

AccuTerm 2K2

Internet Edition **Users Guide**

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INTRODUCTION

Welcome to **AccuTerm 2K2 Internet Edition** – the fastest way to deploy legacy applications on the Web!

Features of AccuTerm 2K2 Internet Edition

Users can access legacy applications using Internet Explorer. The terminal emulator automatically downloads and installs and runs inside an Internet Explorer window.

No need to learn another application. The user only needs to know how to use Internet Explorer to navigate to your web site.

No charge for client license. You can allow an unlimited number of users to access your site with no per-client charges.

Telnet and Secure Shell connections for greatest flexibility and security. Both SSH1 and SSH2 are supported, with password or public key authentication.

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.

Visual Styles and full color mapping lets you choose any foreground and background color combination for any terminal visual attribute, and attach a border effect to the attribute. Application of Visual Styles can give character-based applications an instant face-lift!

AccuTerm GUI compatible. Applications created using AccuTerm GUI can be deployed using AccuTerm Internet Edition.

Enhanced scroll back window saves up to 10,000 lines for instant recall.

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.

Scripting language allows administrators to write scripts and macros using Visual Basic for Applications.

Extended screen support of up to 240 columns by 240 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.

Hardware and Software Requirements

Memory:	128MB
Processor:	Pentium3-500 or better
Windows:	95, 98, ME, NT 4.0, 2000, XP, 2003, Vista
Internet Explorer:	3.02 or above (6.0 or above recommended) NOTE: Netscape, Firefox & Opera browsers are <u>not</u> supported.
Host Connection:	permanent TCP/IP connection with public IP address for Internet access
User Connection:	any TCP/IP connection to the Internet

GETTING STARTED

This manual assumes that you have a working knowledge of the Windows environment, Internet, Internet Explorer and your host application's terminal requirements.

Installation

To install AccuTerm 2K2 Internet Edition, insert the AccuTerm 2K2 Internet Edition program CD and follow the prompts.

- 1) Start the setup program:
Insert the CD. If the installation program does not automatically start, then from the Start menu, select Run. Enter "D:\Autorun.exe" and click **OK**. Be sure to change the drive letter to the letter for your CD drive.
- 2) The AccuTerm 2K2 Installer will display the installation selection menu. Click the *Install AccuTerm 2K2 Internet Edition Designer* button. The installation wizard will guide through the installation process. You will be prompted to enter your authorization key, enter registration information, etc. You move forward through the installation process by clicking the **Next** button. You can click the **Back** button to move back, or the **Cancel** button to cancel the installation.
- 3) Enter your Authorization Key, found on the back of the CD sleeve, and click **Continue**.
- 4) Read the Software Server License Agreement and indicate your acceptance by clicking **OK**.
- 5) The AccuTerm Registration dialog box will be displayed. Please fill in the registered company and server names, then click the **Next** button.

- 6) Select the directory where you want the AccuTerm program files to be installed, then click the **N**ext button. Click the **B**rowse button to change directories. *If you already have AccuTerm 2K2 (or any version of AccuTerm) installed on your computer, be sure to install AccuTerm 2K2 Internet Edition into the same directory!*
- 7) Select the “home” directory, where you want to store the session files you create using the program. By default, AccuTerm Internet Edition stores the session files in the “My Documents\AccuTerm Internet Sessions” folder.
- 8) You can choose if you want files which are replaced during installation to be saved in a backup directory. If you select this option, when you click the **N**ext button, you can select the directory where replaced files are saved to.
- 9) Select a “Start Menu” folder for the AccuTerm 2K2 Internet Designer shortcut, then click the **N**ext button. You can also place a shortcut to AccuTerm 2K2 Internet Designer on your desktop.
- 10) To begin installing files, click the **N**ext button. The installation progress will be displayed. When the installation is complete, you can view the release notes by checking the “View release notes” box, and clicking **F**inish. If you do not want to view the release notes at this time, simply clear the “View release notes” box and click **F**inish.

During installation, you may get a message indicating that the OLE system files are in use. If this occurs, please shut down all other applications, then click the **O**K button to restart Windows. After Windows restarts, re-start the installation procedure.

Overview of AccuTerm 2K2 Internet Edition

AccuTerm 2K2 Internet Edition is designed to let users access legacy host applications over the Internet by clicking on a hyperlink on a web page. The AccuTerm components are automatically downloaded and installed on the user's computer by Internet Explorer. The terminal emulation settings are downloaded from the web server, and a Telnet or Secure Shell connection to the host computer is established inside the Internet Explorer browser window. You do not need to modify your application, and the user does not need to install any new programs to access your terminal-based application.

AccuTerm 2K2 Internet Edition consists of two components: the Connection Designer, which is used by the administrator to create and modify AccuTerm Internet Session Connection (.atss and .atsn) files, and the AccuTerm 2K2 Internet Client, which is invoked by Internet Explorer to display the terminal session within the browser window.


This manual describes how to create or modify AccuTerm 2K2 Internet Sessions using the Connection Designer, how to deploy the session connection files and associated html code in a web page, and the terminal emulation features supported by the AccuTerm 2K2 Internet Client.

Quick Start


To get started quickly, make sure the minimum requirements for deploying AccuTerm 2K2 Internet Edition are met:

- 1) The host you want to connect to is connected to the Internet (or intranet if creating a local connection).
- 2) You have access to a web server somewhere on the Internet where you can install the AccuTerm connection files.
- 3) The PC you are installing the AccuTerm 2K2 Internet Designer program onto has Internet Explorer 4.0 or higher.
- 4) If you are using Secure Shell to connect to the host, make sure the PC has 128 bit encryption installed. To check the encryption strength, open Internet Explorer, select About from the Help menu and check the *cipher strength* displayed in the about box.


