Modem Doctor for Win95

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Register Tests

The Uart Chip on a serial card has registers that hold settings important for proper communication between your computer and modem. Modem Doctor checks that these settings are set properly. If a setting is incorrect, Modem Doctor will prompt you and suggest how to correct the problem. The tests below are designed to test your modem's ability to properly setup, if your serial cable is properly wired, and if your modem properly handles flow control/handshaking signals.

Quick Register Tests   Checks all Driver Comm parameters are properly set.
Rts/CTS DTR/DSR Echo   Manually Raise or Lower RTS/DTR or run Automatic Tests. Checks cables are wired properly when used with a Loopback plug

Dynamic Tests   Checks Modem and Driver understand handshaking signals

RTS/CTS   DTR/DSR Echo Tests

Each serial cable contains 2 control signals and 2 status lines. Each control signal is paired with a status line. These signals and status lines are;

RTS/CTS   - RTS (Ready to Send) is a control line that is activated by a device when it is ready to receive data. A DTE (Data Terminal Device) RTS output signal is sent to the CTS (Clear to Send) input of a DCE (Data Communications Equipment) device. So in effect, the RTS of one device is the CTS of another.

DTR/DSR - DTR (Data Terminal Ready) is a control line activated when a DTE device is turned on and ready for use. A DTE DTR output signal is sent to the DSR (Data Set Ready) input of a DCE device in a similar manner as RTS/CTS.

Computers are DTE devices. Modems are DCE devices. Using the signals above, they communicate to each other. This communication is called a Handshake. Modem Doctor can test two types of handshaking; Static and Dynamic.

This test Is a Static test,   which means Modem Doctor alternately raises or lowers either the RTS or DTR lines. When a Loopback plug is installed, you can use these static tests to verify your serial cable is wired correctly.

NOTE - Most modems will not echo static tests. This test is designed to test cables and other serial devices. For modem handshaking tests, use the Dynamic Handshaking Tests.

Loopback Plug

 Loopback plugs are used to test a Uart for proper operation. You can only use a Loopback with a serial port. Internal   modems cannot be tested because a plug cannot be inserted.   There are three kinds of serial port connectors, a 9 pin   (DB 9), a 10 Pin stake, and a 25 Pin (DB 25) pin connector.   To construct a Loopback cable, you need to follow the wiring diagrams below. 9 Pin connectors and 25 Pin connectors are   the most common.

9 pin (DB 9)	10 Pin (Stake)	25 Pin (DB 25)
TxD (3) to RxD (2)	Txd (5) to RxD (3)	TxD (2) to RxD (3)
RTS (7) to CTS (8)	RTS (4) to CTS (6)	RTS (4) to CTS (5)
RTS (7) to RI (9)	RTS (4) to RI (8)	RTS (4) to RI (22)
DTR (4) to DSR (6)	DTR (7) to DSR (2)	DTR (20) to DSR (6)
DTR (4) to CD (1)	DTR (7) to CD (1)	DTR (20) to CD (8)

Dynamic RTS/CTS and XON/XOFF Tests

Every high-speed modem need to tell your computer when to send data. Likewise, each computer needs to be able to tell a modem when it can send data. This is called ''handshaking''.

Handshaking can be done via hardware using the RTS (Ready to Send) and CTS (Clear to Send) signals in your serial cable. It can also be done using the special reserved ASCII characters XON and XOFF.

The Dynamic tests first connect your modem to itself. Then, depending on the test,   Modem Doctor either drops the RTS signal or sends an XOFF command to the Modem. Next 20 characters are sent to the modem. If your modem is properly handshaking, NONE of these characters will be echoed back to your computer. In this case, the modem, Comm driver, and computer are properly handshaking. If however any characters are sent back, this usually indicates that your modem is not properly setup or you have a bad serial cable.

XON/XOFF Characters

XON and XOFF are two reserved ASCII characters that are used by some programs and modems for flow control (handshaking).

Sending an XON signal sent from a modem tells the computer its clear to send data. Sending an XOFF signal from a modem tells the computer not to send any data. The reverse scenario between computer and modem is also valid.

Most high speed Comm programs use RTS/CTS handshaking instead. However, there has been a recent trend to using XON/XOFF handshaking in environments such as Win95.

The XON signal usually equates to   17   (CONTROL-Q)
The XOFF signal usually equates to   19   (CONTROL-S)

However, both of these settings can be changed in your modem by changing the value in an S-Register, and in your Comm driver in the data communications block used by Win95.

Register Tests / UART Status

Win95 communicates to your modem via a driver. The driver is responsible for properly setting up your Uart.   The Uart contains registers that set proper flow control, handshaking signals, serial line control and read line and modem status. When you select Modem and Driver tests, you also can view the S-Registers settings that are critical to proper modem /software communications.

Each of Uart signals are either active (BRIGHT RED) or inactive (DARK RED). Modem Doctor checks each of these settings and will warn you if something is incorrect. Usually, an incorrect setting is a sign of a problem with a cable or your cable wiring. You will also get an error if you do not have a modem attached or turned-on on the serial port you are testing.

For a detailed description of these signals see the following;

Modem Flow Status
Modem Signal Status
Line Control Settings
Line Status Information

Modem Flow Status Signals

RTS/ CTS   Ready to Send (RTS) and Clear to Send (CTS) signals in your serial cable are used to control data flow and handshaking. These should   always be active.

DTR/DSR   Data Terminal Ready (DTR) and Data Set Ready (DSR) signals can also be used for flow control. Modem Doctor does not use this mode, but does check that the driver is properly set. These should always be inactive

Modem Signal Status Signals

RLS Received Line Signal (RLS) is another term for Carrier Detect. This signal when active indicates the presence of a carrier signal from your modem. This signal should be inactive before all tests are run, and active only during the Carrier or Dynamic Handshaking tests. If you get
a warning that this line is active, you need to consult your modem manual. Normally, the command AT&C1 sent to your modem and stored in your modems configuration will clear this error permanently.

RI The Ring Indicator (RI) indicates that the modem has detected a ring signal on your telephone line. You should never see this during testing. If you do, disconnect your telephone line from your modem. If this does not clear your problem, then you may have an incorrectly-wired serial cable between your computer and modem.

