

ModemTest by PassMark Software - Overview



ModemTest is an easy to use Windows based application that allows users to test their dial up modem. Two different test methods are provided. The first test method uses two telephone lines and two modems in a master / slave configuration. The master dials the phone number of the slave modem and after a successful connection, data packets are exchanged between the master and slave. The second test method requires only a single modem and no telephone line. A local loop back is done on the analog side of the modem, ModemTest then sends data packets which are echoed back by the modem.

In both cases ModemTest communicates to the modem using a COM port. (In the case of Internal modems or USB modems, this is a virtual COM port and not a physical plug on the machine). Before sending any data ModemTest first checks the settings on the serial port and then on the modem itself. Any data received is verified to be sure that it is complete and without errors.

A log of the activity is kept in the right hand section of the window. Different types of activity is highlighted in different colors. Any errors are displayed in red. This log can be saved to disk if required.

For more information click on one of the following topics.

[How to start testing using method 1 \(Master / Slave\)](#)

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To start testing using method 1 (Master / Slave)



Steps to start testing

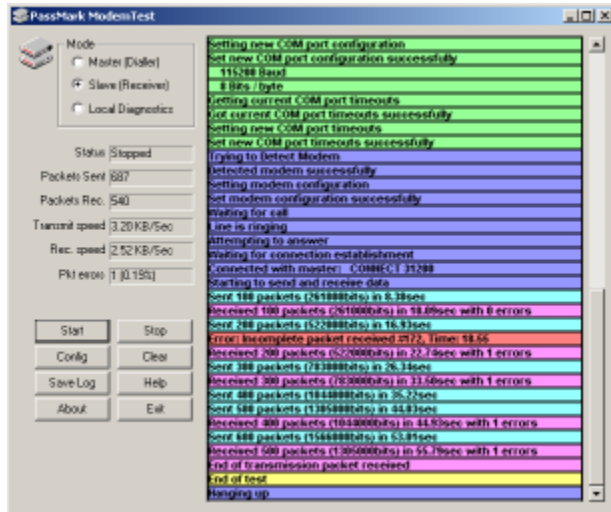
1. You'll need two modems, two telephone lines and preferably two PC's. Make sure the modems are turned on and connected to their telephone lines and their respective PC's.
2. Start ModemTest on both PC's. Select the mode "Master (Dialer)" on one and "Slave (Receiver)" on the other.
3. On both PC's, click on the "Config" button and check the correct COM port is selected. On the Master PC you also need to check that the correct phone number has been entered (this should be the phone number of the line that the slave modem is connected to).
4. Select the test time (in minutes).
5. Click on the Start button on the slave. (the test must be started on the slave before the master)
6. Click on the Start button on the master.
7. If everything is setup correctly the master should dial the slave. The slave should automatically answer the call and then test data should be exchanged.

To start testing using method 2 (Diagnostic loopback)

Steps to start testing

1. Only a single computer and modem is required. Note that not all modems will support this loop back feature. Make sure the modem is turned on and connected to the PC's.
2. Start ModemTest on the PC. Select the mode "Local diagnostics".
3. Click on the "Config" button and check the correct COM port is selected.
4. Click on the Start button.
5. If everything is setup correctly ModemTest will configure the serial port and modem, retrieve the modem's identity and then start sending out data packets. In this test mode only ten packets (about 3KB) will be sent out.

ModemTest Display



Mode: The mode determines which of the two available test methods will be used. The first test method uses two telephone lines and two modems in a master / slave configuration. The master dials the phone number of the slave modem and after a successful connection data packets are exchanged between the master and slave. The second test method requires only a single modem and no telephone line. A local loop back is done on the analog side of the modem, ModemTest then sends data packets which are echoed back by the modem.

Status: Indicates which test phase is currently being executed by ModemTest.

Packets sent: The number of packets transmitted. Each packet is 290 bytes in length and contains a time stamp, a packet sequence number, a 250byte random data payload and a 40bit checksum.

Packets rec.: The number of packets received.