Create a new connection

Start the AccuTerm 2K2 Internet Edition Connection Designer from the Start menu. Click the  button or select **N**ew from the **F**ile menu. Choose *safe* or *unsafe* connection. Enter a file name to save your new connection under. Click **OK**. Note: a *safe* connection *does not imply a secure connection!*



Configure the new connection

Click the  button or select **S**ettings from the **T**ools menu. Enter your connection settings just as you would for a normal AccuTerm terminal session.


Customize your connection script

Click the  button or select **E**dit Script from the **T**ools menu if you want to customize the `Connect` or `Disconnect` script.

Test your connection

Click the  button, or select **C**onnect from the **T**ools menu. See how your new connection works, including the Connect script. When you are finished, click the  button (or **D**isconnect from the **T**ools menu) and see if the connection terminates correctly. If you encounter any problems, adjust your settings or script until it works correctly.

Save the connection file and HTML link file

Click the  button or select **S**ave from the **F**ile menu. Check the appropriate HTML option (usually you will want to save the Internet HTML file) and GUI option (only select if your host application requires AccuTerm GUI support; checking this option increases client download time). Click the **S**ave button.

Deploy your connection

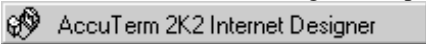
Upload your new session connection (.atss, .atsn) file and HTML link file to your web server. Modify an existing web page to link to the new HTML link file. Open the HTML link file with Notepad (or other text editor) and copy the sample link and paste into your web page to create the hyperlink.

Try it!

CONNECTION DESIGNER

The Connection Designer is used by the administrator to create and maintain AccuTerm Internet Session Connection files (.atss and .atsn files). The session connection file contains all information required to make a connection to the host, including host name (or IP address), connect and disconnect scripts, terminal type, screen size, function keys, colors, etc. The default file extension for *safe* connections is “.atss”. *Unsafe* connections use “.atsn”. The older “.ats” file extension is obsolete and should not be used.

To start the Connection Designer, simply select



from the Start menu. The


AccuTerm 2K2 Internet Edition Connection Designer main window will be displayed:



The designer window is divided into two panes: the left pane contains a set of buttons for creating new sessions, opening existing sessions, etc. The right pane contains a preview of the terminal session as it would be displayed in the browser.

Creating and Modifying AccuTerm Internet Connections

Creating a new connection

To create a new session, select **N**ew from the **F**ile menu or click the  button. When creating a new connection, you must select the session file name before the session file can be created. Use “.ats” for the file extension if you are creating a *safe* connection. Use “.atsn” if you are creating an *unsafe* connection. If you use another extension, the Connection Designer may not recognize the file, and the user may be required to confirm a “file download” to establish the connection. After creating a new session file, the preview pane will display a preview of the terminal session.

Safety Level

When you create a new connection, you must also select the “safety” level for the connection you are creating. The safety level is used by the browser to warn the user if potentially unsafe content is about to be accessed, or to block access to potentially unsafe content. You can choose to create a *safe* or *unsafe* connection.

When you choose to create a *safe* connection, AccuTerm’s functionality is restricted to protect the user’s computer from any actions which might alter any files or settings. A *safe* connection cannot perform file transfers, data capture, execute DOS/Windows command, or execute any script statement which could alter the user’s computer.

The following VBA statements and functions are not supported in “safe” connections:

Open	Print	Close
Put	Declare	Shell
Kill	CreateObject	GetObject
ChDir	ChDrive	FileCopy
MkDir	Name	Rmdir
SetAttr	Write	DDEInitiate
DeleteSetting	SaveSetting	App...

When you choose to create an *unsafe* connection, all of AccuTerm's features are available, but the browser will refuse to open the session file if the browser's security level for the web site or zone is high. The user will be prompted to allow a potentially unsafe ActiveX control to run. If you deploy an unsafe connection, it is recommended that the site be added to the user's Trusted zone, and the "Initialize and script ActiveX controls not marked as safe" security setting be set to "Prompt".

To change the browser's security level, select **Internet Options** from the browser's **Tools** menu, then click the **Security** tab. You can also adjust the security level by double-clicking on the **Internet** icon in **Control Panel**.

The following security settings are required for *safe* connections:


Download signed ActiveX controls: Enable or Prompt
Run ActiveX controls and plug-ins: Enable or Prompt
Script ActiveX controls marked safe for scripting: Enable or Prompt
File Download: Enable
Active scripting: Enable or Prompt

The following security settings are required for *unsafe* connections:

Enable Protected Mode: unchecked (Windows Vista)
Download signed ActiveX controls: Enable or Prompt
Initialize and script ActiveX controls not marked as safe: Prompt
Run ActiveX controls and plug-ins: Enable or Prompt
Script ActiveX controls marked safe for scripting: Enable or Prompt
File Download: Enable
Active scripting: Enable or Prompt

When running Internet Explorer 7 under Windows Vista, a new "Protected Mode" is typically used for all sites not in the Trusted zone. An *unsafe* connection cannot be run properly in Protected Mode. If a user attempts to open an *unsafe* connection in Protected Mode, they will be asked whether to allow the connection to open with reduced functionality, or cancel the connection. If they continue, the connection will be open with the same restrictions as a *safe* connection (see above).

Modifying an existing connection


To modify an existing session file, select **Open** from the **File** menu or click the  button. After opening a session file, the preview pane will display a preview of the terminal session.

Upgrading from AccuTerm 2000 or AccuTerm 97 Internet Edition

The AccuTerm 2K2 Internet Connection Designer is capable of upgrading your existing session files which were created with the AccuTerm 2000 or AccuTerm 97 Internet Connection Designer. When you open a file created with an older version, you will be given the option to convert the file to the 2K2 version. Choose a new file name for the AccuTerm 2K2 version of the connection file.


