

About Norton Diagnostics

Norton Diagnostics provides you with tools to test peripheral hardware, memory and other internal components of your computer.

Click a test in the list below to see a brief description:

{button ,JI(^>maintwo
o',`IDH_NDIAG_CD
ROM_DETAILS')}}
[CD-ROM](#)

{button ,JI(^>maintwo
,`IDH_NDIAG_PRIN
TER_DETAILS')}}
[Printer](#)

{button ,JI(^>maintwo
o',`IDH_NDIAG_KEY
BOARD_DETAILS')}}
[Keyboard](#)

{button ,JI(^>maintwo
,`IDH_NDIAG_SERI
AL_PORT_DETAILS'
')}}
[Serial Port](#)

{button ,JI(^>maintwo
o',`IDH_NDIAG_KEY
PAD_DETAILS')}}
[Keypad](#)

{button ,JI(^>maintwo
,`IDH_NDIAG_SOU
ND_DETAILS')}}
[Sound card](#)

{button ,JI(^>maintwo
o',`IDH_NDIAG_MO
DEM_DETAILS')}}
[Modem](#)

{button ,JI(^>maintwo
,`IDH_NDIAG_SYST
EM_DETAILS')}}
[System Board](#)

{button ,JI(^>maintwo
o',`IDH_NDIAG_ME
MORY_DETAILS')}}
[Memory](#)

{button ,JI(^>maintwo
,`IDH_NDIAG_SPE
AKER_DETAILS')}}
[PC Speaker](#)

{button ,JI(^>maintwo
o',`IDH_NDIAG_MO
USE_DETAILS')}}
[Mouse](#)

{button ,JI(^>maintwo
,`IDH_NDIAG_VIDE
O_DETAILS')}}
[Video](#)

{button ,JI(^>maintwo
o',`IDH_NDIAG_PC
MCIA_DETAILS')}}
[PCMCIA](#)

To test your system, click here  to start Norton Diagnostics.

To test your entire system, select Do All and click Test.

{button ,AL("intro:intro1",0,','')} [More Info](#)... Click here for more information.


Running tests with Norton Diagnostics

The Norton Diagnostics window has two parts. The left side contains a list of all the Norton Diagnostics tests. The right side is panel where the tests are run. To run a test, select its name on the left side and follow the directions on the right side.

`{button ,AL("intro1;test",0,'')} More Info... Click here for more information.`


To run all tests

You can run all Norton Diagnostics tests at once.

- 1 Click here  to open Norton Diagnostics.
 - 2 Click Do All at the top of the list on the left side of the Norton Diagnostics main window.
 - 3 Click Test on the right bottom of the Norton Diagnostics main window.
- All tests will be run. A list of tests and results will be shown in the right side of the main window. Click the plus sign (+) next to any entry to expand it.

[{button ,AL\("intro1;test",0,''\)} More Info...](#) Click here for more information.


To test your sound card

- 1 Click here  to open Norton Diagnostics.
- 2 Select Sound Card on the left side of the Norton Diagnostics window.
- 3 Click Test at the bottom of the right side of the Norton Diagnostics window.

The individual tests appear in the list window as they are performed. The success or failure of the test appears after each of the tests run.

[More Info...](#) Click here for more information.


To test your PC speaker

- 1 Click here  to open Norton Diagnostics.
- 2 Select PC Speaker on the left side of the Norton Diagnostics window.
- 3 Click each button on the right side of the Norton Diagnostic window to test each audio characteristic of your speaker.

The result of each test appears in the list box.


[{button ,AL\("intro1;speakers",0,','\)} More Info...](#) Click here for more information.

To test your serial port

- 1 Click here  to open Norton Diagnostics.
 - 2 Select Serial Port on the left side of the Norton Diagnostics window.
 - 3 Select a port from the list.
 - 4 Click Test at the bottom of the right side of the Norton Diagnostics window.
- The test results appear in the list box.


[{button ,AL\("intro1;serial port",0,';'\)} More Info...](#) Click here for more information.

To test your system board

- 1 Click here  to open Norton Diagnostics.
 - 2 Select System Board on the left side of the Norton Diagnostics window.
 - 3 Select a system board component on the graphic.
 - 4 Click Test at the bottom of the right side of the Norton Diagnostics window.
- The test results appear in the list box. Repeat steps 2 and 3 for each system board component.

[More Info...](#) Click here for more information.


To test your printer

- 1 Click here  to open Norton Diagnostics.
- 2 Select Printer on the left side of the Norton Diagnostics window.
- 3 Select a printer from the list.
- 4 Click Test at the bottom of the right side of the Norton Diagnostics window.

A test page prints and the test results appear in the list box.

`{button ,AL("printer;intro1;To view printer information ",0,',')} More Info... Click here for more information.`


To test your PCMCIA interface

- 1 Click here  to open Norton Diagnostics.
- 2 Select PCMCIA on the left side of the Norton Diagnostics window.
- 3 Select a PCMCIA controller from the list.
- 4 Click Test at the bottom of the right side of the Norton Diagnostics window.

The test results appear in the list box.


`{button ,AL("intro1;pcmcia",0,',';')}` [More Info...](#) Click here for more information.

To test your keyboard

- 1 Click here  to open Norton Diagnostics.
- 2 Select Keyboard on the left side of the Norton Diagnostics window.
- 3 Click the keyboard image on the right side of the Norton Diagnostics window.
- 4 Press any key on your keyboard. The corresponding key on the keyboard display is grayed and a message appears in the text box identifying the key you pressed.
- 5 Complete the keyboard test by pressing each key on your keyboard.


`{button ,AL("intro1;keyboard",0,'')} More Info... Click here for more information.`

To test your keypad

- 1 Click here  to open Norton Diagnostics.
- 2 Select Keypad on the left side of the Norton Diagnostics window.
- 3 Click the keypad image on the right side of the Norton Diagnostics window.
- 4 Press any key on your keypad. The corresponding key on the keypad display is grayed and a message appears in the text box identifying the key you pressed.
- 5 Complete the keypad test by pressing each key on your keypad.

`{button ,AL("intro1;keyboard",0,';')}` [More Info...](#) Click here for more information.

To test your mouse


- 1 Click here  to open Norton Diagnostics.
- 2 Select Mouse on the left side of the Norton Diagnostics window.
- 3 Follow the instructions for clicking each mouse button.

The test results appear in the list box.

[{button ,AL\("intro1;mouse",0,''\)} More Info...](#)

Click here for more information.

To test your modem


- 1 Click here  to open Norton Diagnostics.
- 2 Close any other programs that may be using the modem. You must close all programs, such as Dial-Up Networking, WinFax Pro and pcANYWHERE, which automatically answer the phone when it rings.
- 3 Select Modem on the left side of the Norton Diagnostics window.
- 4 Select a modem from the list.
- 5 Click Test at the bottom of the right side of the Norton Diagnostics window.

The test results appear in the list box.

Note: You must have a modem connected or the modem test will report a failure.


`{button ,AL("intro1;modem",0,'')} More Info... Click here for more information.`

To test your memory

- 1 Click here  to open Norton Diagnostics.
 - 2 Select Memory on the left side of the Norton Diagnostics window.
 - 3 Click Test at the bottom of the right side of the Norton Diagnostics window.
- The test results appear in the list box.

[More Info...](#) Click here for more information.


To test your CD-ROM drive

- 1 Click here  to open Norton Diagnostics.
- 2 Select CDROM on the left side of the Norton Diagnostics window.
- 3 Select a CD-ROM drive from the list. The drive must have a CD loaded for the test to run.
- 4 Click Test at the bottom of the right side of the Norton Diagnostics window.

The test results appear in the list box.

[{button ,AL\("intro1;cdrom;About CD-ROM drives",0,";"\)} More Info...](#) Click here for more information.

To test your video controller

- 1 Click here  to open Norton Diagnostics.
- 2 Select Video on the left side of the Norton Diagnostics window.
- 3 Select each test button on the right side of the Norton Diagnostics window. Follow the instructions given for adjusting the video controls on your monitor. These tests are:
 - Grid
 - Palette
 - Bitmap
 - Pixel

The test results appear in the list box.

`{button ,AL("intro1;video",0,',')}` [More Info...](#)

Click here for more information.

CDROM diagnostics

The CD-ROM diagnostic tool checks whether or not the CD-ROM drive is reading data from a CD correctly. The CD-ROM diagnostic performs the following tests:

- Checks that folders and files can be read from the CD.
- Copies a file from the CD to your hard drive, and then it compares it to the CD version.
- Reads a portion of the content of the CD sequentially to be sure the contents are readable.

[Troubleshooting tips](#)

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Keyboard diagnostics

The Keyboard diagnostic tool checks the functionality of each key on your keyboard. When the test starts it detects the type of keyboard. As you press each key the key name is displayed.