DCTS Delta CTS (Clear to Send) indicates that the CTS signal is active. NOTE - There is an error in Microsoft's Comm.drv for Win 3.1(x) that all programs mimic. This error incorrectly displays the DCTS setting. Modem Doctor properly detects the CTS setting using special coding
in its interface to the Comm driver. All other Windows versions operate correctly

DDSR Delta DSR (Data Set Ready) indicates that the DSR signal is active. Like DCTS, this also is a true indicator in Modem Doctor for Win95.

Line Control Settings

STP   Stick Parity - a mode currently not used by Win95 Comm drivers

EPS   Even Parity Signal - When bright red indicates even parity active. Dark red indicates odd parity will be used. Both settings only have meaning if Parity is enabled. This signal is normal inactive.

PEN   Parity Enabled - Parity checking is used between modem and serial port. Rarely is this used in modem communications. Some terminal emulators however do use this mode to verify proper operation. Normally, this signal is inactive.

BIN   Binary Mode Enabled - Win95 Comm drivers can operate in a character or a   binary mode. Modem Doctor, and most communication programs, use the binary mode. This signal should be active during all Modem Doctor testing.

Line Status Information Settings

TXE   Transmitter Enabled - Should be active for all testing.

BI   Break Indicator - A break signal was received from the modem. This should be inactive for all Modem Doctor testing.

FE   Framing Error - Indicates a problem with the serial data sequence received. This should never be active during Modem Doctor testing. If it is continuously active, it could indicate a serious hardware problem.

PE   Parity Error - If Parity checking is enabled, this indicates a bad parity bit was detected between modem and computer. This should never be active during Modem Doctor testing. If it is continuously active, it could indicate a serious hardware problem.

OE   Overrun Error - Indicates too many bits were received in a serial stream from your modem. This should never be active during Modem Doctor testing. If it is continuously active, it could indicate a serious hardware problem.

DR   Data Ready - Indicates that the driver and Uart can accept new characters from the modem. This should ALWAYS be active during Modem Doctor testing. If it is not, it indicates that data is present in the Uart that has not been read by the computer.

Uart Chips

A serial port is made from input and output circuits that communicate to a Uart (Universal Asynchronous Receiver Transmitter). The Uart is the physical device that takes serial data from your modem and converts it to parallel data for use in your computer. Likewise, the Uart converts parallel data from the computer to serial data for your modem.

There are various types of Uarts;

8250   These were the original Uarts used in the first PC's

16450   This was an updated 8250 with improved circuitry

16550   A further improvement of the 16450 design

16550A The most recent version which includes an on-chip buffer that helps in multi-tasking environments.

16650   An improved 16550 with a larger on-chip buffer.

Login Commands

Login Commands allow you to find your installed serial ports, and make changes to the way Win95 uses your serial port hardware.   Commands include the following;

Auto Login   Automatically Detects installed hardware.
Manual Login   Allows you to manually change your system settings.

The Auto Mode is called when first starting Modem Doctor. It displays a snapshot of your system's available serial ports, how they are used (modem, mouse..etc),   and the type of Uart supported by the installed Win95 Driver. Using this information, Modem Doctor runs a preliminary test of your modem and verifies the existence of serial port hardware. A check symbol in the VF column means Modem Doctor has found your hardware.

Win95 can install devices automatically or manually. Plug-n-Play technology is used for automatic installations, while manual installations are considered older, "Legacy" devices. Win95 keeps track of this information in the registry. Modem Doctor informs you if your installation is a PNP or Legacy with a checkmark. This can be important, especially if you find out that hardware has been installed twice (once by you manually, once by Win95.

Modem Doctor also looks for problems with your configuration. Any problems found are displayed as a "Warning". These warnings should be taken seriously, for they may point to future or current serial port problems.

Advisories are also displayed when the program first runs. These are less serious in nature, and usually inform you that you have some setting in a default or non-standard mode.

Win95 Drivers

Windows 95 uses built-in drivers to communicate to your computer hardware. There are specific drivers for keyboards, your mouse, your video screen, and the type of Uart installed in your computer. Currently, Win95 supports these two types;

*PNP0500   The Standard 8250/16450 Compatible Uart
*PNP0501   A 16550AN Special Buffered Uart
*PNP0F0C   Standard Mouse Driver
*PNP0510   A Generic IRDA compatible (Infra Red) device.

These settings are stored in either the Enum key (for PNP devices) or the Root Key (for Legacy devices). Modem Doctor detects the type of uart installed based on this driver information. It is possible that Win95 chose the wrong driver. In this case, you may have to re-install your modem into your system to correct this problem.

Warning Window

Modem Doctor will display warning information when it finds a setting that may cause you problems with Win95 communication programs. Usually these warnings are serious, and you should take corrective action. The Window will explain what is wrong and suggest what you should do to correct the problem.

Advisory Window

Advisory Windows inform you of non-standard settings or similar problems. By themselves, these settings usually will not affect   Win95 communications, however   if you experience unexplained communication errors under Win95,   try some of these suggestions to see if they eliminate your errors.

S-Registers

S-Registers are used by your modem to store operating information. Changing a register will change how your modem operates. Modem Doctor will display the first 16 registers from the Uart Menu if you chose to test the <u>modem and Uart</u> from the setup menu. Modems have many more registers that 16, and their use varies between manufacturers. However, the first 16 set the features critical to proper operation.

S0 - **Answer on Ring** - A "0" disables auto answer, any other value sets the number of rings your modem will answer on. If your modem answers calls by itself, and this action is not wanted, type ATS0=0 from the Modem Doctor Interactive window.

S1 - **Ring Count** - Counts the number of rings your modem detects. This is used by BBS software to determine how many rings have occurred.

S2 - **Escape Character** - Usually the + sign (ASCII 43), this character is scanned by your modem. Receiving 3 of these characters inside of the escape guard time will place your modem into the command mode, ready to receive instructions.

S3 - **Carriage Return** - Usually ASCII 13.

S4 - **Line Feed Character** - Usually ASCII 10.

S5 - **Backspace Character** - Usually ASCII 8

S6 - **Dial tone Wait** - Determines how long your modem will wait for a dial tone before dialing. Usually 2 or 3.

S7 - **Carrier Wait** - Determines how long your modem will wait for a carrier. This should at least be set to 60. If lower, make sure your communication program has the command ATS7=60 (or higher) in its init string.

S8 - **Comma Pause** - Determines how long the modem will pause when a comma (,) is inserted into the dial command. This is useful for accessing an "outside" line from an office or private PBX system.

