COMit for Windows
Users Guide

Welcome

COMit for Windows is a communications application for Microsoft Windows version 3.1 or later. You can use COMit to connect your computer to other computers and to information services such as CompuServe and Genie.

At the nucleus of COMit is the dialing directory, an easy to use database where you can store names, phone numbers, logon scripts, terminal settings, and port settings. Select an entry, press the Dial button, and COMit instructs the modem to dial for you, and to redial if the line is busy. Once connected your computer acts as a terminal, giving you access to the remote computer's resources. Eight built-in transfer protocols provide compatibility with nearly any other system for sending and receiving files.

You can have COMit capture incoming information to file with the simple press of a button. With COMit's scroll-back feature, you can review or print up to 2000 lines of text.

With COMit's configurable button bar, you can send or receive files, print captured text, open your dialing directory, and perform many other functions by simply selecting the appropriate button. You can even define your own "custom" buttons to invoke a script file.

About This Manual

This manual is designed to help you explore and use COMit for Windows. The table that follows lists the major topics in this guide.

- "Getting Started", tells you how to install COMit on your computer and how to run COMit for Windows. This chapter also explains the various parts of the COMit window and provides some basic knowledge of the Windows environment.

- "The Basics", introduces you to COMit. Detailed instructions enable you to configure COMit for your computer and provide for the creation of your *directory* file. Instructions for exiting COMit are also provided.

- "Communicating with COMit", explains how to dial into a remote computer. It includes instructions about sending and receiving files and how to copy, paste and enter text while in an active session. You also learn how to disconnect to end an active session.

- "Errors and Troubleshooting", describes possible problems you may encounter when using communication software and their solutions .

What You Need to Get Started

Setting up COMit on your computer is easy and takes only a few minutes. This application requires that Microsoft Windows 3.1 or later is installed on your computer. If Windows is not yet installed on your computer, install it now. Before you get started you should know how to do the following:

- Set up, start and use you computer.

- Use Microsoft Windows 3.1.

Getting Started

Windows must be installed on your computer before you can start using COMit. You should also be familiar with using Microsoft Windows to launch and terminate an application.

IMPORTANT NOTE:

If you are using Windows 3.1 we strongly suggest you run the program "MSD" (switch to the Windows directory and from the DOS prompt type "MSD") prior to installing or running your modem. Problems encountered using modems are most often related to conflicts of ports, speed, and IRQs. MSD will help you locate these problems and assist in the installation of your modem and COMit. If you experience problems under Windows 3.0 because of port or speed conflicts you may want to consider upgrading to Windows version 3.1

The Basics

It is easy to get around the COMit program and to know just what COMit expects of you at any time. This chapter introduces you to the basics of using COMit.

Starting COMit

- Double click on the program icon within the COMit Program Manager. As an alternate method, you can highlight the icon with either the mouse or arrow keys and press enter.

Configuring COMit

Because every computer is equipped with different hardware, you need to configure COMit before connecting to a remote computer. In particular, you need to tell COMit the brand of modem you are using and the COM port your modem is attached to. You also need to enter the phone number of the remote computer, as well as its port and terminal settings. Finally, you will want to set the user preferences.

Modem Settings

To configure the Modem settings including Modem Type, Line Type, Modem Volume, Initialization String, and Dialing Prefix, perform the following steps:

1. Choose Settings, then choose Modem.
2. Select the Modem Type, Line Type and Modem Volume.
3. Choose OK to accept these changes.

The **Dialing Prefix** allows you to insert additional characters in front on the phone number. Codes such as "*70" for call waiting and "9," for business PBX's should be placed here.

Port Settings

To set the Port settings including serial (COM) port, baud rate, data bits, stop bits, flow control, parity, lock baud rate, parity check, and carrier detect, perform the following steps:

1. Choose Settings, then choose Port.
2. Select the serial (COM) port that your modem is attached to and its appropriate communications parameters.
3. Choose OK to accept these changes.