[Troubleshooting tips](#)

[More Info...](#) Click here for more information.

Keypad diagnostics

The Keypad diagnostic tool checks the functionality of each key on your numeric keypad (usually on the right side of the keyboard). As you press each key the key name is displayed.

[Troubleshooting tips](#)

[More Info...](#) Click here for more information.

Memory diagnostics

The Memory diagnostic tool validates your system's physical memory by performing 20 different pattern tests. The test copies the contents of a region of memory to a backup buffer, writes a pattern to the region, attempts to read the pattern back, and finally restores the original contents. This process is repeated through each region of memory.

The memory test uses the following patterns:

- All bits cleared
- All bits set
- Only a single bit set (rotating from bit 0 to bit 7 set)
- All but a single bit set (rotating from bit 0 to bit 7 clear)

[Troubleshooting tips](#)

[The memory components of your computer;About main memory;Why all these memory components?;To view memory information ",0,""\)](#) [More Info...](#) Click here for more information.

Modem diagnostics

The Modem diagnostic tool checks the communication between the system and your modem, as well as various features of your modem. It performs the following tests:

- Detects the modems on your system and reads the configuration information.
- Checks for dial tone on the phone line. This ensures that the modem can dial a phone number.
- Performs a local analog loopback test that includes a self-test of the modem.
- Blinks the DTR light so that you can see that you are testing the right modem. This only works on external modems.

Note: Close any other programs that may be using the modem before running this test. You must close all programs, such as Dial-Up Networking, WinFax Pro and pcANYWHERE, which automatically answer the phone when it rings.

Note: Modem diagnostics only checks analog modems. Digital devices, such as ISDN modems and cable modems are not supported.

[Troubleshooting tips](#)

[More Info...](#) Click here for more information.

Mouse diagnostics

The Mouse diagnostic tool checks your mouse buttons and the Windows mouse driver. It performs the following tests:

- Checks the left mouse button after moving the mouse pointer to a specified region.
- Checks the right mouse button after moving the mouse pointer to a specified region.

NOTE: Even if you have reversed your mouse buttons, press the right mouse button when asked to click the right mouse button; likewise for the left mouse button.

[{button ,JI\(^>maintwo',IDH_NDIAG_MOUSE_TROUBLESHOOTING'\)} Troubleshooting tips](#)

[{button ,AL\("mouse:intro1;About the Input tab;To view input information",0,''\)} More Info...](#) Click here for more information.

PCMCIA diagnostics

The PCMCIA (or PC Card) diagnostic tool verifies that your PCMCIA cards are working correctly. It enumerates all of the PCMCIA devices on a Windows 95/98 system and reports the following:

- The PCMCIA card status.
- Any problem indicated by the PCMCIA card.
- The Registry hardware key.
- The name of manufacturer.
- The type of PCMCIA card.
- The friendly name of the PCMCIA card.
- The device description.
- The name of the driver for the PCMCIA card.

[Troubleshooting tips](#)

[More Info...](#) Click here for more information.

Printer diagnostics

The Printer diagnostic tool verifies that your Windows printer driver is working correctly. This tool also performs tests to determine your printer's capabilities and sends a test page to your printer. It performs the following functions:

- Detects the printers on your system and reads the configuration information.
- Constructs a test document that includes a metafile, various graphic constructs and text.
- Prints the test document, which includes the configuration information for the selected printer.

NOTE: Norton Diagnostics communicates only to your printer driver, not the printer. If a printer error occurs, a Windows error message appears. Windows provides information on resolving printer problems.

[{button ,JI\(>maintwo',`IDH_NDIAG_PRINTER_TROUBLESHOOTING'\)} Troubleshooting tips](#)

[{button ,AL\("printer:intro1;To view printer information ",0,',''\)} More Info...](#) Click here for more information.

Serial Port diagnostics

The Serial Port diagnostic tool checks the capabilities of the serial ports. It displays the following information for each serial port it detects:

- Base port address in hexadecimal
- UART type

Then the Serial Port diagnostic tool performs the following tests:

- UART operational test
- CTS / RTS loopback test
- DSR / DTR loopback test
- RI / OUT1 loopback test
- DCD / OUT2 loopback test
- Loopback data test

Note: If Norton Diagnostics does not recognize the UART type it indicates the port has failed the test. In most cases, when the UART type is not recognized, there is nothing wrong with the port. It simply indicates that the test could not be completed.

Note: Many USB ports and infrared (IR) ports are recognized as serial ports by Norton Diagnostics, but may fail this test with the message "Unrecognized UART type". This does not mean that there is any problem with these ports. Many IR ports are continually busy and cannot be tested by Norton Diagnostics. This is normal.
















Note: The serial port test is not run when Norton Diagnostics recognizes a modem attached to a serial port. Use the modem test, which ensures that both the serial port and the modem are functioning correctly.


[Troubleshooting tips](#)

[More Info...](#) Click here for more information.

Sound Card diagnostics

The Sound diagnostic tool checks the capabilities of your sound card. Tones are emitted through your speakers, ranging from 8-bit monotone sounds at 11.025 kHz to 16-bit stereo at 44.1 kHz. The test emits the following tones:

-  8-bit monotone at 11,025 Hz
-  8-bit stereo tone at 11,025 Hz
-  16-bit monotone at 11,025 Hz
-  16-bit stereo tone at 11,025 Hz
-  8-bit monotone at 22,050 kHz
-  8-bit stereo tone at 22,050 kHz
-  16-bit monotone at 22,050 kHz
-  16-bit stereo tone at 22,050 kHz
-  8-bit monotone at 44,100 Hz
-  8-bit stereo tone at 44,100 Hz
-  16-bit monotone at 44,100 Hz
-  16-bit stereo tone at 44,100 Hz
-  16-bit tone at 44,100 Hz, left channel only
-  16-bit tone at 44,100 Hz, right channel only
-  16-bit tone at 44,100 Hz, both channels

 You can test the sound levels from each speaker by clicking the on-screen speaker that corresponds to the speaker you want to test. Click the two small speakers in the center to test both speakers at once.

[{button ,JI\('>maintwo', 'IDH_NDIAG_SOUND_CARD_TROUBLESHOOTING'\)} Troubleshooting tips](#)

[{button ,AL\("sound card:intro1",0,"'\)} More Info...](#) Click here for more information.

PC Speaker diagnostics

The PC Speaker diagnostic tool checks your system's internal speaker. The tests include:

- **Tone** plays a short sound sequence.
- **Scale** plays the standard musical scale.
- **Middle C** plays middle C at 261.6 Hz.
- **A-400** plays musical note A at 440 Hz.
- **1000 Hz** emits a tone at 1000 Hz.

[Troubleshooting tips](#)

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System Board diagnostics

The System diagnostic tool checks the critical features of your computer's main processor. The specific checks include:

- **Central Processing Unit (CPU)** identifies the CPU's manufacturer, model number, stepping level, and the Level 1 cache size. It then runs simple instruction tests.
- **Floating Point Unit** checks for the presence of a floating point unit (typically part of the CPU) and tests it to determine if it is functioning properly.
- **DMA Controller** identifies the version information for VDMAD, and runs memory-to-memory DMA tests. It indicates if DMA channels are in use or available.
- **Programmable Interrupt Controller (PIC)** identifies the PIC's version number, the number of IRQs available, and the current status of each IRQ. A flag is provided indicating if it is a master or slave configuration.
- **Real Time Clock** returns information about your timer drivers and runs system timing tests using various timer intervals.

If a failure is reported, contact your computer manufacturer or dealer for assistance.

[Troubleshooting tips](#)

[The memory components of your computer](#); [About CPU registers](#); [About internal memory cache](#); [About external memory cache](#); [Why all these memory components?](#); [More about caches](#); [About cache performance](#); [About caching schemes](#); [To get information about your system](#)",0,"") [More Info...](#) Click here for more information.

Video diagnostics

The Video diagnostic tool checks the features of your video card and your monitor. The specific checks include:

- **Grid Test** displays a grid of white horizontal and vertical lines on a black background. You can select a small, medium or large grid. This test is useful for calibrating your monitor's horizontal, vertical, and pincushion settings.
- **Palette Test** displays 16-color, 16 grayscale, 256 color, and 256 grayscale palettes, and is useful for adjusting the color controls on your monitor.
- **Bitmap Test** creates various sizes of device-dependent bitmaps in memory, transfers the contents of these bitmaps to other memory bitmaps using a variety of raster operations, and then compares the contents of the two bitmaps. This tests the BitBLT capability of the video driver software.
- **Pixel Test** exercises video RAM by writing to every pixel on the display and reading the data back, using a variety of bit patterns.

Note: The Bitmap Test does not support 16-color mode: you must be using 256 colors or more to use this test.

[Troubleshooting tips](#)

[More Info...](#)

Click here for more information.