The conversion process preserves all settings and scripts. However, due to changes made in the newer versions, the “reconnect” message that is normally displayed when the connection is dropped requires a new Disconnected script function. This new function will be automatically added to your script.

Closing a session file

If you wish to close the session file you currently have open, select **C**lose from the **F**ile menu or click the  button. If you have made changes to the settings or script for the session, you will be warned before the file is closed so you can cancel your action and save the changes.

Saving a session file

If you wish to save the current session file, select **S**ave from the **F**ile menu

or click the  button. The process of saving also closes the file. If you have made changes to the settings or script for the session, you will be warned before the file is closed so you can cancel your action and save the changes.


When you save the session file, you can also create an HTML link file which you can use as a hyperlink target in your current web page. The HTML link file can be either an “Internet” or an “intranet” version.

If you choose “Internet” HTML, the generated link file will cause Internet Explorer to install the AccuTerm 2K2 Internet Client programs on the user’s machine from AccuSoft’s web site.

If you choose “intranet” HTML, the generated link file will cause Internet Explorer to install the AccuTerm 2K2 Internet Client programs from the atiecli5.cab file located on the web server where the .atss or .atsn session connection file is located.

You can also choose to include special code in the HTML link file which will cause Internet Explorer to install the AccuTerm GUI support code. To reduce download time, select this option only if your host application uses AccuTerm GUI. If you are deploying AccuTerm 2K2 Internet Edition on an intranet, and are using AccuTerm GUI, you must also place a copy of atguisvr_install.cab on your web server.

AccuTerm Internet Connection Settings

Once a session file has been created or opened, use the **Settings** dialog to configure the session. To open the **Settings** dialog, select **S**ettings from the **T**ools menu or click the  button.

The **Settings** dialog is organized into ten index tabs. Click on one of the index tabs to display the settings for that category. You can also press the number of the tab while holding the **ALT** key.

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 **Settings** dialog box.

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. Since AccuTerm 2K2 Internet Edition is designed to enable connections over the Internet (or intranet), you will normally select **Telnet**, or **Secure Shell** for the connection type. Only settings for Telnet and Secure Shell are described in this document; refer to the standard AccuTerm product documentation for information pertaining to other connection types.

After selecting or changing the connection type, settings relating to the selected connection type are enabled. For example, if **Telnet** is selected, various options for a telnet connection, such as the host name, port and timeout will be displayed. 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 terminal types have no way of handling characters above 127 (hex 7F). In this case, you can check this box and the eighth bit of each byte will be automatically stripped from all received characters. If you need to use any international characters or special symbols from the PC character set, you will need to clear this box to access them (the Wyse 60 and VTxxx emulations have commands to access these characters when using only 7 bits).

Connection Settings - Telnet

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

Host Name

A valid Telnet 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 Raining Data D3, allow a host process number (PIB) to be mapped to a specific TCP port number. You can use the 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.

Note: this timeout only affects the time AccuTerm waits for a response from the host when opening a connection to the host.

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)

Normally, Telnet operates in Text mode, with special rules for handling **CR** and **LF** characters. When the Binary option is selected, Telnet sends **CR** and **LF** characters without any alteration. *Some hosts do not function correctly in Binary mode.*

Use alternate break signal (advanced option)

Normally, Telnet sends the *Interrupt Process* command when you press **CTRL+BREAK**. Key. When this option is selected, Telnet sends the Telnet *Break* command instead.

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 Raining Data D3, do not support Telnet option negotiation, and require this option.

Send keepalives (advanced option)

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 Raining Data D3 running on NT or 2000, are not compatible with this option.

Disable outbound coalescing (advanced option)

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

Use U2 device licensing (advanced option)

By selecting this option, multiple connections (sessions) to Enterprise versions of UniData and UniVerse consume only a single user license. When the **Suppress LF** option is checked, the response sent to the host by AccuTerm is not terminated by an **LF** (line feed) character. Contact your IBM U2 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. AccuTerm implements both version 1 and version 2 of the Secure Shell protocol. Protocol selection is usually automatic and uses version 2 if it is supported by the host. Otherwise, it automatically falls back to version 1.

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.

AccuTerm Secure Shell requires Windows 128 bit encryption. To verify that you have the 128 bit encryption installed, open Internet Explorer, and select **About Internet Explorer** from the **Help** 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 you version of Internet Explorer to version 6 or higher, or install the High Encryption Pack (search for “High Encryption” at www.microsoft.com).

Host Name

A valid SSH 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.

Note: this timeout only affects the time AccuTerm waits for a response from the host when opening a connection to the host.

SSH Version

Select the version of the SSH protocol that will be used by the connection. When you select “auto”, AccuTerm will automatically select the highest version supported by the host. If you select SSH1 or SSH2, AccuTerm will only connect using the selected protocol. If the host does not support the selected protocol, the connection will fail and an error message will be displayed.

Authentication

Select the authentication method which will be used to validate the user with the host. AccuTerm supports both password and public key authentication.

Key

If public key authentication has been selected, click the **Select...** button to open the **Key Management** dialog. Use the **Key Management** dialog to create new keys, load existing keys and import keys created on another system.

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**) but you can enter any ASCII code in this field if your host requires a different break character.

Terminal Type (advanced option)

Many hosts allow the client (terminal) to specify a terminal type when a connection is established. AccuTerm uses the default terminal types *ofTTY*, *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.