The **Baud Rate** group specifies how fast information is transferred through the port; **Data Bits** specifies the number of data bits in each packet of information; **Parity** specifies the error-checking method used; **Stop Bits** specifies the number of stop bits in each packet of information; and **Flow Control** specifies the method used to control the transmission, or flow, of data.

The **Lock Baud Rate** option indicates whether COMit should modify the connection speed between the computer and the modem. This option should be enabled when using modems that can connect at baud rates that are not supported by Windows.

The **Parity Check** option indicates whether COMit should translate the high order bit on the characters it receives.

The **Carrier Detect** option indicates whether COMit should automatically delete the loss of carrier to automatically perform a hang up.

Session Settings

To set the Session settings including the Session Title, Phone Number, default File Transfer Protocol, and Logon Script, perform the following steps:

1. Choose Settings, then choose Session.
2. Enter the Session Title and Phone Number.
3. Select the default File Transfer Protocol. If the chosen protocol requires additional settings the Configure button will be enabled. The Configure button allows you to choose additional settings for the selected protocol. For example, ZModem allows you to configure send and receive options and enable its auto download feature.
4. Choose OK to accept these changes.

The maximum number of characters for the **Title** is 25.
The maximum number of characters for the **Phone Number** is also 25. Special dialing codes such as "*70" for call waiting or "9," for business PBXs, should be entered in the dialing prefix option located in the Modem dialog box.

The default **File Transfer Protocol** is the method of file transfer you use most often when transferring files to this remote computer.

Terminal Settings

To set the Terminal settings including Terminal Type, the default Font Name and Size, the Caret Type, scrollback buffer size and dimensions, outbound Carriage Return expands to Carriage Return plus Line Feeds options, Local Echo, and ANSI Color Attributes, perform the following steps:

1. Choose Settings, then choose Terminal.
2. Select the Terminal Type, Font Name, Font Size and Caret Type.
3. Enter the scrollback Buffer (max 2,000) size in lines, the number of Rows per page, and the Column width.
4. Select CR->CR+LF options, Local Echo and ANSI Color Attributes.
5. Choose OK to accept these changes.

The minimum number of lines in the scrollback **Buffer** is 50 and the maximum is 2000. The minimum number of **Rows** per page is 24, the maximum is 50 and the default setting is 25. The minimum number of **Columns** per page is 40, the maximum is 240 and the default setting is 80.

If **ANSI Color Attributes** is set on, COMit will translate the colors the remote computer sends thru escape sequences. Disabling ANSI Color Attributes allows you to set the colors for the session window, thereby overriding the remote color sequences. You can change the default colors by selecting the Colors button, which will display the colors dialog box. For more information on setting colors, see the related topic Colors below.

COMit will display every typeface that resides in your system. However, the list of available font sizes is a standard one and may not represent the actual font sizes you have in your system. You should select the Terminal font or one that ends with OEM, ie, 8252OEM

Terminal - Colors Command

The Terminal - Colors Command sets the screen colors of the session window .

To select the foreground and background colors used in the session window, perform the following steps:

1 Choose Settings, then choose Terminal.
2 After the terminal window is displayed, insure that the ANSI Color Attributes option is not checked.
3. Push the Colors button. This will display the current color selections.
4 Select the colors you want for the foreground and background
.
5. Choose OK to accept the these changes.

Default colors are only used when the ANSI Color Attributes option is not checked.

Preferences

To set the user Preferences including the Redial Count, Timeout value, Pause value, default Directory filename, Delete Partial File option, Prompts option, Elapsed Time Clock option, Return from Iconic option, Quick Initialization option and Warning Beeps option, perform the following steps:

1. Choose Settings, then choose Preferences.
2. Enter the Redial Count, Timeout value and Pause value.
3. Enter the Directory filename or select the Directory button to display a listing of available directory files.
4. Check the Delete Partial File, Prompts, Elapsed Time Clock, Return from Iconic, Quick Initialization and Warning Beeps options.
5. Choose OK to accept these changes.