S9 - **Carrier Detect Time** - Determines how long (in tenths of a second) your modem will wait before recognizing a remote carrier signal. Setting this value higher if you keep connecting at the wrong speed may help your modem pick the proper speed that matches current phone conditions.

S10- **Hang-up Time** - Determines how long (in tenths of a second) that your modem waits after it looses a carrier before it hangs up. If you have unexplained carrier drops, or if you have call waiting, you can adjust this setting higher to get   through these types of problems. Usually a value of 30 is sufficient (this means wait 3 seconds).

S11- **Touch Tone Speed** - Determines the quickness in milliseconds for touch tone dialing. A speed of 55-60 results in faster dialing than the default of 70.

S12- **Escape Time** - Determines the guard time for escape code sequences. Normally set to 0. Any value in here adds extra time to the already required 50 msec delay used by most modems.

S13- **Bitmap Register #1**

S14- **Bitmap Register #2**

S15- **Bitmap Register #3** - These are used to setup many of the self diagnostic and self resetting features of modems. The settings vary depending on modem manufacturer and current modem of operation.

S16- **Self Test Register** - Used by most modems to indicate they are in a testing mode. Should be 0 at all other times.

Carrier Tests

Carrier tests place your modem into a special diagnostic mode. In this mode, the modem connects to itself and simulates an on-line connection (minus the telephone line).   When in this mode, Modem Doctor can use several different tests to determine if your modem is operating properly. The test is run twice. Depending on your modem and the driver interface that is loaded, , one test uses the Originate mode for testing, and the other test uses the Answer mode.   These are indicated in the lower left hand corner of the testing window. There are three tests in all;

Burst ASCII Test -   This test simulates an on-line connection and sends all 255 character combinations to your modem.   Depending on the font in use, all characters sent may not print to a window, but they are all transmitted. Modem Doctor then checks the communication buffer to make sure each character was sent properly.

Data Pattern Test-   A special data pattern is sent to the modem that is designed to "stress" the serialization process in your computer's Uart.   The pattern equates to ASCII character 5A, which in binary is   01011010.

Alt Pattern Test-   Like the Data Pattern Test, a special data pattern is sent to the modem to "stress" the serialization process. This pattern equates to ASCII 5A followed by ASCII character A5 (binary sequence   01011010   10100101).

After each test, Modem Doctor calculates your modem/driver/Uart throughput, or the speed at which characters are moved in transmit and receive.   Normally, you should see a value equal to the baudrate divided by 10 for speeds up to 9600 bps. Speeds above 9600 depend on many factors including; Uart chip in use, Comm driver in use, and how many other programs are running during the testing of your modem.   The higher each figure is, the faster your modem and Comm port can handle data transfers.

Modem Drivers

Modem Drivers are similar to printer drivers. These drivers make it possible to send special commands to a specific make and model of modem.

When Modem Doctor starts, it reads this information from your Modem settings stored in the Win95 Registry. This information was generated when Win95 installed your modem from a Modem.inf file supplied by the modem manufacturer.

If something looks wrong in the Driver Section, then you may have incorrectly installed your modem. In that case, you should consider re-installing the software drivers for your modem.

Loopback Tests

The Analog Loopback test is designed to check Uarts and serial cables. It is not a modem test, although most modem will run this satisfactorily.

This test is similar to the Carrier tests, and has similar choices for test patterns. In place of a modem, you connect a special Loopback Plug to your serial port (or to the end of its serial cable). Without this cable, these tests will not run. As mentioned above, you can use a modem for this test, but results may or may not be in error.

Burst ASCII Test -   This test simulates sends all 255 character combinations to your modem. Depending on the font in use, all characters sent may not print to a window,   but they are all transmitted.   Modem Doctor then checks the communication buffer to make sure each character was sent properly.

Data Pattern Test-   A special data pattern is sent that is designed to "stress" the serialization process in your computer's Uart.   The pattern equates to ASCII character 5A, which in binary is 01011010.

Alt Pattern Test-   Like the Data Pattern Test, a special data pattern is sent   to "stress" the serialization process. This pattern equates to ASCII 5A followed by ASCII character A5 (binary sequence 01011010   10100101).

After each test, Modem Doctor calculates your driver/Uart throughput, or the speed at which characters are moved in transmit and receive.   Normally, you should see a value equal to the baud rate divided by 10 for speeds up to 9600 bps. Speeds above 9600 depend on many factors including; Uart chip in use, Comm driver in use, and how many other programs are running during the testing of your modem.   The higher each figure is, the faster your modem and Comm port can handle data transfers.

Options Menu

I Interactive Terminal -This mode activates an ASCII terminal that allows you to type information to your modem. This mode is handy for editing or updating modem configurations. It can also be used as a communications terminal if you manually dial a phone number.

Fax Fax Modem Info-   If you have a fax modem, Modem Doctor will return information about its fax capabilities

View Statistics Modem Doctor collects information on tests it runs and will display the number of tests, the number of test passes, the number of errors detected, and the speeds that were tested.

Generate Hardware Report Modem Doctor can save all test information and configuration settings to a file, MDRWRPT.TXT. You can   use this file for future reference.

Interactive Terminal

I

The Interactive mode simulates an ASCII terminal with several hundred lines of scroll-back capabilities. When you activate this mode, an 8K communications buffer is created that allows you to type information to your modem. To scroll back or forward, simply use the scroll-bars on the side of the Interactive window.

You can use this mode to change your modem's configuration, send your own commands to your modem, or using the ADTD command, you can dial a phone number and connect to a BBS. The baud rate used by the Interactive mode is that which was used for any previous testing.

The terminal mode is not meant to be a replacement for a communications program, but it will handle text-based communications without a problem.

Check the AT Commands section for more info on modem commands. Check the S-Register section for more information on S register usage.

Fax Modem Information

Fax

Most modems made during the 1990's also include some sort of Fax support. Modem Doctor can determine the fax capabilities of your modem. Fax devices are classified by Group and Class. All Fax modems (and modern fax machines) are Group III devices. Modem Doctor sends a series of commands to determine the characteristics of your fax modem. These are displayed in the "Sent to Modem" window. The "Received from Modem" window displays the raw results of these commands. The Message window displays a running commentary on all tests, while the results are interrogated and displayed in the Diagnostic Information Window.