Preferred Cipher (advanced option)

If you wish to select the cipher used to encrypt the SSH session, you can select it from this list. If “auto” is selected, the default cipher (triple DES) is used. Otherwise, you can choose triple DES, Blowfish, 128 bit AES or 256 bit AES. *Note: the AES cipher is only available when using the SSH2 protocol, and requires Windows XP.*

Must Use Preferred Cipher (advanced option)

When this option is set, the cipher selected above must be supported by the host. If the selected preferred cipher is not supported by the host, the connection will be terminated and an error message displayed. When this option is not set, if the preferred cipher is not supported by the host, a different, mutually supported, cipher (normally, triple DES) will be used.

Send keepalives (advanced option)

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 (advanced option)

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

U2 device licensing (advanced option)

By selecting this option, multiple connections (sessions) to Enterprise versions of UniData and UniVerse consume only a single user license. When the **Suppress LF** option is checked, the response sent to the host by AccuTerm is not terminated by an **LF** (line feed) character. Contact your IBM U2 dealer for information regarding device licensing. *Note: at this time, AccuTerm does not support U2 device licensing for Windows versions of U2.*

Connection Settings – SSH Key Management

When configuring a Secure Shell connection, AccuTerm supports both *password* and *public key* authentication. When *public key* authentication is selected, click the **Select...** button to open the **Key Management** dialog.

Use the Key Management dialog to create public/private keys for SSH, or to load or import private keys. AccuTerm supports RSA public keys for both SSH 1 and 2, and DSA public keys for SSH 2. AccuTerm can import SSH 2 private keys that were created by OpenSSH. The public key file format AccuTerm uses is also compatible with OpenSSH (www.openssh.org).

Creating a new key

Click the **Create New Key** button to create a new public/private key pair. After clicking the **Create New Key** button, select the key type (RSA or DSA), and key length. The default length of 1024 bits is recommended. Enter a descriptive comment describing the key being created, and *enter a passphrase to protect your private key*. Although the passphrase is optional, it is highly recommended since anyone that gains access to your private key file can impersonate your identity! Once the passphrase is confirmed, the icon to the right of the passphrase field changes from a red X to a green check-mark.

Click the **Generate New Key** button to generate the new key pair. This process may take some time to complete. When key generation is finished, the “fingerprint” for the public key will be displayed.

Click the **Save Key File** button to save the newly created key file. By default, AccuTerm will save the key in its standard key folder. You can select a different location, such as a removable USB drive, if desired.

Once your key pair is created, you need to place the public key on the server which you want to connect to. You can save the public key to a file by clicking the **Copy Public Key** button with the **to file** option selected. Once saved, you could attach the key to an email message and send it to the server’s administrator (it is a public key, so security is not a major issue). You could also save the public key file to a removable drive or diskette and mail or take it to the server administrator.

If the server uses OpenSSH (or compatible) files, and if you currently have access to the server via *password* authentication, you can set up public key authentication using the following steps:

- 1) Open an AccuTerm session and connect to the server. Log in using your password.
- 2) Open the AccuTerm **Settings** dialog to create your new key pair. Click the **Connection** tab. Change the setting for **Authentication** from *password* to *public key*.
- 3) Click the **Select...** button to open the **Key Management** dialog.
- 4) Click the **Create New Key** button and follow the steps above for creating a new key.
- 5) Select the **to clipboard** option and click the **Copy Public Key** button to copy the public key to the clipboard.
- 6) Click **OK** two times to dismiss the dialogs. Ignore the warning about changes not being effective.
- 7) From a Unix/Linux prompt, change to your `~/ssh` directory. Edit the `authorized_keys2` file using your favorite text editor. Start a new line in the `authorized_keys2` file.
- 8) From the AccuTerm **Edit** menu, choose **Paste** to paste the public key into the `authorized_keys2` file.
- 9) Save the modified `authorized_keys2` file.
- 10) Save the modified AccuTerm session file. Close AccuTerm. Open AccuTerm and choose the session file you just modified.
- 11) Enter your user ID.
- 12) If you entered a passphrase when you created your new key, you will be prompted to enter the password. Enter the passphrase (case sensitive).
- 13) If the server accepts your key, you will be logged in.

Loading an existing key

If your private key was saved to a different folder or to a removable drive or diskette, you can click the **Load Existing Key** button to load that key. Enter the passphrase and click the **Verify** button to check the passphrase. If the passphrase is correct, the public key fingerprint will be displayed. Click **OK**

to use this key (in its current location). Otherwise, you can save the key in a different location by clicking the **Save Key File** button.

Importing a key

Importing a key is exactly like loading an existing key, except for the file locations. AccuTerm can import private keys created using the OpenSSH file format.

Key fingerprint

When you create a new key, or load or import an existing key, AccuTerm displays the “fingerprint” of the public key. You can use this fingerprint to ensure that your key is correct. Use a utility on the server to show the fingerprint of the public key and compare to the fingerprint shown in AccuTerm.

SSH Key Location

After configuring a Secure Shell connection using *public key authentication*, the **SSH Key Location** dialog is displayed. Options in this dialog are used to specify how the private key is accessed on the client PC when opening the connection.

Remember that *public key authentication* requires two keys: a *public key* stored on the host, and a *private key* accessible to the client PC. AccuTerm Internet Edition provides three options for the client PC to access the *private key*.

Prompt user for key when connecting

Select this option if you want to prompt the user for the private key file location. The standard Windows File Open dialog will be displayed when the connection is opened. If you select this option, be sure to give the user a copy of the private key (in a secure manner) with instructions on where to load the key.

Embed this key in the session (.ats, .atss, .atsn) file

Select this option to embed the contents of the private key within the session connection (.ats, .atss or .atsn) file. If this option is selected, it is recommended that the session connection file be delivered from a secure site using https.

Read this key stored on client PC

Select this option to read the private key from a known location on the client PC. If a full path is not specified, the default AccuTerm key folder (C:\Documents and Settings\USERNAME\Local Settings\Application Data\Asent\Atwin2k\ssh\keys) will be used. If you select this option, be sure to give the user a copy of the private key (in a secure manner) with instructions on where to load the key.