Transmit speed: The transmission speed in Kilobytes per second. As the transmission standard used is 8 bits per bytes with no parity and 1 stop bit, you need to multiply this Kilobytes per second figure by 9216 to get the raw number of bits transmitted per second. Eg. 3.20KB/Sec = 29491 bits / sec

Rec. Speed: The reception speed in Kilobytes per second.

Pkt Errors: The number of packets that arrived with an error. An error could mean that the complete packet did not arrive, there was a timeout waiting for a packet or that the checksum failed (i.e. the packet is corrupt). The percentage of packets in error is also displayed.

The activity log

In the right hand section of the window, there is an activity log with records the transactions that have taken place with the local or remote modem and any errors that have occurred. See the [activity log](#) section for more details.

Activity Log

```
Waiting for call
Line is ringing
Attempting to answer
Waiting for connection establishment
Connected with master: CONNECT 31200
Starting to send and receive data
Sent 100 packets (261000bits) in 8.38sec
Received 100 packets (261000bits) in 10.09sec with 0 errors
Sent 200 packets (522000bits) in 16.93sec
Error: Incomplete packet received #172, Time: 18.55
Received 200 packets (522000bits) in 22.74sec with 1 errors
Sent 300 packets (783000bits) in 26.34sec
Received 300 packets (783000bits) in 33.50sec with 1 errors
Sent 400 packets (1044000bits) in 35.22sec
```

The last 3000 transactions are logged in memory by ModemTest. If there are more than 3000 lines recorded in the log the oldest entry will be discarded. This log is displayed in the right hand portion of the ModemTest window. The log can also be saved to disk in text format using the “Save log” button.

The activity log records the following information.

COM Port Init: Transactions to configure the COM port on the PC. These transactions are highlighted with a green background.

Modem Port Init: Transactions to configure the modem connected to the COM port. One particular line of interest is the one that contains the CONNECT statement. This shows the speed that the modems have negotiated. These transactions are highlighted with a blue background.

Sent data: A record is kept of data that was transmitted. Each time 100 packets have been transmitted a new entry is made in the log. The entry includes the time in seconds since data transmission started, the number of packets transmitted and the number of bits transmitted. These transactions are highlighted with a light blue background.

Received data: A record is kept of data that was received. Each time 100 packets have been transmitted a new entry is made in the log. The entry includes the time in seconds since data transmission started, the number of packets transmitted, the number of bits transmitted and the current error count. These transactions are highlighted with a pink background.

Errors: Any errors that occurred are logged. In the case of an error in a data packet the packet number is included. These transactions are highlighted with a red background.

Configuration window

There are several settings that can be changed from the configuration window.

COM Port

A list of the 1st dozen COM ports are displayed. Those that are marked as 'In Use' are already being used by another device (e.g. your mouse). Those COM ports that are marked as 'unavailable' could not be detected as being installed in your computer. Those that are marked as 'available' have the potential to have a modem attached.

Port speed

A modem has two interfaces. One for your computer and one for the telephone network. The port speed is the speed at which your modem and PC communicate. All new computers and modems should work at 115,200bps.

Test duration

This affects how long the Master / Slave test will take to complete.

Connection timeout

This is the amount of time the software will wait to get a connection after dialing the remote number. 30 sec is usually a good amount of time.

Phone number

This is the phone number that is used by the slave machine. For most modems the following additional codes can be used.

The letter T can be included to force the modem to tone dial (rather than the old style pulse dialing). Most modems default to tone dialing in any case., e.g. T543123456

The letter W can be included to wait for a second dial tone. e.g. 0W543123456

A comma ',' can be used to include a pause in tone dialing. e.g. 1,,54,3123456

Space characters, hyphens and parentheses are ignored by most modems.

Modem Init string

This field allows the user to enter their own modem initialization string. This is sent to the modem before the start of the tests. Typical examples would be.

ATV1 = Force the modem to return word results instead of numeric response codes. (ModemTest expects word results, which are the default on most modems).

