UNIT 1: Computer Components & Accessories

Session **1** Computer Components

Session 2 Computer Peripheral devices

Session 3 Basic Computer Hardware

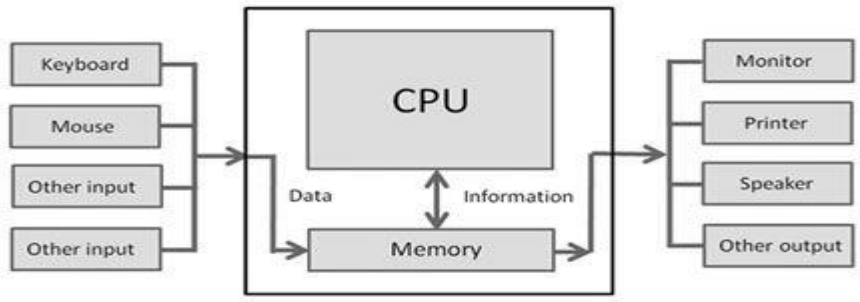
Session 4 Basic Computer Software

Session 5 Computer Operating System

1.

What is Computer:

A Computer is an electronic device with a processor and designed to take an input process it under the control of a set of instructions (program) and give an output and also save. It calculates both numerical and non-numerical (arithmetic and logical). *The term computer* is *derived from the Latin term* '**computare**', meaning to *calculate* or *programmable machine*. **Computer cannot work without a Program**. Usually, 'Computer' refers to the Center Processor unit plus the internal memory.



Digital Computer

It can process data, pictures, sound and graphics. They can solve highly complicated problems quickly and accurately. A computer as shown in Fig. performs basically five major computer **operations or functions** irrespective of their size and make. These are as follows.

1) it accepts data or instructions by way of input,
2) it stores data,
3) it can process data as required by the user,
4) it gives results in the form of output, and
5) it controls all operations inside a computer.

Definition

Basically, a modern digital computer consists of: Input Device, Central Processor Unit (CPU), Output Device, mass storage device and memory. Typically, a modern computer uses LSI Chips. It performs four main functions namely:

Accepts data	Input
Processes data	Processing
Produces output	Output
Stores results	Storage

Input (Data):

Input is the raw data entered into a computer from the input devices. It is the collection of letters, numbers, images etc.

Process:

Process is the operation of data as per given instruction. It is totally internal process of the computer system.

Output:

Output/result is the processed data (information) given by the computer after data processing. The results can be saved in a storage device for future use.

COMPUTER CLASSIFICATION: BY SIZE AND POWER

Computers differ based on their data processing abilities. They can be classified according to purpose, data handling and functionality.

According to functionality, computers are classified as:

• **Analog Computer:** A computer that represents numbers by some continuously variable physical quantity, whose variations mimic some system's properties being modeled.

• **Personal computer:** A **personal computer** is a computer small and low cost and most often used describing desktop computers.

• **Workstation:** A terminal or desktop computer in a network. In this context, the workstation is just a generic term for a user's machine (client machine) in contrast to a "server" or "mainframe."

• **Minicomputer:** A **minicomputer** isn't very mini. At least, not in the way most of us think of mini. You know how big your personal computer is and its related family.

• **Mainframe:** refers to the kind of large computer that runs an entire corporation.

• **Supercomputer:** is the giant, fastest, and most expensive computers on earth.

• **Microcomputer:** Your *personal computer* is a **microcomputer**.

CHARACTERISTIC OF A COMPUTER

Computers possess or exhibit the following basic characteristics:

1. Speed: – computers can work very fast. It takes only few seconds for calculations to complete. They can perform millions (1,000,000) of instructions and even more per second.

The speed of computer are therefore determined in terms of microsecond (10^{-6} part of a second) or nanosecond (10^{-9} part of a second).

2. Accuracy: – The degree of accuracy of computer is very high and every calculation is performed with the same accuracy. The accuracy level is determined on the basis of design of computer. The errors in computer are due to human and inaccurate data.

3. Diligence: – A computer is free from tiredness, lack of concentration, fatigue, etc. It can work for hours without creating any error. If millions of calculations are to be performed, a computer will perform every calculation with the same accuracy. Due to this capability it overpowers human being in routine type of work.

4. Versatility: – It means the capacity to perform completely different types of work. You may use your computer to prepare payroll slips. Next moment you may use it for inventory management or to prepare electric bills.

5. Power of Remembering: – Computer has the power of storing very huge amount of information or data. Any information can be stored and recalled as long as you require it, for any numbers of years. It depends entirely upon how much data one wants to store in a computer and when to lose or retrieve these data.

6. No IQ: – A Computer is a dumb machine which cannot do any work without instruction from the user. It performs the instructions at tremendous speed and with accuracy. So a computer cannot take its own decision as you can.

7. No Feeling: – It does not have feelings or emotion, taste, knowledge and experience. Thus it does not get tired even after long hours of work. It does not distinguish between users.

8. Storage: – The Computer has an in-built memory where it can store a large amount of data. Data can be stored in secondary storage devices such as floppies, USBs etc which can be kept outside your computer and can be carried to other computers.

HARDWARE COMPONENTS

Input devices

They accept data (raw) or com**mands in a form useable by computers** and performs some processing giving out processed data. Therefore, the input unit takes data from us to the computer in an organized manner for processing **example:**

- **Keyboards**
- **Pointing Devices --** mouse, trackballs, joysticks, touchpads and light pens
- **Source Entry devices ---** Scanners, Audio input devices, video input devices, digital cameras

Output devices

They display the processed information ex. printers, monitors, speakers, monitor /Display Screens CRT and Flat Panel (LCD), EL and gas plasma**.** This is the process of producing

results from the data for getting useful INFORMATION. Similarly the output produced by the computer after processing must also be kept somewhere inside the computer before being given to you in human readable form. Again the output is also stored inside the computer for further processing.

Processing devices

This comprises of circuitry in system unit. The task of performing operations like arithmetic and logical operations is called processing. The Central Processing Unit (CPU) takes data and instructions from the storage unit and makes all sorts of calculations based on the instructions given and the type of data provided. It is then sent back to the storage unit.

Storage devices

They are physical material that can store data and programs. The process of saving data and instructions permanently is known as storage. Data has to be fed into the system before the actual processing starts.

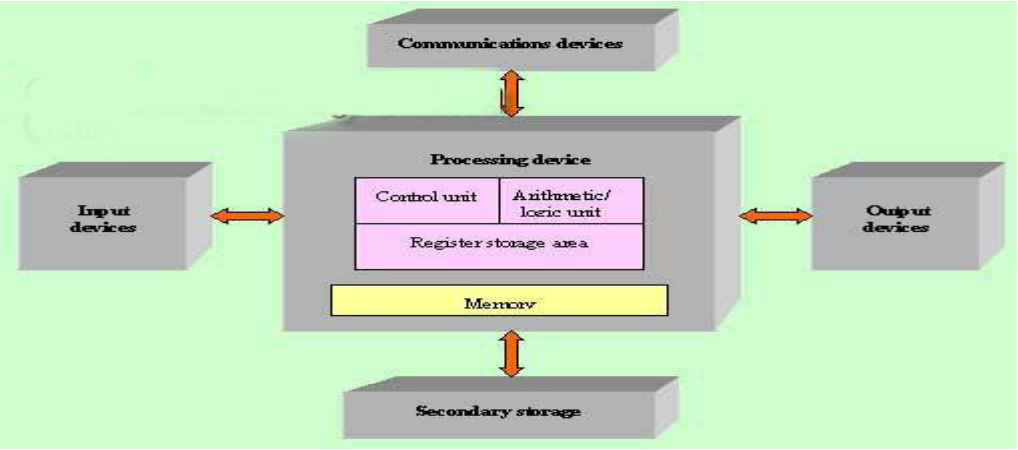
The storage unit performs the following major functions:

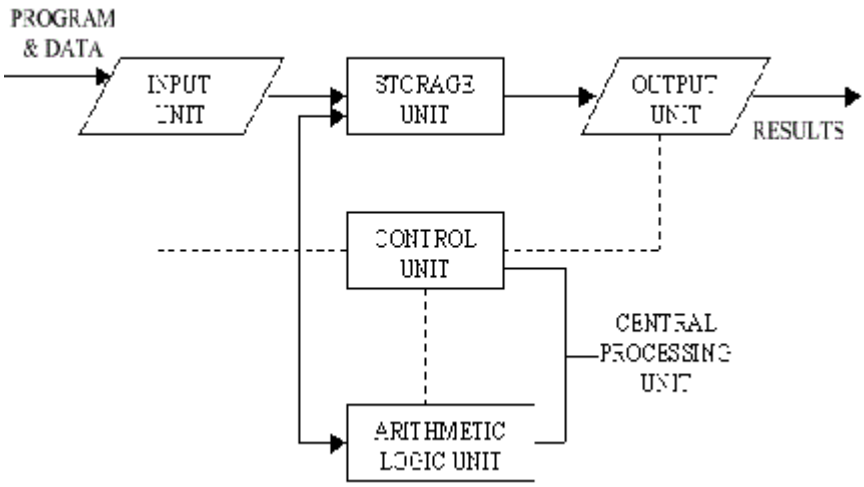
• All data and instructions are stored here before and after processing.

• Intermediate results of processing are also stored here.

Communication devices

These provide connections between computers and communication networks, allowing for exchange of information and data with other computers via transmission media such as cables, telephone lines, and radio links.





5. Control: The manner how instructions are executed and the above operations performed. Controlling of all operations like input, processing and output are performed by control unit. It takes care of step by step processing of all operations inside the computer.

FUNCTIONAL UNITS

In order to carry out the operations mentioned in the previous section the computer allocates the task between its various functional units. The computer system is divided into three separate units for its operation. They are

Arithmetic Logical Unit (ALU)

Logical Unit : After you enter data through the input device it is stored in the primary storage unit with the actual processing of the data and instruction being performed by Arithmetic Logical Unit. The major operations performed by the ALU are addition, subtraction, multiplication, division, logic and comparison. Data is transferred to ALU from storage unit when required. After processing the output is returned back to storage unit for further processing or getting stored.

Control Unit (CU)

The Control Unit, acts like the supervisor seeing that things are done in proper fashion. It is responsible for coordinating various operations using time signal. It determines the sequence in which computer programs and instructions are executed. It sees to things like processing of programs stored in the main memory, interpretation of the instructions and issuing of signals for other units of the computer to execute them. It also acts as a switch board operator when several users access the computer simultaneously. The activity of computer's peripheral equipment as they perform the input and output functions is coordinated by the CU.

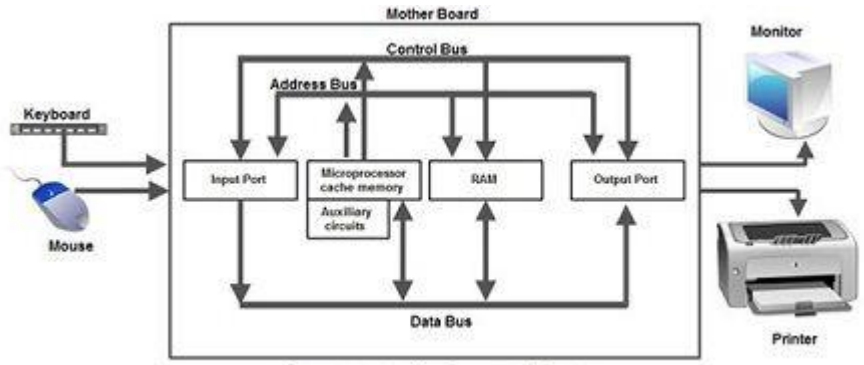
Central Processing Unit (CPU)

The ALU and the CU of a computer system are jointly known as the central processing unit. You may call CPU as the brain of any computer system. It is just like brain that takes all major decisions, makes all sorts of calculations and directs different parts of the computer functions by activating and controlling the operations.

What are the Basic Computer Components?

Computers internal architectural design comes in different types and sizes, but the basic structure remains same for all computer systems.

The term '**computer hardware'** or 'computer parts' is used to describe *computer components* that can be seen and touched. The major components of general-purpose computer system are Input Unit, main/internal Memory or Storage Unit, Output Unit, Central Processing unit. The CPU is further divided into Arithmetic logic unit (ALU) and control unit (CU). All the units also referred to as "**The functional units**". Devices that are not integral part of CPU are referred to as peripherals.



Components of a Computer System

- Input Unit
- Memory or Storage Unit
- Output Unit
- Central Processing Unit

Input Unit

Input unit is used in transferring raw data and control signals into the information processing system by the user; this is done before processing and computation. All

the input unit devices provide the instructions and data are transformed into binary codes that is the primary memory acceptable format

Example of Input unit devices: keyboard, mouse, scanner, joystick, MICR, Punched cards, Punched paper tape, Magnetic tape etc.

Memory or Storage Unit

Memory or Storage unit is used for storing Data during before and after processing. The capacity of storage is expressed in terms of Bytes.

The two terms Memory or Storage unit are used interchangeably, so it is important to understand what is the difference between memory and storage?

Memory

This unit retains temporarily results till further processing. For example, Random Access Memory (RAM).This memory is volatile, which means data disappears when the power is lost.

Storage

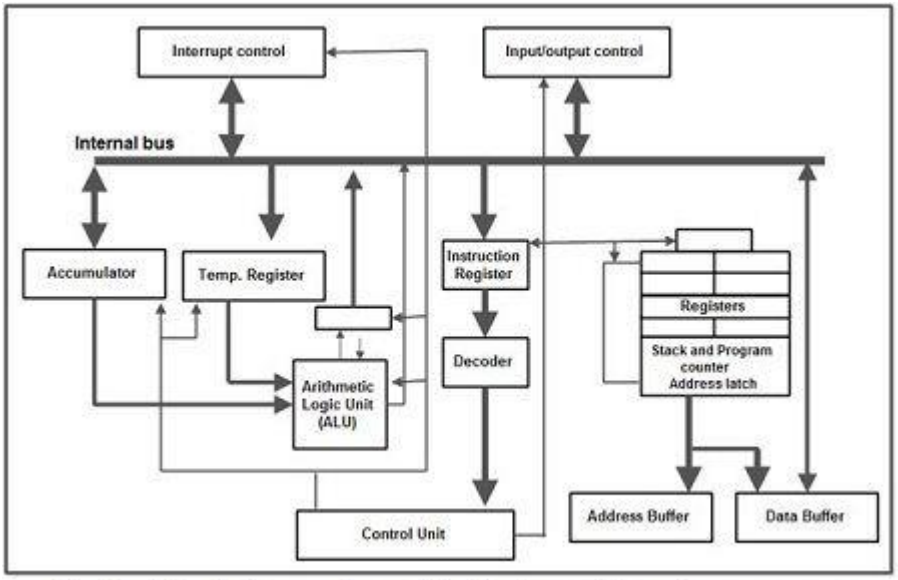
The storage or "secondary storage" is used in retaining digital data after processing for permanently. For example hard drive. The Storage is non-volatile in nature. CPU does not access directly to secondary storage memories, instead they accessed via input-output unit. The contents of secondary storage memories are first transferred to the main memory (RAM) and then CPU access it.

Output Unit

Output Unit receives information from the CPU and then delivers it to the external storage or device in the soft or hard processed form. The devices which are used to display output to the user are called output devices. The Monitor or printer is common output device.

Central Processing Unit

The main chip in a computer is the microprocessor chip, also known as the CPU (central processing unit). The CPU is mounted on a printed circuit board called the main board or mother board. This chip is considered to be the controlling chip of a computer system since it controls the activities of other chips as well as outside devices connected to the computer, such as monitor and printer. In addition, it also performs logical and computational tasks. Microprocessors work on a parallel system.



Simplified block diagram of one of the first-generation microprocessors

The various activities that a microprocessor performs, such as storing data, doing arithmetic calculations (addition, subtraction, multiplication, division, etc.), are the result of instructions given to the CPU in the form of sequences of 0s and 1s. Microprocessors are designed to carry out a large number of instructions and all the instructions may be represented by different sequences of 0s and 1s. Each instruction is represented by a unique set of 0s and 1s.

The internal structure of a typical CPU consists of circuits which form a number of registers (the typical number is 16) as mentioned above; an arithmetic unit for carrying out arithmetic operations, a logic unit, and a control unit.

2. COMPUTER PERIPHERAL

Systems units are the main components of a computer and consist of all the interior parts that are present within the device whereas a peripheral is an ancillary device that performs the task of putting information into the system and then getting the feedback from the system. A peripheral device can be defined as a computer device, such as a keyboard or printer, that is not part of the essential computer (i.e., the memory and microprocessor). These auxiliary devices are intended to be connected to the computer and used.

There are many different peripheral devices, but they fall into three general categories namely:

- **Input devices,** such as a mouse and a keyboard are used to interact with, or send data to the computer.
- An **output device**, such as a monitor and a printer provides output to the user from the computer.
- **Storage devices** stores data processed by the computer, such as a hard drive or flash drive.

	System Unit	Peripheral
Full Name	System Unit of System Processor	Peripheral Devices
Definition	The main components of the computer and consists of all the interior parts that are present within the apparatus.	An ancillary device that performs the task of putting information into the system and then getting the feedback from the system.
Purpose	Performs and holds all the main parts that become critical in the working processes.	Considered as the tool that helps a human being to communicate with the computer.
Components	Motherboard, processor, ram, hard drive, video card and power supply.	Monitor, Mouse, Keyboard, Printer, etc.

Devices such as speakers, printers, scanners and webcams are all considered **computer peripherals** because they expand the functionality of the computer system itself. These devices usually work through the use of drivers, small programs designed to make the peripheral and the system work together in harmony.

3. BASIC COMPUTER HARDWARE

Generally, hardware represents the physical and tangible components of a computer, i.e. the components that can be seen and touched.

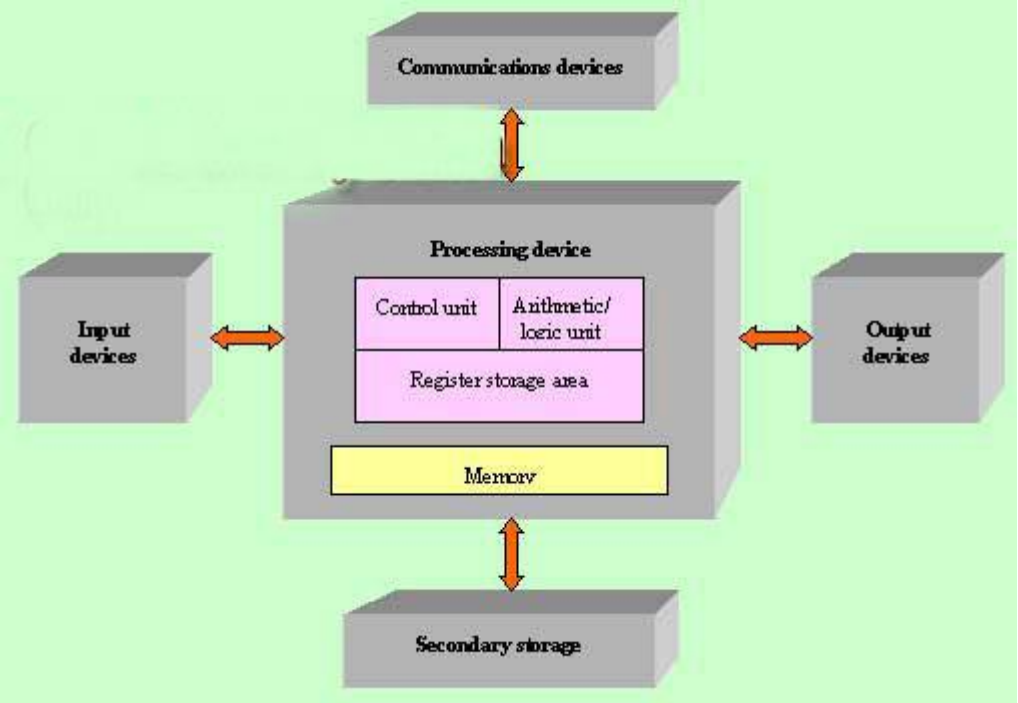
Examples of Hardware are:

- **Input devices** − keyboard, mouse, etc.
- **Output devices** − printer, monitor, etc.
- **Secondary storage devices** − Hard disk, CD, DVD, etc.
- **Internal components** − CPU, motherboard, RAM, etc.

