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Ten Troubleshooting Tips

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We're a busy lot, here at the ExtremeTech laboratories, and we can't always personally answer your email. We certainly do hear you, however, especially when you write in with PC and tech conundrums that have you stumped.

The emails keep coming. Your computer won't boot. Your roommate's PC ingloriously shuts off at random intervals. The game your sister is trying to play doesn't look like it should. Your daughter spilled milk into your keyboard.

The troubles don't stop with PCs, either. Your Xbox 360 is flashing the dreaded Read Rings of Death. Your PlayStation Portable can't read its Memory Stick anymore. What gives?

There are times we swear that our technology is haunted. We've had problems that induced us to check every cable, every connection, and every slot and socket, and conclude that the problem must be gremlins. Even the harshest of stumpers, however, can almost always be explained—or at least worked around through brute force.

Stroll with us through ten scenarios and what just might be the solutions you're looking for. Even if we don't figure out your particular dilemma, remember one thing: Gremlins are best killed with a big hammer. *Continued...*

Computer Won't Boot, Jim

It happens to all of us eventually. You power up your PC and, for one reason or another, it won't boot into its operating system.

The most frightening scenario is when you press the power button and nothing happens at all. No lights illuminate, no fans spin up, and you don't hear the familiar chatter of the hard discs. It's as if there's simply no power at all.

That could very well be the case. Many times in the past we've come across this very situation, and most of the time the solution is fairly simple. The first thing to do is to check outside the computer. This may sound like a stupid question, but… is the computer plugged in?

(Before joining the tech journalism industry, I worked for a PC repair shop. I cannot tell you the number of times I went on service calls where I ended up solving the problem by plugging in a computer or a printer, and then, as I had to, charge an ungodly sum of money for the pleasure. It's actually *not* a stupid question.)

If it is, make sure the switch on the power supply is in the *on* position; then check the power strip, surge protector, uninterruptable power supply (UPS), or wall outlet the computer's plugged into. Is there power coming from the source? Is the middleman plugged in and switched on? Check the breaker or the fuse if necessary.

If there's definitely power getting to the computer, look inside (take off the side panel if it's not windowed). A great deal of motherboards have some sort of ambient lighting in the form of various LEDs even when the computer is turned off, but plugged in with the PSU switched on. If there's no sign of life, your power supply might have died.

Check it with a multi-meter, if you have one. Set the meter to detect DC voltage, and find a spare 4-pin Molex connector from the power supply. Push the multi-meter's red probe into the Molex hole corresponding to the yellow or red wire, and the black probe into one of the holes that lines up with a black wire. Then, press the PC's power button while watching the meter. If nothing happens, your power supply may have to be replaced.

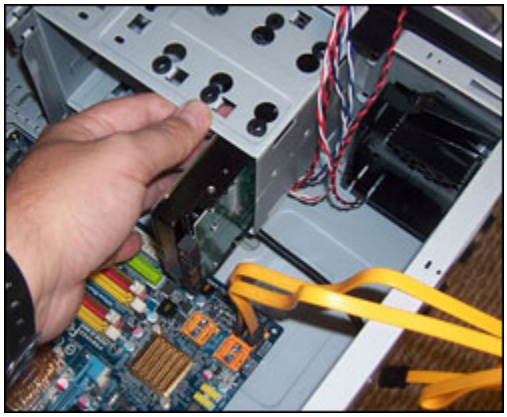
On the other hand, if the motherboard LEDs are on when you peer into the case, there might be a problem with the case power button. Check the front panel connectors and be sure the one labeled something like PWR ON or PWR SW is connected to the corresponding pins on the motherboard's front panel header. If your motherboard has a separate on/off button for troubleshooting, press it and see if the computer shows signs of life. If it does, you might have to do some surgery on the case power button—or replace the case's entire front bezel, if you're not inclined to take it apart.

No, Not the Hard Drive!

If the computer enters the power-on self test, but won't boot after that, you can be fairly sure it's not a power problem. One of the most frightening things you'll ever see is a message that appears right after the POST, white letters on a black screen: BOOT FAILURE, INSERT SYSTEM DISC.