ATL0 = Sets the modem speaker to a low level

ATL3 = Sets the modem speaker to a high level

Repeat test cycles indefinitely (Delay and clearing results)

See the section on [Cyclic testing](#) for details

Transmission timeouts

This setting affects how long ModemTest will wait for data to be transmitted or arrive. Longer times should be used with slower connection speeds because data will be slower to arrive or depart.

Cyclic testing

By changing the options on the configuration screen, ModemTest can be configured so that the tests repeat themselves in a cyclic manner. This can be a useful option for stress testing modem or telephone exchange equipment. There are three options that can be set.

Repeat test cycle indefinitely

Setting this option will result in the selected test being repeated in a never ending cycle. The cycle can be stopped by pressing the stop button while between two tests.

Delay between cycle

The amount of time in seconds between test cycles.

Clear results between cycles

Setting this check box will prevent the statistics and log file from being cleared at the start of each test cycle.

Contacting PassMark Software

On the Web

You can contact PassMark on the web at

<http://www.passmark.com>

E-Mail

For technical support questions, suggestions

support@passmark.com

For sales & commercial issues

sales@passmark.com

For any other issues

info@passmark.com

FAQ

You may also want to check out the list of [Frequently Asked Questions](#).

Purchasing information

Price

US Dollars: \$15 (Single user)

{button Purchase Online,EF('http://www.passmark.com/sales','',1)} from the [PassMark Software web site](http://www.passmark.com/sales)

See the PassMark website <http://www.passmark.com/sales> for details of multiuser pricing and site licenses

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After the order is accepted by our sales agent, a license Key will be returned (via E-Mail, Fax or normal mail). This Key is then entered with the User Name into the initial, 'Welcome' window. At this point the program then changes permanently into the licensed version. Keys are normally returned within 12 hours or less.

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- The removal of the initial shareware startup window
- The removal of the 30day evaluation period associated with the shareware version.

How to order

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You can also order over the phone, via a PurchaseOrder or Fax, see our web page for details

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Other information

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Multi-user & Site Licenses

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User Names and License Keys

Both the User Name and License Key must be correctly entered before the software turns itself into the licensed version. Be careful because the Key is case sensitive (upper case characters must be entered in upper case and lower case characters must be entered in lower case). The User Name and Key should be kept in a safe place in case the software ever needs to be reinstalled. Step by step instructions are available online, if required,

<http://www.passmark.com/support/keyhelp.htm>

Questions & more information

If you have any questions we would be happy to hear about them. Contact

sales@passmark.com

System Requirements

80486 50Mhz or faster.

Windows 95, Windows 98, WinMe, WindowsNT, Window 2000, XP

(Windows95 and NT4 require Internet Explorer 4 or above to be installed)

32Meg RAM

1 Meg of free hard disk space to install the software

A compatible dial up modem. (56K or slower)

The modem must support the traditional Hayes AT command set. The modem must also support the analog loopback function if the stand-alone test feature is used. (Almost all modems support the AT command set. Most newer modems also support the loopback feature)

ISDN, ADSL and cable modems are not supported.

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info@passmark.com

Problems and Frequently Asked Questions (FAQ)

Note: See the PassMark website (www.passmark.com) for the latest version of the FAQ

Q. How do I know which serial port (COM port) to select in the configuration window.

In the configuration window a list of COM ports is displayed. Those that are marked as In Use are already being used by another device (e.g. your mouse). Those COM ports that are marked as unavailable could not be detected as being installed in your computer. Those that are marked as available have the potential to have a modem attached. So if you are not sure which one to select try each Available port in turn. External modems tend to use serial ports 1 or 2. Internal or USB modems tend to use ports 3 or 4. There is no fixed rule however.