Hardware components

Communication devices

provide connections between computers and communication networks, allowing for exchange of information and data with other computers via transmission media such as cables, telephone lines, and satellites



Input Devices

- **Keyboards**
- **Pointing Devices** mouse, trackballs, joysticks, touchpads and light pens
- **Source Entry devices** Scanners, Audio input devices, video input devices, digital cameras

Relationship between Hardware and Software

- Hardware and software are mutually dependent on each other. Both of them must work together to make a computer produce a useful output.
- Software cannot be utilized without supporting hardware.
- Hardware without a set of programs to operate upon cannot be utilized and is useless.
- To get a particular job done on the computer, relevant software should be loaded into the hardware.
- Hardware is a one-time expense.
- Software development is very expensive and is a continuing expense.
- Different software applications can be loaded on a hardware to run different jobs.
- A software acts as an interface between the user and the hardware.
- If the hardware is the 'heart' of a computer system, then the software is its 'soul'. Both are complementary to each other.

4. BASIC COMPUTER SOFTWARE

A software is a set of programs, which is designed to perform a well-defined function. A program is a sequence of instructions written to solve a particular problem.

There are two types of software −

- System Software
- Application Software

System Software

The system software is a collection of programs designed to operate, control, and extend the processing capabilities of the computer itself. System software is generally prepared by the computer manufacturers. These software products comprise of programs written in low-level languages, which interact with the hardware at a very basic level. System software serves as the interface between the hardware and the end users.

Examples of some system software are Operating System, Compilers, Interpreter, Assemblers, etc.

Some of the most prominent features of system software are −

- Close to the system
- Fast in speed
- Difficult to design
- Difficult to understand
- Less interactive
- Smaller in size
- Difficult to manipulate
- Generally written in low-level language

Application Software

Application software is designed to satisfy some particular needs of a particular environment. All software applications prepared in the computer lab can come under the category of Application software.

It may consist of a single program, such as Microsoft's notepad for writing and editing a simple text. It may also consist of a collection of programs, often called a software package, which work together to accomplish a task, such as a spreadsheet package.

Examples of some Application software are as follows −

- Payroll Software
- Student Record Software
- Inventory Management Software
- Income Tax Software
- Railways Reservation Software
- Microsoft Office Suite Software
- Microsoft Word
- Microsoft Excel
- Microsoft PowerPoint

Features of application software are as follows −

- Close to the user
- Easy to design
- More interactive
- Slow in speed
- Generally written in high-level language
- Easy to understand
- Easy to manipulate and use
- Bigger in size and requires large storage space

5. COMPUTER OPERATING SYSTEM

The Operating System is a program with the following features −

- It is a program that acts as an interface between the software and the computer hardware.
- It is an integrated set of specialized programs used to manage overall resources and operations of the computer.
- It is a specialized software that controls and monitors the execution of all other programs that reside on the computer; including application programs and other system software.

Objectives of Operating System

The objectives of the operating system are −

- To make the computer system convenient to use in an efficient manner.
- To hide the details of the hardware resources from the users.
- To provide users a convenient interface to use the computer system.
- To act as an intermediary between the hardware and its users, making it easier for the users to access and use other resources.
- To manage the resources of a computer system.
- To keep track of who is using which resource, granting resource requests, and mediating conflicting requests from different programs and users.
- To provide efficient and fair sharing of resources among users and programs.

CHARACTERISTICS OF OPERATING SYSTEM

- **Memory Management** − Keeps track of the primary memory, i.e. what part of it is in use by whom, what part is not in use, etc. and allocates the memory when a process or program requests it.
- **Processor Management** − Allocates the processor (CPU) to a process and deallocates the processor when it is no longer required.
- **Device Management** − Keeps track of all the devices. This is also called I/O controller that decides which process gets the device, when, and for how much time.
- **File Management** − Allocates and de-allocates the resources and decides who gets the resources.
- **Security** − Prevents unauthorized access to programs and data by means of passwords and other similar techniques.
- **Job Accounting** − Keeps track of time and resources used by various jobs and/or users.
- **Control Over System Performance** − Records delays between the request for a service and from the system.
- **Interaction with the Operators** − Interaction may take place via the console of the computer in the form of instructions. The Operating System acknowledges the same, does the corresponding action, and informs the operation by a display screen.
- **Error-detecting Aids** − Production of dumps, traces, error messages, and other debugging and error-detecting methods.

- **Coordination between Other Software and Users** − Coordination and assignment of compilers, interpreters, assemblers, and other software to the various users of the computer systems.

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UNIT 2 BASIC COMPUTER HARDWARE TROUBLESHOOTING

Objectives

By the end of this session, you should be able to

1. describe the physical parts (hardware) of a computer

2. identify some beep codes and error codes.

2. troubleshoot major computer problems.

3. to know how to maintain and optimize a Windows PC.

4. gain skills required in solving common PC problems

5. know how to diagnose and fix more advanced problems

Session 1 **Hardware troubleshooting**

Session 1 **System Error Codes**

Session 2 Window System Error Codes

Session 3 Basic Computer Hardware

Session 4 Basic Computer Software

Session 5 Computer Operating System

Session 6 Troubleshooting Techniques employed

Some of the most common PC hardware problems that need troubleshooting are:

1. Your computer won't turn on.
2. Your computer turns on, but still doesn't work.
3. Your computer screen freezes.
4. Your computer has insufficient memory.
5. Your operating system is missing or your hard drive isn't detected.
6. You get the blue screen of death.

When it comes to hardware, some techs may have trouble assessing what steps to take to figure out what's wrong and how to repair it. Which component is having the issue? Should you just replace the component? Should you try to troubleshoot the software first?

We'll go over how to troubleshoot common PC hardware issues and how best to go about fixing them. The most basic tip is to always try the most obvious solutions first as it could save a lot of time and frustration.

Problem #1: Your Computer Won't Turn On

This is a common problem that often offers a simple solution.

1. Is everything plugged in? I can't tell you how many times I have come across a "broken" computer that simply had an unplugged component.
2. Try plugging into different power outlets. It isn't uncommon to blow a fuse, especially with more power-hungry systems.
3. Is either the monitor, mouse, or keyboard the only thing not working? If so, try plugging in a different one to see if that does the job. Most of the time, replacing one of these is cheaper than attempting a repair.

Once you've completed the above steps, it's time to look at the tower.

1. Are the lights on in the front or back of the tower? If not, the power supply unit (PSU) may be turned off.
2. Next, you can open up your tower and look at the motherboard. Most have a small LED light built in to show if power is running to the motherboard. If it's turned off, you can either try using a PSU tester, or replace the PSU. Never try to open a PSU and try to repair it yourself as this is extremely dangerous.

Problem #2: Your Computer Turns On, But Still Doesn't Work

If power is obviously flowing to the computer system and its peripherals, there may be a component issue. When you first turn on the computer, do you hear or see anything out of the ordinary? Many times the computer's Power-On Self-Test (POST) will let you know what's going on with the machine.

Beep Codes

If you hear any beeps when your computer turns on, they can help you troubleshoot common PC hardware problems. Here's a list of beep codes.

- **No beep but the system turns on and runs fine** - Under normal circumstances, most computer systems will beep one short beep when turned on. If yours doesn't, your "beeper" may have died out.
- **No beep** - The power supply is not plugged in or turned on. Or, the power supply is completely dead.

- **Steady, short beeps** - The power supply may be bad or the voltages might be wrong. A replacement would usually be necessary.
- **Steady, long beeps** - The power supply has gone bad.
- **Long, continuous beep** - Your Random Access Memory (RAM) sticks may have gone bad. If there is more than one stick installed, try taking one out to see if the computer boots. If it does not, try the same thing with the other stick. This will tell you which stick has gone bad and you can replace or upgrade accordingly. If there is only one stick installed, you will need to replace or upgrade it to fix the problem.
- **One long, two short beeps** - There has been a video card failure. Your first action is to try reseating the video card. This often solves the problem when the computer system is connected to projectors because the VGA/DVI/Video cable gets moved so often that the card can be slowly unplugged. If reseating doesn't work, replace the video card.

Problem #3: Your Computer Screen Freezes

When your computer freezes and isn't responsive to your mouse or keyboard, the first thing to do is just wait. Sometimes it will just take a few minutes for your computer to process. Then, end the task of the non-responding program. If that doesn't work, turn off the computer by holding down the power button and then rebooting into Safe Mode (don't forget about saving your work first, if you can).

If you've tried all of this and your computer still won't unlock, you may be dealing with either defective hardware or a defective device driver. If this is your case, replace the defective piece immediately so it doesn't cause further damage.

Another thing you could be dealing with is a virus that is overwhelming your system. Run a virus scan, remove the virus, recover or reinstall damaged files or software, and implement the latest security software.

Problem #4: Your Computer Has Insufficient Memory

Receiving an "insufficient memory or disk space" error message can usually be solved (at least temporarily) by closing extra windows to free up some RAM. If you've done that and the error still comes up, you can try rebooting your computer and installing the latest operating system update.

If you really don't have enough available memory and space (which can be checked in Windows 10 by pressing the Windows-R button and typing *perfmon* in the *Open* field to run the Performance Monitor), you can uninstall or delete any unused or unnecessary files, especially those of the video/music type. Your final solution is to add more RAM.

Problem #5: Your Operating System Is Missing or Your Hard Drive Isn't Detected

If the message "Missing Operating System" shows up on your screen, there are four possibilities the problem could be (and four ways to solve it):

1. The basic input/output system (BIOS) doesn't detect Windows' hard disk, or the disk failed. If you know how to take out the hard drive, do that and reconnect it. If that doesn't work, the hard drive's interface is forbidden or the hard drive is seriously damaged.

Restart the computer and watch for the message telling you which key to strike to go into the BIOS. The key can vary from system to system so you may need to use a search engine to find the instructions for your system. Be sure to strike the specified key as soon as you see the message.

In the BIOS, highlight the hard drive and set it to "Auto". If it's still invisible, you need a hard drive repair or replacement.

2. The BIOS settings are incorrect. Set the BIOS back to Default State.

3. The Master Boot Record (MBR) is damaged or corrupted. Rebuild the MBR using either the Windows installation disk; the Windows repair disk, or a bootable partitioning tool.

4. The Windows boot file partition isn't active. Start the computer using a bootable partitioning tool. If that doesn't work, set the wrong partition to 'inactive' and activate the correct partition.

Problem #6: The Blue Screen of Death

The blue screen of death (BSOD) appears when Microsoft Windows has an unrecoverable, critical error that causes a crash and subsequent data loss. This can be caused by the low-level software in Windows crashing.

When the BSOD occurs, the computer automatically creates a minidump file and restarts the computer. If the blue screen appears again, follow the prompts, identify and search for the error code online, and learn how to fix the problem.

Some of the common solutions are to:

- Make sure your computer isn't overheating. If it is, close unused applications, check if the fan is working properly, and conduct a good dusting after the computer is turned off before trying other solutions for an overheating PC.
- Boot into Safe Mode before trying to fix a problem.
- Test your hardware components and check the computer's memory for errors.
- Check for incorrectly installed or buggy drivers. Install updated drivers.
- Scan for Malware that is causing the crash.

- Reset or reinstall Windows.

Use System Restore to get your computer back to its previous state. If it works, you probably have a software problem on your hands.

SUMMARY

One of the main ways to avoid having to know how to troubleshoot common PC hardware problems is to put a higher emphasis on preventive maintenance. Most people (and companies) tend to just ignore or patch up burgeoning problems. These can be short-term fixes for minor things, but the value of following a long-term strategy that will keep the technology reliably up and running well cannot be understated.

And of course, there will always come a day when it’s time to start from scratch with a new computer. Technologies are changing for the better every single day. You may want to just take the plunge and get something spiffy, speedy, and state-of-the-art.

Basic computer hardware troubleshooting

Below is a listing of commonly asked computer questions, and basic troubleshooting steps for computer hardware..

- What is hardware?
- Why does my computer not work?
- Why does my computer turn off without warning?
- Why won't my computer turn on?
- Why does my computer not turn off?
- My computer is running slow, what steps can I do to fix it?
- How to test for hardware failures in a computer.
- What is causing noise in my computer?
- How to fix missing or lost sound in Windows.
- No display or black screen on a computer monitor.
- How to troubleshoot printer issues.
- Mouse not detected or working in Windows.
- Why is my laptop mouse touchpad not working?
- Why don't any keys on my keyboard work?
- How to test computer memory to determine if it's bad.
- How to test a hard drive for failures.
- How to test a computer motherboard and CPU for failures.
- Why is my Wi-Fi not working?
- Basic network troubleshooting.
- How to test a computer CD-ROM and DVD drive for failures.
- How to troubleshoot microphone issues.
- General scanner troubleshooting.
- Why does my computer not turn off?

- How to troubleshoot floppy disk drive issues.
- How to fix Windows error 'Data or no disk loaded' with audio CD.
- Full list of hardware-related questions and answers.

System Error Codes

This section is intended for developers who are debugging system errors. If you reached this page while searching for other errors, here are some links that might help:

- Windows 10 Update errors - For help resolving issues with Windows Update.
- Windows 10 activation errors - For help verifying your copy of Windows.
- Troubleshooting blue screen errors - For help discovering what caused a stop error.
- Microsoft Support - For support with a Microsoft product.

More ways to find an error code

We've listed the system error codes in this section, organized by number. If you need more help tracking down a specific error, here are some more recommendations:

- Use the Microsoft Error Lookup Tool.
- Install the Debugging Tools for Windows, load a memory dump file, and then run the **!err <code>** command.
- Search the Microsoft Protocols site for the raw text or error code. For more information, see [MS-ERREF]: Windows Error Codes.

Third party error codes

Other error codes may be generated by third party services or apps (for example, **Error Code: -118** may be displayed by the Steam game service) and in those situations you would contact the third party's support line.

System Error Codes

System Error Codes are very broad: each one can occur in one of many hundreds of locations in a system. Consequently, the descriptions of these codes cannot be very specific. Use of these codes requires some amount of investigation and analysis. You need to note both the programmatic and the runtime context in which these errors occur.

Because these codes are defined in WinError.h for anyone to use, sometimes the codes are returned by non-system software. And sometimes the code is returned by a function deep in the stack and far removed from code that is handling the error.

The following topics provide lists of system error codes. These values are defined in the WinError.h header file.

- System Error Codes (0-499) (0x0-0x1f3)
- System Error Codes (500-999) (0x1f4-0x3e7)
- System Error Codes (1000-1299) (0x3e8-0x513)
- System Error Codes (1300-1699) (0x514-0x6a3)
- System Error Codes (1700-3999) (0x6a4-0xf9f)
- System Error Codes (4000-5999) (0xfa0-0x176f)
- System Error Codes (6000-8199) (0x1770-0x2007)
- System Error Codes (8200-8999) (0x2008-0x2327)
- System Error Codes (9000-11999) (0x2328-0x2edf)
- System Error Codes (12000-15999) (0x2ee0-0x3e7f)

HTTP error codes

If you have a website, you're going to encounter HTTP error codes at least once in your life.

There could be more than one reason for an HTTP error response code. It might occur because a web page is no longer available (404 not found) or because of a problem with the server (500 internal error).

What are HTTP error codes?

HTTP status codes are responses issued for a client's request made to a server. For example, when your client (your web browser) tries to connect to your WordPress site (the server).

Based on how the request is handled, the server shows different responses. These responses include redirects, server errors, client errors, and others as such. HTTP error codes are not part of web pages; instead, **they are responses from servers about how the request is handled**.

Not all HTTP status codes indicate errors. For example, some just communicate that a page has been moved, either permanently or temporarily. But if you *are* experiencing errors, the HTTP error codes that you see will help you figure out what the problem is.

Now that you know what it is, let's dig into some of the most common HTTP error codes and status codes and how to fix them.

Seven most common HTTP error codes and status codes

"401 Unauthorized"

First on our list of HTTP error codes is 401. A 401 message means the server received an unauthenticated request.

In this error, a message announces that the page couldn't load because of invalid credentials for whatever reason.

How to fix it?

It could be possible the login URL has changed, or the URL you entered is incorrect. However, if that's not the case, try clearing the browser cache and cookies.

Full guide to fix 401 error code

"404 Not Found"

A 404 status code is a common HTTP error code on the internet. This HTTP response is generated when a page the user is looking for cannot be found on the server. There could be multiple reasons behind 404 occurrences. Perhaps because the webmaster has deleted the page or the URL you have entered is incorrect (since it's a client-side error).

How to fix it?

Fixing a broken link (or, more specifically, a 404) is still an essential maintenance task. If you are glutton for work and won't mind taking the longer route, use the .htaccess method. But a more natural way to do this is by installing the Redirection plugin from the WordPress directory. You can then redirect it to any webpage on the site.

Full guide to fix 404 error code

"500 Internal Server Error"

A 500 Internal Server Error is a generic error that displays when something is wrong with your server. Because it's a generic error message, there are a number of different causes including issues with WordPress plugins, PHP issues, database problems, and more.

How to fix it?

Fixing the 500 Internal Server Error is a bit onerous as more than one reason is to blame for its occurrence. You'll probably want to read the full guide for this one.

Full guide to fix 500 Internal Server Error

"502 Bad Gateway"

Unlike other HTTP error codes, 502 is different. A bad gateway occurs when one server on the internet receives an invalid response from another server. A 502 HTTP status code will be tacked on a screen when the server takes longer than expected to complete a request.

How to fix it?

Most often this can be fixed by simply refreshing the browser, or clearing the browser cache. If you have just migrated to the site, try waiting for 24 to 48 hours. You can even reach out to the hosting provider to check with them..

"301 Moved Permanently"

An HTTP 301 is when a specific webpage is permanently moved to a different URL. It's not an error per se, but it does communicate important information.

It can be on a page-level where you get pointed on another similar post (or even homepage for that matter) or a domain level.

How to fix it?

To make sure the redirection is flawless, check the redirect setup. If you have used a WordPress plugin, try switching it with redirection. If you used the .htaccess file to perform the redirection, verify that you did it correctly. Keep the domain level redirection for a few months, so Google knows the resource is moved permanently.

"302 Found"

This HTTP status code is similar to the 301, but it is used for a temporary redirect. This response tells Google that the page is moved temporarily and will be back to the original URL at some point. If done correctly, it will redirect the user to another URL in a couple of seconds.

How to fix it?

The easiest way to set up a 302 redirect is by using a WordPress plugin. You can install and use Rank Math from the WordPress directory.

"410 Gone"

This 410 Gone error is similar to the 404 response. Think of this as a permanent 404. When a webmaster decides to remove a post or page forever or republish it on another site, they can use this code.

A 410 response tells Google the requested resource is permanently removed from the internet and will not reappear. This makes it easier to get the page de-crawled or de-indexed from Google.

How to fix it?

There are multiple reasons behind a 410 gone error. First, check the input URL and make sure it's correct. Next, try debugging the update on the WordPress website. Uninstall the WordPress plugins or other third-party extensions. If none of this works, then it's a problem

from the server end. Find the .htaccess file. Next, locate the word “RewriteXXX” in the .htaccess text editor and enter the following code:

```
RewriteEngine on
RewriteRule ^(.*)$ http://yourwebsitename.con/expired_page $1 [R=410,L]
```

When entering the code, replace `[http://yourwebsitename.con/expired_page]` with the URL that is expired, or where you’d like to add 410 responses.

Conclusion

Now that you learned about the most common HTTP error codes and status codes, it’s time to fix them on your site and improve your site’s user experience and SEO.

There are also some other ways to improve how your site works with HTTP error codes. For example, you could create a custom 404 page that visitors will see when they try to visit a page that doesn’t exist.

LET’S CONSIDER A DELL COMPUTER

What Is a Blue Screen Error?

When Windows encounters certain situations, it halts and the resulting diagnostic information is displayed in white text on a blue screen. The appearance of these errors is where the term "**Blue Screen**" (Crash Screen) has come from.

In a lot of instances, the screen only flashes up for a few seconds before re-booting. You can disable this process by following the steps in **Section 2** below, allowing further analysis of the error.