CD-ROM troubleshooting tips

{button ,JI(^>maintwo',`IDH_NDIAG_CD_ROM_advanced')}} [Advanced tips](#)

● The CD might be dirty or scratched. Your CD-ROM drive uses laser light to read data from a disk. Scratches, smudges and fingerprints make it difficult for a laser to read information on the disk.

If your CD is dirty, use a mild ammonia-based glass cleaner and a lint-free (chamois) cloth to clean the disk. Apply the glass cleaner to the CD. Do not clean the CD in a circular motion. Instead, wipe in a straight line from the center of the disk toward the outer edge.

Try another CD in the drive. Also try the failing CD in another computer, since another drive might be able to read the disk, even in the scratched area.

To fix a scratch on a CD-ROM disk, use a CD repair kit. If the scratch is very big, you might not be able to repair it. Usually, the repair kits consist of a buffing agent that removes the scratch and some kind of compound to clean the CD after buffing.

If the CD is damaged and cannot be read, contact the manufacturer to order a new copy.

● If your CD-ROM drive is dirty or dusty, take it to a specialist for cleaning. You should not need to do this often, but if you suspect that the problems you are having with your CD-ROM drive are because the drive is dirty, have a professional look at it.

● Some CD-ROM drives do not recognize all CD formats. For example, some CD-ROM drives cannot read a Kodak Photo CD. Some newer CD-ROM drives might have trouble reading older CDs. Your drive must be compatible with the CD format to read the disk. Try the CD in another computer to see if the CD can be read.

● If you have an external CD-ROM drive, make sure it has power and is turned on.

● Sometimes the CD-ROM drive becomes confused and stops responding to the computer. To reset the CD-ROM drive, shutdown Windows and turn off the computer for a few seconds. If the CD-ROM drive was locked up, it should restart correctly.

{button ,JI(^>maintwo',`IDH_NDIAG_CD_ROM_advanced')}} [Advanced tips](#)

{button ,AL("intro1;cdrom;About CD-ROM drives",0,"")} [More Info...](#) Click here for more information.

CD-ROM advanced tips

- There might be a problem with the CD-ROM drive installation. A cable might be loose, disconnected, or connected improperly, or there might not be power to the drive. Have a technician look at the drive to determine if it was installed correctly.
- Recent hardware changes made to the system might have created a conflict with the CD-ROM drive. Remove or reconfigure the new hardware to see if this caused the problem.
- If the CD-ROM is a SCSI device, make sure that the ID number of the drive is unique. Two or more SCSI devices cannot use the same SCSI ID number. Also make sure that both ends of the SCSI bus are terminated. If you think this is the problem, have a technician look at the SCSI devices on your system.
- If the CD-ROM drive has an IDE interface, make sure that there are no other IDE devices causing conflicts with the CD-ROM drive. For example, some audio cards come with an IDE interface on them that might cause a conflict with other IDE interfaces in the system. Check the master/slave setting if the CD-ROM drive is sharing the same IDE channel with another device. If you think this is the problem, have a technician look into it for you.
- Try reinstalling the CD-ROM driver. Check with the manufacturer for the current driver first. If Windows automatically detects the drive, use the Add New Hardware Wizard in Control Panel. Follow the on-screen instructions to scan for new hardware. If Windows does not find the drive, follow the instructions that came with your CD-ROM drive to install the correct driver.
- Windows might have detected your CD-ROM drive incorrectly. Auto-detect might not recognize some older CD-ROM drives correctly. Then Windows might not install the correct driver software.

Run the Add New Hardware wizard from the Control Panel. Tell Windows NOT to search for hardware. Select the CD-ROM Controllers option. Now select the manufacturer and model of CD-ROM drive you have from the lists provided. If the model of CD-ROM drive you have is not listed, you will need to provide a driver disk from the manufacturer or download the correct driver from the manufacturer's web site. If this does not solve the problem, contact the manufacturer of the drive or your computer vendor for new driver disks or information on how to correctly install the drive on your computer.

- If you are having problems playing audio CDs, there might be a problem with the audio cable. Make sure the cable that transmits audio from the CD-ROM drive to the sound card in your computer is connected correctly. Refer to the documentation that came with your CD-ROM drive and your sound card for more information.
- Windows 95 constantly looks at the CD-ROM drive to make sure there is a disk in the drive. Some CD-ROM drives do not support this, which can cause the computer or the drive to stop working. To solve this problem, turn off the Insert Notification and Synchronous Data Transfer options in the CD-ROM Properties window.

- 1 Click the Start button, and then select > Settings > Control Panel.
- 2 In Windows Control Panel, open System.
- 3 Select the Device Manager tab.
- 4 Expand the CD-ROM branch.
- 5 Double-click the problem CD-ROM device.
- 6 Select the Settings tab.

Clear Auto Insert Notification and Sync Data Transfer. If you have a SCSI CD-ROM drive, you might want to turn off Synchronous Data Transfer on the SCSI card as well. Refer to your SCSI interface card documentation for more information.

- The CD-ROM read-ahead cache might be causing errors. When Windows reads a CD, it reads large chunks of data on the disk to smooth out video and audio playing. Some older CD-ROM drives might not be able to keep up with Windows requests for large chunks of data. This causes slowness and might cause your system to lock up. To fix this, choose the correct read ahead buffer for your CD-ROM drive or disable the read-ahead feature completely.

- 1 Click the Start button, and then select > Settings > Control Panel.
- 2 In Windows Control Panel, open System.
- 3 Select the Performance tab.
- 4 Click File System under Advanced Settings.
- 5 Select the CD-ROM tab.

In the Optimize Access Pattern For drop-down list box, click the setting that best matches your CD-ROM drive. Refer to your CD-ROM documentation or technical support for more information.

If the new setting does not make a difference, try using smaller and larger sizes, or use the No Read Ahead

setting.

`{button ,AL("intro1;cdrom;About CD-ROM drives",0,"")}` [More Info...](#) Click here for more information.

Keyboard and Keypad troubleshooting

[Advanced tips](#)

- Check that nothing is holding down a key.
- Verify that the keyboard is firmly plugged in to the keyboard port on the computer.
If the keyboard cable is not plugged into the computer, follow these steps to do so.
 - 1 Shut down Windows and turn off your computer using the power switch.
 - 2 Find the place on your computer where the keyboard should be plugged in. Usually, this is a round jack on the back of the computer, but it is sometimes located on the front or side. There may be a small keyboard icon next to the jack.
 - 3 The connector on the keyboard cable usually has a notch and a few pins. Examine the connector for bent or broken pins. Line up the notch and pins, and then plug the keyboard cable into the keyboard port. The keyboard cable will plug in only one way. Do not force the keyboard plug in, it should insert easily.

The mouse connector and the keyboard connector on many computers are identical except for the picture next to them. Ensure that you have the keyboard plugged into the proper connector.
 - 4 Restart the computer. Your keyboard should work properly now.
- Check for physically damaged keys or damage to the keyboard cable.
- If some keys do not work properly, or your computer displays unusual behavior, check that one of the special keys is not stuck.

The Caps Lock key and Shift keys being stuck will result in only either uppercase letters or symbols instead of numbers.

If the Alt or Ctrl key is stuck, characters you type do not appear. If one of these characters matches a menu shortcut, pressing that key displays the corresponding menu or option.

A function key, such as the F3 key, might make a program try to do something over and over again. You might also see a help window open unexpectedly, or you might get a steady stream of messages indicating that Help is already open.

Try to release the stuck keys. If this happens often, you might want to clean or replace your keyboard.

If your keyboard has special keys for accessing the Internet or playing music CDs and these keys do not work, you might need to reinstall the keyboard driver software.

- If your keyboard is wireless, ensure that the transmitter window on the keyboard and the receiver window on the computer are clean and unobstructed. Make certain the batteries for your keyboard are fresh. If this does not help, you might need to reinstall your keyboard driver software.
- You might have one or more Windows Accessibility Options turned on.
 - 1 Click the Start button, and then select > Settings > Control Panel.
 - 2 In Control Panel, open Accessibility Options.
 - 3 Select the Keyboard tab and clear all the options.
- If your keyboard has a switch to work with both PC XT and PC AT computers, verify that it is set to the proper position. In most cases that will be the PC AT position.
- If the same keys still don't work properly, you might have a defective keyboard.

[Advanced tips](#)

[More Info...](#) Click here for more information.

Keyboard and Keypad advanced tips

● If a particular key or a few keys, especially letter keys, do not work or work inconsistently, you might need to clean your keyboard. Hold the keyboard upside-down. Then use a can of compressed air to spray between the keys. Compressed air is available in most electronics stores.

If this does not solve the problem, turn off the computer and unplug the keyboard. Then carefully pry off the keys that do not work. Be especially careful with the larger keys as they often have additional stabilizers attached to them that can make reassembly difficult. Clean the switches with contact cleaner or distilled water. Let the keyboard dry completely before you use it.