Fax Classes   Details the Class support of your Fax Modem
FAX DCE Model   Returns model info (not supported by all classes).
DCE Manufacturer   Returns manufacturer info (not supported by all classes).
DCE Revision   Returns "firmware" (ROM) revision info (not supported by all classes).
Auto Answer Mode   Your modem can auto answer in data, fax, or data/fax mode. This
                         can be determined by the Class setting or by your modem when
                         it receives each call. Auto-determines is the normal setting.

Fax Flow Control   Fax modems return the following;
                                         0 = No Flow Control
                                         1 = Xon/Xoff Control
                                         2 = RTS/CTS flow control
                         These settings are not used when you are in the data mode. Most
                         modems will not return info for this command, since flow control is
                         set by your communications or fax program.

Voice Capability   If your modem returns an '8' for fax class, it is also voice capable.
                         Note - not all modems that are voice capable return this information.

Receive Capability   Your fax modem can either receive message data or poll a remote
                         device for data, or not.   This command is of little importance except
                         in a stand-alone configuration. Most modems will not return any
                         information.

Note - Modem Doctor will display the raw data from all commands and tries to interpret their meanings. Some modems return "trash" for valid commands, so don't be surprised to see oddball characters line "/" or "p" displayed in the diagnostic information section.

Fax Classes

Class 0   Class 0 indicates that your modem supports data operations. All fax modems
                support this class. Fax modems are placed into Class 0 operation in order
                to allow operation in the data mode.

Class 1   Class 1 fax modems use a simple instruction set to handle faxes. Most of the
                fax "work" is done by a fax-modem program.

Class 2   Class 2 fax modems use an expanded instruction set and are more powerful.
                These modems are easier for programmers to support and interface to because
                most of the work is done by the modem itself.

Class 2.0   This is a fax modem that uses a "superset" of the Class 2 instruction set, which
                returns more information and controls more capabilities of your modem.

Any Fax Class indicated above Class 2.0 is a propriety command set. Some modem   manufacturers use
these special modes to add such items as voice support or special AT commands to enhance the
flexibility of their modem. If you see a number greater than 2.0 returned, check your modem manual for
details on these enhanced features.

View Test Statistics

After each test is run, Modem Doctor updates results for each of the Comm ports you've tested. You can review these tests at any time by activating this feature. When you do, you will see the following information displayed;

Results of Comx Testing   (can hold up to 9 separate Comm port results)

Test	Total Sent	Char Sent	Errors	MDRW Test
Originate Tests	0	0	0	Carrier Test
Answer Tests	0	0	0	Carrier Test
Microprocessor	5	n/a	0	Autofind/Setup
Register Tests	17	n/a	0	Uart
Digital Tests	0	0	0	Loopback

Speeds Tested at: 57600

You can save these results plus system configuration information to a file from the Generate Hardware Report. You can look at this file anytime you wish with a simple text file viewer (such as the Win95 notepad).

Generate Hardware Report

One of the purposes of Modem Doctor is to determine the configuration of your installed hardware. This section places all of that information together for you, including a summary of all tests that were run, and places that information inside of a scroll-back window.   You can review any of this information by using the scroll-back control on the side of the window.

Once you are done reviewing and press OK, Modem Doctor asks you if you wish to save this information in a file. If you say YES, this information is saved in a text file using the name MDRWRPT.TXT. Modem Doctor saves this file in the current working directory and will prompt you to let you know where you can find it.

Format of File

```
--------------------------------------------------------------------------
                       Modem Doctor for Win95   Ver 1.0
                    Summary of Installed Hardware and Settings
            Modem Doctor has tested your system and found the following
--------------------------------------------------------------------------
```

Verified Hardware settings

Com1 Serial Port	PnP Device	*PnP0501 Driver	16550A
Com2 Modem Detected	Legacy Device	*PnP0501 Driver	16550A
Com4 Serial Port	PnP Device	*PnP0501 Driver	16550A
Mouse Port	Com1		

Results of Com4 Testing   Each Test is detailed in this manner
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Test	Total Sent	Char Sent	Errors	
Originate Tests	0	0	0	
Answer Tests	0		0	0
Microprocessor	5		n/a	0
Register Tests	17		n/a	0
Digital Tests	0		0	0

Speeds Tested at: 57600

Modem Doctor for DOS

Modem Doctor for DOS is a powerful diagnostic tool for testing modems/serial ports and Uarts and is the DOS compliment of Modem Doctor for Win95.

Unlike the Win95 version, Modem Doctor for DOS can directly verify and check serial port hardware and system board devices (such as interrupt controllers) without the need of special drivers or working through control kernels (such as with Win95).

Version 7.0 of Modem Doctor for DOS also has a unique feature that allows it to save test information in a Windows-compatible .INI file. The two programs together are the most comprehensive serial port diagnostics you can find anywhere.

For ordering information, see the Order form section for more information.

Setup Menu

S   This section is used to select the serial ports and modems for testing. You select the port, the baud rate, and if you wish to <u>test the modem</u> and the <u>comm driver</u>, or just the driver only.

Ports Section displays all of the serial ports you can use for testing. You may have more serial ports installed, however Modem Doctor will not test any ports in use by other programs or assigned to your Mouse.

Speed section displays only valid baud rates for testing. In the Shareware version, the maximum baud rate is limited to 2400 bps. The Registered version supports speeds to 115,200 bps (limited only by the maximum speed of your installed communication driver).

Mode section allows you to either test your modem and serial port, or just test the serial port alone. For most applications, you would choose to test both, however you can test the hardware alone if you suspect a modem problem or just wish to test a serial port that does not have a modem attached.

Underneath the mode section, Modem Doctor displays all the Comm ports it has located that have active serial devices attached. Any Comm port displayed here is probably the place you currently have a modem installed. A modem must be turned on in order for this feature to work properly.

Initial Diagnostics

When you choose to test the modem and driver, Modem Doctor sends a series of commands to your modem and driver that verify both units are working properly together.

For a detailed explanation see the following;

[Scrolling Windows](#)
[Diagnostic Info](#)

Scrolling Windows

Sent to Modem   Displays commands Modem Doctor sends to the modem
Received From Modem   Echoes commands and shows your modem's response to them
Messages   Step-by-step explanation of each stage of testing.

Diagnostic Information

Baud Rate Selected   Displays the baud rate you selected for testing.

Baud Rate Driver Pgm   Displays the comm.drv baud rate which should be the same
                                as the baud rate you selected.

Modem Microprocessor   Indicates your modem acknowledge at least one valid command.

Modem ID Type   Derived from the code returned from your modem. This might
                                not be accurate, since many modem manufacturers use the
                                same number, however it will be accurate enough for testing.