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 MultiValue (D3, U2, jBase, etc.) 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.

MDIS P30 (Prism): emulates a McDonnell Douglas Prism P30 terminal.

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 ANSISYS 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 “I” terminal type), including color and function keys.

Tektronix 4014: emulates the Tektronix 4010/4014 terminals. Color enhancements as implemented in the CIT467 terminal (from CIE Electronics) are included.

Tektronix 4100: partially emulates the Tektronix 41xx terminals.

TTY Emulation: emulates basic TTY functions.

Status Lines

Some of the terminals that AccuTerm can emulate display status, function key labels or host messages on the top or bottom lines of the screen. If you select a terminal emulation that supports status lines, the supported status line options will be enabled for you to select.

For Wyse and ADDS emulations, up to 3 status lines are available: a host message line at the top of the screen, and a “shifted” label line and “unshifted” label line at the bottom of the screen. For VT emulations, only a single status line is available for displaying a message from the host at the bottom of the screen. For the console emulations, the status line is not supported.

No message or status line

Select **No message or status line** if you do not want any status or message lines.

Shared message & status line

Select this option to use a single, shared line at the bottom of the screen. If the native terminal supports more than one line (Wyse and ADDS Viewpoint), the bottom row of the screen displays the most recently used line. The line is shared between label line, shifted label line and host message line.

Split message & status lines

Select this option if you want two separate status lines. The host message line is the top row of the screen display, and the label line is displayed on the bottom row. If the shifted label line is programmed, pressing the **SHIFT** key displays the shifted label line. Releasing the **SHIFT** key displays the unshifted label line.

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.

Allow application mode

When this option is selected (default), commands that switch the numeric keypad keys and cursor keys into “application mode” are recognized. When the option is not selected, those commands are ignored, preventing the terminal from switching to “application mode”. This option is useful when the host or application erroneously sends the command to enter application mode.

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.

Auto-print works just like VT terminal

When this option is selected, the “auto print” slave printer function works the same as a real VT terminal. That is, when AccuTerm is in “auto print” mode, the entire screen line that the cursor is on is printed when AccuTerm receives a **CR**, **LF** or **FF** control code. If this option is not checked, then text is printed as it is received from the host (similar to Wyse auto-print mode).

Screen Settings

The Screen tab lets you set terminal screen options like the screen size, cursor type, and history rows.

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 240 columns by 240 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.

The number of rows may change if you change terminal emulations. The console terminal emulations use 25 rows with no status line; others use 24 rows with one or more status 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 10,000) 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 Tektronix Graphics

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

When this option is checked, automatic line-wrap is disabled. When the cursor reaches the end of a line, typing another character normally causes the cursor to move to the beginning of the next line. When this option is set, the cursor does not move.

Disable Blinking

Checking this option disables the “blinking” visual attribute. Characters tagged with the blink attribute will not blink.

Disable Underling

Checking this option disables the “underline” visual attribute. Characters tagged with the underline attribute will not be underlined.

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.

Host uses Windows character set

Use this option to change the default character set used by the selected terminal type to the 8-bit (non-Unicode) character set used by Windows. You will need to select a font that supports all the characters in the Windows character set if this option is checked; the AccuTerm font only supports the OEM (code page 437) and Western ANSI (code page 1252) character sets.

Euro character

If your host application needs to display the Euro currency symbol, enter the ASCII value of the Euro symbol, as used on your system.

Note: there is no standard value for this symbol. Some possible values are 128 (Windows ANSI), 164 (Latin-1 currency and Latin-9 Euro) and 213 (IBM modified code page 850).

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.

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 selecting a **Color Scheme** or **Visual Style**, or by clicking the **Customize Palette...** button. The palette also includes 6 colors used to draw borders when using Visual Styles.

The mapping of visual attributes to colors is displayed as a table with an entry for each possible attribute. The **Color** column shows sample text displayed in the selected character and background color along with a button to change the colors. The **Border** column shows the selected border style for the attribute. Click the **Change** button to select different character or background colors. If borders are enabled (see **Border Style** below), choose the border effect for the attribute from the drop-down list.

Color Schemes

Default Colors: resets the palette to the 16 basic Windows colors, and resets the attribute color mapping. This is often a useful starting point when defining your own color mapping.

System Colors: sets several colors in the palette to “system colors” defined in the Windows Display Properties. The following standard colors are replaced by a system color:

- Black = Window Text Color
- White = Window Background Color
- Dark Blue = Highlight Background Color
- Brown = Highlight Text Color
- Light Gray = 3D Light
- Dark Gray = 3D Shadow

Other palette colors are set the same as the default colors. Attribute color mapping is set so that Normal, Dim, Reverse and Underline use system colors from the modified palette.

Monochrome Colors: resets the palette to the 16 basic Windows colors, then sets the attribute color mapping so that character and background colors are black, white or gray. Select either dark or light background for the Normal attribute. This setting often works well with Unix and Linux utilities where a combination of visual attributes and direct colors are used.

Visual Styles

Visual Styles can be used to modernize character-based applications by displaying screen elements in a style that resembles typical Windows screens. When you select a **Visual Style**, AccuTerm resets the palette to the system colors as described above. Next, typical Windows colors are assigned to the visual attribute mappings. Then the **Border Style** setting is changed to *Thin* and a border effect is assigned to specific attributes.

When using **Visual Styles**, use the following attributes to display screen elements:

- Screen background: normal
- Field labels, headings, etc: normal
- Disabled labels: dim
- Active entry field: reverse
- Inactive entry field: dim reverse
- Highlighted field: reverse underline
- Disabled field: dim reverse underline
- Command button: underline
- Inactive button: dim underline

Classic Windows: sets the palette to the system colors, and sets the attribute color mapping as described above. Uses the *inset* border style for text fields.