If the key or keys still do not work the keyboard will need to be completely disassembled and the interior contacts cleaned. At this point you might simply want to replace the keyboard with a new one. Labor costs make it almost prohibitive to have someone clean it for you.

`{button ,AL("keyboard;intro1;To view input information",0,';')} More Info... Click here for more information.`

Memory troubleshooting

[Advanced tips](#)

- Restart your computer and repeat the test. If the Memory Test fails consistently and at the same or similar memory addresses, you might have defective memory modules. Have a technician test the memory for you.
- Memory parity errors usually prevent your computer from starting. A memory parity error means one or more of your memory modules are bad and need to be replaced.

[The memory components of your computer;About main memory;Why all these memory components?;To view memory information](#) [More Info...](#) Click here for more information.

Memory advanced tips

● Shut down Windows and turn off your computer. Open your computer case. Remove the memory modules. Clean the connections on the memory modules using a pencil eraser. Clean the sockets with compressed air. Put the memory modules back in the sockets being sure they snap in securely. Restart Windows and run the Memory Test again. If the Memory Test fails consistently and at the same or similar memory addresses, you probably have defective memory modules.

[The memory components of your computer;About main memory;Why all these memory components?;To view memory information ",0,";'\)](#) [More Info...](#) Click here for more information.

Modem troubleshooting tips

{button ,JI('>maintwo', 'IDH_NDIAG_MODEM_ADVANCED')} [Advanced tips](#)

- Make sure your (external) modem is plugged into a power outlet and the power is turned on.
- Make sure the phone cable is plugged into the modem and a wall jack.

There are usually two connections on the back of a modem: one labeled Line, for phone line in, and the other labeled Phone, for phone line out. Plug one end of a standard phone cord into the connector marked Line. Then plug the other end into the wall jack. The connection labeled Phone is for attaching a regular telephone. In this way you can connect both your modem and a telephone to a single wall jack.

- Check for dial tone at the wall jack.

Plug a regular telephone into the wall jack. If you do not hear a dial tone, there might be something wrong with the wall jack. Try another phone jack. If neither jack has a dial tone you might have a problem with your telephone service. Call the telephone company.

- Check for dial tone at the modem.

Plug a regular telephone into the connection labeled Phone on your modem and reconnect your modem to a working wall jack. If you do not hear a dial tone, there might be something wrong with the cable from the modem to the wall jack. Try another cable first to eliminate that possibility. These cables are available at most home electronic stores for a minimal price. If this does not solve the problem, you might have a defective modem, or your phone service cannot work with your type of modem. Contact your modem manufacturer for technical support on this issue.

- If you have an external modem, you need to connect it to a serial port on your computer. Locate an available serial port on the back of your computer, and plug the modem cable into this port. Plug the other end into the back of your modem.

If you do not have a cable to connect your modem to your computer, you will have to visit your local retailer to purchase one. Make sure you specify that you need a cable to connect your external modem to your computer.

- Make sure the serial port is enabled in the BIOS, using your computer's setup program.

- Check that Device Manager does not show problems with the port.

- 1 Click the Start button, and then select > Settings > Control Panel.
- 2 In Control Panel, open System.
- 3 Select the Device Manager tab.
- 4 Expand the Ports item and be sure there are no red warning icons.

- Replace or tighten all cables.

Make sure the thumbscrews on the ends of the modem cable are tightened down to hold the cable securely in place. Detach the cable and examine the plugs for bent or broken pins. Replace any damaged phone cables or wall jacks. Make sure the cables are not getting caught or pinched by anything, especially if any of the lines run under a desk or chair.

- Close other programs that might be using the modem.

If Norton Diagnostics displays the message "COM# device is busy" (where # is a serial port number), it indicates that another program is currently using the modem. Close any other programs that might be using the modem to complete the modem test.

Windows 95/98 allows multiple programs to share the modem. If a program is waiting for the modem to call it, another program can use the modem. Unfortunately, programs designed for Windows 95/98 and older Windows 3.x programs might not communicate correctly with each other.

Look through the open programs on the taskbar for other fax and communications software. Possibilities include MSN, HyperTerminal, Dial-up Networking connections, Microsoft Fax, or communications software like WinFax, pcAnywhere, or ProComm Plus. If any are present, close them. Then try to redial from the original program.

There are also some hidden Windows 95/98 programs that can prevent older programs from using the modem. If you have Microsoft Exchange installed, right-click Inbox on your desktop. If Inbox is not on your desktop, click Start. Select Exchange. Select Services from the Tools menu. Click the tab labeled Services. Select Microsoft Fax. Click Properties. Click the tab labeled Modem. Click Properties again. Set Answer Mode to Manual or Do not answer. Click OK. Close Exchange, and try dialing again.

If you have Microsoft Plus! installed, double-click My Computer on your Desktop. Double-click Dial-up Networking. Select Dial-Up Server from the Connections menu. This choice is only available if you've installed the Dial-up Server portion of Microsoft Plus!. If Allow caller access is enabled and the Status says Monitoring, click No caller access, then click Apply. Try dialing again.

- Reinstall the modem driver software.

Often a floppy disk or CD containing Windows drivers or a setup program will be included with the modem. Also, you can usually visit the manufacturer's website to obtain the latest drivers. Use the manufacturer's drivers or setup program whenever possible. Follow the manufacturer's instructions on using their setup program. Usually there will be a program called SETUP.EXE you can run.

To let Windows detect the modem and install the driver software, follow these steps:

- 1 Click the Start button, and then select > Settings > Control Panel.
- 2 In Control Panel, open Modems.
- 3 Click Add.
- 4 Click Next without checking Don't Detect My Modem; I Will Select It From A List.
- 5 Follow the on-screen instructions.

To install updated Windows driver software from a manufacturer's disk, follow these steps:

- 1 Click the Start button, and then select > Settings > Control Panel.
- 2 In Control Panel, open Modems.
- 3 Click Add.
- 4 Check Don't Detect My Modem; I Will Select It From A List, and then click Next.
- 5 Click Have Disk.
- 6 Follow the on-screen instructions.

[{button ,JI\('>maintwo', 'IDH_NDIAG_MODEM_ADVANCED'\)} Advanced tips](#)

[{button ,AL\("modem;intro1",0,','\)} More Info...](#) Click here for more information.

Modem advanced tips

- Run the Diagnostics for modems in the Control Panel.
 - 1 **Click the Start button, and then select** Settings > Control Panel.
 - 2 In Control Panel, open Modems.
 - 3 Select the Diagnostics tab.
 - 4 Choose a port and click Driver to get information on the current driver.
 - 5 Click More Info to see additional information on the port, interrupt and address settings.

- Check the connection preferences for your modem.
 - 1 **Click the Start button, and then select** Settings > Control Panel.
 - 2 In Control Panel, open Modems.
 - 3 Select the General tab.
 - 4 Select your modem, and then click Properties.
 - 5 Click More Info to see additional information on the port, interrupt and address settings.

Almost all modems adjust these settings automatically.

Data bits, Parity and Stop Bits are used by the modem in making connections. Use the drop-down list boxes for each to change the values to match those specified in the modem documentation.

- Check the Port Settings in the Modems Control Panel.

You probably will not need to change the Port Settings, unless you have a problem with your modem specific to these settings.

To check the properties of an existing modem, click the Start button. Select Settings > Control Panel. Then double-click Modems. Select your modem. Then click Properties.

Click the tab labeled General. The Port drop-down list box shows which communications (COM) port your modem uses. You should only change this port if the Modem Wizard assigned the modem to an incorrect port. If you change this setting, you might cause problems with your mouse, forcing you to fix the problem using only your keyboard.

To check additional settings, click the tab labeled Connection. Then click on the Port Settings button.

The box to use a FIFO buffer should be checked if you have a 16550 UART chip. If this box is checked and you are not sure, try removing the check from the box. If your modem frequently loses characters or connections, this might solve the problem.

Unless you experience problems with losing connections, do not change the Receive and Transmit Buffer settings. If you do have these problems, decrease their values.

- Try other error correction settings.
 - 1 **Click the Start button, and then select** Settings > Control Panel.
 - 2 In Control Panel, open Modems.
 - 3 Select the General tab.
 - 4 Select your modem, and then click Properties.
 - 5 Select the Connection tab, and then click Advanced.

Try connecting with Compress data both turned on and off. If neither seems to help, remove the check from Use error control.

- If you have a slow modem connection, you could have a noisy phone line. When modems first connect to each other, they go through a handshaking process. This process determines which compression schemes and error correction modes will be used. It also determines how fast the modems will be able to reliably communicate over the phone line.