Modem Fax Ability   Your modem responds to a T.30 Instruction Class command
                                indicating some kind of fax capability.

Modem Memory/ROM   Your modem responded OK to the command to run a checksum
                                test of its memory/program ROM.

Differences between Modem Tests and Driver Only Tests

Modem Doctor's Setup Mode gives you the ability to test a modem and driver together, or just the Window's Comm driver.

The Modem Test is a series of comprehensive commands that are designed to determine the type of modem, its proper settings and features, plus check all of the control lines are properly set between modem and driver. Use this test if you have a modem attached to a serial port.

The Driver Test checks all of the control lines are properly set, however it does not send commands to a modem. Use this test to check a serial port or a serial cable.

Exit Menu

Use this command to close all comm ports used by Modem Doctor and exit the program

Help Menu

The help menu contains information on how Modem Doctor operates. You can access it with the icon above, or from any of the help buttons in each Modem Doctor for Win95 section.

Contents   Help topic contents.

Testing a Modem

Testing a modem with Modem Doctor is a simple procedure. Follow these instructions;

1)   Make sure your modem is turned on and attached to your computer. For internals, this step is not necessary.

2) Press the AutoFind Icon or activate the Login | Auto Login mode from the menu. Modem Doctor will then display all of your comm settings. Press OK

3) Press the **S** Setup Icon or activate the Setup mode from the menu. Modem Doctor will then give you choices for port and baud rate. Select TEST MODEM/DRIVER mode.   **TIP for Port Selection** - Look at the lower right white window. It will show you a list of comm ports that Modem Doctor has found with active serial devices. It is recommended you choose one of those unless you know for sure your modem is installed somewhere else.

From this point on, Modem Doctor will check out your modem and let you know of any errors it has found. With a successful setup, you are ready for serious system testing using these modes;

Register /Uart Tests   Test Driver/Uart interface, Handshaking
Carrier Tests   Simulate an on-line Modem Test

Loopback Tests Check out serial cables and serial data links
Options Menu   Type your own commands, view or save test information
Exit Menu   Exit Modem Doctor

Testing a Serial Port

Testing a serial with Modem Doctor is a simple procedure. Follow these instructions;

1) For simple verification of a port, you can directly proceed to step 2. If however you wish to make sure all of the control signals for a serial port are properly functioning, you need to have a modem attached and turned on, or a Loopback Plug installed on the end of your serial cable or serial port connector.

2) Press the AutoFind Icon or activate the Login | Auto Login mode from the menu. Modem Doctor will then display all of your comm settings. Press OK

3) Press the S Setup Icon or activate the Setup mode from the menu. Modem Doctor will then give you choices for port and baud rate.   Select TEST DRIVER ONLY mode.   **TIP for Port Selection** - Look at the lower right white window. It will show you a list of comm ports that Modem Doctor has found   with active serial devices. It is recommended you choose one of those unless you know for sure your modem is installed somewhere else.

From this point on, Modem Doctor will check out your serial port and let you know of any errors it has found. With a successful setup, you are ready for serious system testing using these modes;

Register /Uart Tests   Test Driver/Uart interface, Handshaking
Carrier Tests   Simulate an on-line Modem Test

Loopback Tests Check out serial cables and serial data links
Options Menu   Type your own commands, view or save test information
Exit Menu   Exit Modem Doctor

Exiting

To exit Modem Doctor for Windows choose <u>Exit</u>   command from the main menu.

Configuring Port Information

Modem Doctor for Win95 reads your Registry Information and verifies that the modem sttings are accurate. Unlike DOS Programs, Win95 Configurations for serial ports come
directly from the Registry,

There are several ways you can change your configuration.

1) **Using Win95 Regedit** you can edit   your system.ini   and win.ini files
2) **Using Win95 Control Panel** you can change basic port and baud rate settings
3) **Using Modem Doctor for Win95** Manual Login-you can gain access to all the modem settings in the Control Panel for your TCP/IP Dialup, Internet Settings, and your modem.

You can use Modem Doctor for Win95 Generate Hardware Report to save all your current information to a text file. Finally, you can use Modem Doctor for DOS Ver 7.0 to generate a hardware comparison file for tracking down elusive bugs.

Sending Commands to your Modem

Modem Doctor for Win95 includes a simple ASCII terminal that allows you to send your own commands to the modem. Your modem understands a series of instructions that start with the two letters "AT". AT stands for Attention, and these must be the first two characters on a new line. Below is a summary of the basic   AT instruction set commands common to nearly all Modems.

A	Answer Incoming Call	M	Speaker Control
A/	Repeat Last Command	M0	Speaker off
B0	CCITT Answer Sequence	M1	Speaker On Until CD
B1	Bell Answer Sequence	M2	Speaker Always On
Dn	Dial a Phone Numbers	M3	Speaker Off during Dialing
E0	Command Echo Disabled	O	Return On-Line State
E1	Command Echo Enabled	P	Pulse Dialing
H0	Hang Up	Q	Result Codes
H1	Off Hook	Q1	Quiet (No Result Codes)
I0	Product Information	Q2	Quiet on Answer Mode Only
I1	ROM Checksum	V0	Return Numeric Codes
Ln	n=0-7,Speaker Volume	V1	Return Verbose (word) codes
		X0-9	Result code format
		Z	Reset the modem

There are other instructions that use the & and * symbols as well. Consult   your modem manual for a summary of these advanced commands.

Setup Internet

You can use Modem Doctor to setup your Win95 Internet Settings. To setup a port, run the port setup option in Modem Doctor.

{button ,EF(`Inetcpl.cpl',`Internet')} Click here to setup Internet
{button ,EF(`netcpl.cpl',`Network')} Click here to setup Dialup Adapter
{button ,EF(`modem.cpl',`Modems')} Click here to setup Modems

Setup Network Adapters

You can use Modem Doctor to setup your Dialup Adapter or Direct TCP/IP connections. To setup a port, run the port setup option in Modem Doctor.

{button ,EF(`netcpl.cpl',`Network')} Click here to setup Dialup Adapter
{button ,EF(`Inetcpl.cpl',`Internet')} Click here to setup Internet
{button ,EF(`modem.cpl',`Modems')} Click here to setup Modems

Setup Modems

You can use Modem Doctor to setup your Win95 Modem Settings. These settings are used by all TAPI compliant programs. To setup a port, run the port setup option in Modem Doctor.