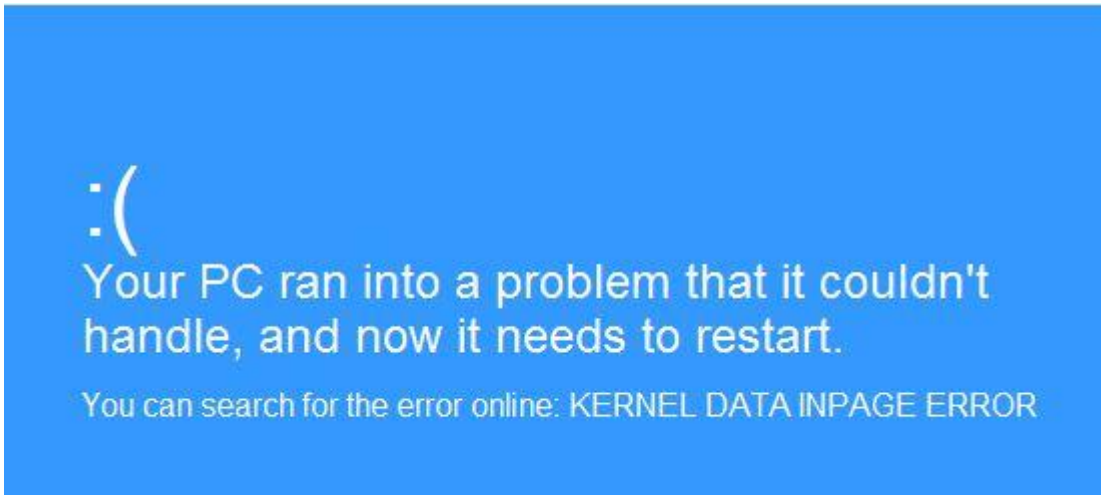
Blue Screen errors occur when:

- Windows detects an error it cannot recover from without losing data.
- Windows detects that critical OS data has become corrupted.
- Windows detects that hardware has failed in a non-recoverable fashion.

The text displayed can either be text based (**Figure 1**) or graphical based as in Windows 8 and 10 (**Figure 2**)

Figure 1

Figure 2



2. HOW TO DISABLE AUTOMATIC RESTART

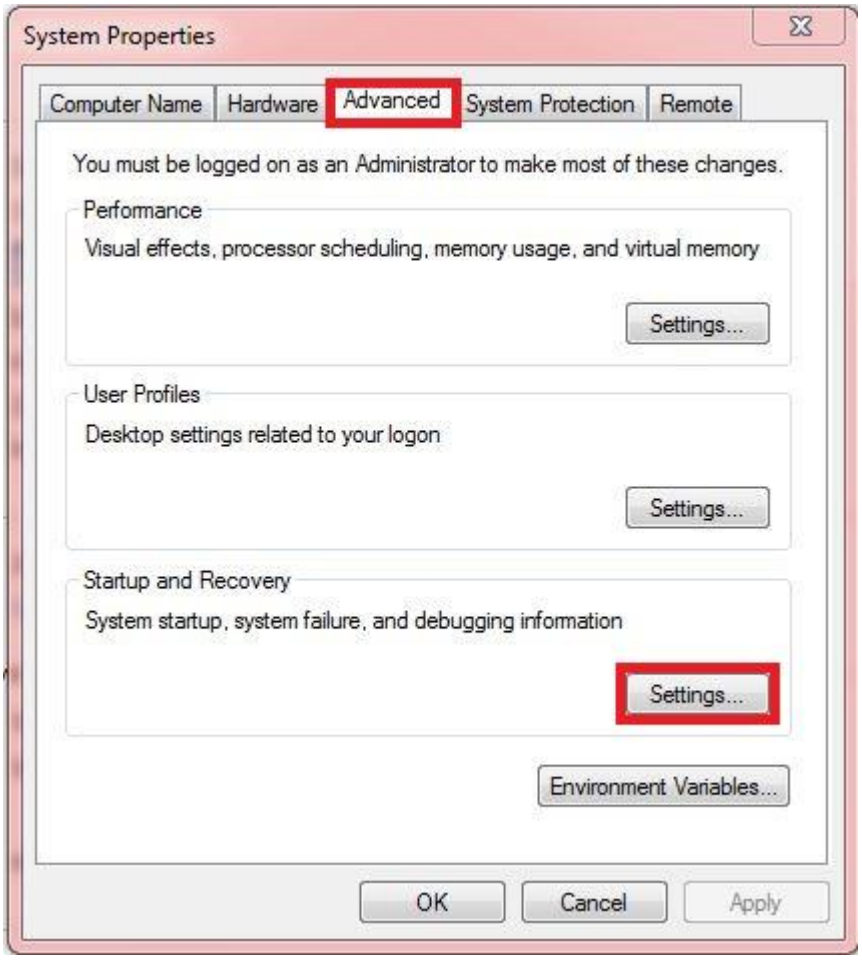
Whenever a critical error is detected in Windows, your Windows PC restarts itself to prevent any further damage to your computer.

This is a safety measure integrated into Windows. In order to further analyse the STOP or blue screen error, we need to know the Error code and information associated with the error.

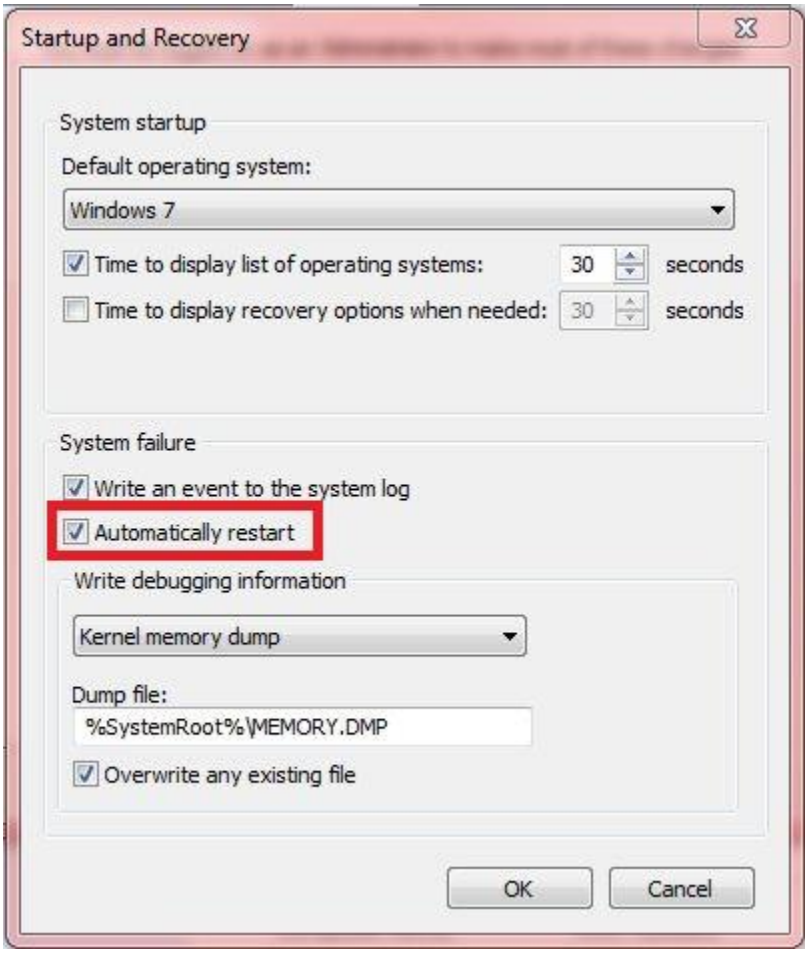
This information is displayed when you turn off **Automatic Restart on System Failure**.

Here are the steps to disable Automatic Restart on system failure in Windows 8 and 10 (applies to Windows 10, 8, 7, Vista and XP)

1. In Windows 10 in the Taskbar search Box, and on the Start screen in Windows 8 (Start menu in 7, Vista, XP) type **System**.
2. Click on the **System** link displayed.
3. On the list of links in the left pane, Click on **Advanced System Settings**



4. Click on **Settings** in the Startup and Recovery section



5. Untick the checkbox that says Automatically Restart
6. Click on **OK**
7. Click on **Apply** then **OK**

Next time your system crashes, instead of restarting, it will halt on a screen with an error code and some information associated with the error.

Note down this information so that you can troubleshoot the error.

4. TROUBLESHOOTING COMMON BLUE SCREEN ERROR MESSAGES DEPENDING ON OPERATING SYSTEM VERSION 10

For articles concerning Windows 10 version please click on the relative link below

- **Windows 10** Blue Screen Troubleshooting.

List of Common Windows Error Codes and How to Fix them

If you are using Windows, chances are there that you will run into Windows error codes every now and then. But will it stop you from using Windows? That is why there is the need

to discuss the list of common Windows error codes and also a fix for them. The list can be found in the link below

https://www.geekdashboard.com/list-of-common-windows-error-codes-and-how-to-fix-them/

Bookmark this article because it can be your quick reference to the common Windows error codes and the solutions to fix.

List of Common Windows Error Codes and How to Fix them

Most of the Windows error codes can be solved without facing any difficulty. For simple common Windows error codes, some solutions are as follows:

Windows Error Code System Error. Code: 2.

Error Code Message The System cannot find the file specified.

Error Code 2 Solution

You need to uninstall NCP and DUN. Later, reinstall NCP and DUN to find the specified file.

Windows Error Code Error Code -5

Error Code Message Access Denied

Error Code 5 Solution

1. Check whether you have entered the correct Username and Password in the domain field for NT/2k.
2. Activate the option termed as '*accept any authentication including clear text*'.

Windows Error Code Run time error code 5

Error Code Message Invalid Procedure Call

Runtime Error Code 5 Solution

- Your computer should be cool booted.
- Check the RAM and Swap file of the computer.

Windows Error Code Error Code #20

Error Message The system cannot find the specified device.

Error Code 20 Solution

- Check whether you have selected the right modem or not.
- Reinstall the device and try to select it again.
- Reinstall NCP/DUN/RAS.

Windows Error Error Code #71

Error Message No more connections are allowed.

Solution

- Check whether any other person has connected to your network or not.
- Check the service with the Internet Service Provider. They might have turned off the ghost program.

Windows Error Code #380

Error Message Invalid Proper Value

Solution

- Point the autodial to the right dialer.
- Reset the dialer.

Windows Error Code #600

Error Message An operation is pending.

Solution

- Reboot your computer.
- Make sure that no program is using the modem.
- Check whether your computer is spyware free or not.

Windows Error Error Code #601

Error Message The port handle is invalid.

Solution

- Look into the '**More info**' section of your modem's COM port. If you are getting ATI responses from it, reboot your computer.
- Reinstall the setting of the modem.
- Reinstall the components of the Dial-up Networking.
- Check whether your modem is working properly or not.

Windows Error Code #602

Error Message The port is already open.

Solution

- Reboot your computer.
- Make sure that no program is using the modem.
- Uninstall AOL Adapters. Reboot your computer. Reinstall Dial-up Adapter.
- Deactivate Quicken Download Manager.
- Install the settings of your modem again.
- Check whether your computer is spyware free or not.

Windows Error Error Code #603

Error Message Caller's buffer is too small.

Solution

- Configure your port to a low speed.
- Check the settings of FIFO. It shouldn't be placed too low.
- Reinstall the components of Dial-up Networking.

Windows Error Error Code #604

Error Message Wrong information specified.

Solution

- Enter the correct Username and Password.
- Make sure that in your area there is no outages.
- Reset the dialer.
- Reinstall the components of Dial-up Networking.
- Reinstall the settings of your modem.

Windows Error Error Code #605

Error Message Cannot set port information.

Solution

- Make sure that in your area there is no outages.
- Reset the dialer.
- Reinstall the components of Dial-up Networking.
- Reinstall the settings of your modem.

Windows Error Error Code #606

Error Message The port is not connected.

Solution

- Look into the 'More info' section of your modem's COM port. If you are getting ATI responses from it, reboot your computer.
- Reinstall the settings of your modem.
- Check whether your modem is working properly or not.

Windows Error Error Code #607

Error Message The event is invalid.

Solution

- Check whether the settings of the event log is correct or not. If you are facing the problem while dialing up, chances are there that the event log settings are incorrect.
- Set up the correct modem drivers.
- Reinstall the dialer.
- Check whether your modem is working properly or not. Reinstall the modem settings.

Windows Error Error Code #608

Error Message The device does not exist.

Solution

- Ensure that the right modem is set to the dialler.
- Set up the correct modem drivers.
- Reinstall the dialer.
- Check whether your modem is working properly or not. Reinstall the modem settings.

Windows Error Error Code #609

Error Message The device type does not exist.

Solution

- Ensure that the right modem is set to the dialler.
- Set up the correct modem drivers.
- Check whether your modem is working properly or not. Reinstall the modem settings.

Windows Error Error Code #610

Error Message The buffer is invalid.

Solution

- Ensure that the port speed is low.
- Make sure the FIFO setting is not too low.
- Reinstall the dialer.

Windows Error Error Code #611

Error Message The route is not available.

Solution

- Reboot your computer.
- Enter the correct configuration in your dialer and network settings.
- Reinstall the components of the network.

Windows Error Error Code #612

Error Message The route is not allocated.

Solution

- Reboot your computer.
- Enter the correct configuration in your dialer and network settings.

Windows Error Error Code #615

Error Message The port was not found.

Solution

- Reinstall your modem drivers.

Windows Error Error Code #616

Error Message An asynchronous request is pending.

Solution

- Reboot your computer.
- Reinstall your modem drivers.

BEEP SOUND ERRORS 0200648254 fatima

You must know about long and short beep to understand beep sound errors. Generally, these sounds come from CPU when it is powered on.

No of beeps	Type of error
1 short beep	Okay, No error
1 long and 3 short beeps	Graphics card settings errors
1 short and 3 long beeps	Error in system memory
1 long and 9 short beeps	ROM issue
5 short beeps	Issue with CPU

If you listen to a beep immediately after OS is loaded, then you are facing over heat issue. Open the CPU and clean the dust.

The Most Common Windows 10 Error Messages & How To Fix Them

A lot codes are the product of a single error. On-screen errors are always a source of frustration. In a time when our lives are being made easier through the use of fast internet and digital technology, most would expect everything to work flawlessly. This couldn't be further from the truth. When dealing with **Windows 10**, the only thing you should expect is to encounter a few errors along the way.

Sadly, there are some errors that are unavoidable. So why do these errors occur? What does each error mean? How can you fix them?

The Most Common Windows 10 Error Messages & How To Fix Them

Unfortunately, a lot of error codes are actually the product of a single error.

Windows 10 Update Errors

Most of the errors that you'll encounter with Windows 10 will occur while running Windows Updates. This error can be referred to as the mother of all annoyances. It will contain one of the following codes, if not something similar.

0x80070057, WindowsUpdate_8007002C, WindowsUpdate_dt000, 0x80072ee7, 80070005, 80240020, 80246007, 80070004… and many more.

According to Microsoft, these errors occur when Windows 10 initiates an automatic update and a program requires user interaction.

However, if you initiate the Windows Update, these types of errors can occur for various reasons. Often times it will require a few computer restarts in order to fix it. Removing your security software can help at times though it's not recommended.

If you've restarted multiple times and you're still getting the error, then there is a possibility that something is wrong with your software distribution folder.

- Click to open your **Windows Start Menu** in the lower-left corner of your screen.
- Click on the **Settings** icon which looks like the cogwheel.
- Scroll down the window and click on **Update & Security**.
- Click on **Troubleshoot** from the left side menu.

- From the Troubleshoot window, click on **Windows Update** under the **Get up and running** heading.
- Click on the **Run troubleshooter** button.
- Follow the on-screen wizard until troubleshooting is complete.

Still doesn't fix the problem? You can run it a few more times or you might give manually modifying the software distribution folder a try.

This process could prove difficult if you're unfamiliar with the use of the Command Prompt. Only attempt it if you feel comfortable.

- Type **cmd** into the search field on your taskbar.
- Under **Best Match**, right-click on **Command Prompt** and select **Run as administrator** from the menu.

A few services will be disabled. Start with the first command on the list and work your way down. Press the Enter key after each entered command.

Earlier services disabled will now, be restarted.

Close out of the command prompt, restart your computer, and attempt your updates again.

Runtime Errors

There are many reasons for this error to occur: You may be running two incompatible software programs, your PC has memory issues, potential complications brought on by a malicious virus, and bugged programming to name only a few.

They are often accompanied by a numerical code that helps identify which problem is being experienced.

The fix is usually an easy one.

- Open up your **Task Manager**.
- Click over to the **Processes** tab and sort the list by **Username**.
- End each running process one by one. After each ended process, attempt what you were doing when the error occurred.
- If the error doesn't return, you've found the incompatible program.

- Update the incompatible program to prevent the error from occurring in the future.

The program you're attempting to run could also be bugged or corrupted so be sure that all programs are up to date before running them.

BSOD/FROWNY FACE/STOP ERRORS

Infamously known as the Blue Screen of Death, this error will generally occur when the Windows OS comes across a problem it can't handle and shuts down to avoid further complications.

No longer just a blue screen with numerical error codes, you can identify this screen by the frowny face accompanied by the basic message **Your PC ran into a problem…** typically followed by an error code. No matter what, after receiving this screen you'll be forced to reboot your PC. This can make troubleshooting the error a bit complicated.

The chances are, whichever change you made right before the error occurred is probably the culprit. Depending on what it was that was changed, you can choose to reboot using the last known good configuration, via **System Restore**, or by rolling back the device driver.

Ensure that you have all Windows service packs and updates applied, update all hardware drivers and software updates, and do a virus scan.

If it's a software problem, reinstall it or contact the developer for assistance. For a hardware issue, update the firmware or replace the component.

CONCLUSION

The errors mentioned barely scratch the surface of the many that you can encounter while using **Windows 10**. They are the most common errors you'll face.

If you encounter a specific error not covered in this post and it has an error code present, a quick Google search could prove useful in understanding why it happened and how best to fix it.

List of Blue Screen Error Codes

Complete BSOD Error Code List From STOP 0x1 to STOP 0xC0000221

A Blue Screen of Death (BSOD), technically called a *stop error*, occurs when Windows suffers a serious problem and is forced to "stop" completely.

BSOD errors occur in any Windows operating system, including Windows 10.

Since a blue screen error gives you no choice but to restart, troubleshooting one can be difficult. Fortunately, almost every stop error includes a hexadecimal-based stop code that can be used to research a fix.

Alex Dos Diaz / Lifewire

Below are links to information on individual stop errors including what each code means and any troubleshooting information we have or have found elsewhere, on that blue screen error.

Read the links to specific information on your particular STOP code in the list below, but if we don't have a detailed solution, especially if the BSOD is uncommon, see the How to Fix a Blue Screen of Death guide instead.

All STOP codes below are listed in order—see How to Count in Hexadecimal if you get lost trying to find yours. If you still have trouble, you may try searching for the BSOD error code using your browser's page search feature (usually h the *Ctrl+F* keyboard shortcut).

BSOD Error Codes List

STOP Code	Cause of the Blue Screen
0x00000001	This BSOD means that there has been a mismatch in the APC state index. BSOD error code 0x00000001 may also show "APC_INDEX_MISMATCH" on the same blue screen.
0x00000002	This BSOD is uncommon. BSOD error code 0x00000002 may also show "DEVICE_QUEUE_NOT_BUSY" on the same blue screen.
0x00000003	This BSOD is uncommon. BSOD error code 0x00000003 may also show "INVALID_AFFINITY_SET" on the same blue screen.
0x00000004	This BSOD is uncommon. BSOD error code 0x00000004 may also show "INVALID_DATA_ACCESS_TRAP" on the same blue screen.
0x00000005	This BSOD is uncommon. BSOD error code 0x00000005 may also show "INVALID_PROCESS_ATTACH_ATTEMPT" on the same blue screen.
0x00000006	This BSOD is uncommon. BSOD error code 0x00000006 may also show "INVALID_PROCESS_DETACH_ATTEMPT" on the same blue screen.
0x00000007	This BSOD is uncommon. BSOD error code 0x00000007 may also show "INVALID_SOFTWARE_INTERRUPT" on the same blue screen.
0x00000008	This BSOD is uncommon. BSOD error code 0x00000008 may also show "IRQL_NOT_DISPATCH_LEVEL" on the same blue screen.
0x00000009	This BSOD is uncommon. BSOD error code 0x00000009 may also show "IRQL_NOT_GREATER_OR_EQUAL" on the same blue screen.
0x0000000A	This BSOD means that Microsoft Windows or a kernel-mode driver accessed paged memory at DISPATCH_LEVEL or above. BSOD error code 0x0000000A may also show "IRQL_NOT_LESS_OR_EQUAL" on the same blue screen.