The **Redial** value indicates the number of times COMit will attempt to retry to connect to the remote computer. The range is from 0 to 99.

The **Timeout** value indicates how long COMit instructs the modem to wait to receive a connection. The range is from 15 to 120 seconds.

The **Pause** value indicates how long COMit will wait before redialing. The range is from 0 to 120 seconds.
The **Directory** file must reside in the default directory path. If the directory file you entered does not exist, COMit will attempt to open it as a new directory file.

The **Delete Partial File** option indicates whether COMit should automatically delete files that are a result of a failed file transfer.

The **Prompts** option indicates whether COMit should display additional dialog boxes during file transfers.

The **Elapsed Time Clock** option indicates whether COMit should display the amount of time you have been connected to the remote computer.

The **Return from Iconic** option indicates whether COMit should restore the window to a full screen when it has completed background processing, such as background dialing and background file transfers.

The **Quick Initialization** option indicates whether COMit should bypass the modem initialization process after the first initialization has been completed.

The **Warning Beeps** option indicates whether COMit should emit audible beeps to indicate connection and completed file transfers.

Creating a Dialing Directory Database

You may want to store the terminal, port, and session settings of a remote computer for later use. COMit allows you create your own *yellow pages* of remote computer profiles. You can use these profiles for quick access. For example, if you can have your favorite BBS's stored in a directory file, all you need to do is open the directory listing file and select that entry. From that dialog box, you can have COMit begin the connection process for that entry.

To build a listing of directory entries, perform the following steps:

1. Choose File, then choose Directory.

To Add a record to the directory listing, do the following:

2. Set the phone number and the file transfer protocol. .The file transfer protocol may need to be configured as appropriate for your modem. The port and terminal settings should be changed as necessary by clicking on the current port or terminal settings to display the port or terminal selections.
3. Select the Add button. Enter the name of the entry on the title field of the Add Record dialog box.
4. Choose OK to add the entry to your directory listing.

To Change an entry, do the following:
2. Select the entry to be changed.
3. Make any necessary changes to the entry, then select the Change button.

To Delete an entry, do the following:
2. Select the entry to be deleted.
3. Select the Delete button.

If you make changes to an entry thru Settings and then choose Directory, you will be prompted with the message "Record has been changed. Update record?". By choosing **Yes**, the record will be updated in your Directory listing.

If you make changes to the title of an entry thru Settings and then choose Directory, you will be prompted with the message "(Entry) does not exist. Add record to file?". By choosing **Yes**, the record will be added to your Directory listing.

After selecting an entry, you may select the Dial button to immediately begin the dialing process.

Communicating with COMit

Once you have initialized the required variables, you are ready to begin communications using COMit. This chapter will provide you with step-by-step instructions for communicating with a remote computer.

Dialing a Remote Computer

After you have entered the session, port, and terminal settings as described earlier, you are ready to dial. To connect COMit to a remote computer choose Session, then choose Dial or select the Dial button from the Tools Bar. The Lights Bar will be updated indicating that COMit will first initialize the modem and then attempt to dial and connect to the remote computer.

If COMit is unable to properly initialize the modem, dialing will fail. After the modem initialization completes, COMit will display a dialog box indicating the title of the remote computer it is dialing; its phone number; the number of seconds left until COMit issues a timeout; the remaining number of times COMit will attempt to connect to the remote computer; and the last error that has occurred.

You may cancel at any time by pressing the Escape key or selecting the Cancel button.

Since proper initialization takes time, it is recommended that you set the Quick Initialization option, located in the Preference dialog box.

COMit does not automatically restore itself on the screen after background processing is complete. To enable restoration check Return From Iconic, located in the Preferences dialog box.

When COMit has not dialed to a remote computer, the icon is the comet. Once COMit has dialed and connected to a remote computer, the icon changes to a modem.