{button ,EF(`modem.cpl',`Modems')} Click here to setup modems
{button ,EF(`Inetcpl.cpl',`Internet')} Click here to setup Internet
{button ,EF(`netcpl.cpl',`Network')} Click here to setup Dialup Adapter

The Toolbar

The Toolbar is a row of buttons at the top of the main window which are shortcuts to commonly used commands. Clicking one of the buttons is a quick alternative to choosing a command from the menu. Buttons on the toolbar activate and deactivate according to the state of the application.

Button	**Action**	**Menu Equivalent**
S	Setup Modem/Uart for Testing	Setup
	Select a Driver for your modem	Carrier| Select Modem Drivers
	Autofind Hardware	Login | Auto Login
	Uart Register/S Register Tests	Register | Quick Register Tests
	RTS/CTS or DTR/DSR Echo	Register | RTS/CTS DTR/DSR Echo
	Carrier Tests	Carrier Tests| Carrier Test
	Loopback Tests	Loopback Tests | Analog Loopback
Fax	Display Fax Information	Options | Fax Modem Info
I	Interactive Terminal Mode	Options | Interactive Terminal
	Display help file contents	Help | Contents

Windows Keys

Windows allows you operate without the use of a mouse. In some cases, key strokes are easier and faster to use. This information is generic, and applies to all Windows applications.

[Cursor Movement Keys](#)
[Dialog Box Keys](#)
[Editing Keys](#)
[Help Keys](#)
[Menu Keys](#)
[System Keys](#)
[Text Selection Keys](#)
[Window Keys](#)

Cursor Movement Keys

Key(s)	Function
Arrow key	Moves the cursor left, right, up, or down in a field.
End or Ctrl+Right Arrow	Moves to the end of a field.
Home or Ctrl+Left Arrow	Moves to the beginning of a field.
Pape Up or Page Down	Moves up or down in a field, one screen at a time.

Dialog Box Keys

Key(s)	Function
Tab	Moves from field to field (left to right and top to bottom).
Shift+Tab	Moves from field to field in reverse order.
Alt+letter	Moves to the option or group whose underlined letter matches the one you type.
Arrow key	Moves from option to option within a group of options.
Enter	Executes a command button. Or, chooses the selected item in a list box and executes the command.
Esc	Closes a dialog box without completing the command. (Same as Cancel)
Alt+Down Arrow	Opens a drop-down list box.
Alt+Up or Down Arrow	Selects item in a drop-down list box.
Spacebar	Cancels a selection in a list box. Selects or clears a check box.
Ctrl+Slash	Selects all the items in a list box.
Ctrl+Backslash	Cancels all selections except the current selection.
Shift+ Arrow key	Extends selection in a text box.
Shift+ Home	Extends selection to first character in a text box.
Shift+ End	Extends selection to last character in a text box

Editing Keys

Key(s)	Function
Backspace	Deletes the character to the left of the cursor.
	Or, deletes selected text.
Delete	Deletes the character to the right of the cursor.
	Or, deletes selected text.

Help Keys

Key(s)	Function
F1	Gets Help and displays the Help Index for the application. If the Help window is already open, pressing F1 displays the "Using Windows Help" topics.
	In some Windows applications, pressing F1 displays a Help topic on the selected command, dialog box option, or system message.

Menu Keys

Key(s)	Function
Alt	Selects the first menu on the menu bar.
Letter key	Chooses the menu, or menu item, whose underlined letter matches the one you type, when a menu has focus.
Alt+Letter key	Pulls down the menu whose underlined letter matches the one you type.
Left or Right Arrow	Moves among menus of the main menu bar.
Up or Down Arrow	Moves among menu items within a drop-down menu.
Enter	Chooses the selected menu item.

System Keys

The following keys can be used from any window, regardless of the application you are using.

Key(s)	Function
Ctrl+Esc	Switches to the Task List.
Alt+Esc	Switches to the next application window or minimized icon, including full-screen programs.
Alt+Tab	Switches to the next application window, restoring applications that are running as icons.
Alt+PrtSc	Copies the entire screen to Clipboard.
Ctrl+F4	Closes the active window.
F1	Gets Help and displays the Help Index for the application. (See <u>Help Keys</u>)

Text Selection Keys

Key(s)	Function
Shift+Left or Right Arrow	Selects text one character at a time to the left or right.
Shift+Down or Up	Selects one line of text up or down.
Shift+End	Selects text to the end of the line.
Shift+Home	Selects text to the beginning of the line.
Shift+Page Down	Selects text down one window.
	Or, cancels the selection if the next window is already selected.
Shift+Page Up	Selects text up one window.
	Or, cancels the selection if the previous window is already selected.
Ctrl+Shift+Left or Right Arrow	Selects text to the next or previous word.
Ctrl+Shift+Up or Down Arrow	Selects text to the beginning (Up Arrow) or end (Down Arrow) of the paragraph.
Ctrl+Shift+End	Selects text to the end of the document.
Ctrl+Shift+Home	Selects text to the beginning of the document.

Window Keys

Key(s)	Function
Alt+Spacebar	Opens the Control menu for an application window.
Alt+Hyphen	Opens the Control menu for a document window.
Alt+F4	Closes a window.
Alt+Esc	Switches to the next application window or minimized icon, including full-screen programs.
Alt+Tab	Switches to the next application window, restoring applications that are running as icons.
Alt+Enter	Switches a non-Windows application between running in a window and running full screen.
Arrow key	Moves a window when you have chosen Move from the Control menu. Or, changes the size of a window when you have chosen Size from the Control menu.

AUTO LOGIN

The AUTO Login command searches your Win95 Registry configuration. After it reviews all your settings, Modem Doctor uses this information and verifies that hardware is installed and configured properly. There are three main sections displayed; Serial Port and Driver settings, Registry Info, and Recommendations.

The Serial Port and Driver settings are taken from your Registry file. If Modem Doctor finds a valid port, it places a checkmark in the VF column and displays the ports usage in the Status Column. Status messages include Mouse Port, Modem/Serial Device, Installed/Free, and n/f (not found). This information is determined by the type of hardware driver in use by Windows 95.   Other messages can be returned as well. These include; In Use, Serial I/O, IRQ in Use, ,Write Error, and Error.

Two other important items are also listed in this section. The first is the Uart type. The second is the Win95 Driver in use. The Uart in use determines the driver that Win95 installs. For more info, see the Comm Driver section.