When the phone lines are noisy, the transmission speed slows down because the modems have to correct the errors caused by the extra noise. Phone noise often increases when you call long-distance. Larger cities and rural areas with older phone systems can also be problematic. Try lowering the Maximum speed of the

modem. Try dialing at off-peak hours, or have your lines tested by the phone company if you think the problem might be within your house or office.

If line noise is not a problem, but certain modem numbers you dial are always slow, find out what kind of modem you are calling. It is possible the two modems cannot communicate very well. Your modem manufacturer might be aware of this situation and have a solution.

● If you have a slow modem connection, try increasing the Maximum Speed setting through the Modems Control Panel.

- 1 **Click the Start button, and then select** Settings > Control Panel.
- 2 In Control Panel, open Modems.
- 3 Select the General tab.
- 4 Select your modem, and then click Properties.

Check the Maximum Speed. This figure should be two to four times larger than the speed of your modem. For example, most 28,800 BPS modems should show 57,600 or 115,200 in this box. If you experience problems connecting at a given speed, try dropping this number by one or two settings.

● The modem could be confused by different dial tones or beeps from the phone.

If you use a voice-mail service that changes the dial tone when you have messages, listen to your voice mail to reset the dial tone to normal. Then use the modem.

If you use the modem over a cellular phone, press the button on the cellular phone to get a dial tone before you dial from Windows.

To configure Dial-up Networking connections not to wait for a dial tone before dialing, double-click My Computer. Double-click Dial-up Networking. Right-click the connection. Select Properties. Click Configure. Click the tab labeled Connection. Then remove the check mark from the box next to Wait for dial tone before dialing.

If you have the modem set to use a calling card, change the modem properties to not wait for a dial tone before dialing.

- 1 **Click the Start button, and then select** Settings > Control Panel.
- 2 In Control Panel, open Modems.
- 3 Select the General tab.
- 4 Select your modem, and then click Properties.
- 5 Select the Connection tab.
- 6 Uncheck Wait for dial tone before dialing.

● Try adjusting your Advanced Connection settings in the Modems Control Panel. You should not change the Advanced Connection settings unless you have problems with your modem.

- 1 **Click the Start button, and then select** Settings > Control Panel.
- 2 In Control Panel, open Modems.
- 3 Select the General tab.
- 4 Select your modem, and then click Properties.
- 5 Select the Connection tab, and then click Advanced.

If your modem supports Error Control, check Use Error Control. The Required to Connect setting forces a reliable connection. Compress Data compresses data as it is transmitted. Cellular Protocol is necessary if you use a cellular modem.

Flow Control controls the stream of data between an external modem and the computer. Select Hardware RTS (ready to send) and CTS (clear to send) unless your modem does not support it.

Do not change Modulation Type and Extra Settings unless you are specifically instructed to do so in either your modem manual or by a professional support person who is helping you with a modem connection problem.

● Try adjusting your error control settings

- 1 **Click the Start button, and then select** Settings > Control Panel.
- 2 In Control Panel, open Modems.
- 3 Select the General tab.
- 4 Select your modem, and then click Properties.
- 5 Select the Connection tab, and then click Advanced.

Try these combinations of error correction and compression:

- Use Error Correction on, Compress Data off
- Use Error Correction on, Compress Data on
- Use Error Correction off

Error correction is the process of ensuring that the information received on one computer is the same as the information that was sent by another computer. Error correction is usually a part of modem compression schemes (V.34, V.42, MNP and so on).

You should normally leave error correction enabled. However, if you have a nearly perfect connection and want to increase the transmission speed, you can disable it.

If you have difficulty connecting to a particular brand of modem on the other end, you might both be using different error correction methods. Disable the error correction and try connecting again.

The transfer protocols Xmodem, Ymodem and Zmodem each include an extra layer of error correction.

- Your Advanced Port Settings might be too aggressive.
 - 1 **Click the Start button, and then select** Settings > Control Panel.
 - 2 In Control Panel, open Modems.
 - 3 Select the General tab.
 - 4 Select your modem, and then click Properties.
 - 5 Select the Connection tab, and then click Port Settings.

If Use FIFO buffers is checked, move both sliders all the way to the left. Try connecting again.

If you can now connect, you can raise the FIFO settings up to the point where the connection no longer works.

- Troubleshooting conflicts with external modems.

Most hardware devices need their own address, port, and IRQ settings to communicate with the computer.

Troubleshooting device conflicts can be tricky, so if these steps do not help, contact a computer technician or the modem manufacturer's technical support for assistance.

There are three settings that must be correct for a computer to communicate with a Modem. Port settings are usually COM1, COM2, COM3, and COM4. IRQ settings range from 0 to 15, but are usually set to 3 or 4. There are several possible settings for I/O addresses.

External modems are connected to serial ports in the back of the computer. Serial ports usually use the following settings, but they can be modified.

- Serial port 1: COM1, IRQ4, I/O Address 03F8h
- Serial port 2: COM2, IRQ3, I/O Address 02F8h

Write down the settings in the Modems Control Panel.

- 1 **Click the Start button, and then select** Settings > Control Panel.
- 2 In Control Panel, open Modems.
- 3 Select the Diagnostics tab.
- 4 Select your modem, and then click More Info.
- 5 Select the Connection tab, and then click Advanced.

Write down the port, interrupt (IRQ) and Address (I/O address) for the modem. Also write down this information for any other ports listed on the Diagnostics page.

Now write down the other IRQ and I/O addresses reported by the system.

- 1 **Click the Start button, and then select** Settings > Control Panel.
- 2 In Control Panel, open System.
- 3 Select the Device Manager tab.
- 4 Select Computer, and then click Properties.
- 5 Choose Interrupt Request (IRQ).

Look in the Setting column for any IRQ number that is listed twice. If you find one, write down the IRQ number and names of the devices using it. Select Input/Output (I/O) and do the same thing. This should show you where the problem is.

If there is a conflict with a COM port and another piece of hardware, use a different COM port.

If none are available, either change the COM port's settings, or the conflicting device's settings. If you are still viewing the Computer Properties window, click OK to return to the Device Manager page. Double-click type of hardware you want to change. Double-click the specific COM port or other device. Click the tab labeled Resources. If Use Automatic Settings is checked, remove the check by clicking the box. Select each of the Basic Configurations in the Setting based on box until you find one that shows the text No conflicts, in the Conflicting device list. When you find one, write down the new settings. Click OK. Restart your computer and see if it works.

If the modem still won't work, make the working port settings in the Basic Configuration match those in your CMOS memory, or on your I/O card. Consult the documentation that came with your computer or call the modem manufacturer's technical support for help on doing this.

● Troubleshooting conflicts with internal modems.

Most hardware devices need their own address, port, and IRQ settings to communicate with the computer.

Troubleshooting device conflicts can be tricky, so if these steps do not help, contact a computer technician or the modem manufacturer's technical support for assistance.

There are three settings that must be correct for a computer to communicate with a Modem. Port settings are usually COM1, COM2, COM3, and COM4. IRQ settings range from 0 to 15, but are usually set to 3 or 4. There are several possible settings for I/O addresses.

Your computer probably has two built-in serial ports with the following settings:

- Serial port 1: COM1, IRQ4, I/O Address 03F8h
- Serial port 2: COM2, IRQ3, I/O Address 02F8h

If your internal modem uses COM1 or COM2 there will be a conflict unless you disable the corresponding built-in port. Consult the documentation that came with your computer or get help from a computer technician to do this. This usually involves changing your CMOS settings or switching jumpers on the I/O card.

If you don't know which port the modem uses, if it uses COM3 or COM4, or if the built-in port is already disabled, write down the settings in the Modems Control Panel.

- 1 **Click the Start button, and then select** Settings > Control Panel.
- 2 In Control Panel, open Modems.
- 3 Select the Diagnostics tab.
- 4 Select your modem, and then click More Info.

Write down the port, interrupt (IRQ) and Address (I/O address) for the modem. Also write down this information for any other ports listed on the Diagnostics page.

Now write down the other IRQ and I/O addresses reported by the system.

- 1 **Click the Start button, and then select** Settings > Control Panel.
- 2 In Control Panel, open System.
- 3 Select the Device Manager tab.
- 4 Select Computer, and then click Properties.
- 5 Choose Interrupt Request (IRQ).

Look in the Setting column for any IRQ number that is listed twice. If you find one, write down the IRQ number and names of the devices using it. Select Input/Output (I/O) and do the same thing. This should show you where the problem is.

If the modem says it is Plug n' Play-compatible, try changing the settings for either the modem, or the device it is conflicting with. If you are still viewing the Computer Properties window, click OK to return to the Device Manager page. Double-click type of hardware you want to change. Double-click the specific COM port or other device. Click the tab labeled Resources. If Use Automatic Settings is checked, remove the check by clicking the box. Select each of the Basic Configurations in the Setting based on box until you find one that shows No conflicts, in the Conflicting device list. When you find one, write down the new settings. Click OK. Restart your computer and see if it works.