Once you have connected to the remote computer, you can begin your communication session with the remote computer. Characters you type will be sent to the remote computer and characters sent by the remote computer will be displayed on the screen. If none of the characters you type appear on the screen, enable the Local Echo option under Terminal settings. Further, if the screen becomes filled with unreadable characters, verify that your Port settings are correct.

Copying From and Pasting To Files

You can also mark a block and copy it to a file for later reference. Similarly, you can send the contents of a file to the remote computer.

Copy To Command

To create a file and copy the contents of a marked block to it, perform the following steps:

1. Scroll thru the session buffer to bring the text you want to copy into view.
2. Using the mouse, move to the upper left hand corner of the block and press and hold the left mouse button down.
3. Drag the mouse to the lower right hand corner of the block and release the left mouse button. The text that appears within the block will be reversed.
4. Select Edit, then choose Copy To.
5. Type or select the name of the file you want to copy to. If the target directory is not the current directory, either type the directory name in front of the filename or select the directory from the Directories box.
6. Choose OK to begin copying to the file.

If the file already exists, COMit will display a dialog box giving you the option to cancel the operation or erase the contents of the file. Selecting OK will instruct COMit to destroy the contents of the current file.

Paste From Command

To open a file and copy its contents to the remote computer, perform the following steps:

1. Select Edit, then choose Paste From.
2. Type or select the name of the file you want to paste from. If the document is not listed in the current directory, either type the directory name in front of the document name or select the directory in the Directories box.
3. Choose OK to begin pasting the file.

COMit will then begin transmitting the contents of the file to the remote computer. You may cancel the paste command at any time by pressing the Escape key.

Sending and Receiving Files

You may need to send files to or receive files from the remote computer. COMit has several built-in file transfer protocols to ensure that you will be able to transfer files from nearly any computer.

To send a file to the remote computer, perform the following steps:

1. Select Session, then choose Send or select the Send button from the Tools Bar.

If you have Prompts enabled, do the following:
2. Select the protocol you want to use.

If your default protocol is ASCII, XModem, or YModem, do the following:
3. Type the name of the file you want to send. If the source directory is not the current directory, type the directory name in front of the file name or select the directory from the Directories box.
4. Choose OK to begin sending the file.

If your default protocol is YModem G, or YModem Batch, do the following:
3. Select the name of the file(s) you wish to send by first choosing the directory where the file(s) resides and then marking the appropriate file(s). When you have finished marking the selections from that directory, select the Add button. You may then repeat this process thru the remaining directories.
   To remove a file you have added to the Selected Files list, mark the file(s) and select the Delete button.
4. Choose OK to begin sending the file(s).

If COMit is unable to synchronize properly with the remote computer the file transfer will fail. After the initialization is complete, COMit will display a dialog box indicating the name of the file being sent, the estimated time remaining to complete the file transfer, the time that has elapsed since the file transfer was initiated, and the last error which has occurred.

To receive a file from the remote computer, perform the following steps:

1. Select Session, then choose Receive or select the Receive button from the Tools Bar.

If you have Prompts enabled, do the following:
2. Select the protocol you want to use.

If your default protocol is ASCII, XModem, or YModem, do the following:
3. Type the name of the file you want to receive. If the target directory is not the current directory, type the directory name in front of the file name or select the directory in the Directories box.
4. Choose OK to begin receiving the file.

If your default protocol is YModem G, or YModem Batch, do the following:
3. Type the complete pathname where the receiving file is to be placed.
4. Choose OK to begin receiving the file.

As in sending files, if COMit is unable to synchronize properly with the remote computer, the file transfer will fail. After the initialization is complete, COMit will display a dialog box indicating the filename of the receiving file, the estimated time remaining to complete the file transfer, the time that has elapsed since the file transfer was initiated, and the last error that has occurred. With YModem G, or YModem Batch, the total size of the file to be received will be known and the thermometer will be active.