BSOD Error Codes List

0x0000000B	This BSOD is uncommon. BSOD error code 0x0000000B may also show "NO_EXCEPTION_HANDLING_SUPPORT" on the same blue screen.
0x0000000C	This BSOD means that the current thread exceeded the permitted number of wait objects. BSOD error code 0x0000000C may also show "MAXIMUM_WAIT_OBJECTS_EXCEEDED" on the same blue screen.
0x0000000D	This BSOD is uncommon. BSOD error code 0x0000000D may also show "MUTEX_LEVEL_NUMBER_VIOLATION" on the same blue screen.
0x0000000E	This BSOD is uncommon. BSOD error code 0x0000000E may also show "NO_USER_MODE_CONTEXT" on the same blue screen.
0x0000000F	This BSOD means that a request for a spin lock has been initiated when the spin lock was already owned. BSOD error code 0x0000000F may also show "SPIN_LOCK_ALREADY_OWNED" on the same blue screen.
0x00000010	This BSOD is uncommon. BSOD error code 0x00000010 may also show "SPIN_LOCK_NOT_OWNED" on the same blue screen.
0x00000011	This BSOD is uncommon. BSOD error code 0x00000011 may also show "THREAD_NOT_MUTEX_OWNER" on the same blue screen.
0x00000012	This BSOD means that an unknown exception has occurred. BSOD error code 0x00000012 may also show "TRAP_CAUSE_UNKNOWN" on the same blue screen.
0x00000013	This BSOD is uncommon. BSOD error code 0x00000013 may also show "EMPTY_THREAD_REAPER_LIST" on the same blue screen.
0x00000014	This BSOD is uncommon. BSOD error code 0x00000014 may also show "CREATE_DELETE_LOCK_NOT_LOCKED" on the same blue screen.
0x00000015	This BSOD is uncommon. BSOD error code 0x00000015 may also show "LAST_CHANCE_CALLED_FROM_KMODE" on the same blue screen.
0x00000016	This BSOD is uncommon. BSOD error code 0x00000016 may also show "CID_HANDLE_CREATION" on the same blue screen.
0x00000017	This BSOD is uncommon. BSOD error code 0x00000017 may also show "CID_HANDLE_DELETION" on the same blue screen.
0x00000018	This BSOD means that the reference count of an object is illegal for the current state of the object. BSOD error code 0x00000018 may also show "REFERENCE_BY_POINTER" on the same blue screen.

BSOD Error Codes List

0x00000019	This BSOD means that a pool header is corrupt. BSOD error code 0x00000019 may also show "BAD_POOL_HEADER" on the same blue screen.
0x0000001A	This BSOD means that a severe memory management error occurred. BSOD error code 0x0000001A may also show "MEMORY_MANAGEMENT" on the same blue screen.
0x0000001B	This BSOD is uncommon. BSOD error code 0x0000001B may also show "PFN_SHARE_COUNT" on the same blue screen.
0x0000001C	This BSOD is uncommon. BSOD error code 0x0000001C may also show "PFN_REFERENCE_COUNT" on the same blue screen.
0x0000001D	This BSOD is uncommon. BSOD error code 0x0000001D may also show "NO_SPIN_LOCK_AVAILABLE" on the same blue screen.
0x0000001E	This BSOD means that a kernel-mode program generated an exception which the error handler did not catch. BSOD error code 0x0000001E may also show "KMODE_EXCEPTION_NOT_HANDLED" on the same blue screen.
0x0000001F	This BSOD is uncommon. BSOD error code 0x0000001F may also show "SHARED_RESOURCE_CONV_ERROR" on the same blue screen.
0x00000020	This BSOD means that an asynchronous procedure call (APC) was still pending when a thread exited. BSOD error code 0x00000020 may also show "KERNEL_APC_PENDING_DURING_EXIT" on the same blue screen.
0x00000021	This BSOD means that quota charges have been mishandled by returning more quota to a particular block than was previously charged. BSOD error code 0x00000021 may also show "QUOTA_UNDERFLOW" on the same blue screen.
0x00000022	This BSOD is uncommon. BSOD error code 0x00000022 may also show "FILE_SYSTEM" on the same blue screen.
0x00000023	This BSOD means that a problem occurred in the FAT file system. BSOD error code 0x00000023 may also show "FAT_FILE_SYSTEM" on the same blue screen.
0x00000024	This BSOD means a problem occurred in ntfs.sys, the driver file that allows the system to read and write to NTFS drives. BSOD error code 0x00000024 may also show "NTFS_FILE_SYSTEM" on the same blue screen.
0x00000025	This BSOD means that a problem occurred in the NPFS file system. BSOD error code 0x00000025 may also show "NPFS_FILE_SYSTEM" on the same blue screen.

BSOD Error Codes List

0x00000026	This BSOD means that a problem occurred in the CD file system. BSOD error code 0x00000026 may also show "CDFS_FILE_SYSTEM" on the same blue screen.
0x00000027	This BSOD means that a problem occurred in the SMB redirector file system. BSOD error code 0x00000027 may also show "RDR_FILE_SYSTEM" on the same blue screen.
0x00000028	This BSOD is uncommon. BSOD error code 0x00000028 may also show "CORRUPT_ACCESS_TOKEN" on the same blue screen.
0x00000029	This BSOD is uncommon. BSOD error code 0x00000029 may also show "SECURITY_SYSTEM" on the same blue screen.
0x0000002A	This BSOD means that an IRP was found to contain inconsistent information. BSOD error code 0x0000002A may also show "INCONSISTENT_IRP" on the same blue screen.
0x0000002B	This BSOD means that the kernel mode stack was overrun. BSOD error code 0x0000002B may also show "PANIC_STACK_SWITCH" on the same blue screen.
0x0000002C	This BSOD is uncommon. BSOD error code 0x0000002C may also show "PORT_DRIVER_INTERNAL" on the same blue screen.
0x0000002D	This BSOD is uncommon. BSOD error code 0x0000002D may also show "SCSI_DISK_DRIVER_INTERNAL" on the same blue screen.
0x0000002E	This BSOD means that a parity error in system memory has been detected. BSOD error code 0x0000002E may also show "DATA_BUS_ERROR" on the same blue screen.
0x0000002F	This BSOD is uncommon. BSOD error code 0x0000002F may also show "INSTRUCTION_BUS_ERROR" on the same blue screen.
0x00000030	This BSOD means that the stack pointer in a trap frame had an invalid value. BSOD error code 0x00000030 may also show "SET_OF_INVALID_CONTEXT" on the same blue screen.
0x00000031	This BSOD means that system initialization failed. BSOD error code 0x00000031 may also show "PHASE0_INITIALIZATION_FAILED" on the same blue screen.
0x00000032	This BSOD means that system initialization failed. BSOD error code 0x00000032 may also show "PHASE1_INITIALIZATION_FAILED" on the same blue screen.
0x00000033	This BSOD is uncommon. BSOD error code 0x00000033 may also show "UNEXPECTED_INITIALIZATION_CALL" on the same blue screen.
0x00000034	This BSOD means that a problem occurred in the file system's cache manager. BSOD

BSOD Error Codes List

	error code 0x00000034 may also show "CACHE_MANAGER" on the same blue screen.
0x00000035	This BSOD occurs when the IoCallDriver packet has no more stack locations remaining BSOD error code 0x00000035 may also show "NO_MORE_IRP_STACK_LOCATIONS" on the same blue screen.
0x00000036	This BSOD means that a driver attempted to delete a device object that still had a positive reference count. BSOD error code 0x00000036 may also show "DEVICE_REFERENCE_COUNT_NOT_ZERO" on the same blue screen.
0x00000037	This BSOD is uncommon. BSOD error code 0x00000037 may also show "FLOPPY_INTERNAL_ERROR" on the same blue screen.
0x00000038	This BSOD is uncommon. BSOD error code 0x00000038 may also show "SERIAL_DRIVER_INTERNAL" on the same blue screen.
0x00000039	This BSOD means that the worker routine returned without releasing the mutex object that it owned. BSOD error code 0x00000039 may also show "SYSTEM_EXIT_OWNED_MUTEX" on the same blue screen.
0x0000003A	This BSOD is uncommon. BSOD error code 0x0000003A may also show "SYSTEM_UNWIND_PREVIOUS_USER" on the same blue screen.
0x0000003B	This BSOD means that an exception happened while executing a routine that transitions from non-privileged code to privileged code. BSOD error code 0x0000003B may also show "SYSTEM_SERVICE_EXCEPTION" on the same blue screen.
0x0000003C	This BSOD is uncommon. BSOD error code 0x0000003C may also show "INTERRUPT_UNWIND_ATTEMPTED" on the same blue screen.
0x0000003D	This BSOD is uncommon. BSOD error code 0x0000003D may also show "INTERRUPT_EXCEPTION_NOT_HANDLED" on the same blue screen.
0x0000003E	This BSOD means that the system has multiple processors, but they are asymmetric in relation to one another. BSOD error code 0x0000003E may also show "MULTIPROCESSOR_CONFIGURATION_NOT_SUPPORTED" on the same blue screen.
0x0000003F	This BSOD is the result of a system which has performed too many I/O actions. This has resulted in fragmented system page table entries (PTE). BSOD error code 0x0000003F may also show "NO_MORE_SYSTEM_PTES" on the same blue screen.
0x00000040	This BSOD means that a driver has improperly used IoBuildPartialMdl BSOD error code 0x00000040 may also show "TARGET_MDL_TOO_SMALL" on the same blue screen.

BSOD Error Codes List

0x00000041	This BSOD means that a kernel-mode thread has requested too much must-succeed pool. BSOD error code 0x00000041 may also show "MUST_SUCCEED_POOL_EMPTY" on the same blue screen.
0x00000042	This BSOD is uncommon. BSOD error code 0x00000042 may also show "ATDISK_DRIVER_INTERNAL" on the same blue screen.
0x00000043	This BSOD is uncommon. BSOD error code 0x00000043 may also show "NO_SUCH_PARTITION" on the same blue screen.
0x00000044	This BSOD means that a driver has tried to requested an IRP be completed that is already complete. BSOD error code 0x00000044 may also show "MULTIPLE_IRP_COMPLETE_REQUESTS" on the same blue screen.
0x00000045	This BSOD is uncommon. BSOD error code 0x00000045 may also show "INSUFFICIENT_SYSTEM_MAP_REGS" on the same blue screen.
0x00000046	This BSOD is uncommon. BSOD error code 0x00000046 may also show "DEREF_UNKNOWN_LOGON_SESSION" on the same blue screen.
0x00000047	This BSOD is uncommon. BSOD error code 0x00000047 may also show "REF_UNKNOWN_LOGON_SESSION" on the same blue screen.
0x00000048	This BSOD means that an I/O request packet (IRP) was completed, and then was subsequently canceled. BSOD error code 0x00000048 may also show "CANCEL_STATE_IN_COMPLETED_IRP" on the same blue screen.
0x00000049	This BSOD is uncommon. BSOD error code 0x00000049 may also show "PAGE_FAULT_WITH_INTERRUPTS_OFF" on the same blue screen.
0x0000004A	This BSOD means that a thread is returning to user mode from a system call when its IRQL is still above PASSIVE_LEVEL. BSOD error code 0x0000004A may also show "IRQL_GT_ZERO_AT_SYSTEM_SERVICE" on the same blue screen.
0x0000004B	This BSOD is uncommon. BSOD error code 0x0000004B may also show "STREAMS_INTERNAL_ERROR" on the same blue screen.
0x0000004C	This BSOD is uncommon. BSOD error code 0x0000004C may also show "FATAL_UNHANDLED_HARD_ERROR" on the same blue screen.
0x0000004D	This BSOD means that no free pages are available to continue operations. BSOD error code 0x0000004D may also show "NO_PAGES_AVAILABLE" on the same blue screen.
0x0000004E	This BSOD means that the page frame number (PFN) list is corrupted. BSOD error code

BSOD Error Codes List

	0x0000004E may also show "PFN_LIST_CORRUPT" on the same blue screen.
0x0000004F	This BSOD is uncommon. BSOD error code 0x0000004F may also show "NDIS_INTERNAL_ERROR" on the same blue screen.
0x00000050	This BSOD means that invalid system memory has been referenced. BSOD error code 0x00000050 may also show "PAGE_FAULT_IN_NONPAGED_AREA" on the same blue screen.
0x00000051	This BSOD means that a severe registry error has occurred. BSOD error code 0x00000051 may also show "REGISTRY_ERROR" on the same blue screen.
0x00000052	This BSOD is uncommon. BSOD error code 0x00000052 may also show "MAILSLOT_FILE_SYSTEM" on the same blue screen.
0x00000053	This BSOD is uncommon. BSOD error code 0x00000053 may also show "NO_BOOT_DEVICE" on the same blue screen.
0x00000054	This BSOD is uncommon. BSOD error code 0x00000054 may also show "LM_SERVER_INTERNAL_ERROR" on the same blue screen.
0x00000055	This BSOD is uncommon. BSOD error code 0x00000055 may also show "DATA_COHERENCY_EXCEPTION" on the same blue screen.
0x00000056	This BSOD is uncommon. BSOD error code 0x00000056 may also show "INSTRUCTION_COHERENCY_EXCEPTION" on the same blue screen.
0x00000057	This BSOD is uncommon. BSOD error code 0x00000057 may also show "XNS_INTERNAL_ERROR" on the same blue screen.
0x00000058	This BSOD will appear if the system is booted from the wrong copy of a mirrored partition. BSOD error code 0x00000058 may also show "FTDISK_INTERNAL_ERROR" on the same blue screen.
0x00000059	This BSOD means that a problem occurred in the Pinball file system. BSOD error code 0x00000059 may also show "PINBALL_FILE_SYSTEM" on the same blue screen.
0x0000005A	This BSOD is uncommon. BSOD error code 0x0000005A may also show "CRITICAL_SERVICE_FAILED" on the same blue screen.
0x0000005B	This BSOD is uncommon. BSOD error code 0x0000005B may also show "SET_ENV_VAR_FAILED" on the same blue screen.
0x0000005C	This BSOD is uncommon. BSOD error code 0x0000005C may also show

BSOD Error Codes List

	"HAL_INITIALIZATION_FAILED" on the same blue screen.
0x0000005D	This BSOD means that the computer is attempting to run Windows on an unsupported processor. BSOD error code 0x0000005D may also show "UNSUPPORTED_PROCESSOR" on the same blue screen.
0x0000005E	This BSOD is uncommon. BSOD error code 0x0000005E may also show "OBJECT_INITIALIZATION_FAILED" on the same blue screen.
0x0000005F	This BSOD is uncommon. BSOD error code 0x0000005F may also show "SECURITY_INITIALIZATION_FAILED" on the same blue screen.
0x00000060	This BSOD is uncommon. BSOD error code 0x00000060 may also show "PROCESS_INITIALIZATION_FAILED" on the same blue screen.
0x00000061	This BSOD is uncommon. BSOD error code 0x00000061 may also show "HAL1_INITIALIZATION_FAILED" on the same blue screen.
0x00000062	This BSOD is uncommon. BSOD error code 0x00000062 may also show "OBJECT1_INITIALIZATION_FAILED" on the same blue screen.
0x00000063	This BSOD is uncommon. BSOD error code 0x00000063 may also show "SECURITY1_INITIALIZATION_FAILED" on the same blue screen.
0x00000064	This BSOD is uncommon. BSOD error code 0x00000064 may also show "SYMBOLIC_INITIALIZATION_FAILED" on the same blue screen.
0x00000065	This BSOD is uncommon. BSOD error code 0x00000065 may also show "MEMORY1_INITIALIZATION_FAILED" on the same blue screen.
0x00000066	This BSOD is uncommon. BSOD error code 0x00000066 may also show "CACHE_INITIALIZATION_FAILED" on the same blue screen.
0x00000067	This BSOD means that the registry configuration failed. BSOD error code 0x00000067 may also show "CONFIG_INITIALIZATION_FAILED" on the same blue screen.
0x00000068	This BSOD is uncommon. BSOD error code 0x00000068 may also show "FILE_INITIALIZATION_FAILED" on the same blue screen.
0x00000069	This BSOD means that the initialization of the I/O system failed for some reason. BSOD error code 0x00000069 may also show "IO1_INITIALIZATION_FAILED" on the same blue screen.
0x0000006A	This BSOD is uncommon. BSOD error code 0x0000006A may also show

BSOD Error Codes List

	"LPC_INITIALIZATION_FAILED" on the same blue screen.
0x0000006B	This BSOD means that the initialization of the Microsoft Windows operating system failed. BSOD error code 0x0000006B may also show "PROCESS1_INITIALIZATION_FAILED" on the same blue screen.
0x0000006C	This BSOD is uncommon. BSOD error code 0x0000006C may also show "REFMON_INITIALIZATION_FAILED" on the same blue screen.
0x0000006D	This BSOD means that the initialization of the Microsoft Windows operating system failed. BSOD error code 0x0000006D may also show "SESSION1_INITIALIZATION_FAILED" on the same blue screen.
0x0000006E	This BSOD means that the initialization of the Microsoft Windows operating system failed. BSOD error code 0x0000006E may also show "SESSION2_INITIALIZATION_FAILED" on the same blue screen.
0x0000006F	This BSOD means that the initialization of the Microsoft Windows operating system initialization. BSOD error code 0x0000006F may also show "SESSION3_INITIALIZATION_FAILED" on the same blue screen.
0x00000070	This BSOD means that the initialization of the Microsoft Windows operating system failed. BSOD error code 0x00000070 may also show "SESSION4_INITIALIZATION_FAILED" on the same blue screen.
0x00000071	This BSOD means that the initialization of the Microsoft Windows operating system failed. BSOD error code 0x00000071 may also show "SESSION5_INITIALIZATION_FAILED" on the same blue screen.
0x00000072	This BSOD is uncommon. BSOD error code 0x00000072 may also show "ASSIGN_DRIVE_LETTERS_FAILED" on the same blue screen.
0x00000073	This BSOD means that one of the top-level registry keys, also known as core system hives, cannot be linked in the registry tree. BSOD error code 0x00000073 may also show "CONFIG_LIST_FAILED" on the same blue screen.
0x00000074	This BSOD means that there is an error in the registry. BSOD error code 0x00000074 may also show "BAD_SYSTEM_CONFIG_INFO" on the same blue screen.
0x00000075	This BSOD means that the SYSTEM registry hive file cannot be converted to a mapped file. BSOD error code 0x00000075 may also show "CANNOT_WRITE_CONFIGURATION" on the same blue screen.
0x00000076	This BSOD means that a driver failed to release locked pages after an I/O operation. BSOD error code 0x00000076 may also show "PROCESS_HAS_LOCKED_PAGES" on the

	same blue screen.
0x00000077	This BSOD means that the requested page of kernel data from the paging file could not be read into memory. BSOD error code 0x00000077 may also show "KERNEL_STACK_INPAGE_ERROR" on the same blue screen.
0x00000078	This BSOD is uncommon. BSOD error code 0x00000078 may also show "PHASE0_EXCEPTION" on the same blue screen.
0x00000079	This BSOD means that the Hardware Abstraction Layer (HAL) revision level or configuration does not match that of the kernel or the computer. BSOD error code 0x00000079 may also show "MISMATCHED_HAL" on the same blue screen.
0x0000007A	This BSOD means that the requested page of kernel data from the paging file could not be read into memory. BSOD error code 0x0000007A may also show "KERNEL_DATA_INPAGE_ERROR" on the same blue screen.
0x0000007B	This BSOD means that the Microsoft Windows operating system has lost access to the system partition during startup. BSOD error code 0x0000007B may also show "INACCESSIBLE_BOOT_DEVICE" on the same blue screen.
0x0000007C	This BSOD means that a problem occurred with an NDIS driver. BSOD error code 0x0000007C may also show "BUGCODE_NDIS_DRIVER" on the same blue screen.
0x0000007D	This BSOD means that there is not enough memory to start the Microsoft Windows operating system. BSOD error code 0x0000007D may also show "INSTALL_MORE_MEMORY" on the same blue screen.
0x0000007E	This BSOD means that a system thread generated an exception that the error handler did not catch. BSOD error code 0x0000007E may also show "SYSTEM_THREAD_EXCEPTION_NOT_HANDLED" on the same blue screen.
0x0000007F	This BSOD means that the Intel CPU generated a trap and the kernel failed to catch this trap. BSOD error code 0x0000007F may also show "UNEXPECTED_KERNEL_MODE_TRAP" on the same blue screen.
0x00000080	This BSOD means that a hardware malfunction has occurred. BSOD error code 0x00000080 may also show "NMI_HARDWARE_FAILURE" on the same blue screen.
0x00000081	This BSOD is uncommon. BSOD error code 0x00000081 may also show "SPIN_LOCK_INIT_FAILURE" on the same blue screen.
0x00000082	This BSOD is uncommon. BSOD error code 0x00000082 may also show "DFS_FILE_SYSTEM" on the same blue screen.