If the modem still won't work, is it probably not Plug n' Play-compatible. Some jumpers or dip switches might need to be changed on the modem itself. Consult the documentation that came with the modem or call the modem manufacturer's technical support for help on doing this. Once you've changed the jumpers on the modem, you will need to change its settings in Windows 95 as well.

The easiest way to do this is to delete and then reinstall the modem.

- 1 **Click the Start button, and then select** Settings > Control Panel.
- 2 In Control Panel, open Modems.
- 3 Select the General tab.
- 4 Select the modem that does not work and click Remove.
- 5 Click Add
- 6 Follow the on-screen instructions.

Let Windows try to automatically detect the modem settings.

If Windows cannot detect it, or if Windows detects it as the wrong kind of modem, start the Install New Modem wizard again. This time take the option to select it from a list. Find the names of the manufacturer and model of your modem, or use Standard Modem Types if it is not listed.

● In Windows Device Manager, make sure that modem is not disabled.

- 1 **Click the Start button, and then select** Settings > Control Panel.
- 2 In Windows Control Panel, open System.
- 3 Select the Device Manager tab.
- 4 Expand the Ports item.
- 5 Check the properties of each port to be sure they are not disabled.

`{button ,AL("modem;intro1",0,',';')} More Info... Click here for more information.`

Mouse troubleshooting tips

[Advanced tips](#)

- Make sure your mouse is connected correctly to your computer.
 - Look for the mouse port on the back of your computer. The port is either rectangular with nine pins or is round. Some computers label this port as Mouse or show an icon of a mouse near it.
 - If your mouse connector is round, examine it for bent or broken pins. The mouse connector and the keyboard connector on many computers are identical except for the picture next to them. Be sure that you have the mouse plugged into the proper port.
 - The end of your mouse cord should match the size and shape of the mouse port on the computer. If it does not, you need to use an adapter to make it fit properly. Refer to your mouse manual for information about the proper adapter for your mouse.
- Clean the mouse ball and any mouse pad that you use. For an optical mouse, clean both the lens and grid. Then repeat the test. Refer to your mouse manual for cleaning instructions.
 - To clean your mouse or trackball, shut down your computer and unplug the mouse or trackball. Place a little rubbing alcohol or non-sudsing ammonia on a clean, lint-free cloth, cotton swab, or tissue. Be careful not to use facial tissues with lotions on them, because these might make the condition even worse.
 - Remove the ball from the mouse or trackball. Trackballs usually lift out. Unscrew the plastic plate underneath the mouse to remove its ball.
 - Use the cloth or tissue to clean the ball's surface and the tiny rollers inside the pointing device. Remove all of the gunk and gently test the rollers with your finger to see if they move freely. Replace the ball and plug your mouse or trackball back into the computer.
 - Clean your mouse pad and your desk surface to prevent dirt from getting into your mouse or trackball.
- Test whether or not the mouse is causing the problem by borrowing another mouse. If the borrowed mouse works on your computer, replace your mouse.

[Advanced tips](#)

[More Info...](#) Click here for more information.

Mouse advanced tips

- Remove the mouse driver and reinstall it.
 - 1 Click the Start button, and then select Settings > Control Panel.
 - 2 In Control Panel open System.
 - 3 Select the Device Manager tab.
 - 4 Expand the Mouse tree under Computer in the device tree.
 - 5 Select the mouse that does not work and press the Remove button.

When your computer restarts, Windows should detect the mouse and install the software to make it work correctly.

If Windows does not automatically detect your mouse, run the Add New Hardware wizard from the Control Panel. Choose your mouse from the list. Use the Standard Mouse Types unless the specific model you have is listed. A PS/2 Port Mouse has a small round connector with 6 pins on the end of its cord. A Serial Port Mouse usually has a rectangular 9-pin connector.

- If the mouse behaves erratically, verify that you have no IRQ conflicts with other hardware devices and communications ports and repeat the test.
- See if you have another connector on the back of your computer that your mouse fits in. Many mice have adapters to convert a PS/2 port, which is round with 6-pins, to a serial port, which is rectangular with 9 or 25 pins. Some adapters convert 9-pin serial ports to 25-pin serial ports.
- If the mouse test fails with a bus mouse, the mouse or the bus port might be defective.
- If the mouse test fails with a serial mouse:

Make sure the serial port is enabled in the BIOS, using your computer's setup program.

Detach the mouse and run the appropriate Serial Port test to verify that the serial port is working correctly. If the serial port is good, you might have a defective mouse.

If the serial port test fails, try attaching the mouse to another serial port and retest.

`{button ,AL("mouse:intro1;About the Input tab;To view input information",0,";")}` [More Info...](#) Click here for more information.

PCMCIA troubleshooting tips

- Make sure the PCMCIA card is firmly plugged in to your computer. Remove and reinsert it if it is still not working. Gently wipe off any dirt on the card connector. Try cleaning the slot with compressed air. Compressed air is available in most electronics stores.
- Move the PCMCIA card to a different slot. If it works in the new slot, then there might be a problem with the first slot. Try cleaning the slot with compressed air.
- If you can, try a different PCMCIA card in the slot. If it works, there might be a problem with your PCMCIA card and you might need to replace it.
- Make sure any cables plugged into the PCMCIA card are securely attached on both ends.
- If the PCMCIA slot is on a docking station, make sure the computer is correctly docked.

`{button ,AL("pcmcia;intro1",0,";")}` [More Info...](#) Click here for more information.

Printer troubleshooting tips

{button ,JI(>maintwo',IDH_NDIAG_PRINTER_ADVANCED')} [Advanced tips](#)

- Make sure the printer's power is on and the Online or Ready light is on.
- Make sure there is paper in the tray you are printing from.
- Turn the printer off and then back on to clear the printer's memory.
- Open the lid of the printer and check if there is paper jammed inside. You might need to remove the cartridge to look inside the printer.
- Make sure the printer is connected to the computer and the cables are seated securely at both the computer and the printer.
- Connecting the printer through a switch box can sometimes cause printing problems. To solve the problem, bypass the switchbox and connect the printer cable directly to your computer.
- If your printer cable is longer than six feet, you might get unexpected results when you print. Use a printer cable that is shorter than six feet for the best results.
- Many newer printers require the use of a bi-directional printer cable. If your printer requires a bi-directional cable and you do not use one, the last part of a page might not print.
- If the print quality is low, you might have the printer set to draft mode. Some printers have a button labeled Draft that toggles between high quality and draft mode. You can also set draft mode on the Properties page for some printers. To see if this setting has been enabled:

- 1 Click the Start button, and then select Settings > Printers.
- 2 In Printers, right-click the printer you want to check and select Properties.
- 3 Look in the Device Options page or the Details page for this setting.

- Print a test page.

- 1 Click the Start button, and then select Settings > Printers.
- 2 In Printers, right-click the printer you want to check and select Properties.
- 3 Select the General tab and click Print Test Page.

If the Test Page fails, Windows can help you troubleshoot the problem.

- If you have a color printer that is not printing in color, check that you have color printing enabled.
- 1 Click the Start button, and then select Settings > Printers.
 - 2 In Printers, right-click the printer you want to check and select Properties.
 - 3 Look in the Device Options page or the Details page for this setting.

Make sure that the printer is not set for black and white output only. Most color printers have an automatic setting that prints both plain text and color graphics.

Dot matrix printer tips:

- If you have a dot matrix printer, check the printer ribbon. Make sure there is a ribbon in the printer, and that it is not tangled or torn. The ribbon should move freely while printing. If your printer ribbon is low or completely out of ink, or is damaged or appears worn, replace it with a new ribbon.
- Many dot-matrix printers have a small arm that holds the paper against the roller. If this arm is in the up position, the paper might shift when the print head strikes the paper. This causes the print to blur. If the arm that performs this function is broken or missing, you might be able to pull back on the paper so that it stays tight against the roller as it prints.
- If you have a new or re-inked ribbon, and have print quality problems, there might be too much ink on the ribbon. Try printing a few full pages to use up the extra ink.

Ink jet printer tips:

- Check your ink jet cartridge. Make sure the cartridge is installed correctly and that it is not empty. If the print is light or missing portions, replace the cartridge with a new one.
The nozzles on many new inkjet cartridges are covered with tape when you buy them. Remove the tape before you insert the cartridge in your printer.
- Light print, no print at all, or missing colors on a color printer might be the result of a clogged ink jet. Refer to your printer manual for instructions on cleaning the ink jets in your printer.
- If you use the wrong weight paper for your inkjet printer, you might see poor print quality due to bleeding. For

most inkjet printers, it is recommended that you use papers that are at least 16-pound and not greater than 24-pound.