Q. What Port speed should I use.



A modem has two interfaces. One for your computer and one for the telephone network. The port speed is the speed at which your modem and PC communicate. The connection speed, also known as line speed, is the speed at which the modem connects to another modem across the telephone network. Both speeds are measured in bits per second (bps). Most serial ports can reach at least speeds of 115,200bps. This is much faster than the connection to the telephone network, which is typically 33,000bps or 56,000bps. If the modem is using compression then the effective bit rate can be higher than this. To avoid problems of slow transmission you should always select a port speed that is higher than the connection speed. Most PCs don't support port speeds of 128,000 or above, so 115,200 bps is usually a good choice. If you try and select a speed which is not available you will get an error like, "Unable to configure the serial port, The parameter is incorrect"

Q. I get the error, "Unable to detect modem on this COM port" What's wrong.

Check the following.

1. The modem is turned on
2. The modem is connected to the computer
3. The correct serial (COM) port is selected. (see above)
4. The modem is not already in use by another application (e.g. your internet connection, fax software)

Q. I have a problem getting a connection, maintaining a connection or the connection is slow.

Check the following.

1. Call waiting is turned off. Call waiting tones can interfere with modem communications.
2. Try to disconnect all other telephone devices (telephone handsets, answering machines, faxes, cordless phones, etc..) connected to the same phone line as the modem.
3. Temporarily remove extra devices such as surge suppressors, splitters, phone line extenders, etc... Plug the modem directly into the wall.
4. Check that the telephone cable is plugged into the LINE socket on the modem and not the PHONE socket. Note that not all modems will have both sockets in any case.
5. Check that no one else is using a phone that is connected to the same line as the modem.

6. Check that the correct slave phone number is entered for the computer configured as the Master.
7. Check that the slave has been started and is waiting to receive a call.
8. For modems that have firmware that can be reprogrammed, check with the modems manufacturer that you have the latest version.
9. Check that the modem you are trying to connect to supports the same standards. (There were until recently several different standards for 56Kbps modems, these were called, x2 and K56flex. These have now both been superceded by V.90)

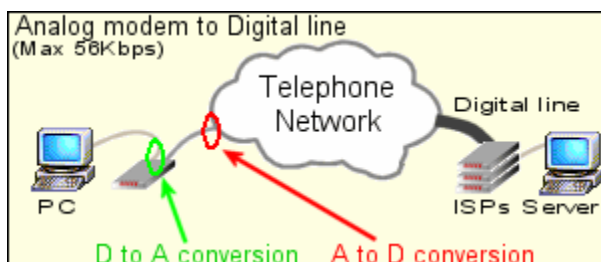
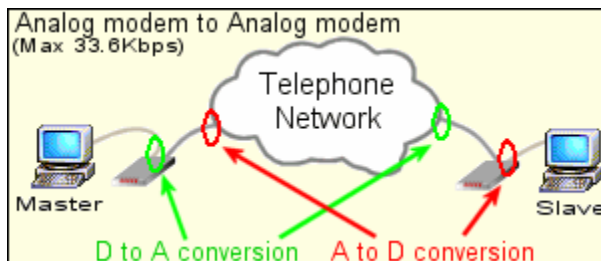
Q. My connection speed varies from one call to the next, why.

The connection speed of a modem is limited by the telephone network. The telephone network was designed to carry the human voice and because of this, there is fairly low limit on how much data can be pushed through the network. Modems that use the V.34 standard (28.8Kbps & 33.6Kbps) as well as the newer V.90 standard (56Kbps) are at the limits of what the telephone network can handle. In general it is only under ideal conditions on a high quality telephone network that the maximum transmission speeds can be obtained.

When the slave modem answers there is a brief period of negotiation to determine the maximum speed that can be supported. The same modem may perform quite differently when used from a different location or when it is used to call a different destination. Also, as this negotiation period is fairly brief the speed negotiated can vary significantly from one call to the next due to small differences in line quality.

Q. I have a 56Kbps modem but ModemTest never connects at this speed.

To use 56Kbps there must be only one analog to digital conversion between your modem and the destination. You have no control over this as it is dependant on your telephone company's infrastructure. In order to connect at 56Kbps the destination modem must be connected with a digital line, this might be a T1 line (E1 in Europe). Thus with ModemTest, which uses two analog modems, with two analog phone lines 56Kbps will never be possible. 33.6kbps will be the normal maximum. However if your 56Kbps modem successfully runs at 33.6Kbps with ModemTest, then higher speeds will be possible with ISPs who have a direct digital connection. This is shown in the diagrams below (for data transmitted from the left computer to the right computer).



