 | 6B |
| L | 76 | 4C | l          | 108 | 6C |
| M | 77 | 4D | m          | 109 | 6D |
| N | 78 | 4E | n          | 110 | 6E |
| O | 79 | 4F | o          | 111 | 6F |
| P | 80 | 50 | p          | 112 | 70 |
| Q | 81 | 51 | q          | 113 | 71 |
| R | 82 | 52 | r          | 114 | 72 |
| S | 83 | 53 | s          | 115 | 73 |
| T | 84 | 54 | t          | 116 | 74 |
| U | 85 | 55 | u          | 117 | 75 |
| V | 86 | 56 | v          | 118 | 76 |
| W | 87 | 57 | w          | 119 | 77 |
| X | 88 | 58 | x          | 120 | 78 |
| Y | 89 | 59 | y          | 121 | 79 |
| Z | 90 | 5A | z          | 122 | 7A |
| [ | 91 | 5B | {          | 123 | 7B |
| \ | 92 | 5C |            | 124 | 7C |
| ] | 93 | 5D | }          | 125 | 7D |
| ^ | 94 | 5E | ~          | 126 | 7E |
| _ | 95 | 5F | <b>DEL</b> | 127 | 7F |

## ASCII Codes (continued)

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|            |     |    |   |     |    |
|------------|-----|----|---|-----|----|
|            | 128 | 80 |   | 160 | A0 |
|            | 129 | 81 | i | 161 | A1 |
|            | 130 | 82 | ¢ | 162 | A2 |
|            | 131 | 83 | £ | 163 | A3 |
| <i>IND</i> | 132 | 84 | ¤ | 164 | A4 |
| <i>NEL</i> | 133 | 85 | ¥ | 165 | A5 |
| <i>SSA</i> | 134 | 86 | ¦ | 166 | A6 |
| <i>ESA</i> | 135 | 87 | § | 167 | A7 |
| <i>HTS</i> | 136 | 88 | ¨ | 168 | A8 |
| <i>HTJ</i> | 137 | 89 | © | 169 | A9 |
| <i>VTS</i> | 138 | 8A | ª | 170 | AA |
| <i>PLD</i> | 139 | 8B | « | 171 | AB |
| <i>PLU</i> | 140 | 8C | ¬ | 172 | AC |
| <i>RI</i>  | 141 | 8D | ® | 173 | AD |
| <i>SS2</i> | 142 | 8E | ® | 174 | AE |
| <i>SS3</i> | 143 | 8F | ¯ | 175 | AF |
| <i>DCS</i> | 144 | 90 | ° | 176 | B0 |
| <i>PU1</i> | 145 | 91 | ± | 177 | B1 |
| <i>PU2</i> | 146 | 92 | ² | 178 | B2 |
| <i>STS</i> | 147 | 93 | ³ | 179 | B3 |
| <i>CCH</i> | 148 | 94 | ´ | 180 | B4 |
| <i>MW</i>  | 149 | 95 | µ | 181 | B5 |
| <i>SPA</i> | 150 | 96 | ¶ | 182 | B6 |
| <i>EPA</i> | 151 | 97 | · | 183 | B7 |
|            | 152 | 98 | ¸ | 184 | B8 |
|            | 153 | 99 | ¹ | 185 | B9 |
|            | 154 | 9A | º | 186 | BA |
| <i>CSI</i> | 155 | 9B | » | 187 | BB |
| <i>ST</i>  | 156 | 9C | ¼ | 188 | BC |
| <i>OSC</i> | 157 | 9D | ½ | 189 | BD |
| <i>PM</i>  | 158 | 9E | ¾ | 190 | BE |
| <i>APC</i> | 159 | 9F | ¿ | 191 | BF |

## ASCII Codes (continued)

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|   |     |    |   |     |    |
|---|-----|----|---|-----|----|
| À | 192 | C0 | à | 224 | E0 |
| Á | 193 | C1 | á | 225 | E1 |
| Â | 194 | C2 | â | 226 | E2 |
| Ã | 195 | C3 | ã | 227 | E3 |
| Ä | 196 | C4 | ä | 228 | E4 |
| Å | 197 | C5 | å | 229 | E5 |
| Æ | 198 | C6 | æ | 230 | E6 |
| Ç | 199 | C7 | ç | 231 | E7 |
| È | 200 | C8 | è | 232 | E8 |
| É | 201 | C9 | é | 233 | E9 |
| Ê | 202 | CA | ê | 234 | EA |
| Ë | 203 | CB | ë | 235 | EB |
| Ì | 204 | CC | ì | 236 | EC |
| Í | 205 | CD | í | 237 | ED |
| Î | 206 | CE | î | 238 | EE |
| Ï | 207 | CF | ï | 239 | EF |
| Ð | 208 | D0 | ð | 240 | F0 |
| Ñ | 209 | D1 | ñ | 241 | F1 |
| Ò | 210 | D2 | ò | 242 | F2 |
| Ó | 211 | D3 | ó | 243 | F3 |
| Ô | 212 | D4 | ô | 244 | F4 |
| Õ | 213 | D5 | õ | 245 | F5 |
| Ö | 214 | D6 | ö | 246 | F6 |
| × | 215 | D7 | ÷ | 247 | F7 |
| Ø | 216 | D8 | ø | 248 | F8 |
| Ù | 217 | D9 | ù | 249 | F9 |
| Ú | 218 | DA | ú | 250 | FA |
| Û | 219 | DB | û | 251 | FB |
| Ü | 220 | DC | ü | 252 | FC |
| Ý | 221 | DD | ý | 253 | FD |
| Þ | 222 | DE | þ | 254 | FE |
| ß | 223 | DF | ÿ | 255 | FF |

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