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0x00000085	This BSOD means that a fatal error occurred during setup. BSOD error code 0x00000085 may also show "SETUP_FAILURE" on the same blue screen.
0x0000008B	This BSOD means that a mismatch has occurred in the MBR checksum. BSOD error code 0x0000008B may also show "MBR_CHECKSUM_MISMATCH" on the same blue screen.
0x0000008E	This BSOD means that a kernel-mode application generated an exception that the error handler did not catch. BSOD error code 0x0000008E may also show "KERNEL_MODE_EXCEPTION_NOT_HANDLED" on the same blue screen.
0x0000008F	This BSOD means that the Plug and Play (PnP) manager could not be initialized. BSOD error code 0x0000008F may also show "PP0_INITIALIZATION_FAILED" on the same blue screen.
0x00000090	This BSOD means that the Plug and Play (PnP) manager could not be initialized. BSOD error code 0x00000090 may also show "PP1_INITIALIZATION_FAILED" on the same blue screen.
0x00000092	This BSOD means that a uniprocessor-only driver has been loaded on a multiprocessor system. BSOD error code 0x00000092 may also show "UP_DRIVER_ON_MP_SYSTEM" on the same blue screen.
0x00000093	This BSOD means that an invalid or protected handle was passed to NtClose. BSOD error code 0x00000093 may also show "INVALID_KERNEL_HANDLE" on the same blue screen.
0x00000094	This BSOD means that a thread exited while its kernel stack was marked as not swappable. BSOD error code 0x00000094 may also show "KERNEL_STACK_LOCKED_AT_EXIT" on the same blue screen.
0x00000096	This BSOD means that a queue entry was removed that contained a null pointer. BSOD error code 0x00000096 may also show "INVALID_WORK_QUEUE_ITEM" on the same blue screen.
0x00000097	This BSOD is uncommon. BSOD error code 0x00000097 may also show "BOUND_IMAGE_UNSUPPORTED" on the same blue screen.
0x00000098	This BSOD means that the trial period for the Microsoft Windows operating system has ended. BSOD error code 0x00000098 may also show "END_OF_NT_EVALUATION_PERIOD" on the same blue screen.
0x00000099	This BSOD means that ExInitializeRegion or ExInterlockedExtendRegion was called with an invalid set of parameters. BSOD error code 0x00000099 may also show

BSOD Error Codes List

	"INVALID_REGION_OR_SEGMENT" on the same blue screen.
0x0000009A	This BSOD means that the software license agreement has been violated. BSOD error code 0x0000009A may also show "SYSTEM_LICENSE_VIOLATION" on the same blue screen.
0x0000009B	This BSOD means that a problem occurred in the UDF file system. BSOD error code 0x0000009B may also show "UDFS_FILE_SYSTEM" on the same blue screen.
0x0000009C	This BSOD means that a fatal machine check exception has occurred. BSOD error code 0x0000009C may also show "MACHINE_CHECK_EXCEPTION" on the same blue screen.
0x0000009E	This BSOD means that one or more critical user-mode components failed to satisfy a health check. BSOD error code 0x0000009E may also show "USER_MODE_HEALTH_MONITOR" on the same blue screen.
0x0000009F	This BSOD means that the driver is in an inconsistent or invalid power state. BSOD error code 0x0000009F may also show "DRIVER_POWER_STATE_FAILURE" on the same blue screen.
0x000000A0	This BSOD means that the power policy manager experienced a fatal error. BSOD error code 0x000000A0 may also show "INTERNAL_POWER_ERROR" on the same blue screen.
0x000000A1	This BSOD means that the PCI Bus driver detected inconsistency problems in its internal structures and could not continue. BSOD error code 0x000000A1 may also show "PCI_BUS_DRIVER_INTERNAL" on the same blue screen.
0x000000A2	This BSOD means that corruption has been detected in the image of an executable file in memory. BSOD error code 0x000000A2 may also show "MEMORY_IMAGE_CORRUPT" on the same blue screen.
0x000000A3	This BSOD means that the ACPI driver detected an internal inconsistency. BSOD error code 0x000000A3 may also show "ACPI_DRIVER_INTERNAL" on the same blue screen.
0x000000A4	This BSOD means that a problem occurred in the CNSS file system filter. BSOD error code 0x000000A4 may also show "CNSS_FILE_SYSTEM_FILTER" on the same blue screen.
0x000000A5	This BSOD means that the Advanced Configuration and Power Interface (ACPI) BIOS of the computer is not fully compliant with the ACPI specification. BSOD error code 0x000000A5 may also show "ACPI_BIOS_ERROR" on the same blue screen.
0x000000A7	This BSOD means that the kernel-mode handle table detected an inconsistent handle table entry state. BSOD error code 0x000000A7 may also show "BAD_EXHANDLE" on

	the same blue screen.
0x000000AB	This BSOD means that a session unload occurred while a session driver still held memory. BSOD error code 0x000000AB may also show "SESSION_HAS_VALID_POOL_ON_EXIT" on the same blue screen.
0x000000AC	This BSOD means that the hardware abstraction layer (HAL) could not obtain sufficient memory. BSOD error code 0x000000AC may also show "HAL_MEMORY_ALLOCATION" on the same blue screen.
0x000000AD	This BSOD means that the video port created a non-fatal minidump on behalf of the video driver during run time. BSOD error code 0x000000AD may also show "VIDEO_DRIVER_DEBUG_REPORT_REQUEST" on the same blue screen.
0x000000B4	This BSOD means that Windows was unable to enter graphics mode. BSOD error code 0x000000B4 may also show "VIDEO_DRIVER_INIT_FAILURE" on the same blue screen.
0x000000B8	This BSOD means that an illegal operation was attempted by a delayed procedure call (DPC) routine. BSOD error code 0x000000B8 may also show "ATTEMPTED_SWITCH_FROM_DPC" on the same blue screen.
0x000000B9	This BSOD is uncommon. BSOD error code 0x000000B9 may also show "CHIPSET_DETECTED_ERROR" on the same blue screen.
0x000000BA	This BSOD means that a session driver still had mapped views when the session unloaded. BSOD error code 0x000000BA may also show "SESSION_HAS_VALID_VIEWS_ON_EXIT" on the same blue screen.
0x000000BB	This BSOD means that Windows failed to successfully boot off a network. BSOD error code 0x000000BB may also show "NETWORK_BOOT_INITIALIZATION_FAILED" on the same blue screen.
0x000000BC	This BSOD means that a duplicate IP address was assigned to this machine while booting off a network. BSOD error code 0x000000BC may also show "NETWORK_BOOT_DUPLICATE_ADDRESS" on the same blue screen.
0x000000BE	This BSOD will display if a driver attempts to write to a read-only memory segment. BSOD error code 0x000000BE may also show "ATTEMPTED_WRITE_TO_READONLY_MEMORY" on the same blue screen.
0x000000BF	This BSOD means that a thread attempted to acquire ownership of a mutex it already owned. BSOD error code 0x000000BF may also show "MUTEX_ALREADY_OWNED" on the same blue screen.

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0x000000C1	This BSOD means that the driver wrote to an invalid section of the special pool. BSOD error code 0x000000C1 may also show "SPECIAL_POOL_DETECTED_MEMORY_CORRUPTION" on the same blue screen.
0x000000C2	This BSOD means that the current thread is making a bad pool request. BSOD error code 0x000000C2 may also show "BAD_POOL_CALLER" on the same blue screen.
0x000000C4	This BSOD is the general STOP code code for fatal errors found by Driver Verifier. BSOD error code 0x000000C4 may also show "DRIVER_VERIFIER_DETECTED_VIOLATION" on the same blue screen.
0x000000C5	This BSOD means that the system attempted to access invalid memory at a process IRQL that was too high. BSOD error code 0x000000C5 may also show "DRIVER_CORRUPTED_EXPOOL" on the same blue screen.
0x000000C6	This BSOD means that the driver attempted to access a freed memory pool. BSOD error code 0x000000C6 may also show "DRIVER_CAUGHT_MODIFYING_FREED_POOL" on the same blue screen.
0x000000C7	This BSOD appears if a kernel timer or delayed procedure call (DPC) is found somewhere in memory where it is not permitted. BSOD error code 0x000000C7 may also show "TIMER_OR_DPC_INVALID" on the same blue screen.
0x000000C8	This BSOD means that the processor's IRQL is not what it should be at this time. BSOD error code 0x000000C8 may also show "IRQL_UNEXPECTED_VALUE" on the same blue screen.
0x000000C9	This BSOD is the STOP code code for all Driver Verifier I/O Verification violations. BSOD error code 0x000000C9 may also show "DRIVER_VERIFIER_IOMANAGER_VIOLATION" on the same blue screen.
0x000000CA	This BSOD means that the Plug and Play Manager encountered a severe error, probably as a result of a problematic Plug and Play driver. BSOD error code 0x000000CA may also show "PNP_DETECTED_FATAL_ERROR" on the same blue screen.
0x000000CB	This BSOD means that a driver or the I/O manager failed to release locked pages after an I/O operation. BSOD error code 0x000000CB may also show "DRIVER_LEFT_LOCKED_PAGES_IN_PROCESS" on the same blue screen.
0x000000CC	This BSOD means that the system has referenced memory which was earlier freed. BSOD error code 0x000000CC may also show "PAGE_FAULT_IN_FREED_SPECIAL_POOL" on the same blue screen.

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0x000000CD	This BSOD means that the system accessed memory beyond the end of some driver's pool allocation. BSOD error code 0x000000CD may also show "PAGE_FAULT_BEYOND_END_OF_ALLOCATION" on the same blue screen.
0x000000CE	This BSOD means that a driver failed to cancel pending operations before unloading. BSOD error code 0x000000CE may also show "DRIVER_UNLOADED_WITHOUT_CANCELLING_PENDING_OPERATIONS" on the same blue screen.
0x000000CF	This BSOD means that a driver has been incorrectly ported to the terminal server. BSOD error code 0x000000CF may also show "TERMINAL_SERVER_DRIVER_MADE_INCORRECT_MEMORY_REFERENCE" on the same blue screen.
0x000000D0	This BSOD means that the system attempted to access invalid memory at a process IRQL that was too high. BSOD error code 0x000000D0 may also show "DRIVER_CORRUPTED_MMPOOL" on the same blue screen.
0x000000D1	This BSOD means that a kernel-mode driver attempted to access pageable memory at a process IRQL that was too high. BSOD error code 0x000000D1 may also show "DRIVER_IRQL_NOT_LESS_OR_EQUAL" on the same blue screen.
0x000000D2	This BSOD means that a problem occurred with an NDIS driver. BSOD error code 0x000000D2 may also show "BUGCODE_ID_DRIVER" on the same blue screen.
0x000000D3	This BSOD means that the system attempted to access pageable memory at a process IRQL that was too high. BSOD error code 0x000000D3 may also show "DRIVER_PORTION_MUST_BE_NONPAGED" on the same blue screen.
0x000000D4	This BSOD means that a driver did not cancel pending operations before unloading. BSOD error code 0x000000D4 may also show "SYSTEM_SCAN_AT_RAISED_IRQL_CAUGHT_IMPROPER_DRIVER_UNLOAD" on the same blue screen.
0x000000D5	This BSOD means that a driver has referenced memory which was earlier freed. BSOD error code 0x000000D5 may also show "DRIVER_PAGE_FAULT_IN_FREED_SPECIAL_POOL" on the same blue screen.
0x000000D6	This BSOD means the driver accessed memory beyond the end of its pool allocation. BSOD error code 0x000000D6 may also show "DRIVER_PAGE_FAULT_BEYOND_END_OF_ALLOCATION" on the same blue screen.
0x000000D7	This BSOD means a driver is trying to unmap an address that was not mapped. BSOD error code 0x000000D7 may also show "DRIVER_UNMAPPING_INVALID_VIEW" on the

	same blue screen.
0x000000D8	This BSOD means that there are no more system page table entries (PTE) remaining. BSOD error code 0x000000D8 may also show "DRIVER_USED_EXCESSIVE_PTES" on the same blue screen.
0x000000D9	This BSOD means that the internal locked-page tracking structures have been corrupted. BSOD error code 0x000000D9 may also show "LOCKED_PAGES_TRACKER_CORRUPTION" on the same blue screen.
0x000000DA	This BSOD means that a page table entry (PTE) routine has been used in an improper way. BSOD error code 0x000000DA may also show "SYSTEM_PTE_MISUSE" on the same blue screen.
0x000000DB	This BSOD means that an attempt was made to touch memory at an invalid IRQL, probably due to corruption of system PTEs. BSOD error code 0x000000DB may also show "DRIVER_CORRUPTED_SYSPTES" on the same blue screen.
0x000000DC	This BSOD means that a driver accessed a stack address that lies below the stack pointer of the stack's thread. BSOD error code 0x000000DC may also show "DRIVER_INVALID_STACK_ACCESS" on the same blue screen.
0x000000DE	This BSOD means that a driver has corrupted pool memory that is used for holding pages destined for disk. BSOD error code 0x000000DE may also show "POOL_CORRUPTION_IN_FILE_AREA" on the same blue screen.
0x000000DF	This BSOD means that a workitem did not disable impersonation before it completed. BSOD error code 0x000000DF may also show "IMPERSONATING_WORKER_THREAD" on the same blue screen.
0x000000E0	This BSOD means that one of your computer components is faulty. BSOD error code 0x000000E0 may also show "ACPI_BIOS_FATAL_ERROR" on the same blue screen.
0x000000E1	This BSOD means that a worker thread completed and returned with IRQL >= DISPATCH_LEVEL. BSOD error code 0x000000E1 may also show "WORKER_THREAD_RETURNED_AT_BAD_IRQL" on the same blue screen.
0x000000E2	This BSOD means that the user deliberately initiated a crash dump from either the kernel debugger or the keyboard. BSOD error code 0x000000E2 may also show "MANUALLY_INITIATED_CRASH" on the same blue screen.
0x000000E3	This BSOD means that a thread tried to release a resource it did not own. BSOD error code 0x000000E3 may also show "RESOURCE_NOT_OWNED" on the same blue screen.

BSOD Error Codes List

0x000000E4	This BSOD means that memory that should not contain an executive worker item does contain such an item, or that a currently active worker item was queued. BSOD error code 0x000000E4 may also show "WORKER_INVALID" on the same blue screen.
0x000000E6	This BSOD is the STOP code for all Driver Verifier DMA Verification violations. BSOD error code 0x000000E6 may also show "DRIVER_VERIFIER_DMA_VIOLATION" on the same blue screen.
0x000000E7	This BSOD means that a thread's saved floating-point state is invalid. BSOD error code 0x000000E7 may also show "INVALID_FLOATING_POINT_STATE" on the same blue screen.
0x000000E8	This BSOD means that an invalid file object was passed to IoCancelFileOpen. BSOD error code 0x000000E8 may also show "INVALID_CANCEL_OF_FILE_OPEN" on the same blue screen.
0x000000E9	This BSOD means that an active executive worker thread is being terminated. BSOD error code 0x000000E9 may also show "ACTIVE_EX_WORKER_THREAD_TERMINATION" on the same blue screen.
0x000000EA	This BSOD means that a thread in a device driver is endlessly spinning. BSOD error code 0x000000EA may also show "THREAD_STUCK_IN_DEVICE_DRIVER" on the same blue screen.
0x000000EB	This BSOD means that no free pages are available to continue operations. BSOD error code 0x000000EB may also show "DIRTY_MAPPED_PAGES_CONGESTION" on the same blue screen.
0x000000EC	This BSOD means that a session unload occurred while a session driver still held memory. BSOD error code 0x000000EC may also show "SESSION_HAS_VALID_SPECIAL_POOL_ON_EXIT" on the same blue screen.
0x000000ED	This BSOD means that the I/O subsystem attempted to mount the boot volume and it failed. BSOD error code 0x000000ED may also show "UNMOUNTABLE_BOOT_VOLUME" on the same blue screen.
0x000000EF	This BSOD means that a critical system process died. BSOD error code 0x000000EF may also show "CRITICAL_PROCESS_DIED" on the same blue screen.
0x000000F1	This BSOD This is the STOP code code for all Driver Verifier SCSI Verification violations. BSOD error code 0x000000F1 may also show "SCSI_VERIFIER_DETECTED_VIOLATION" on the same blue screen.
0x000000F3	This BSOD means that Windows was unable to shut down due to lack of memory.

BSOD Error Codes List

	BSOD error code 0x000000F3 may also show "DISORDERLY_SHUTDOWN" on the same blue screen.
0x000000F4	This BSOD means that a process or thread crucial to system operation has unexpectedly exited or been terminated. BSOD error code 0x000000F4 may also show "CRITICAL_OBJECT_TERMINATION" on the same blue screen.
0x000000F5	This BSOD means that an unrecoverable failure occurred in the Filter Manager. BSOD error code 0x000000F5 may also show "FLTMGR_FILE_SYSTEM" on the same blue screen.
0x000000F6	This BSOD means that an error occurred in the BIOS or another device being verified by the PCI driver. BSOD error code 0x000000F6 may also show "PCI_VERIFIER_DETECTED_VIOLATION" on the same blue screen.
0x000000F7	This BSOD means that a driver has overrun a stack-based buffer. BSOD error code 0x000000F7 may also show "DRIVER_OVERRAN_STACK_BUFFER" on the same blue screen.
0x000000F8	This BSOD means that an initialization failure occurred while attempting to boot from the RAM disk. BSOD error code 0x000000F8 may also show "RAMDISK_BOOT_INITIALIZATION_FAILED" on the same blue screen.
0x000000F9	This BSOD means that a driver returned STATUS_REPARSE to an IRP_MJ_CREATE request with no trailing names. BSOD error code 0x000000F9 may also show "DRIVER_RETURNED_STATUS_REPARSE_FOR_VOLUME_OPEN" on the same blue screen.
0x000000FA	This BSOD means that the HTTP kernel driver (Http.sys) has reached a corrupted state and cannot recover. BSOD error code 0x000000FA may also show "HTTP_DRIVER_CORRUPTED" on the same blue screen.
0x000000FC	This BSOD means that an attempt was made to execute non-executable memory. BSOD error code 0x000000FC may also show "ATTEMPTED_EXECUTE_OF_NOEXECUTE_MEMORY" on the same blue screen.
0x000000FD	This BSOD means that there are no free pages available to continue basic system operations. BSOD error code 0x000000FD may also show "DIRTY_NOWRITE_PAGES_CONGESTION" on the same blue screen.
0x000000FE	This BSOD means that an error has occurred in a Universal Serial Bus (USB) driver. BSOD error code 0x000000FE may also show "BUGCODE_USB_DRIVER" on the same blue screen.