The Registry Info Section gives you basic background information on your Win95 settings   including; Registry Serial Ports, where the reigstry installed modems, and where the mouse in installed. If you see TWO entries for your serial ports, it means that Win95 has installed your device as both a PNP and as a Legacy. Although this can be confusing, it does not usually affect how Windows 95 works with your hardware.

Finally, the Recommendations section shows you the active ports, the ports free to use, and if you have room to install more ports.
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Comm Driver Section

Depending on the type of Uart installed, Win95 picks an appropriate comm driver. Currently there are three drivers that are used;

*PNP0500   The standard 16450 (8250A) Uart Driver
*PNP0501   The FIFO driver for 16550A, 16650A Uarts
*PNP0F0C   Standard Mouse Driver
*PNP0510   A Generic IRDA compatible (Infra Red) device.

PNP is supposed to connote a "plug and play" device. However, this is not always the case. Modem Doctor further determines from the Registry if this is truly a "Plug and Play" installation or a manual "Legacy" device installed from the Control Panel "Add New Hardware" applet. Modem Doctor places a checkmark in the appropriate column.

Registry Information Display

The Registry Window displays important information about your modem and serial port installation. Depending on the system, a lot of information can be displayed. Use the vertical scroll-bar to access any information that passed out of view. A typical Registry display should contain the following;

Reigstry Serial Ports - A summary of information retrieved from the registry. Note - if a port is displayed more than once, it means there are two or more entries in the registry for a port. In some cases, this can be normal (i.e., multiple modems on a common port). However, if you also see IRQ in Use messages or other errors, then these multiple entries could be the source of your problem. You can easily change these settings using Modem Doctor's Manual Login section.

Modem is Installed on-   A summary of information from the registry on where modems are installed. NOTE - This information is not verified at this time, however in the initial diagnostics, Modem Doctor confirms this information.

Mouse is Installed on- A summary of information from the registry on where the Mouse is installed. In most cases, this will be the name of a Comm port. If a mouse is attached to a comm port, that port cannot be tested by Modem Doctor, for to do so would leave you "mouseless".

Afterwards, there is usually a message warning you of potential conflicts.

Meaning of Defined Messages in AutoFind

In Use   Windows 95 returned the IE_HARDWARE message, meaning the
                      Hardware is in use by another driver or program.

Serial I/O Error This particular Port was already opened and not closed properly
                      by a previous program

IRQ In Use   The IRQ line associated with this port is in use by some other
                      Windows driver or program. (Usually a mouse driver).

n/f (not found)   The Port Hardware does not exist (no physical port exists
                      at this address).

Write Error   The Port will not open

Error   Unknown Error

During normal testing, you will routinely see; n/f, Serial/Modem Device, and Installed/ Free messages.
The "IRQ in Use" message means you have the potential for a serial port conflict and should check your
port configuration settings. You should never see the Write Error, Serial I/O error or Error message. These
indicate some serious Win95 configuration or system problem.

Base Port

This is the hardware port address of a Comm port. This is defined by the ComxBase variable in the system.ini file. Usually, they equate to the following;

Com1 = 03F8 (hex)
Com2 = 02F8 (hex)
Com3 = 03E8 (hex)
Com4 = 02E8 (hex)

There are no standard values for Comm ports above Com5.

IRQ Settings

These are the Interrupt Request Line settings defined in your system.ini files by the variables ComxIRQ= . Usually they equate to the following;

Com1 uses IRQ4
Com2 uses IRQ3
Com3 uses IRQ4
Com4 uses IRQ3

Note that if you have a mouse on Com1, you cannot test or use a modem on Com3 because they cannot share an interrupt. Same with a mouse on Com2 and a modem on Com4. Win95 does support IRQ sharing. To view IRQ settings, use the Manual Login in Modem Doctor.

Manual Login

This feature of Modem Doctor allows you simple and yet powerful access to all the configuration information contained inside of   the Win95 Registry without the need of sorting through the Control Panel Applets. Modem Doctor makes this editing much easier by organizing all important controls in a simple user interface.

Manual Login   Use this feature to set your serial port default baud rates, bit rate, flow control. Press Advanced to setup the 16550A Buffers.

Config Modem   This allows you to set properties used for Win95 Communications.

Config Internet   Allows access to all Internet settings for quick configuration.

Config Dialup   Accesses Dialup and Network Adapters for quick configuration.

Accessing these settings from Modem Doctor is quick and easy, plus Modem Doctor then uses these settings immediately to check for proper operation and configuration.

Modem Doctor for Win95 Ordering Information -
To Print, press the PRINT button above

Modem Doctor for Win95 is distributed using the "Shareware" Concept. Shareware is not freeware. If you use any shareware for a period of time and find it useful, you should take the time to register the program. Registration helps guarantee that Shareware software will always be available. **TO PRINT AN ORDER FORM, JUST SELECT FILE, then PRINT TOPIC from the help menu above or press the PRINT BUTTON. The order form is contained directly below these paragraphs.** All product is shipped on 3.5", 1.44mb disks. Please allow 2-4 weeks for order processing.

Modem Doctor For Win95
Modem Doctor for Win95 registration is $24.95, and includes shipping in the US and Canada. International orders require payment in US funds (checks drawn on US banks or Postal Money orders directly redeemable in US Funds)and an additional $2 for shipping. We are honest folks, but please do not send cash! **FOR New Orders of** Modem Doctor for DOS **you can get both Modem Doctor for Win95 and Modem Doctor for DOS for a combined price of $40.00.** Also, there are discounts available for multiple disk orders of Modem Doctor for Win95.

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Modem Doctor for DOS is the perfect companion to Modem Doctor for Win95. Running in "Real Mode", Modem Doctor for DOS can control and accurately detect all of your installed system hardware. Modem Doctor for DOS also generates a handy hardware report that Modem Doctor for Win95 can use to pinpoint configuration errors. Modem Doctor for DOS registration is $19.95, and includes shipping in the US and Canada. International orders require payment in US funds (checks drawn on US banks or Postal Money orders directly redeemable in US Funds) and an additional $2 for shipping. We are honest folks, but please do not send cash! **FOR New Orders of** Modem Doctor for Wind95**, you can get both Modem Doctor for Win95 and Modem Doctor for DOS for a combined price of $40.00.** Also, there are discounts available for multiple disk orders for Modem Doctor for DOS 7.0;

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About the Author, Hank Volpe

Lots of people ask, "how does one become a Modem Doctor?". Well, the program is a natural evolution from my passion for computers. I'm an engineer by trade, and built my first computer from a kit in 1974 for the ridiculous price of $6000. It was an IMSAI 8080, and if you bit-switched it enough, you could actually get it to do something besides flash its' LED's.