There is however some other issues to be aware of. There were until recently several different standards for 56Kbps modems, these were called, x2 and K56flex, these have now both be superceded by V.90 and they don't all work together.

Also, even with a 56Kbps modem in perfect conditions the connection is asymmetric. You can only get 56Kbps in

one direction (downloads). For uploads you are limited to 33.6Kbps. By contrast, with lower connection speeds you get the same speed in both directions. Some PABX's (company switchboards) will also stop 56Kbps connections from being established.

Q. In local diagnostic mode, the transmit and receive speeds are lower than they should be.

In this local diagnostic mode a data packet is sent to the modem, then ModemTest pauses waiting for the modem to echo the packet back to the PC. Because of this pause in transmission the full data rate will never be achieved with the local test. This is not the case for the master / slave test method where multiple software threads are used to transmit and receive data as fast as the modem and PC will allow.

Q. Can ISDN, ADSL or Cable modems be tested with ModemTest.

No. Only dial up modems are supported. In most cases it is not possible to directly connect ADSL and Cable modems directly to each other. ISDN may be a possibility for future versions of the software.

Q. I am using Windows ME. When running local diagnostics, I get error like, " Missing data: 288 bytes expected. 116 bytes received". or "ERROR, Packet is X% corrupt. Offset: X. Bytes Out: XXX, Bytes In: XXX", Why ?

We have seen this problem with a few different internal PCI modems (soft modems) from various different manufacturers. Investigation are still ongoing, but now point to this being a bug in the Microsoft Windows WDM driver when using the VCOMM interface in Windows ME. This problem should not affect your modem when connecting to your ISP however. The Microsoft driver seems to ignore time-out settings. This problem only affects Windows ME. Setting very long timeout period may help work around this problem.

Q. I am using Windows95 or NT4 and ModemTest doesn't run. I see an error about a missing file.

If you are running Windows95 or Windows NT4 you need to have Internet Explorer version 4 or above installed. There are some Windows operating system updates that are installed with Internet explorer that are required for ModemTest. This is not required in later version of Windows.

Q. In Master / Slave mode the master hangs up before a connection can be established with the slave.

It might be because the Master timed out waiting for a connection. Try increasing the timeout value in the configuration window.

Q. I get an error like, "Unable to detect modem on this COM port: No additional info", "Invalid modem response: 0"

The modem may be returning numeric response codes instead of word result codes. Use 'ATV1' in the modem init string for force word results.

What new - Version history

V1.2.1004, 12/Aug/2002

Minor Bug fix

- Allowed transmission timeouts to be adjusted by the user. Longer timeouts correct problems with modems that use low baud rates for the loopback test.
- Added an extra step in the Modem initialization process to restore factory settings. (Master / Slave mode)

V1.2.1000, 10/June/2002

Major Bug fix

- Correction of a serious bug that caused random packet errors with some modems (particularly soft modems).
- Work around for Windows bug causing thread locking when checking receive buffer size

V1.1.1005 8/May/2002

Minor Enhancement

- Added field for user defined modem init string.

V1.1.1004 31/Mar/2002

Minor Enhancement

- Added options to allow cyclic testing to be performed.
- Added connection timeout field

V1.1.1002 12/Feb/2002

Minor bug fixes

- Bug fix to stop modems that return long diagnostic strings being flagged as an incorrect.
- Additional logging of program version and windows version.

V1.1.1000 31/Oct/2001

Minor release for Windows XP

- New release to better support the Windows XP user interface.
- Addition of date and time stamp to saved log file
- Extra log file information for a failed local loop back test.

V1.0.1001 15/Oct/2001

- Bug fix that corrects log control position for displays running at greater than the standard 96dots per inch.

V1.0 1/Oct/2001

First release.

- First full release