Some Notes on File Transfer Protocols

Sending and receiving files is one of the most important capabilities to be handled by a communications program. To do so, a connection must be made between the two computers. Then several things are necessary:

- The sending computer must know what file is wanted.
- The receiving computer must know what name to use when storing it.
- The sending computer needs to know when to start sending, and when to pause if it is sending faster than the receiving computer can store the data.
- Errors from a bad phone connection should be detected and corrected.
- A way must be provided to signal the end of the transmission.

These needs are handled by the file transfer protocol that is chosen. COMit supports the most popular file transfer protocols, and in most cases, you'll simply choose the most sophisticated protocol available on both computers.

ASCII Transfer Protocol

ASCII is the most primitive (in fact, most experts wouldn't consider it a protocol at all) but it is the most universally available. No error detection is employed (unless you're using MNP.) The end of file is signified by a Ctrl-Z character (ASCII 26). Because binary files might have Ctrl-Z's and other control characters anywhere, they can't be sent reliably with ASCII.

Unless the data to be sent is pure text, don't use ASCII. Even for text files, use ASCII transfers only when no other protocol is available.

XModem

In XModem transfers, a file is sent in blocks of 132 bytes. The transfer is started by the receiver, which sends a NAK character (ASCII 21) at 10-second intervals until the sender responds with the first block. Validity checking is done by evaluating the checksum and the other non-data bytes in the block.

The receiver also expects no more than a 1 second interval between bytes. If an error is detected, the receiver sends a NAK and the block may be resent up to 10 times. Otherwise, an ACK (ASCII 6) is sent to acknowledge correct receipt. An EOT character (ASCII 4) instead of another block indicates end of file, and the receiver responds with a final ACK. The Ctrl-X character (ASCII 24) between blocks by sender or receiver requests cancellation of the transfer.

XModem CRC

The XModem CRC protocol improves on XModem by using CRC instead of a checksum for validity checking. This provides a much better chance that errors due to a bad phone line will be caught. Instead of the initial NAK character(s), the receiving computer sends "C" until the first block is received.

YModem - XModem 1k

The YModem protocol, sometimes called XModem-1k, is like XModem CRC, but faster transfers can be achieved (when a phone connection is good) because 1024 bytes of data are sent per block. The sender may also use 128 byte blocks, at its discretion. Blocks with 1024 bytes have STX (ASCII 2) as the start of block character instead of SOH.

YModem Batch

One (usually insignificant) problem of XModem, XModem CRC, and YModem transfers is that the file size on the receiving computer is always an even multiple of 128 bytes. (ASCII zeros are padded onto the end.) YModem Batch solves this problem and allows more than one file to be to be sent in a single transfer by including file name(s) and size(s) along with the data. After requesting file(s) from the sender, the receiver only needs to specify the drive and path for local storage.

Because file naming is handled automatically, YModem batch (and G) are well suited for unattended operation in scripts.

YModem G

These protocols correspond to YModem Batch but can be much faster because the sender does not wait for an ACK character before sending each block. In addition, the timing is relaxed to make it more suitable for use on some transmission links where data is sent in bursts, with (sometimes) more than one-second intervening delays.

YModem G should only be used with MNP, because MNP does its own error checking and correcting. They should not be used otherwise.

ZModem *

The Zmodem protocol provides reliable file transfer between application programs. End-To-End data integrity is insured with the CRC16 or CRC32 data verification schemes. File transfer is simplified with advanced file management features, Automatic Receiver Transfer (AutoDownload), AutoFile Restart (Crash Recovery), and selective file transfers. Binary Data Escape techniques are implemented with a minimum amount of overhead allowing transfer rates above the Kermit or YModem Batch protocols and almost as good as YModem G. Selective buffering and windowing techniques allow Zmodem to operate on systems that do not support streaming protocols.