BSOD Error Codes List

0x000000FF	This BSOD means that an attempt was made to insert a new item into a reserve queue, causing the queue to overflow. BSOD error code 0x000000FF may also show "RESERVE_QUEUE_OVERFLOW" on the same blue screen.
0x00000100	This BSOD means that either the loader block is invalid, or it does not match the system that is being loaded. BSOD error code 0x00000100 may also show "LOADER_BLOCK_MISMATCH" on the same blue screen.
0x00000101	This BSOD means that an expected clock interrupt on a secondary processor, in a multi-processor system, was not received within the allocated interval. BSOD error code 0x00000101 may also show "CLOCK_WATCHDOG_TIMEOUT" on the same blue screen.
0x00000103	This BSOD means that the multiple UNC provider (MUP) has encountered invalid or unexpected data. As a result, the MUP cannot channel a remote file system request to a network redirector, the Universal Naming Convention (UNC) provider. BSOD error code 0x00000103 may also show "MUP_FILE_SYSTEM" on the same blue screen.
0x00000104	This BSOD means that the GPU wrote to a range of Accelerated Graphics Port (AGP) memory that had not previously been committed. BSOD error code 0x00000104 may also show "AGP_INVALID_ACCESS" on the same blue screen.
0x00000105	This BSOD means that the Graphics Aperture Remapping Table (GART) is corrupt. BSOD error code 0x00000105 may also show "AGP_GART_CORRUPTION" on the same blue screen.
0x00000106	This BSOD means that the Accelerated Graphics Port (AGP) hardware has been reprogrammed by an unauthorized agent. BSOD error code 0x00000106 may also show "AGP_ILLEGALLY_REPROGRAMMED" on the same blue screen.
0x00000108	This BSOD means that an unrecoverable problem has occurred in a third-party file system or file system filter. BSOD error code 0x00000108 may also show "THIRD_PARTY_FILE_SYSTEM_FAILURE" on the same blue screen.
0x00000109	This BSOD means that the kernel has detected critical kernel code or data corruption. BSOD error code 0x00000109 may also show "CRITICAL_STRUCTURE_CORRUPTION" on the same blue screen.
0x0000010A	This BSOD is uncommon. BSOD error code 0x0000010A may also show "APP_TAGGING_INITIALIZATION_FAILED" on the same blue screen.
0x0000010C	This BSOD means that a violation was detected in the File system Run-time library (FsRtl) Extra Create Parameter (ECP) package. BSOD error code 0x0000010C may also show "FSRTL_EXTRA_CREATE_PARAMETER_VIOLATION" on the same blue screen.

BSOD Error Codes List

0x0000010D	This BSOD means that Kernel-Mode Driver Framework (KMDF) detected that Windows found an error in a framework-based driver. BSOD error code 0x0000010D may also show "WDF_VIOLATION" on the same blue screen.
0x0000010E	This BSOD means that the video memory manager has encountered a condition that it is unable to recover from. BSOD error code 0x0000010E may also show "VIDEO_MEMORY_MANAGEMENT_INTERNAL" on the same blue screen.
0x0000010F	This BSOD means that the kernel transaction manager detected that a kernel-mode resource manager has raised an exception in response to a direct call-back. The resource manager is in an unexpected and unrecoverable state. BSOD error code 0x0000010F may also show "RESOURCE_MANAGER_EXCEPTION_NOT_HANDLED" on the same blue screen.
0x00000111	This BSOD means that a non-maskable-interrupt (NMI) occurred while a previous NMI was in progress. BSOD error code 0x00000111 may also show "RECURSIVE_NMI" on the same blue screen.
0x00000112	This BSOD means that the Msrpc.sys driver has initiated a STOP code. BSOD error code 0x00000112 may also show "MSRPC_STATE_VIOLATION" on the same blue screen.
0x00000113	This BSOD means that the dxg kernel has detected a violation. BSOD error code 0x00000113 may also show "VIDEO_DXGKRNL_FATAL_ERROR" on the same blue screen.
0x00000114	This BSOD means that the shadow driver has detected a violation. BSOD error code 0x00000114 may also show "VIDEO_SHADOW_DRIVER_FATAL_ERROR" on the same blue screen.
0x00000115	This BSOD means that the accelerated graphics port (AGP) driver has detected a violation. BSOD error code 0x00000115 may also show "AGP_INTERNAL" on the same blue screen.
0x00000116	This BSOD means that an attempt to reset the display driver and recover from a timeout failed. BSOD error code 0x00000116 may also show "VIDEO_TDR_ERROR" on the same blue screen.
0x00000117	This BSOD means that the display driver failed to respond in a timely fashion. BSOD error code 0x00000117 may also show "VIDEO_TDR_TIMEOUT_DETECTED" on the same blue screen.
0x00000119	This BSOD means that the video scheduler has detected a fatal violation. BSOD error code 0x00000119 may also show "VIDEO_SCHEDULER_INTERNAL_ERROR" on the same blue screen.

BSOD Error Codes List

0x0000011A	This BSOD is uncommon. BSOD error code 0x0000011A may also show "EM_INITIALIZATION_FAILURE" on the same blue screen.
0x0000011B	This BSOD means that a driver has returned from a cancel routine that holds the global cancel lock. This causes all later cancellation calls to fail, and results in either a deadlock or another STOP code. BSOD error code 0x0000011B may also show "DRIVER_RETURNED_HOLDING_CANCEL_LOCK" on the same blue screen.
0x0000011C	This BSOD means that an attempt was made to write to the read-only protected storage of the configuration manager. BSOD error code 0x0000011C may also show "ATTEMPTED_WRITE_TO_CM_PROTECTED_STORAGE" on the same blue screen.
0x0000011D	This BSOD means that the Event Tracing subsystem has encountered an unexpected fatal error. BSOD error code 0x0000011D may also show "EVENT_TRACING_FATAL_ERROR" on the same blue screen.
0x00000121	This BSOD means that a driver has caused a violation. BSOD error code 0x00000121 may also show "DRIVER_VIOLATION" on the same blue screen.
0x00000122	This BSOD means that an internal error in the Windows Hardware Error Architecture (WHEA) has occurred. BSOD error code 0x00000122 may also show "WHEA_INTERNAL_ERROR" on the same blue screen.
0x00000124	This BSOD means that a fatal hardware error has occurred. uses the error data that is provided by the Windows Hardware Error Architecture (WHEA). BSOD error code 0x00000124 may also show "WHEA_UNCORRECTABLE_ERROR" on the same blue screen.
0x00000127	This BSOD means that a page that should have been filled with zeros was not. This might occur because of a hardware error or because a privileged component of the operating system modified a page after freeing it. BSOD error code 0x00000127 may also show "PAGE_NOT_ZERO" on the same blue screen.
0x0000012B	This BSOD means that a single-bit error was found in this page. This is a hardware memory error. BSOD error code 0x0000012B may also show "FAULTY_HARDWARE_CORRUPTED_PAGE" on the same blue screen.
0x0000012C	This BSOD means that a problem occurred in the Extended File Allocation Table (exFAT) file system. BSOD error code 0x0000012C may also show "EXFAT_FILE_SYSTEM" on the same blue screen.
0x1000007E	This BSOD means that a system thread generated an exception which the error handler did not catch. BSOD error code 0x1000007E may also show "SYSTEM_THREAD_EXCEPTION_NOT_HANDLED_M" on the same blue screen.

BSOD Error Codes List

0x1000007F	This BSOD means that a trap was generated by the Intel CPU and the kernel failed to catch this trap. BSOD error code 0x1000007F may also show "UNEXPECTED_KERNEL_MODE_TRAP_M" on the same blue screen.
0x1000008E	This BSOD means that a kernel-mode program generated an exception which the error handler did not catch. BSOD error code 0x1000008E may also show "KERNEL_MODE_EXCEPTION_NOT_HANDLED_M" on the same blue screen.
0x100000EA	This BSOD means that a thread in a device driver is endlessly spinning. BSOD error code 0x100000EA may also show "THREAD_STUCK_IN_DEVICE_DRIVER_M" on the same blue screen.
0xC0000218	This BSOD means that a registry file could not be loaded. BSOD error code 0xC0000218 may also show "STATUS_CANNOT_LOAD_REGISTRY_FILE" on the same blue screen.
0xC000021A	This BSOD means that an error has occurred in a crucial user-mode subsystem. BSOD error code 0xC000021A may also show "STATUS_SYSTEM_PROCESS_TERMINATED" on the same blue screen.
0xC0000221	This BSOD means that a driver or a system DLL has been corrupted. BSOD error code 0xC0000221 may also show "STATUS_IMAGE_CHECKSUM_MISMATCH" on the same blue screen.
0xC0000225	This BSOD means that Windows is unable to find the correct system files to initiate booting. BSOD error code 0xC0000225 may also show another message on the same blue screen, like "Boot selection failed because a required device is inaccessible." or "A required device isn't connected or can't be accessed."
0xDEADDEAD	This BSOD means that the user deliberately initiated a crash dump from either the kernel debugger or the keyboard. BSOD error code 0xDEADDEAD may also show "MANUALLY_INITIATED_CRASH1" on the same blue screen. (Yes, this means a self-inflicted BSOD!)

What Is a STOP Code?

A STOP code, often called a **bug check or bug check code**, or sometimes referred to as *STOP error numbers, blue screen error codes, WHEA errors*, or *BCCodes* is a number that uniquely identifies a specific STOP error (Blue Screen of Death).

Sometimes the safest thing a computer can do when it encounters a problem is to stop everything and restart. When this happens, a STOP code is often displayed.

A STOP code can be used to troubleshoot the specific issue that caused the Blue Screen of Death. Most STOP codes are due to problems with a **device driver** or your computer's **RAM**, or but other codes can imply problems with other hardware or software.

A STOP code or bug check code is not the same as a system error code, a Device Manager error code, a POST code, or an HTTP status code. Some STOP codes share code numbers with some of these other types of error codes but they are completely different errors with different messages and meanings.

What Do STOP Codes Look Like?

STOP codes are usually seen on a BSOD after the system crashes. STOP codes are displayed in the hexadecimal format and are preceded by a *0x*.

For example, a Blue Screen of Death that appears after certain driver issues with the hard drive controller will show a bug check code of **0x0000007B**, indicating that that's the problem.

STOP codes can also be written in a shorthand notation with all the zeros after the *x* removed. The abbreviated way of representing STOP 0x0000007B, for example, would be STOP 0x7B.

What Do I Do With a Bug Check Code?

Much like other types of error codes, each STOP code is unique, hopefully helping you indicate the exact cause of the issue. The STOP code **0x0000005C**, for example, usually means that there's an issue with an important piece of hardware or with its driver.

Here is a Complete List of STOP Errors document, helpful for identifying the reason for a specific bug check code on a Blue Screen of Death error.

Other Ways to Find STOP Codes

Did you see a BSOD but weren't able to copy down the bug check code quickly enough? Most computers are configured to automatically restart after a BSOD, so this happens a lot.

Assuming your computer starts up normally after the BSOD, you have a few options:

One thing you can do is download and run the free BlueScreenView program. As the name of the program suggests, this little tool scans your computer for *minidump* files that Windows creates after a crash, and then lets you open them to see the Bug Check Codes in the program.

Something else you can use is Event Viewer, available from Administrative Tools in all versions of Windows. Look there for errors that happened around the same time that your computer crashed. It's possible that the STOP code was stored there.

Sometimes, after your computer restarts from a crash, it may prompt you with a screen that says something like "Windows has recovered from an unexpected shutdown," and show you the STOP/bug check code that you missed - called *BCCode* on that screen.

If Windows never does start normally, you could just restart the computer and try to catch the STOP code again.

If *that* doesn't work, which is likely these days with super-fast boot times, you may still have an opportunity to change that automatic restart behavior. See How to Prevent Windows From Restarting After a BSOD for help doing that.

What Is a System Error Code?

A **system error code** is an error number, sometimes followed by a short error message that, a program in Windows may display in response to a particular problem it's having.

How System Errors Are Used

Just as a doctor may use a certain word to describe a list of symptoms to a patient, the **Windows operating system** issues an error code to describe a problem it has with a software program, which in turn makes it easier for a software developer to understand what has happened, and therefore how to fix it.

A system error code is not the same as a Device Manager error code, a STOP code, a POST code, or an **HTTP status code (a.k.a a browser error code or an internet error code).** Some system error codes share code numbers with these other error code types but they are completely different errors with different messages and meanings.

A system error code is sometimes simply called an *error code*, or an *operating system* error code.

What Is the Reason for a System Error Code?

System error codes are provided to software programmers as part of the programming interface with the Windows operating system. In other words, **system error codes are predefined error codes and error messages that software programmers can use with their software to tell you (the software user) that the program is experiencing a particular problem**.

Not every software program uses these predefined system error codes. Some software programs have their own sets of error numbers and error messages, in which case you can refer to their official website or manual for the list of error codes and what they mean.

What Do the Different System Error Codes Mean?

One example of a system error code could be receiving Error Code 206 when you try to save a **file in a music** editing program. The explanation for this particular error is that:

```
"The filename or extension is too long."
```

In this case, shortening the name of the file before saving it will avoid the error.

Here's another example that describes Error Code 1632:

```
The Temp folder is on a drive that is full or is inaccessible. Free up
space on the drive or verify that you have write permission on the Temp
folder.
```

This error code most likely describes a situation where the hard drive is too full. Deleting temporary files or clearing up space in other parts of the hard drive might be an easy solution to this error.

See System Error Codes: 1 to 15841 for a complete list of these types of errors, plus what they mean, the messages that accompany them, and the values that may appear instead of the code number.

The same system error code may be used in hundreds of different instances in Windows. Thus, the codes are generic because they apply to lots of different circumstances. For example, instead of having variations of Error Code 206 for each file extension or folder location, Windows uses the same one to apply to each circumstance where the file name/extension is too long.

Therefore, just knowing the code won't be sufficient in understanding how to fix the problem. In addition to the system error code, you should understand the context in which it was found.

As an example, assume you've received Error Code 112, which means that there is not enough space on the disk. Just knowing the code will do you no good unless you also know where it occurred, such as which disk it's referring to. Pair that knowledge with what you were doing when the error was displayed, like if you were trying to add additional files to the hard drive. The solution, then, will be much easier to understand and address.

What to Do After You See a System Error Code

It really depends on the system error code as to what you should do afterward. In the first example given above, the solution for the error is pretty self-explanatory: change the name of the file because it's apparently too long. However, it isn't always that easy.

For example, if an application throws Error Code 6, meaning *The handle is invalid*, it's likely you won't know what to do, let alone what it means. In these cases, before doing anything, you should always try again to see if the error happens twice. If it doesn't, it could have been a temporary fluke that doesn't need any attention. If it does, then your best course of action is to contact the software developer's or distributors technical support for advice about the next steps.

Device Manager Error Codes

A complete list of error codes reported in device manager

The Device Manager error codes are numerical codes, accompanied by an error message, that help you determine what kind of issue Windows is having with a piece of hardware.

These error codes, sometimes called *hardware error codes*, are generated when the computer is experiencing device driver issues, system resource conflicts, or other hardware problems.

In all versions of Windows, a Device Manager error code can be viewed in the device status area of the hardware device's properties in Device Manager.

Error Codes

Device Manager Error Codes

Error Code	Device Status
Code 1	This device is not configured correctly. (Code 1)
Code 3	The driver for this device might be corrupted, or your system may be running low on memory or other resources. (Code 3)
Code 10	This device cannot start. (Code 10)
Code 12	This device cannot find enough free resources that it can use. If you want to use this device, you will need to disable one of the other devices on this system. (Code 12)
Code 14	This device cannot work properly until you restart your computer. (Code 14)
Code 16	Windows cannot identify all the resources this device uses. (Code 16)
Code 18	Reinstall the drivers for this device. (Code 18)
Code 19	Windows cannot start this hardware device because its configuration information (in the registry) is incomplete or damaged. To fix this problem you should uninstall and then reinstall the hardware device. (Code 19)
Code 21	Windows is removing this device. (Code 21)
Code	This device is disabled. (Code 22)

Device Manager Error Codes

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Code 24	This device is not present, is not working properly, or does not have all its drivers installed. (Code 24)
Code 28	The drivers for this device are not installed. (Code 28)
Code 29	This device is disabled because the firmware of the device did not give it the required resources. (Code 29)
Code 31	This device is not working properly because Windows cannot load the drivers required for this device. (Code 31)
Code 32	A driver (service) for this device has been disabled. An alternate driver may be providing this functionality. (Code 32)
Code 33	Windows cannot determine which resources are required for this device. (Code 33)
Code 34	Windows cannot determine the settings for this device. Consult the documentation that came with this device and use the Resource tab to set the configuration. (Code 34)
Code 35	Your computer's system firmware does not include enough information to properly configure and use this device. To use this device, contact your computer manufacturer to obtain a firmware or **BIOS** update. (Code 35)
Code 36	This device is requesting a PCI interrupt but is configured for an ISA interrupt (or vice versa). Please use the computer's system setup program to reconfigure the interrupt for this device. (Code 36)
Code 37	Windows cannot initialize the device driver for this hardware. (Code 37)
Code 38	Windows cannot load the device driver for this hardware because a previous instance of the device driver is still in memory. (Code 38)
Code 39	Windows cannot load the device driver for this hardware. The driver may be corrupted or missing. (Code 39)
Code 40	Windows cannot access this hardware because its service key information in the registry is missing or recorded incorrectly. (Code 40)
Code	Windows successfully loaded the device driver for this hardware but cannot find the

Device Manager Error Codes

41	hardware device. (Code 41)
Code 42	Windows cannot load the device driver for this hardware because there is a duplicate device already running in the system. (Code 42)
Code 43	Windows has stopped this device because it has reported problems. (Code 43)
Code 44	An application or service has shut down this hardware device. (Code 44)
Code 45	Currently, this hardware device is not connected to the computer. (Code 45)
Code 46	Windows cannot gain access to this hardware device because the operating system is in the process of shutting down. (Code 46)
Code 47	Windows cannot use this hardware device because it has been prepared for safe removal, but it has not been removed from the computer. (Code 47)
Code 48	The software for this device has been blocked from starting because it is known to have problems with Windows. Contact the hardware vendor for a new driver. (Code 48)
Code 49	Windows cannot start new hardware devices because the system hive is too large (exceeds the Registry Size Limit). (Code 49)
Code 52	Windows cannot verify the digital signature for the drivers required for this device. A recent hardware or software change might have installed a **file** that is signed incorrectly or damaged, or that might be **malicious software** from an unknown source. (Code 52)

What Is a POST Code?

A POST code is a 2-digit hexadecimal code generated during the Power On Self Test.

Before the **BIOS** has tested each component of the **motherboard**, this code can be outputted to a POST test card that's plugged into a specific **expansion slot**.

If any particular part of the test fails, the last POST code generated can then be viewed using the POST test card for help determine what **hardware** didn't pass its initial test.

Its sometimes known as *Power On Self Test Code* or *test-point error code.*

Finding a BIOS Post Code List for Your Computer

POST codes will differ depending on the BIOS vendor (i.e., most motherboards use their own lists), so it's best to reference the ones that are specific to your computer, codes that should be published on your manufacturer's official website.

If you have trouble finding a list of POST codes on your computer, motherboard, or BIOS vendor's website, you might be able to get help from tech support, check the current BIOS version on your computer, or find the codes at a site like BIOS Central.

POST codes correspond *directly* to tests that are taking place by the POST.

When a POST test card stops at a specific code during the boot process, it can be referenced against the list of possible POST codes generated by your specific BIOS, helping to pinpoint the source of the problem with your computer starting up.

Beyond that general how-to, you'll need to check the documentation that accompanies your computer's list of BIOS POST codes for help on exactly how to interpret what your POST test card is saying.

Some codes are handed off to the POST test card after a certain test has completed, meaning that the *next* code in the list you're referencing is where you should start troubleshooting.

Other motherboards, however, send a POST code to an attached POST test card only when an error has actually occurred, meaning that the hardware that *that* code equates to is probably where the problem lies.

For example, let's say that Acer is your motherboard vendor. Your computer won't start and so you've attached a POST test card and found the code shown to be 48. If we take a quick look at this list of Acer BIOS Post Codes, we see that 48 means "Memory tested."

If the POST code indicates that the last test has failed, we immediately know that the problem doesn't lie with anything else; not the **CMOS** battery, video card, serial ports, CPU, etc., but instead with the **system memory**.

At this point, you can narrow your troubleshooting to whatever is referenced. In this case, since it's the RAM, you might remove all but one stick and see if your computer boots again.

Other Types of POST-Level Errors

POST codes that display on a POST test card are especially helpful if you don't have a monitor plugged in, there's something wrong with the display, or, of course, the cause of the issue is something video related on the motherboard or with the video card.

There are, however, other types of errors that you may see, or even hear, during the POST that might be helpful, too:

Beep codes are *audible* error codes that serve a similar purpose to POST codes, but these errors don't require anything but a working internal speaker—no working screen or any need to open your computer to install and use a POST test card.

If the display *is* working, you may see a POST error message display on the screen. This is just a regular error message like what you'd expect to see at any stage of using your computer. This type of POST error code doesn't require a POST test card either.