Laser printer tips:

• Check the toner cartridge. If your printouts have uneven levels of black or are missing sections of print, remove the toner cartridge from your printer. Gently shake it to move the toner around inside the cartridge. Reinsert the cartridge in your printer and then try printing again. If this does not help, the toner cartridge might be empty and need replacing.

• If your laser printer is printing pages with black vertical streaks, the fuser roller might be dirty. Refer to the instructions that came with the printer see how to check and clean the fuser roller.

CAUTION: The fuser roller is very hot and can burn you if you touch it. Turn off the laser printer, unplug it, and wait for at least 20 minutes before cleaning the fuser roller.

• If your laser printer is printing pages with white blotches, check your printer paper for moisture. White blotches occur when print toner does not stick to the page. This happens when you use moist or damp paper. Remove any sheets that are not completely dry.

[Advanced tips](#)

[More Info...](#) Click here for more information.

Printer advanced tips

- Check that the printer paper properties are set correctly.
 - 1 Click the Start button, and then select Settings > Printers.
 - 2 In Printers, right-click the printer you want to check and select Properties.
 - 3 Select the Paper tab.

The Paper tab lets you set the default paper size and orientation your printer uses.

Different printers have different additional options in the Paper page. You might find a setting for paper source, or one for defining the Unprintable Area. The About button is always in the Paper page. It shows the Printer Driver version you are using.

The Restore Defaults button restores any settings you have changed to the default settings.

Make sure that the paper size and source settings are correct. A problem could also appear if the printer is set to print to envelopes, or if the wrong source tray is selected.

Click the Unprintable Area button and check that the unprintable area has been set to values recommended by the printer manufacturer. See the printer's documentation for these specifications.

- If your printer is giving you memory errors, or file size errors, there are several things you can try.

Reduce the graphic content of your document. Remove some of the graphics in the document, or decrease their size. If you do not want to change any of the graphics, try printing your document one page at a time.

Turn off the color option and print in grayscale.

Free up hard disk space on the drive on which Windows is installed hold the temporary spooling file that is created when the image is printed.

Reduce the resolution of the printout.

- 1 Click the Start button, and then select Settings > Printers.
- 2 In Printers, right-click the printer you want to check and select Properties.
- 3 Select the Options tab.

Use the Resolution drop-down list box to decrease the dots per inch. If the value is currently 300 dpi, try 150 dpi. Click OK and try to print again.

If this has no effect, try disabling the spooling option in the printer properties. This will cause the printer to run a little slower, but might fix the problem.

- 1 Click the Start button, and then select Settings > Printers.
- 2 In Printers, right-click the printer you want to check and select Properties.
- 3 Select the Details tab and click Spool Settings.

- If the above steps fail, try reinstalling the printer driver.

Uninstall the printer driver.

- 1 Click the Start button, and then select Settings > Printers.
- 2 In Printers, right-click the printer you want to check and select Delete.
- 3 If the computer asks if it can remove any associated files, click Yes.


Often a floppy disk or CD containing Windows drivers or a setup program will be included with the printer. Also, you can usually visit the manufacturer's website to obtain the latest drivers. Use the manufacturer's drivers or setup program whenever possible. Follow the manufacturer's instructions on using their setup program. Usually there will be a program called "setup.exe" you can run.

- 1 Click the Start button, and then select Settings > Printers.
- 2 In Printers, double-click Add Printer and follow the on-screen instructions.

You can choose from a list of printer manufacturers and models or use a floppy disk or CD from the manufacturer containing printer drivers for Windows by clicking Have Disk. Select the location where the

drivers are located.

Usually, when you are asked which port to connect the printer to, select LPT1. If you need to connect to another port, refer to your printer documentation or technical support.

 If you get an error message when you try to print, but the cables are connected properly, run a self-test from the printer hardware. If it succeeds, try these checks:

Make sure the parallel port is enabled in the BIOS, using your computer's setup program.

Check that Device Manager does not show problems with the port.

- 1 Click the Start button, and then select > Settings > Control Panel.
- 2 In Windows Control Panel, open System.
- 3 Select the Device Manager tab.
- 4 Expand the Ports branch.

Check that the correct drivers are installed.

If these checks succeed, you might have a bad printer cable or the printer port might be disabled or damaged. You can buy a new printer cable at your local computer retailer. If the printer still doesn't work, have a technician check your printer port.

`{button ,AL("printer;intro1;To view printer information ",0,';')}` [More Info...](#) Click here for more information.

Serial Port troubleshooting tips

- Unplug any devices from the serial port and repeat the test.

[Advanced tips](#)

[More Info...](#) Click here for more information.

Serial Port advanced tips

- Make sure the serial port is enabled in the BIOS, using your computer's setup program.
- Verify that you have no IRQ conflicts with other devices such as a mouse, or network card. If no other device is sharing the same IRQ, you might have a defective serial port.

[More Info...](#) Click here for more information.

Sound Card troubleshooting tips

{button ,JI(>maintwo',`IDH_NDIAG_SOUND_CARD_ADVANCED')} [Advanced tips](#)

- If your speakers require external power like batteries or a power supply, make sure the speakers have power and that they are turned on.
- If the speakers have volume control, make sure the volume is turned up.
- Your sound card might have a volume control dial on it. Usually, this dial or knob is on the back of your computer, located near where your speakers connect to your computer. Since you can control volume from within Windows, turn up this setting as high as it goes.
- Single click on the taskbar volume icon to access the Volume slider. You should hear a beep while you adjust. Make sure Mute is not checked.
- Double click the volume icon on the taskbar to access the Volume Control dialog. Make sure no Mute checkboxes are checked.

● If there is no speaker icon on the taskbar:

- 1 Click the Start button, and then select Settings > Control Panel.
- 2 In Control Panel, open Multimedia.
- 3 Select the Audio tab.
- 4 Check Show Volume Control on the Taskbar.

● Make sure the speakers are plugged into the correct jack.

Usually there are both input and output jacks on the back of a sound card. Refer to your sound card manual to verify that the speakers are plugged into the correct output jack. Some cards have both Line Out and Speaker Out jacks. You should generally use Speaker Out, but it depends on the kind of speakers you have.

Most speakers have a small cable that runs from the Speaker Output jack on the back of the sound card to one of the speakers. Make sure this is a stereo cable. If more than one matching cable came with the speakers, try the other one. Stereo cables have two plastic bands on the plug while mono cables have a single plastic band on the plug.

● Restart your computer to see if the problem goes away.

● Test the sound card with other speakers and other cables, if possible, to make sure that they are not the problem.

{button ,JI(>maintwo',`IDH_NDIAG_SOUND_CARD_ADVANCED')} [Advanced tips](#)

{button ,AL("sound card;intro1",0,"')} [More Info...](#) Click here for more information.

Sound Card advanced tips

- Verify that the sound card was installed properly.
 - 1 Click the Start button, and then select Settings > Control Panel.
 - 2 In Control Panel, open System.
 - 3 Select the Device Manager tab.
 - 4 Expand the Sound, Video and Game Controllers item.

All of the following must be true for the sound card to be installed properly:

- The Sound, Video and Game Controllers icon must be present.
- If you double-click Sound, Video and Game Controllers, you should see one or more items. One of the items should match your sound card, or another model deemed acceptable by your sound card documentation.
- If you double-click the device, the device's property pages appear. In the property page, look for This Device is Working Properly under Device Status. There should also be a check mark next to the Current Configuration under Device Usage.
- Click the Resources tab in the Properties window. It should say No Conflicts under Conflicting Device List.
- Check that the DMA channel settings for your sound card are correct.

To change the DMA setting for the sound card:

- 1 Click the Start button, and then select Settings > Control Panel.
- 2 In Control Panel, open System.
- 3 Select the Device Manager tab.
- 4 Expand the Sound, Video and Game Controllers item.
- 5 Select your sound card and click Properties.
- 6 Select the Resources tab.

Check the settings against the sound card documentation.

You might have to run a setup utility or change a jumper on the sound card to make the card match your Windows settings. Refer to the sound card documentation, or contact the sound card maker for more information.

- Make sure you don't have any IRQ conflicts.

To change your sound card IRQ:

- 1 Click the Start button, and then select Settings > Control Panel.
- 2 In Control Panel, open System.
- 3 Select the Device Manager tab.
- 4 Expand the Sound, Video and Game Controllers item.
- 5 Select your sound card and click Properties.
- 6 Select the Resources tab.
- 7 Uncheck Use Automatic Settings.
- 8 Select Interrupt Request and click Change Setting

You might also have to change some settings on the sound card itself to match the setting in Device Manager. For more information, refer to the sound card manual or technical support.

- Remove and reinstall your sound card drivers.

To remove the sound card drivers:

- 1 Click the Start button, and then select Settings > Control Panel.
- 2 In Control Panel, open System.
- 3 Select the Device Manager tab.

- 4 Expand the Sound, Video and Game Controllers item.
- 5 Select your sound card and click Remove.
- 6 Click OK to close the window.
- 7 Restart your computer.