Hanging Up

Once you have completed your communications session you need to disconnect from the remote computer. To do so select Session, then choose Hang Up or select the Hang Up button from the Tools Bar.

Errors and Troubleshooting

If you encounter a problem in communications you have many things to consider.

- Operating procedures
- The computer, its display and disk Drives
- Modem setups
- The modem itself
- Cables to and from the modem
- Power supplies
- The phone line and connection quality
- The computer at the other end
- Operating procedures the other computer expects

Looking through the following topics may help.

Modem Is Not Working

One of the most common problems with modems is having more than one device on the same COM port (even if the other device is not in use.) This may causes "hanging up" the phone as soon as a call is dialed or answered, or other erratic behavior.

For an external modem, disconnect it. The *Dial* command should show "Modem Initialization Failed" error dialog box.

Modem Is Dialing Too Fast

Sometimes modem won't be able to get a CONNECT because it is dialing too fast.

Make sure COMit is not using Touch Tone dialing on a Pulse System. (This is corrected by going to the Setting Menu and changing the Tone Pulse option via the Modem dialog box.)

Make sure COMit is not dialing before it should. Pauses can be inserted between different parts of a phone number by inserting commas. Use the "," to insert a pause on a phone number. For example the phone number "9,123-4567" causes COMit to dial a 9, followed by a pause, then the rest of the phone number.
The time-spacing between touch tones can be a problem on some systems. Use the *Modem* command and consider adding S11=150 to the Initialization String. (Replace 150 with whatever value you choose.)

Modem Needs Resetting

It is possible to get the modem into a state where it doesn't seem to want to accept your commands.

The first thing to try is the *Dial* command. This may bring an incorrect Port setting to your attention. It also makes multiple attempts to reset the modem, and usually succeeds.

If your modem has a reset button, try it.

Next, try powering down your entire system, then turning it back on.

In other cases, you may get the modem to respond by issuing one of the reset commands. First perform the *Direct Connect* command then try entering one or both of these commands at the session window:

"ATZ [Enter]"	Reset modem and revert to switch settings
"AT&F [Enter]"	Reset modem and revert to factory defaults (*)

* Not valid on some modems.

Modem Is Not Connected to a Phone

This is a problem more often than you might think.

Check your connections. Make sure the cable that goes to the wall outlet is plugged into the correct jack at the back of the modem.

Hearing touch tone sounds doesn't necessarily mean the modem is connected. (You need to hear a dial tone first!)

Try a regular phone on the line and listen for the dial tone. Then, try listening to the dial tone through the modem's speaker. This can be done by issuing a *Dial* command. You need be check you modem settings and ensure that you have Modem Volume on. (This option is set via the *Modem* command.)

Modem Is Not Waiting Long Enough

You may have set COMit to "give up" before the remote system has answered.
You can determine the delay needed by calling the remote system (on a voice line) and timing how long it takes between the last digit dialed and the moment you first hear a whistling sound.

When COMit dials, you'll notice a countdown indicator on the dialing dialog box. If COMit hangs up (due to a "NO CONNECT" message) before the remote system has answered, you may need to extend the time COMit will wait for a CONNECT message. You can set this value via the *Preferences* dialog box.

Wrong Number

Make sure the phone number is correct. Make sure the dialing prefix is correct. Consider whether or not a 1 and/or area code is required before the number. Try dialing the number on a voice line. You should hear a "whistle tone" when the remote computer answers.

Windows Version 3.1

Windows 3.1 serial communications

1) COM port addresses and IRQs are configurable in the Control Panel: Windows 3.0 used pre-set address values for serial ports. Windows 3.1 now allows any port address & IRQ. This solves problems using ports COM3 and COM4, for which Windows 3.0 used non-standard default values.

2) Faster baud rates: Windows applications can now set speeds higher than 19.2 Kbaud.