I began playing with modems in the late 70's, and helped run a BBS for BIBMUG (Buffalo IBM-PC User's group) from 1984 until 1991.   During this time, it became very apparent to me that modem problems and setup questions were difficult for most users. I answered a lot of e-mail and phone calls back then, and sometimes I think I wrote Modem Doctor to get away from all of the questions. Actually, I rather enjoy the questions, and really wrote Modem Doctor to help people solve their modem setup and installation problems. Modem Doctor for DOS Ver 1.0 was released in 1988 and the rest, as they say, is history.

In 1991, I moved to Baltimore MD and setup the Modem Doctor BBS, dedicated to helping users with modem problems. Even though we live in an age of plug-and-play, there are still many things about modems that can drive folks crazy. Modem Doctor and the BBS are quite a labor of love. Although some folks have gotten very wealthy off of shareware, most do not. I do it for the fun of it, and use registrations to help develop new versions of my programs and offset the cost of running the BBS.

As I mentioned, Modem Doctor is a labor of love and I enjoy it. Additionally, I write newsletter articles that are free for non-profit groups to reprint. Topics are usually centered around modems and digital communications. You can find these on the BBS as well.

If you need to help with your modem problems, you can reach me on the Modem Doctor BBS or via the Internet. I also enjoy reading letters sent through the US mail as well. If   you have a suggestion or a comment for us, drop   us a line. You'll get a quicker response if you use the BBS or Internet e-mail, but I don't mind paper-based mail either.

Modem Doctor Bulletin Board Service

The Modem Doctor BBS is the best place to get quick answers to your modem/communication questions. The BBS operates 24 hours a day at **410-256-3631**, and at baud rates up to 28.8kbps. You will always find the latest versions of Modem Doctor for Win95, Modem Doctor for DOS, modem drivers for Modem Doctor and Comset available on the BBS.

Registrations help defray the costs, keeping this service free to all who call. Not only can you get your questions answered, but the BBS contains an extensive Shareware Communications Software Library.

You can also reach me via the Internet as well as via our voice mail service. However, the fastest response is via the BBS. Give us a call today!

Internet Support

The Modem Doctor Web site is located at http://www.modemdoctor.com.

In addition to Modem Doctor information, there are many newsletter articles on modems and serial port hardware (including links to great modem places). You can also contact me via e-mail on the web site. Reach me at;

modem.doctor@modemdoctor.com   or   hank.volpe@modemdoctor.com

You can also reach me on the Modem Doctor BBS. However, I'm also pretty quick to respond on the Internet as well. Make sure you leave your message with enough details so that I can give you the proper advice.

Voice Mail System

Although I enjoy talking to users about their modem problems, probably the slowest way to reach me is via voice mail. We receive many calls from around the world, and its difficult to judge timezones, work schedules and the like. If you need to use voice mail, use it only because your modem is broken or because you need information that cannot be delivered in any other method.

Our voice mail system operates 24 hours a day at **410-256-5767**. When you call, you will be instructed to press one of 4 choices;

Choice 2 - Press this choice for Modem Doctor order information. You will hear a recording giving you price and shipping information. At the end of the message, you will hear a tone. If you wish, you can leave a message regarding your order at this time.

Choice 3 - Press this choice for Modem Doctor Technical Support. You will hear a recording instructing you to leave information regarding your problem and your system.

Choice 1 and 4 are reserved for personal messages. Please do not place Modem Doctor information in these mailboxes.

Please allow at least 4 days for voice messages to be returned. For quicker response, contact me on the Modem Doctor BBS at **410-256-3631** or via Internet e-mail.

Contacting me by U.S. Mail

I enjoy hearing from users and also those who need help. The U.S. Mailing address you can reach me at is;

Hank Volpe
Modem Doctor
PO Box 43214
Baltimore, MD 21236

You can also reach me on the Internet and via my BBS as well. In most cases, these other methods are faster, since they are electronic.

Acknowledgments

Modem Doctor for Win95, like Modem Doctor for DOS, has been an ongoing process. I've spent hundreds, or perhaps thousands of hours since 1988 writing both programs. Of course, a good author also knows how to find "guinea pigs", folks who will help test their program even though it may crash and burn their system. I want to take the time to thank all of you who have helped me write this program, and hope I can count on your help in future versions. I also want to thank some of my best friends in Buffalo NY who have given freely of their time to debug, test, and upload Modem Doctor around the world.

I'd love to name names for everyone, but I'm afraid I'd leave someone out or forget someone's kindness (which as well all know causes more trouble than anything). In any case, thanks again to all of you for your help.

Finally, my family has a big role to play as well. Don't forget, as a shareware author, I have to hold down a "real job" too. Programming is done around family time, and I'm not usually in a great mood after programming for hours. Thanks to my wife Cher, and the kids Jenn and Jeff for their patience and understanding.

Hank

Disclaimer Notice

Disclaimer
It is not the intent of the author to recommend any brand of modem over another nor to infringe on the copyrights of the manufacturers by mentioning their   products. A modem fits a need, and whatever one works for you is the   one you should have. As time goes   on, more modems will be added to the list of "special enhanced " tests. The modems mentioned are done so only because of the popularity they enjoy and for   no other reason.

All programming   of modems   for   testing is done with   simple character strings, similar to any   type of data that   can be sent to a modem or a serial port. MODEM DOCTOR DOES NOT WRITE ANY PERMANENT CHANGES TO YOUR MODEM. Any modem, whether AT compatible or not, can be handled by   the   Modem   Doctor   with special   software   drivers.   These software   drivers will   be distributed   free   of charge   as needed   for general use.   Custom   drivers   created by   Hank   Volpe for   particular clients however will require a fee for handling and programming time.

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There are two versions of Modem Doctor for Win95, a Shareware version and a Registered version. You can find out which version you are using by;

1) When the program starts, the welcome window displays the words "Shareware" or "Registered"

2) The bottom status bar displays the words "Shareware" or "Registered" during most of the program's operating time.

3) You can select the HELP and ABOUT sections from the main menu. A window is displayed with the words "Shareware" or Registered Displayed

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