After Windows starts, reinstall the sound card drivers.

Often a floppy disk or CD containing Windows drivers or a setup program will be included with the sound card. Also, you can usually visit the manufacturer's website to obtain the latest driver software. Use the manufacturer's drivers or setup program whenever possible. Follow the manufacturer's instructions on using their setup program. Usually there will be a program called SETUP.EXE you can run.

To install driver software from a manufacturer's disk:

- 1 Click the Start button, and then select Settings > Control Panel.
- 2 In Control Panel, open Add New Hardware.
- 3 Follow the on-screen instructions, answering the following questions, if asked:
 - If you are asked if the device you want to install is in the list, select No.
 - When you are asked if you want Windows to search for your new hardware, select No.
- 4 Select Sound, Video and Game Controllers in the Hardware Types list box.
- 5 Click Have Disk.
- 6 Follow the on-screen instructions.

To let Windows detect the sound card and install the driver software:

- 1 Click the Start button, and then select Settings > Control Panel.
 - 2 In Control Panel, open Add New Hardware.
 - 3 Follow the on-screen instructions, answering the following questions, if asked:
 - If you are asked if the device you want to install is in the list, select Yes if it appears in the list. Otherwise, select No.
 - When you are asked if you want Windows to search for your new hardware, select Yes.
- If Windows fails to detect the card and asks you if want to manually add the hardware, select Yes. Then select your sound card from the list of available cards. If your sound card is not listed, contact the manufacturer, or insert the disk that came with the sound card and click the Have Disk button.

{button ,AL("sound card;intro1",0,"")} [More Info...](#) Click here for more information.

PC Speaker troubleshooting tips

[Advanced tips](#)

- Test the PC speaker by following these steps:
 - 1 Click the Start button, and then select Shutdown.
 - 2 Choose Restart In MS-DOS Mode and click OK.
 - 3 When the MS-DOS prompt appears, type `ECHO Ctrl+G`.
Hold down the Ctrl key while you press the G key to get Ctrl+G. It will appear on your screen as `ECHO ^G`.
 - 4 Press Enter. This should result in a beep from the internal speaker.
 - 5 Type EXIT and press Enter to return to Windows.

[More Info...](#) Click here for more information.

PC Speaker advanced tips

🔍 Locate the speaker on the motherboard, and make sure that the plug is securely on the connector. If it is soldered on, ensure that it isn't loose. If it is, seek assistance from a computer repair technician. If the connection is good, you might have a defective speaker.

[More Info...](#) Click here for more information.

System Board troubleshooting tips

[Advanced tips](#)

If any one of the tests consistently fails and you often experience unexplainable problems, such as crashes, reoccurring data corruption, and so on, your system board might need to be repaired or replaced. Using diagnostic equipment, your local computer shop can more fully test your CPU and other system board components for proper operation.

[The memory components of your computer;About CPU registers;About internal memory cache;About external memory cache;Why all these memory components?;More about caches;About cache performance;About caching schemes;To get information about your system",0,""\)](#) [More Info...](#) Click here for more information.

System Board Advanced tips

- If more than one test fails consistently, verify that the CPU is firmly seated in its socket on the system board.
- Ensure that the case of your computer is properly closed and the fans are running. Also, be certain that the air vents are not obstructed.
- Make sure the power supply is set to 120 Volts.

[{button ,AL\("system board;intro1;The memory components of your computer;About CPU registers;About internal memory cache;About external memory cache;Why all these memory components?;More about caches;About cache performance;About caching schemes;To get information about your system",0,',' \)} More Info...](#) Click here for more information.

Video troubleshooting tips

[Advanced tips](#)

- Make sure the monitor is securely plugged in to the computer.
- Make sure the monitor is securely plugged in and the power is on.
- Shutdown Windows and turn off your computer. Unplug your Monitor and examine the plug for bent or broken pins.
- If the monitor still doesn't work after the above checks, you might need to reinstall or install new video drivers.

You might need to start Windows in safe mode. To start in safe mode, restart Windows and press the F8 key during startup. Select Safe Mode from the startup menu.

Occasionally, manufacturers of video display cards release updated drivers to increase video card performance or fix problems with older drivers. You might need to get a new driver if your video driver causes system crashes or other conflicts.

To contact a manufacturer for a new video driver, refer to the manual that came with your computer or video display card. Most video display card manufacturers have World Wide Web sites and customer service and technical support phone numbers. If the manufacturer provides a setup program, use it. Follow the manufacturer's instructions. Usually there will be a program called SETUP.EXE you can run.

To install a new video driver without using a setup program:

- 1 Right-click a clear area of the desktop.
- 2 Select Properties.
- 3 Select the Settings tab.
- 4 Click Change Display Type.
- 5 Click Change under Adapter Type.
- 6 Click Have Disk.
- 7 Follow the on-screen instructions.

- Most video display monitors let you change the position of the image on the screen so that it is centered. These controls are usually on the back of the monitor or under a cover on the front of the monitor.

Some video cards have utilities to allow you to adjust the position and size of the image on the screen. If your monitor is not capable of being adjusted, your video card might have this feature. Refer to the video card documentation for more information about image adjustment. Changing the refresh rate will also affect the size and placement of the image.

Here are some common adjustment controls and their explanations:

- VSIZE controls the vertical size of the image. Adjust this control to change the height of the image. This is sometimes called height or VS.
- HSIZE controls the horizontal size of the image. Adjust this control to change the width of the image. This is sometimes called width or HS.
- VPOS controls the vertical position of the image. Use this control to move the image up and down on the monitor. This is sometimes called VPHASE.
- HPOS controls the horizontal position of the image. Use this control to move the image from side to side. This is sometimes called HPHASE.
- TRAPEZOID controls the skew of the image on the screen. If the image is not perfectly straight up and down, use this control to move it. This is sometimes called TRAP or SKEW.
- PINCUSHON allows you to adjust the image's vertical edge straightness. If the image tends to bend in or out towards the middle, use this control to fix it.
- If the image on your display is distorted or shaking, this could be caused by outside interference. Magnetic or radio waves can interfere with the inner-workings of the monitor, or with the signal that is sent to it from the computer.

Make sure your video display monitor is not near any of the following:

- fluorescent lighting
- electric motors, like fans, vacuum cleaners, electric pencil sharpeners
- another monitor or television set
- strong magnets or large speakers

- CB or amateur radio equipment and antennas

Also, make sure the cable that runs from the computer to the monitor is plugged in fully, and is not next to the power cords for the monitor or computer.

Extension video cables might also cause picture quality degradation; try it without the extension cable.

[Advanced tips](#)

[More Info...](#) Click here for more information.

Video advanced tips

If your monitor has a flickering, distorted or off-center image, your resolution might not be in tune with your monitor. You can usually fix this by telling Windows what kind of video monitor you have. To do this:

- 1 Right-click a clear area of the desktop.
- 2 Select Properties.
- 3 Select the Settings tab.
- 4 Click Change Display Type.
- 5 Verify that the monitor listed under Monitor type is correct.

If it is not correct, click Change.

Select the Show All Devices radio button.

Select your monitor in the Manufacturers list.

Select the model in the Models list. If your monitor is not in the list, select Standard Types under Manufacturers. Refer to the documentation that came with your monitor or computer to find out which monitor you should choose.

To change the resolution:

- 1 Right-click a clear area of the desktop.
- 2 Select Properties.
- 3 Select the Settings tab.
- 4 Adjust the slide control to the desired resolution.
- 5 Click Apply.
- 6 Click OK to preview the new setting.

Try higher and lower resolutions to determine what works best. Be sure to preview the new settings.

Shut down Windows and turn off your computer. Open your computer case. Clean the edge connector on the Video Adapter card and make sure it is securely seated in its slot and no metal components such as exposed wires are touching its surface.

Try inserting the Video adapter card in a different slot. Make sure it is the same type of slot.

Windows uses your video card to help put images on the screen rather than using the computer's processor to do it. This is called hardware acceleration.

Windows sets your system for optimal hardware acceleration by default. Some older Windows programs do not respond well to Windows video acceleration features. If you are having video problems, you can try decreasing the hardware acceleration.

To adjust the level of hardware acceleration:

- 1 Click the Start button, and then select Settings > Control Panel.
- 2 In Control Panel, open System.
- 3 Select the Performance tab.
- 4 Click Graphics.
- 5 Move the 'Hardware Acceleration' slider a notch closer to the 'None' side.

Try the troublesome program after each time you move to the next notch. The lower you go, the slower your video performance will be.

If you have another computer, try connecting the monitor to the other machine. If monitor works on other machine, power down computer and check if video card is securely fastened to the slot.

[{button ,AL\("video:intro1;About the Display tab;To view video display information",0,'',''\)} More Info...](#) Click here for more information.