3) 16550 UART Support for Windows applications:

4) Serial ports on the same IRQ can be used "in rotation": Although on most PCs, serial ports that use the same IRQ cannot be used simultaneously. In general, don't attempt to use this feature unless you have a very clear understanding of Windows, your BIOS and your computer's capabilities.

How many serial ports does Windows support.

The Windows 3.1 communications driver provides access to standard MS-DOS serial ports COM1, COM2, COM3, and COM4.
Base addresses and IRQs Windows use for serial ports

Windows must know the base I/O addresses and interrupt request lines (IRQs) of the serial ports on your PC. It determines these as follows:

BIOS Data Area: Windows looks here first for port base addresses. Most PCs specify address values here for built-in COM ports, but not for add-in adapters. If Windows finds an address here, it will use this over any other defaults or settings.

Serial ports commonly use the following base I/O address and IRQ values:

Port	Address	IRQ
COM1 *	03F8	4
COM2	02F8	3
COM3	03E8	4
COM3 (PS/2)	3220	3
COM4	02E8	3

*If the BIOS data area specifies COM1 address as 03F8, then Windows uses IRQ3 instead.

Control Panel Ports Advanced Dialog: You can tell Windows the addresses and IRQs of ports which are not specified in the BIOS data area using the Control Panel Ports.Advanced dialog. This sets the COMxBase and COMxIRQ values in the [386Enh] section of SYSTEM.INI. IRQ values 8 - 15 are allowed. Setting the port address in this dialog will not override a BIOS data area value.

For more information on COMxBase and other SYSTEM.INI switches, see the file SYSINI.WRI in your Windows directory.

Using the same IRQ for different serial ports?

In general, two devices should not be used simultaneously with the same IRQ. For example, if your COM1 and COM3 ports both use IRQ4 (the common value), then you will have problems if you have a serial mouse on COM1 and a modem on COM3.

Some PCs and serial port adapters support "IRQ sharing", the ability to have multiple ports using the same IRQ. This is common on MicroChannel (MCA) bus architecture PCs, such as IBM PS/2s, and EISA bus PCs. Windows 3.1 supports IRQ sharing serial adapters. To use them properly, be sure that you have set the IRQ values correctly using the Control Panel Ports.Advanced dialog. Also, if you do not have an MCA or EISA PC, you must set "COMIrqSharing=TRUE" in the [386Enh] section of your SYSTEM.INI file.

For more information on COMIrqSharing and other SYSTEM.INI switches, see the file SYSINI.WRI in your Windows directory.

Using COM4.

Use the Control Panel Ports.Advanced dialog to make sure that Windows knows the correct port address value and IRQ settings for your COM4 port. The address for COM4 is not usually specified in the BIOS data area of most PCs, since it is not a standard port.

Many serial adapters use a COM4 default base address of 02E8. Unfortunately, this address value conflicts with some peripherals, including 8514/A video adapters and certain network adapters. To workaround this problem, reconfigure one of your peripheral adapters to use a different address. If you change your COM4 address, be sure to use the Control Panel Ports.Advanced dialog to reset the address value for COM4.

Maximum possible baud rate for Windows applications.

Windows 3.1 allows applications to select baud rates as high as 57.6 Kbaud. However, how well you can transmit and receive data at high speeds depends on many variables, discussed below. With Windows 3.1 in a minimally busy system, a 19.2 Kbaud XModem transfer can run on a 20Mhz 386.

Factors affecting top baud rate in Windows applications include:

1) CPU Speed: Faster CPUs will allow faster data throughput with fewer errors. This is because they allow the comm driver to service character interrupts faster (preventing UART overflow), and allow applications to handle transfer protocols better.

If you are experiencing slow serial performance or are losing characters, try the following to correct the problem:

* Reduce the number of MS-DOS drivers and terminate-and-stay-resident programs.
* Do not load MS-DOS into upper memory.
* Add the following line to the SYSTEM.INI file: FasterModeSwitch=1.

For more information on FasterModeSwitch and other SYSTEM.INI file switches, see the file SYSINI.WRI in your Windows directory.