HTTP Status Codes

HTTP status codes are standard response codes given by **web site servers on the internet**. The codes help identify the cause of the problem when a web page or other resource does not load properly.

The term HTTP status code is actually the common term for the HTTP status line that includes both the *HTTP status code* and the *HTTP reason phrase*.

HTTP status codes are sometimes called **browser error codes or internet error codes**.

For example, the HTTP status line **500: Internal Server Error** is made up of the HTTP status code of **500** and the HTTP reason phrase of **Internal Server Error**.

Five categories of HTTP status code errors exist; these are the two major groups:

4xx Client Error

This group of HTTP status codes includes those where the request for a web page or other resource contains bad syntax or cannot be filled for some other reason, presumably by the fault of the client (the web surfer).

Some common client error HTTP status codes include 404 (Not Found), 403 (Forbidden), and 400 (Bad Request).

5xx Server Error

This group of HTTP status codes includes those where the request for a web page or other resource is understood by the web site's server but is **incapable of filling** it for some reason.

Some common server error HTTP status codes include the ever-popular 500 (Internal Server Error), along with 504 (Gateway Timeout), 503 (Service Unavailable), and 502 (Bad Gateway).

Other HTTP status codes exist in **addition to 4xx and 5xx codes**. There are also 1xx, 2xx, and 3xx codes that are informational, confirm success or dictate a redirection, respectively. These additional types of HTTP status codes aren't errors, so you shouldn't be alerted about them in the browser.

See a complete list of *errors* on our HTTP Status Code Errors page, or see all of these HTTP status lines (1xx, 2xx, and 3xx) in our HTTP status lines piece.

IANA's Hypertext Transfer Protocol (HTTP) Status Code Registry page is the official source for HTTP status codes but Windows sometimes includes additional, more specific errors that explain additional information.

For example, while the HTTP status code of *500* means *Internet Server Error*, Microsoft Internet Information Services (ISS) uses **500.15** to mean that **Direct requests for Global.aspx are not allowed**.

Here are a few more examples:

- **404.13** has the HTTP reason phrase of **Content length too large**.
- **500.53** means **A rewrite error occurred during RQ_RELEASE_REQUEST_STATE notification handling. An outbound rule execution error occurred. The rule is configured to be executed before the output user cache gets updated**.
- **502.3** means **Bad Gateway: Forwarder Connection Error (ARR)**.

These so-called sub-codes generated by Microsoft ISS do not replace HTTP status codes but instead are found in various areas of Windows like documentation files.

An HTTP status code is not the same as a Device Manager error code or a system error code. Some system error codes share code numbers with HTTP status codes but they are different errors with completely different associated error messages and meanings.

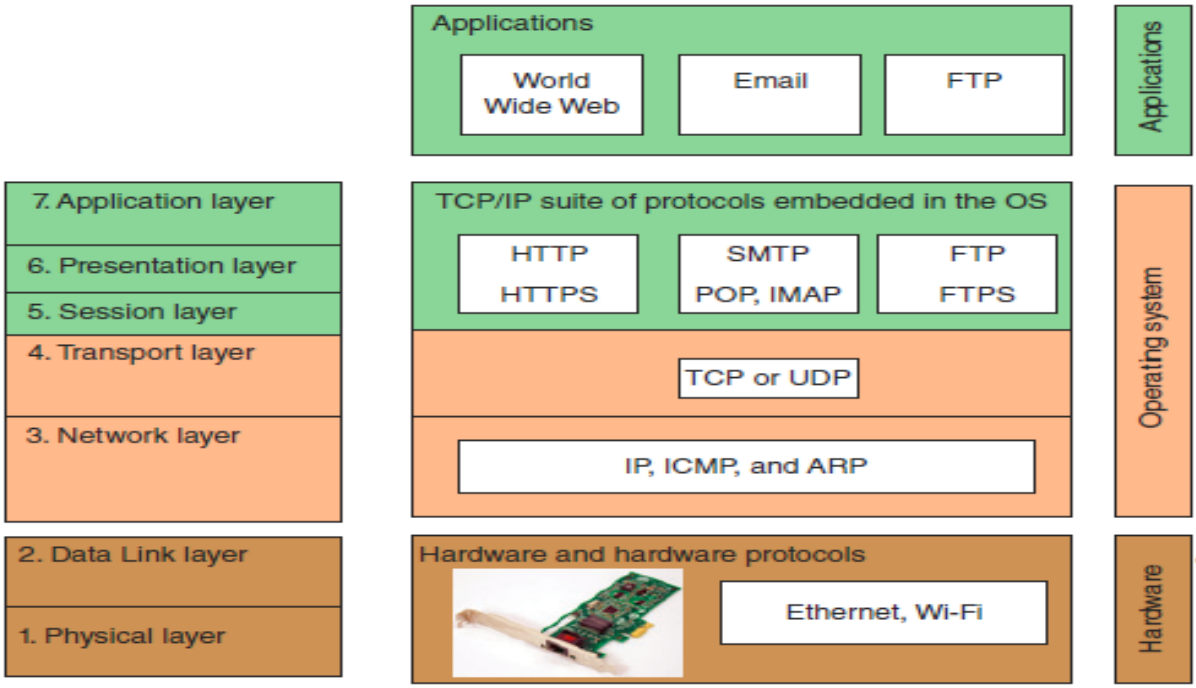
For example, the HTTP status code **403.2** means **Read access forbidden**. However, there's also a system error code **403** that means **The process is not in background processing mode**.

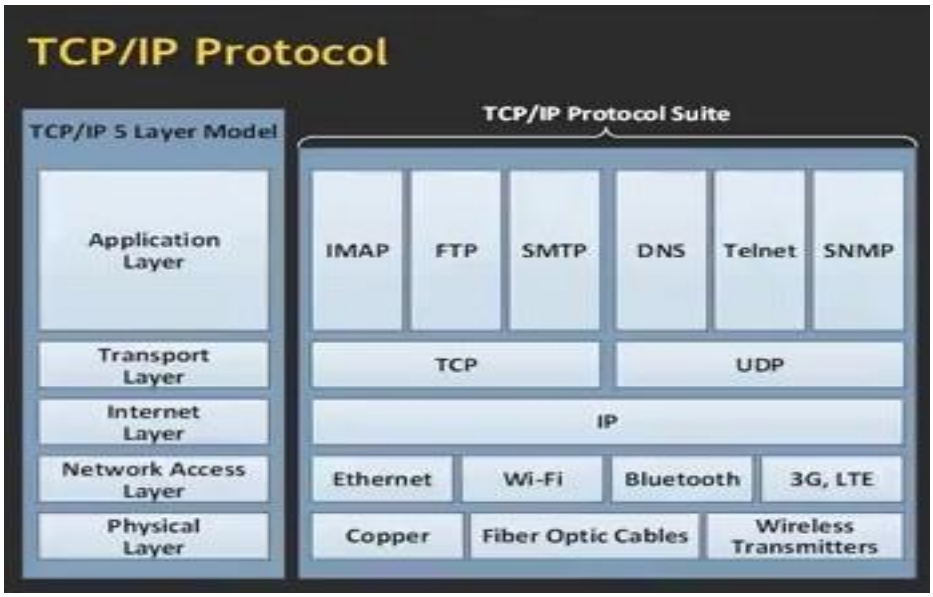
Similarly, the **500** status code that means **Internet Server Error** could easily be confused for a system error code **500** that means **User profile cannot be loaded**.

If you're having trouble identifying whether or not the error code you see is an HTTP status code, look carefully at where the message is seen. If you see an error *in your web browser, on the web page*, it's an HTTP response code.

4. Analyze Windows Blue Screen Stop Errors, using BlueScreenView (By Nirsoft)

As well as using the Windows Debugger tool from Microsoft contained in the above articles, you can also use a tool by Nirsoft called BlueScreenView to analyse the Windows dump files.


Applications
World Wide Web
Email
FTP
Applications
7. Application layer
6. Presentation layer
5. Session layer
4. Transport layer
3. Network layer
TCP/IP suite of protocols embedded in the OS
HTTP
HTTPS
SMTP
POP, IMAP
FTP
FTPS
TCP or UDP
IP, ICMP, and ARP
Operating system
2. Data Link layer
1. Physical layer
Hardware and hardware protocols
Ethernet, Wi-Fi
Hardware


TCP/IP Protocol
TCP/IP 5 Layer Model
TCP/IP Protocol Suite
Application Layer
Transport Layer
Internet Layer
Network Access Layer
Physical Layer
IMAP
FTP
SMTP
DNS
Telnet
SNMP
TCP
UDP
IP
Ethernet
Wi-Fi
Bluetooth
3G, LTE
Copper
Fiber Optic Cables
Wireless Transmitters

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https://www.computerhope.com/jargon/h/hardware.htm

https://docs.microsoft.com/en-us/windows/win32/debug/system-error-codes

https://support.microsoft.com/en-us/windows/troubleshoot-problems-updating-windows-10-188c2b0f-10a7-d72f-65b8-32d177eb136c

https://support.microsoft.com/en-us/windows/activate-windows-10-c39005d4-95ee-b91e-b399-2820fda32227

https://support.microsoft.com/en-us/sbs/windows/troubleshoot-blue-screen-errors-5c62726c-6489-52da-a372-3f73142c14ad?ui=en-US&rs=en-US&ad=US

Confused by #HTTP #error codes? Learn what they are and how to live with them #websitelife

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https://www.tutorialspoint.com/http/http_status_codes.htm

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https://www.dell.com/support/kbdoc/en-gh/000123379/how-to-troubleshoot-blue-screen-or-stop-error-code-on-a-dell-computer

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UNIT 3

Basic computer software troubleshooting

Objective:

By the end of this session, one should be able to:

1. Perform tasks to help ensure trouble-free operation of PC.
2. Determine problems associated with non-performance of software (operating and application).
3. Know the techniques for fixing software problems.
4. Apply basic troubleshooting steps for solving common problems.
5. Examine how Windows operating systems work
6. Identify the indicators for diagnosing software problems

Operating Systems
An Operating System (OS) is a collection of software that manages computer hardware and provides services for programs. Specifically, it hides hardware complexity, manages computational resources, and provides isolation and protection. Most importantly, it directly has privilege access to the underlying hardware Discover how operating systems communicate with each computer hardware device, display data on the monitor, and retrieve and store information on the disk drive.

Course Learning Outcomes: To explain how the Operating System communicate with

each computer hardware device and application software

To install and navigate an operating system

To upgrade components and perform troubleshooting

using system tools and diagnostic software

To diagnose and troubleshoot software,

Teaching Activity

In this week, you are to read the notes on 'basic computer software troubleshooting'. You will have to pay attention to the communication between the operating system and hardware. Explain the operating system communication with peripherals. Get to know the examples of activities learners could be engaged in, to help understand the operations of the operating system. You will also have to pay attention to system tools and diagnostic software. You may also adopt interactive multimedia presentations to examine the mal-functioning of the operating system or get to know examples of activities learners could be engaged in, to help promote software troubleshooting. **You may make use of videos on the you-tube**

Practice questions

1. Define software
2. Discuss problems associated with software failure
3. Explain in a chronological order what to do when a computer freezes
4. A program is said to have stopped responding. Discuss the causes.
5. Identify the causes of the following and discuss how to resolve them:

i. The Operating system or a software is not functioning well
ii. Windows is not booting
iii. The computer is slow
iv. If a screen is frozen

6. Discuss the common problems associated with Windows 10 and how to solve them
7. Identify and discuss how to re-install an operating system

Software Troubleshooting

Troubleshooting is the process of identifying, planning and resolving a problem, error or fault within a software or computer system. It enables the repair and restoration of a computer or software when it becomes faulty, unresponsive or acts in an abnormal way.

From **Technopedia**, troubleshooting is primarily done to keep a system or software in a desired condition, specifically when it encounters or exhibits a problem. It is a systematic approach done within one or more phases depending on the complexity of a problem. Typically, the first step involves identifying what the problem is followed by coming up with a solution to counteract the problem and then implementing that solution. However, there can be more than one reason for the problem, which will require a more complex solution. An individual troubleshooting such a problem might test for different solutions to eliminate the problem or fault.

Definition of Software Troubleshooting

Software troubleshooting is the process of scanning, identifying, diagnosing and resolving problems, errors and bugs in software.

It is a systematic process that aims to filter out and resolve problems, and restore the software to normal operation. It is a subcategory of IT troubleshooting.

Technopedia explains Software Troubleshooting

Software troubleshooting is generally done to resolve technical or source-code-related problems in software. This can be both functional and non-functional in nature. The software troubleshooting process starts with identifying the problem, checking on possible issues that can cause such problems and then working on measures and alternatives to find a solution.

Typically, issues are resolved by a software developer or tester that reviews and optimizes software, removing bugs and errors from the source code. Software vendors also help in software troubleshooting by publishing periodic updates/patches for software, which can help in ensuring smooth software operation. Software troubleshooting can also be done when software needs to be configured correctly, such as resolving issues due to incorrect installation or restoring software after corruption or file deletion caused by a virus.

Basic software troubleshooting

Below is a list of commonly asked computer questions, and basic troubleshooting steps for computer software

- What is software?
- Basic software troubleshooting.
- Basic Microsoft Internet Explorer troubleshooting.
- Basic Microsoft Windows 10 troubleshooting.
- Basic Microsoft DOS troubleshooting.

Basic Software Troubleshooting and Repair:

PRELIMINARY MEASURES: When you have a problem with a Windows computer, the first thing you should do is save your work and restart the machine. The majority of daily glitches and difficulties can be resolved by running the machine through its shutdown process, and then restarting. To be thorough when you know that you have a sick computer, be sure to check for obvious hardware failure. Check the following list to make sure that your system is working properly:

- Dead cooling fans: You will see repeated illegal operations, fatal exceptions and general system lockups when a CPU fan stops working. CPU fans do eventually fail - beware especially if your computer works fine for a little while after being turned on, and then goes bonkers as the heat builds up.
- Look for disconnected, frayed, or melted cables.
- Check for loose memory chips.
- Make sure that hardware jumpers are configured properly, especially if you have recently installed any new system components.
- Check for improper BIOS settings - if the BIOS continually loses its settings, you may need to replace the motherboard battery.
- Look for disconnected external peripherals.
- Malfunctioning drives: If you hear a hard drive clicking loudly and repeatedly, you can be fairly certain it is either dead or dying.
- Look for components with clear physical damage, broken parts, charred surfaces, smoking circuit boards, etc...

Most often, you will find that your hardware is not to blame. The majority of problems that people run into are due to software error (corrupted files, software misconfiguration, version incompatibility issues, drivers and device settings, etc.).

REINSTALL: When a particular program goes berserk, reinstalling the failing application may be the fix you need. Save any settings and data used by the program, and then use the original install disks to recopy the program components to your hard drive. Often, newly installed programs will replace shared and system files - sometimes with versions older than those already installed on the hard drive. This can cause a variety of software problems - from minor lockups and glitches, to total system failure. Reinstalling the broken application can very often clear up these problems. In more stubborn cases, you may need to try changing the default installation directory provided by the installation program. For example, if the install program tells you that your application files will be copied to "C:\Program Files\appdir", change it to "C:\Program Files\appdir2". (Be aware that in changing the default installation directory, you may loose your current program settings). You will find that this reinstall process is especially effective in situations when the error messages are associated with missing or corrupt .dll and .vxd files.

DOWNLOAD APPLICATION PATCHES: Newly released programs inevitably contain bugs. Sometimes, new versions of programs will not interact well with other previously installed software. As bugs become known, software vendors will post "patches", "fixes", and "service

packs" on their web site to provide corrections to the program code. When you have programs that contain bugs, check the web site of your software manufacturer (look for a "support" link) - they may have posted the fix you need. If they haven't, leave them an email message to bring the problem to their attention, then check back regularly.

ELIMINATE TROUBLESOME PROGRAMS: Try to be conscious of when and how software problems begin. If you notice that consistent problems began when you installed an unnecessary program, then uninstall that program from your system (click on START -> SETTINGS -> CONTROL PANEL -> ADD/REMOVE PROGRAMS).

REINSTALL/UPDATE DRIVERS: Many hardware associated problems are caused by driver conflicts, corrupt driver components, and drivers which need to be updated for use with new program releases. When a piece of hardware stops working or continually produces errors, try reinstalling the driver disk that came with it (usually provided on a CD-ROM or floppy disk, in the manufacturer packaging). A much more effective solution is to look for a new driver release provided by the manufacturer of the component. www.windrivers.com provides specific manufacturer links to virtually every hardware component on the market. It's a good idea to save downloaded driver patches onto floppy or CD-R disk, as it is very likely you will need to install them several times throughout the life of your computer.

DEFRAG THE HARD DRIVE: After a computer has been used for a while, data and software components tend to get scattered around the surface of the hard drive. This can lead to cross linked files, problems with software, and reduced system performance. Running a "defrag" takes each of these scattered bits of information and lines them up neatly in concentric circles on the hard drive. Your system will perform faster after defragmentation, and certain types of software problems will be eliminated. To run the built in Windows defrag program, click on START -> PROGRAMS -> ACCESSORIES - SYSTEM TOOLS -> DISK DEFRAGMENTER. Running a defrag through the night is suggested, as large fragmented drives may take a number of hours to complete.

REINSTALL THE OS: Reinstalling your Windows operating system is one of the best cures to an enormous number of common computer problems. Follow the steps below to reinstall windows over a current installation, using the original full install disk. This process will maintain your currently installed applications, links, and registry settings:

1) Go to a real mode DOS prompt: either restart in DOS mode (click START -> SHUT DOWN -> RESTART IN DOS MODE) from a Windows session, start the machine with a Windows 9x "startup disk", OR press the [f8] key repeatedly upon system startup, and select COMMAND PROMPT ONLY from the start menu.

2) At the command prompt, type in the following:

rename c:\windows\win.com win.na1 [enter] (assuming c:\windows is your current windows directory)

d: [enter] (assuming that "d:" is the name of the CD-ROM drive containing the windows setup CD)

cd \win98 [enter]

setup [enter]

3) During setup, accept all defaults (i.e., click NEXT, OK, CONTINUE, FINISH, etc., when prompted).

4) The exception to default responses is when asked for the Windows install directory. The default will be listed as C:\WINDOWS.000 (assuming that your current windows directory is c:\windows). WATCH FOR THIS QUESTION, choose "other directory", and remove the .000 (period and three zeros) from the end of the default directory, so that it reads "C:\WINDOWS".

5) Continue with the installation, accepting all defaults.

REINSTALLING WINDOWS IN A NEW DIRECTORY: In really bad cases, your "Windows Registry" (the main database/repository in which Windows stores all system and software settings) may become corrupt beyond the point of repair. When this happens, you may be forced to reinstall Windows into a *NEW* directory. To do that, follow the steps above, but ***eliminate step #4.*** Reinstalling in a directory other than that which currently contains Windows (usually C:\windows), will create a totally new, fresh installation of the operating system. Your data will not be erased, but ***none of the software or drivers from your current setup will be installed.*** Your hard drive will still contain all of the documents, drivers and files that you have created and stored on the hard drive, but you will need to reinstall *ALL* of your software and drivers. You will eventually want to delete your old Windows directory and clean up your hard drive, once you know that you've successfully reinstalled all of your programs, settings, and system data. This procedure should only be undertaken if you *CAN'T* otherwise get your machine to work properly.

ERASING YOUR HD: In the worst case scenario, you may need to wipe your hard drive clean, and reinstall your operating system, drivers, and programs from scratch (see the "Fdisk/Format", and "OS install" hardware tutorials). This is most often the case when machines have been hit by certain types of debilitating viruses, or in situations when all other repair attempts have failed. Machines *should* be erased on a periodic basis (every 6 months to a year) to maintain good performance. **Make sure that you save all of your critical data (documents, spreadsheets, downloads, favorites, email addresses, drivers, program settings, etc.) onto floppy, CD-R, or other removable media BEFORE you format your hard drive**. Once you erase your HD, *EVERYTHING* it contains will be *PERMANTLY* erased. Backing up regularly will help you avoid losing important data. Virtually every computer owner runs into a situation, at some point, when wiping the hard drive is necessary. Update your backups incrementally, so that you don't get caught unexpectedly with a devastating system loss.

By following the steps above, you should be able to overcome most common computer problems.