Windows XP: sets the palette to the system colors, and sets the attribute color mapping as described above. Uses the *flat* border style for text fields.

If your application uses different attributes for screen elements, feel free to modify the colors and border effects to work with the attributes used by the application.

Protected Attribute

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.

Border Style

If you are using **Visual Styles** (or the AccuTerm private programming command to draw borders), you must select a border style. Choose *thin* for a one-pixel border, or *thick* for a two-pixel border. When external borders are selected, vertical border lines are drawn in adjacent character cells. Otherwise they are drawn inside the character cell and sometimes overlap the left or right edge of the character; thin borders work best with smaller font sizes, but are less dramatic than thick borders.

Line Drawing

AccuTerm supports the line and box drawing characters used by the native terminals. AccuTerm supports three line drawing styles: *normal*, *flat* and *beveled*. Choose *normal* to draw lines using the current character color. Choose *flat* to draw lines using the *outer flat border* color. Choose *beveled* to draw 3D lines using the *outer highlight* and *outer shadow* colors.

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. The default codes are displayed in gray text.

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 script 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 **Reset all to default** button.

Key Code

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 **Key Code** field. Next to the key name. To enter control characters, hold the **CTRL** key and press the letter corresponding to the control character you want to program. For **CR** (enter), **DEL** (delete) and **TAB** control codes, hold the **CTRL** key and press the **ENTER**, **DELETE** or **TAB** key. For the **ESC** control code, press **CTRL + [**, and for the **BS** (backspace) control code, press **CTRL + H**.

The caret (^) and backslash (\) characters are used as special prefixes in keyboard programming. If you need to enter either of these characters, just enter two of them (^ or \). This applies to both codes to transmit to the host and script commands.

Alternatively, use the following table to enter control codes using special prefix characters:

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

To program a key with a script command, enclose any valid VBA statement in square brackets ([]). See the **Scripting** section of the **Programmers Guide** for more information on scripts.

Key Caption and Tip

When the **Function Bar** is displayed, you can enter a caption for each function key. The caption will override the default button caption in the bar for that key. Enter the caption in the **Caption | Tip** field. Strive to keep the caption text short, as the key buttons are quite small. You can also enter an optional help tip in this field. Separate the caption and tip using a vertical bar (|). When the mouse hovers over the key button in the **Function Bar**, the tip will be displayed briefly.

You can enter a tip even if you do not enter a caption or display the **Function Bar**. Just begin the **Caption | Tip** field with a vertical bar and enter the tip. This is useful for documenting the purpose of the key programming

Locking Programmed Keys

Most terminal types provide commands for the host to program the 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**).

Show function key bar

Selecting this option causes AccuTerm to display a row of function key buttons at the bottom of the terminal window. Buttons on this bar duplicate the standard 12 keyboard function keys. The function key bar button captions can be customized, as described above.

Printer Settings

AccuTerm 2K2 uses the printer in two ways: First, AccuTerm can print the contents of the terminal screen by using **Print Screen** context menu command or by receipt of the appropriate command from the host computer.

The other way AccuTerm uses the printer is to emulate a “slave” printer attached to a terminal’s Aux (printer) port. This mode is enabled by using the **Printer On** context menu command or by receipt of the *Printer On* command from the host.

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, any images displayed on the screen, 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 paper size and page orientation used for graphics mode printing by clicking the **Page Setup** button in the printer settings tab. For slave printing in graphics mode, you can also select the font.

Printer Selection

By default, AccuTerm **disables printing**. You can select the system default printer by clicking the **Use Windows Default Printer** option. If you want to select a different printer, select the **Use Specific Printer** option, then select a printer from the drop-down list. The user can override the printer selection by choosing a different printer in the **Printer** tab, from the **Preferences** option of the context menu.

Note: selecting a specific printer for an AccuTerm Internet Edition connection is not recommended, since actual printer name you select is stored in the connection file. It is unlikely that your users will have a printer with the chosen name installed on their PC.

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. In **Graphics** mode, you can select the page orientation, paper size and paper source by clicking the **Page Setup** button.

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 **E**dit **P**aste and **E**dit **P**aste **F**rom 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 2K2.

AccuTerm Internet Connection Script

AccuTerm 2K2 Internet Edition uses a script, written in Visual Basic for Applications (VBA), to automate certain processes. Each session file includes its own script, which may be customized. When a new session file is created, a default script is also created for that connection. To open the **Script Editor** window, select **Script** from the **Tools** menu or click the



button.

In AccuTerm 2K2 Internet Edition, scripts are used to automate the logon process as well as for cleanup. Scripts may also be called by the host program, or invoked by a function key (as programmed in the Keyboard section described previously).

The `Connect ()` subroutine is called when AccuTerm has successfully established a connection with the host system. Modify the default script to log into your host system and start the application you want the user to have access to from the web.

Various blocks in the default `Connect ()` subroutine can be “uncommented” to support either hard-coded user ID and password, or prompt for user ID and password. The login sequence uses a series of *Output* statements (methods) to send a string to the host followed by *WaitFor* statements (methods) to wait for the desired response from the host. You will probably need to customize this section.

The `Disconnect ()` subroutine is executed when the AccuTerm session is closed. This function is designed to handle any special cleanup functions. Since the connection is probably already closed, often there is not much you can actually do in this function. The default `Disconnect ()` subroutine performs no function.

The `Disconnected ()` subroutine is executed when the connection to the host has been terminated, either deliberately by the host, or due to network errors. This function can be used to display a message to the user, close the browser window, etc. There are two predefined actions in the standard sample script: display a “reconnect” message or close the browser window.