2) Transfer Protocols: Data transmission protocols (e.g. XMODEM, YMODEM, ZMODEM, etc.) vary greatly in a multitasking environment. Some are designed to be very fast, with little error checking, while others trade throughput for error correction. Usually, XModem and ZModem work well with Windows..

3) Serial Port Hardware: Newer serial ports use the 16550 UART, which contains a buffer to reduce overhead and prevent overflow. See additional discussion on this below.

4) System Overhead: The more applications, TSRs, and device drivers that are running, the busier the operating system is. This reduces overall execution time for everybody in the system. If you have many programs and devices active while trying to transmit data at high speeds, you are likely to encounter reduced throughput and transmission errors.

Windows 3.1 support the 16550 UART buffer.

Many serial port adapters and add-in modems are now using the 16550 Universal Asynchronous Receiver Transmitter (UART), which contains a 16 byte character buffer to reduce interrupt overhead and errors during high-speed serial transmissions. The Windows 3.1 comm driver enables this buffer for Windows serial communications applications in order to reduce interrupt overhead and improve serial throughput at high-speeds. Windows applications do not need to call a special API to receive this support, it is automatically enabled.

You can find out if your serial ports use the 16550 UART by running the Microsoft Diagnostics (MSD.EXE) outside of Windows 3.1, from the DOS prompt.

Windows 3.1 does not enable the 16550 buffer for MS-DOS comm applications. When running in Windows enhanced mode, 16550-aware MS-DOS comm applications may fail to detect and enable the UART buffer. This is because Windows is doing its own buffering of the comm port for the application. To allow 16550-aware MS-DOS comm applications to enable the FIFO, you must disable Windows' buffering of a comm port by adding "COMxBuffer=0" in the [386Enh] section of SYSTEM.INI, where x= the ID of the comm port (for example, "COM1Buffer=0"). This may improve serial comm performance under certain conditions. NOTE: This is not necessary with a Windows Communications program.

Some older 16550 UART versions do not properly support the buffer and may cause problems. Windows can detect many of these and will not enable the buffer. However, if you encounter problems, you may need to manually disable the 16550 support by adding "COMxFIFO=0 to the [386Enh] section of SYSTEM.INI. For more information on COMxFIFO and other SYSTEM.INI switches, see the file SYSINI.WRI in your Windows directory.

High Speed Windows Communications Driver (TWCOMM.DRV)

Note: this driver not included with the LITE version

You may have noticed an option to add the Tradewind Software (TWCOMM.DRV) high speed Windows driver during INSTALL.

This driver can benefit most communications sessions running under Windows if your modem is able to operate at rates of 9600 BPS or more. With an external modem and "16550" type UART chips in your serial port, or with many internal high speed modems, this driver may allow you to run with speed settings of 57,600 bps.

To check your UART type, run the Microsoft "MSD" program from the DOS prompt. (It is included with DOS 6.2 and Windows 3.1.) The UART type is indicated at the bottom of the serial ports screen. (Some internal high speed modems, though a 16550 may not be reported, can benefit as well, because of an internal buffer.)

The driver has been tested with Windows version 3.1, Work Group for Windows version 3.11, and most communications and fax programs. Windows programs that install their own communication drivers, however, may not benefit in cases where they are designed not to work with drivers other than their own.

We have included an icon that removes the Tradewind Software driver, and reinstalls the Windows version, should you discover incompatiblities. If you click the icon to remove the driver, and later wish to reinstall it, simply reinstall COMit for Windows (less than three minutes.)

Another way to reinstall the Tradwind driver is to edit the Windows "SYSTEM.INI" file.

In the [Boot] section of SYSTEM.INI...

Remove the semicolon in:	";COMM.DRV=TWCOMM.DRV"
Add a semicolon (;) before:	"COMM.DRV=COMM.DRV"
Save and...	
Restart Windows.	