WINDOWS BASICS – TROUBLESHOOTING PROBLEMS

INTRODUCTION

Do you know what to do if your screen goes blank? What if you can't seem to close an application, or can't hear any sound from your speakers? Whenever you have a problem with your computer, **don't panic!** There are some **basic troubleshooting techniques** you can use to fix issues like this. In this lesson, you will come by: simple things to try when troubleshooting, as well as how to solve common problems you may encounter.

BASIC TROUBLESHOOTING TECHNIQUES

There are many different things that could cause a problem with your computer. No matter what's causing the issue, troubleshooting will always be a process of **trial and error**. In some

cases, you may need to use several approaches before you can find a solution; other problems may be easy to fix. It is recommended to start by using the **following tips:**

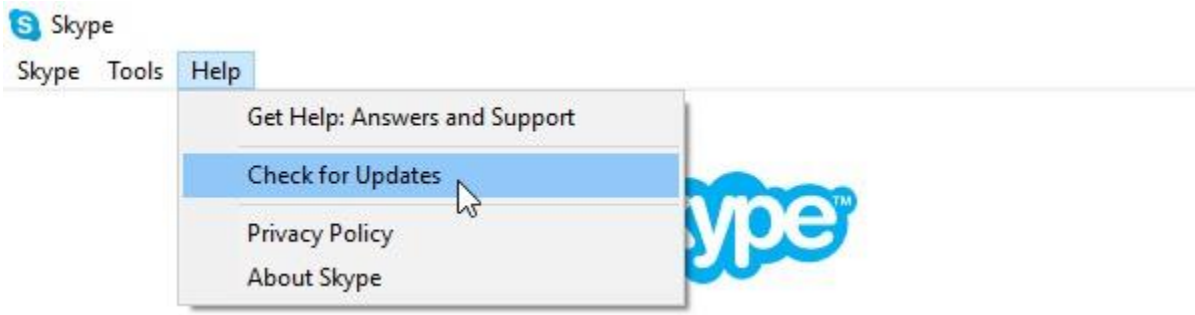
- **Write down your steps**. Once you start troubleshooting, you may want to **write down** each step you take. This way, you'll be able to remember exactly what you've done so you can avoid repeating the same mistakes. If you end up asking other people for help, it will be much easier if they know exactly what you've already tried.
- **Take notes about error messages**. If your computer gives you an **error message**, be sure to write down as much information as possible. You may be able to use this information later to find out if other people are seeing the same error.
- **Always check the cables**. If you're having trouble with a specific piece of computer **hardware**, such as your monitor or keyboard, an easy first step is to check all related cables to make sure they're properly connected.
- **Restart the computer**. When all else fails, one of the best things to try is simply **restarting the computer**. This can solve a lot of basic issues you may experience with your computer.

TROUBLESHOOTING SPECIFIC PROBLEMS

Now that you know a few troubleshooting techniques, we'll talk about possible solutions for some of the most common problems you may encounter.

PROBLEM: *An application is running slowly*

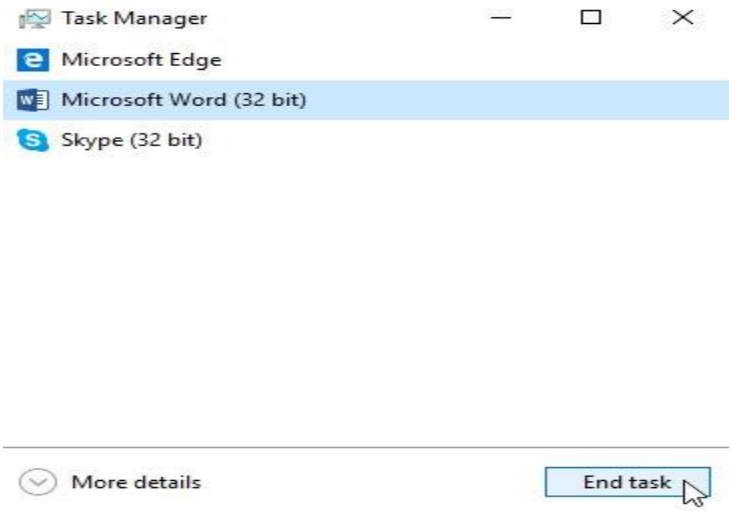
- **Solution 1**: Close and reopen the application.
- **Solution 2**: Update the application. To do this, click the **Help** menu and look for an option to **Check for Updates**. If you don't find this option, another idea is to run an online search for application updates.



PROBLEM: *An application is frozen*

Sometimes an application may become stuck, or **frozen**. When this happens, you won't be able to close the window or click any buttons within the application.

- **Solution 1**: Force quit the application. If a program has become completely unresponsive, you can press (and hold) **Ctrl+Alt+Delete** (the Control, Alt, and Delete keys) on your keyboard to open the **Task Manager**. You can then select the unresponsive application and click **End task** to close it.

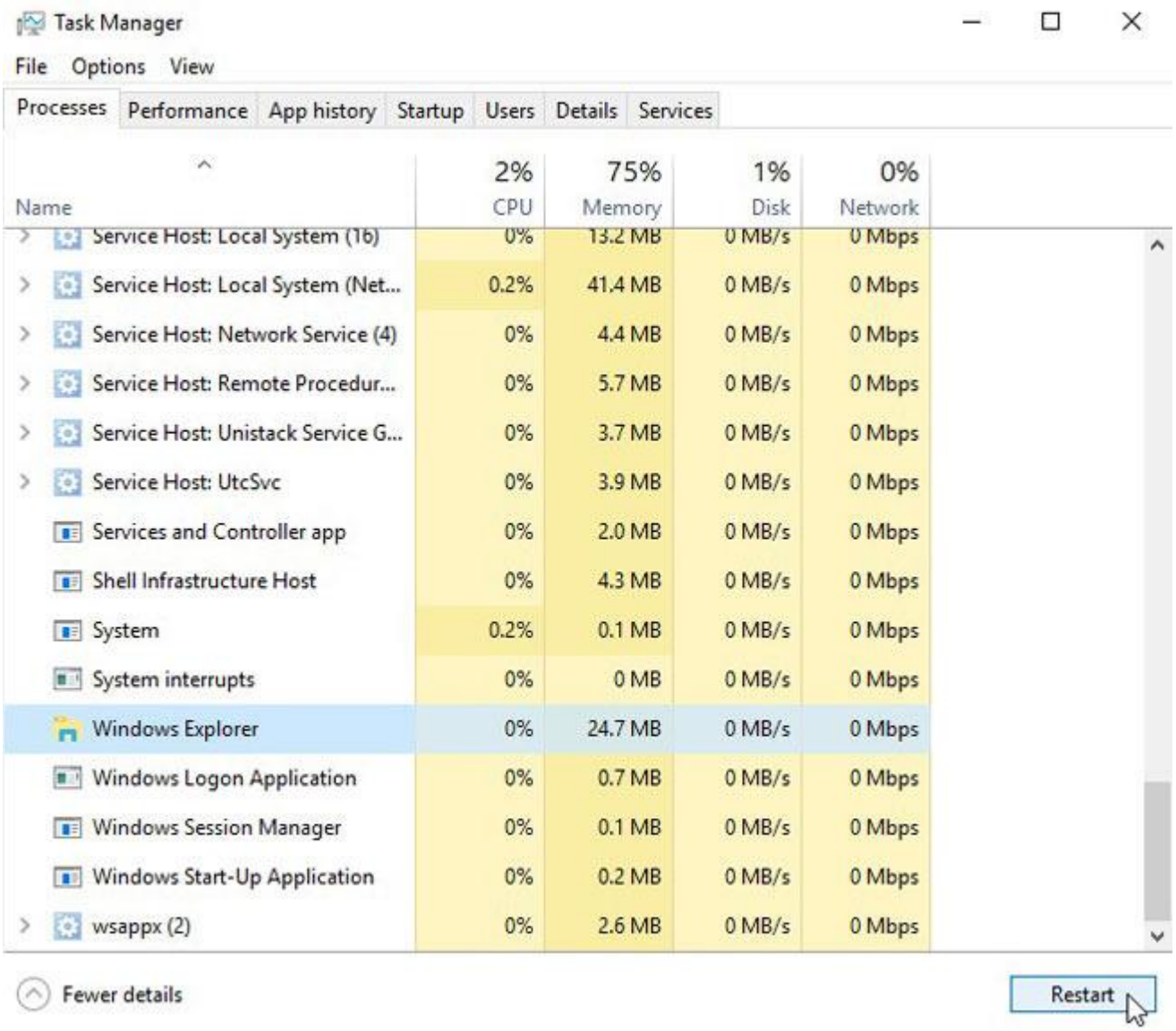


- **Solution 2**: Restart the computer. If you are unable to force quit an application, **restarting** your computer will close all open apps.

PROBLEM: ***The computer is frozen***

Sometimes your computer may become completely unresponsive, or frozen. When this happens, you won't be able to click anywhere on the screen, open or close applications, or access shut-down options.

- **Solution 1**: Restart Windows Explorer. To do this, press and hold **Ctrl+Alt+Delete** on your keyboard to open the **Task Manager**. Next, locate and select **Windows Explorer** from the **Processes** tab and click **Restart**.



- **Solution 2**: Press and hold the Power button for **5-10 seconds**. This will force the computer to shut down.
- **Solution 3**: If the computer still won't shut down, you can **unplug the power cable** from the electrical outlet. If you're using a laptop, you may be able to remove the battery to force the computer to turn off. **Note**: This solution should be your **last resort** after trying the other suggestions above.

PROBLEM: *The mouse/keyboard has stopped working*

- **Solution 1**: If you're using a **wired** mouse or keyboard, make sure it's correctly plugged in to the computer.
- **Solution 2**: If you're using a **wireless** mouse or keyboard, make sure it is turned on and that its batteries are charged.

PROBLEM: *The screen is blank*

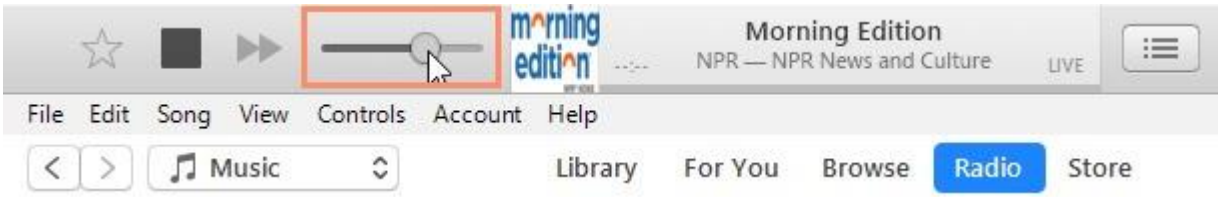
- **Solution 1**: The computer may just be in **Sleep** mode. Simply click the mouse or press any key on the keyboard to wake it.
- **Solution 2**: Make sure the monitor is **plugged in** and **turned on**.
- **Solution 3**: Make sure the computer is **plugged in** and **turned on**.

- **Solution 4**: If you're using a desktop computer, make sure the monitor cable is properly connected to the computer tower and the monitor.

PROBLEM: ***I can't hear the sound on my computer***

- **Solution 1**: Check the volume level. Click the audio button in the bottom-right corner of the screen to make sure the sound is turned on and the volume is up.

- **Solution 2**: Check the audio player controls. Many audio and video players will have their own separate audio controls. Make sure the sound is turned on and the volume is up in the player.



- **Solution 3**: Check the cables. Make sure external speakers are plugged in, turned on, and connected to the correct audio port or a USB port. If your computer has **color-coded** ports, the audio output port will usually be **green**.
- **Solution 4**: Connect headphones to the computer to determine if you can hear sound from the headphones.

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UNIT 4

Unit objectives

On successful completion of this unit, students should be able to:

a. explain why the need for preventive maintenance
b. discuss the most common preventive maintenance tasks
c. explain the elements associated with the troubleshooting process
d. demonstrate common problems and solutions when troubleshooting a PC
e. to create a maintenance tasks

Preventive maintenance (also known as preventative maintenance) is maintenance that is regularly performed on a piece of equipment to lessen the likelihood of it failing. It is performed while the equipment is still working so that it does not break down unexpectedly.

It discusses ways of maintaining optimal working conditions and conservation of the life span of PCs. The goals of preventative maintenance are to reduce the likelihood of hardware failures, extend the useful life of the system, minimize system crashes caused by outdated drivers and other software problems, secure the system against viruses and other malware, and prevent data loss. It will also be useful reading and concentrating on the information provided in the following links:

https://www.ciscopress.com/articles/article.asp?p=2999386

https://ptgmedia.pearsoncmg.com/images/9781587132636/samplechapter/9781587132636_ch04.pdf

http://h10032.www1.hp.com/ctg/Manual/c00757358.pdf

Course Learning Outcome: To explain what is preventive maintenance with regard to computers

To explain backup plans

To explain how system can be secured against malicious exploits

To discuss plans for periodic hardware and software maintenance

To perform general system tidiness

To create maintenance tasks (daily, weekly, monthly, yearly)

Teaching Activity

In this week, you will read notes on ‘preventive maintenance techniques’. You will have to pay attention to malicious exploits. Get to know the examples of activities or methods, learners could be engaged in, to help promote maintenance of hardware and software. Get to know the activities or methods, learners could be engaged in, to help increase the life span of a computer. You will also have to pay attention to the problems associated with both software and hardware and how to troubleshoot. Also adopt interactive multimedia presentations to examine maintenance schedules.

Practice questions

1. Define Preventive Maintenance
2. What is the purpose of preventive maintenance
3. What is the task list in Preventive Maintenance
4. Identify and discuss the general elements of the troubleshooting process for hardware and software
5. Identify and discuss the types of preventive maintenance tasks

SOME FREQUENTLY ASKED QUESTIONS

1. What is preventive maintenance?
2. Why do we need preventive maintenance in computer?
3. What is the basic computer maintenance?
4. How do you perform computer maintenance?
5. What are preventive maintenance and its importance?

PREVENTATIVE MAINTENANCE FOR COMPUTERS

Computers Like many other pieces of technology, see constant wear and tear from being used. Simple things like downloading files, clicking on harmful sites by accident, and allowing dust to settle on the keyboard can build up to the computer slowing down and possibly being unusable. However, by running anti-malware programs, deleting files as needed, and cleaning out the dust on a computer, one can prolong the lifespan of your computer for years of extra effective use.

It is actually the act of a regularly scheduled check of a computer hardware or software to help ensure it continues to operate properly. Whether they're tasks that should be done every day, once a month, once a year, or only when needed, below is a list of maintenance tasks to perform to get the most out use of your computer and we can also read the link attached here.

Daily:

- Try to back up your data at least once per day – no one wants to lose projects you spent hours, if not days to work on.
- Run a malware scan to stay on top of virus prevention. If you have any real-time prevention tools even then some viruses may slip by. Depending on how frequently you use the computer you can get away with doing this once a week; more frequent computer users should do this daily.
- Check for updates every day so you don't miss any crucial upgrades, nor will you have to spend hours installing dozens at a time if you procrastinate it.
- If you use your computer for many hours at a time during the day, then plan to restart it at least once. This way, temporary files won't build up and slow down use over time.
- Never shut down by using the power button – always use the option from the start menu! Never leave your computer on overnight either to save electricity and to prevent wear-and-tear.

Monthly:

- Use the defragmentation tool to keep your PC running fast and efficiently. This tool puts files back together that are split apart to different folders in your PC over time.
- Scan your hard drive for errors to make sure there are no physical problems occurring. This doesn't check for viruses or malware, but more so physical and logical problems.
- Clean out your disk drive every few weeks. Similar to defragmentation, these are small pieces of trash that quietly accumulate over time.
- Physically clean your computer by using compressed air to blow out dust and small pieces of dirt. These small particles build up over time and can lead to computers physically overheating and other mechanical problems.

Yearly:

- Backup your hard drive as an image, so if your PC ever crashes you won't have to reinstall from scratch. This should be done twice a year, just to be safe.
- Either you, a friend, or a professional should do a thorough cleaning of the computer. This goes beyond simply using compressed air and actually opening it up to get rid of all of the smaller bits and pieces of dirt stuck in there.

As Needed:

- Uninstall programs that you don't use anymore to free up space.
- Practice safe browsing by not downloading files from or spending time on sites you aren't familiar with or may be untrustworthy since this is how people generally get malware.
- Change passwords frequently as a general preventative measure against hackers.

Additional Maintenance Tips:

- Get a good surge protector for plugging your computer into the wall.
- Make sure your computer is plugged in properly and set up in a safe way. No wires should be loose and hanging around near any open heat sources.

What is the basic computer maintenance?

Computer maintenance is the practice of keeping computers in a good state of repair. A computer containing accumulated dust and debris may not run properly. Dust and debris will accumulate as a result of air cooling. Any filters used to mitigate this need regular service and changes.

Preventive maintenance is an important part of facilities management. The goal of a successful preventive maintenance program is to establish consistent practices designed to improve the performance and safety of the equipment at your property. Equipment downtime is decreased and the number of major repairs are reduced.

Computer repair is the process of identifying, troubleshooting and resolving problems and issues in a faulty computer. Computer repair is a broad field encompassing many tools, techniques and procedures used to repair computer hardware, software or network/Internet problems.

Computer Maintenance can be performed; including the following:

- Keep the Keyboard, Mouse, and Openings Clean.
- Gently Clean Your Monitor.
- Keep Food and Beverages Away From Desktops and Laptops.
- Organize Cords and Other e-Debris.
- Don't Overcharge Your Batteries.
- Don't Block the Vents.
- Have Desiccant on Hand.
- Keep Magnets Away.

Some benefits of computer maintenance include the following:

- Detect issues early, before they become problems.
- Prevent against viruses and malware.
- Speed up Your Computer.
- Keep Antivirus Software Up-to-date.
- Maximize Software Efficiency.

In practice, a preventive maintenance schedule may include things such as cleaning, lubrication, oil changes, adjustments, repairs, inspecting and replacing parts, and partial or complete overhauls that are regularly scheduled.

Computer maintenance is very important for keeping your computer running smoothly. A computer which is left untreated can accumulate dust and debris, which may result on slow performance. Additionally, your computer may get infected with virus or malware if your antivirus is not updated. Read by clicking on the link below:

https://www.ciscopress.com/articles/article.asp?p=2999386&seqNum=4

TROUBLE SHOOTING

It involves a systematic process used to locate the cause of a fault in a computer system thereafter correcting the relevant hardware and software issues. Although experience is very useful to problem solving, following a troubleshooting model will enhance effectiveness and speed. It will be useful

reading and concentrating on the information provided in the following links (not forgetting the use of videos):

https://www.ciscopress.com/articles/article.asp?p=2999386

https://ptgmedia.pearsoncmg.com/images/9781587132636/samplechapter/9781587132636_ch04.pdf

http://h10032.www1.hp.com/ctg/Manual/c00757358.pdf

REFERENCES

https://www.mapcon.com/us-en/preventative-maintenance-for-computers#:~:text=Preventative%20Maintenance%20for%20Computers%201%20Daily%3A%20Try%20to,have%20to%20reinstall%20from%20scratch.%20More%20items...%20

https://incomputersolutions.com/qa/what-is-preventive-maintenance-of-computer.html

https://medium.com/swlh/types-of-software-maintenance-2b0503848b43

https://www.ifixit.com/Wiki/Preventative_Computer_Maintenance

https://www.castsoftware.com/glossary/Four-Types-Of-Software-Maintenance-How-They-Help-Your-Organization-Preventive-Perfective-Adaptive-corrective

https://www.sciencedirect.com/topics/computer-science/preventative-maintenance

https://www.ciscopress.com/articles/article.asp?p=2999386&seqNum=4

https://www.ciscopress.com/articles/article.asp?p=2999386&seqNum=5

https://cd1.edb.hkedcity.net/cd/tech_edu/handout/Files/Computer_Organization_Day3.pdf

https://ehorus.com/preventive-maintenance/

https://www.cwims.com/general/pc-preventive-maintenance-guide/

VIDEOS

https://incomputersolutions.com/qa/what-is-preventive-maintenance-of-computer.html#what-are-the-two-types-of-preventive-maintenance

https://www.youtube.com/watch?v=p4VxERfTHgU&feature=emb_rel_pause

https://www.youtube.com/watch?v=UhMH7JYNnCI&feature=emb_rel_pause