You can create other subroutines and functions which are called by your `Connect()` or `Disconnect()` routine (or from function keys or host commands). Subroutines begin with the `Sub` keyword followed by the name of the subroutine. If the subroutine requires arguments, enclose them in parentheses. The last statement in a subroutine is `End Sub`.

Functions are similar to subroutines, and begin with the `Function` keyword, and end with the `End Function` statement. Functions return a value; simply assign the return value to the function name within your function code.

Controlling AccuTerm with Scripts

From a script's perspective, AccuTerm consists of a set of objects which can be manipulated. The main object, `AccuTerm`, may be used to control the general settings of AccuTerm. The `Session` object is the most useful object for controlling AccuTerm. Using the `Session` object, you can change any of the session settings, communicate with the host system, manipulate the screen, etc. Note that not all properties and methods of all objects are available or meaningful in the context of an AccuTerm Internet session. For example, the `AccuTerm.WindowState` property is not relevant in this context and will generate an error if used. See the **AccuTerm Object Reference** chapter in the **Programmers Guide** for a description of AccuTerm's object model.

There are several built-in objects which can be referenced while executing scripts. These are the `AccuTerm` object and the `ActiveSession` object.

For compatibility with the standard version of AccuTerm 2K2, the `Sessions` collection and the `InitSession` object are also defined, however, the `Sessions` collection contains exactly one session and no other sessions may be added to it, and the `InitSession` object references the same session as the `ActiveSession` object.

Cookies

The `Cookie` collection provides a way to pass values between the HTML session and the emulator session. Cookies which are passed between HTML and emulator sessions must be "permanent", or "disk" cookies, not "temporary" or "memory" cookies. The scope of cookies is restricted to the URL of the directory of the session connection (`.ats`, `.atss`, `.atsn`) file.

You can retrieve the value of a “cookie” which was set by the web server (or by a script in the HTML page) by accessing the `Cookie` collection:

```
x$ = Cookie("MyCookie")
```

Likewise, you can set the value of a cookie so that the web server (or a script in the HTML page) can retrieve its value:

```
Cookie("HostResult") = "Success"  
Cookie("AccountNumber", 1800) = "11199"
```

The second form specifies the expiry time of the cookie in seconds. In the example, the cookie is valid only for 30 minutes (1800 seconds). If you do not specify an expiry time, the default of 1 hour is used.

WebBrowser Object

An object representing the browser hosting the emulator session connection (.ats, .atss, .atsn file) is available as the `WebBrowser` object. While much functionality of this object is restricted, the `Quit` and `Navigate` methods are available and might be useful in some circumstances. For example, you can use the `Quit` method in the `Disconnected` function to close the current browser window (the one displaying the terminal session). This is actually one of the choices in the sample script:

```
WebBrowser.Quit
```


SafeMode Property

At times, it might be useful to determine whether the current connection is “safe” or “unsafe”. You can query the `SafeMode` property to determine this state:

```
If SafeMode Then ...
```

For more information on scripting, or the `AccuTerm` object model, please refer to the **Programmers Guide**.

Testing a Connection

After configuring the connection settings and script, you can use the Connection Designer to test your connection file. Normally, the terminal session in the preview pane is “disconnected” from the host. To connect to the host, select **C**onnect from the **T**ools menu or click the  button.

AccuTerm will attempt to connect the host configured in your connection file, and once connected, the `Connect` subroutine in your script will be executed. In the **Script Editor** window, you may set break-points in your connection script to aid in debugging the script.

To test the `Disconnect` script, select **D**isconnect from the **T**ools menu or click the  button.

DEPLOYING ACCUTERM INTERNET CONNECTIONS

Deploying an AccuTerm 2K2 Internet Connection on the Internet (or on an intranet) requires two components: a Web Server and the Host Computer that you want to connect to.

Web Server

After you create a terminal session connection (.atss, .atsn) file with the **Connection Designer**, you need to link the new terminal session into your web page. Choose an appropriate web page, and modify the web page file by adding a hyperlink to the new HTML link file (created when you saved your session connection file). The HTML link file contains a sample hyperlink which you can copy and paste into your web page file. Then, upload the modified web page file, the session connection (.atss, .atsn) file and the HTML link file to your web server.

The web server does not need to be (and usually is not) the same machine as your host. The web server can be located anywhere on the Internet (or intranet), as long as end-user's PC can access it. The only function that the web server performs when used with AccuTerm 2K2 Internet Edition is to deliver the HTML and session connection (.atss, .atsn) files to the browser on the user's PC.

If you install the session connection (.atss, .atsn) file on a local (intranet) web server, and you have selected the intranet version of the HTML link file, you also need to upload the atiecli5.cab file from the ...Atwin\LocalServerFiles directory to your web server. If your HTML link file includes the GUI support option, you should also upload the atguisvr_install.cab file to your web server.

IIS Issues

When you deploy AccuTerm Internet Edition connection files on an IIS web server, it is sometimes necessary to register the “.ats”, “.atss” and “.atsn” file extensions as MIME Type “application/octet-stream” in the IIS configuration. MIME types are found in the HTTP Headers tab of the Web Sites Properties dialog; click the File Types button to define new extensions.

Apache Issues

For Apache web servers, it is sometimes necessary to add these lines to the mime.types file (note there is a tab between the two columns):

```
application/ats  ats
application/atss atss
application/atsn atsn
```

Host Connection

The final task required to get everything working is to connect your host to the Internet (or intranet). It is beyond the scope of this document to provide detailed instructions on how to connect your host to the Internet, but we can offer some general guidelines.

First, your host must be able to receive Telnet or Secure Shell connections across a network. This normally requires that the host machine have an Ethernet adaptor and TCP/IP networking software configured. All Unix-based hosts should support both Telnet and Secure Shell. NT-based hosts may only support Telnet.

Second, you will need a permanent Internet connection with a static IP address. You may be able to use a DSL or Cable Modem connection, or some other high-speed link. A static IP address is necessary, because the session connection (.atss, .atsn) file contains the IP address of the host machine. If your host gets its IP address assigned dynamically, then you would need to update the session connection file each time the host's IP address changes.

Finally, you need to consider security. Often, a gateway or router is used between your Internet connection and the local area network which connects to your host machine. The gateway or router can be configured to route inbound Telnet or Secure Shell requests to the IP address of your host on the local network. The outside world sees the IP address of the gateway or router, not the IP address of the host. This is the IP address that should be specified in your session connection file. The gateway may also be able to restrict inbound connections and only allow connections from specific addresses.

AccuTerm 2K2 supports Secure Shell connections between the user's PC and the host. If you are concerned about privacy, use Secure Shell instead of Telnet. The entire Secure Shell session is encrypted, including login name and password. AccuTerm supports both Secure Shell v1 and v2 protocols, with triple-DES, blowfish and AES ciphers and password or public key authentication.

To use ssh, the host machine must be running an ssh server program (sshd, similar to telnetd). The ssh server is available for most Unix-based hosts (see www.openssh.org for more information).

If you need to connect to an NT-based host which does not support ssh, consider using a small Linux machine as a gateway. The Linux gateway can accept inbound ssh connections, then automatically open a Telnet connection to the NT-based host.

ACCUTERM INTERNET CLIENT

In order to display a terminal session within the Internet Explorer browser, the AccuTerm 2K2 Internet Client program must be installed on the user's PC (client). The AccuTerm 2K2 Internet Edition Client program is installed on the user's computer automatically by the browser. The first time the user connects to a site requiring the AccuTerm Internet Client, the necessary files are automatically downloaded and installed. Subsequently, the files are only downloaded if newer versions of one or more files become available.

The files may be downloaded from the Internet or from an intranet. When you create a connection, you can choose to create an *Internet* or *intranet* HTML link file. If you choose to create an *Internet* link file, the component files are downloaded from AccuSoft's web site. The user must fill out an information form, and accept the *fee-free* software license agreement before the software is installed. The client installation has been optimized so that only those files which are not present on the user's computer (or are out of date) are downloaded.

If an *intranet* html file is used, the files are obtained from the atiecli5.cab file on the local web server. The atiecli5.cab file is not optimized for Internet deployment.

In either case, the component files are distributed in a .cab file which includes a "digital signature" identifying the source of the files as "Schellenbach & Assoc., Inc. dba AccuSoft Enterprises". The browser may display the certificate used to sign the file before installing the components and allow the user to cancel the installation of the component files.

CUSTOMIZING THE WEB PAGE

The AccuTerm Internet Edition terminal session is normally opened in a new browser window. This is because Internet Explorer will terminate the terminal connection if the user navigates away from the AccuTerm session page (either by entering an address in the address field, or by clicking on the Back or Forward buttons). The HTML link file created by the Designer exhibits this behavior. By modifying this HTML file, you can alter the browser's functionality in the new window, or even display the terminal session in an HTML frame.

Frames

AccuTerm 2K2 Internet sessions may be displayed inside of a frame. To display the emulator page inside of a frame, simply change the hyperlink to something like:

```
<p><a href="atie_frame.htm"
target="main">AccuTerm 2K2 Internet Edition
in a Frame</a></p>
```

This will load the "atie_frame.htm" page into the "main" frame when the user clicks the link. Once the page is loaded, the terminal session will begin.

Note: loading a different page into the "main" frame will terminate the terminal session.

Window Options

The `Window.Open()` method (used in the hyperlink that opens an AccuTerm Internet Session) has several optional arguments that you can use to customize the IE window where the AccuTerm page is displayed. The `Open()` method has an optional, third, string argument that can contain up to seven sub-arguments. The sub-arguments require a “yes” or “no” value. The following sub-arguments are supported: `toolbar`, `location`, `directories`, `status`, `menubar`, `scrollbars` and `resizable`. To open the terminal session in a new window, without a toolbar or status bar, use:

```
<p><a href="#"
onClick="window.open('atie_demo.htm',
'demo_window','toolbar=no,status=no');">
AccuTerm 2K2 Internet Session</a></p>
```

TROUBLESHOOTING

Browser Compatibility

AccuTerm 2K2 Internet Edition only supports the Microsoft Internet Explorer browsers. Internet Explorer 3.02 and above are supported. AccuSoft recommends using IE 6.0 or above.

Unable to establish SSH connection

If you are unable to establish an ssh connection to the host, it is usually caused by not having the 128 bit High Encryption Pack installed on the client PC. Make sure 128 bit encryption is installed by clicking Help-> About Internet Explorer. Check the Cipher Strength setting.

Nailed Ports

Because all users accessing a given web page will share a single session connection (.atss, .atsn) file, using “nailed ports” is not recommended.

Can't install client program from web

Security at some organizations prevents the installation of the AccuTerm 2K2 Internet Client programs from AccuSoft's web site. This code is downloaded automatically by Internet Explorer using http, but some firewall and/or proxy server configurations seem to block this function. In this case, you might need to ship a Client Install CD to the customer. You can create a Client Install CD by copying the files in the \Atwin2k2\INetCli folder of your program CD to the root directory of a blank CD.

Alternatively, the user can download the client installation from AccuSoft's web site and manually install the client program. The current URL for the AccuTerm 2K2 Internet Client install is <http://www.asent.com/downloads/setup/at2k2ie-client/atiecli5.exe>.

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