Don't panic. Sure, it *could* be that your hard drive has gone to the Great RAID Array in the Sky, but there are other possibilities.

A likely cause is that the BIOS is trying to boot off the wrong device. Is there a USB flash drive inserted somewhere, or have you recently added an external hard drive? Enter the BIOS setup program and make sure the BIOS is pointed to your PC's internal hard drive or RAID array.



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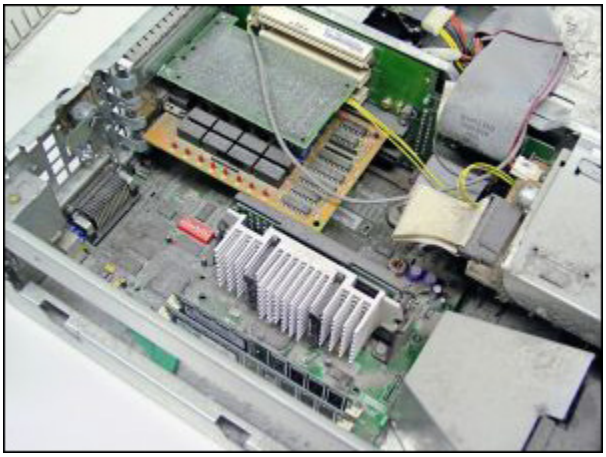
If it is, and you're still getting that message, make sure the internal drive is alive. Today's hard drives spin very quietly, so you might have to open the case and listen closely to be sure it's humming. Sometimes, a noise can give away a defective drive; if the drive is clattering in a repetitive pattern (click-click-clack-click-click-clack-etc.) the drive head might have given up on life, or it might not be able to find the boot sector.

If the drive sounds okay, the MBR might have gone belly up. Troubleshoot this by booting your operating system CD or DVD and running a repair setup (both XP and Vista offer this option). If that doesn't render the drive bootable, you might have to boot off a floppy disk or another bootable, removable medium and see if you can access the hard drive from a command prompt. If your data seems to be intact, consider getting a new drive and copying everything over to it.

If the drive doesn't show any signs of life, or it sounds like a mechanical failure, try this: Remove the hard drive from the computer, stick it in an antistatic bag, and put it in the freezer for about 20 minutes. When it's good and cold, reinstall it and try to access it, either by booting off it or by booting off removable media. If you see your data, copy everything you can to another drive as quickly as possible; freezing the drive might only make it work for a few minutes. *Continued...*

Thermal Problems and PSU Issues

The scenario: Your computer has been working fine for a long time. One day, it just randomly locks up, requiring a hard reboot. You hit the reset button, and things go smoothly for another few hours (or even days), then it locks up again. The hangs become more frequent over time.



What you're experiencing might be a computer allergy. At least, that's what we used to call it in the shop I worked in. Computers, it seems, are allergic to dust.

Dust buildup, or even constant use, can lead to heat-related, or thermal, failures. You should take a good look at the computer, inside and out, and eliminate any and all dust you find.

If your computer's case has dust covers over its fans, unplug the PC and use a Shop-Vac to clean them. You can also use the Vac, assisted by a can of compressed air, to suck all the dust out of the inside of the case. Use the air to blast the dust free, and hold the nozzle of the Vac close to the tip of the air can's blaster. Be careful not to get the Vac nozzle too close to the PC's internals, as you might accidentally suck up a jumper or, if the Vac isn't grounded, cause a discharge of static and blow a chip.

With your can of air, pay special attention to fans on the graphics card, the CPU cooler, and the chipset (if any). If air alone can't clean the parts, you might have to remove them and flush them clean with an aerosol can of electronics cleaner (available at most self-respecting electronics stores).

If you do remove the CPU cooler, take care to clean *all* of the thermal compound from the top of the CPU and the contact plate of the cooler. Apply a new glob of thermal compound to the top of the CPU and spread it around evenly before replacing the cooler.

If that solves your lockups, you're all set. If not, keep reading.

PSU Issues

When a power supply goes bad, the symptoms can be mysterious and confusing. The computer might hang. It might shut off all by itself. It might suddenly reboot. If your PC starts randomly partaking in such annoying activities, you might have to replace the power supply.

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Before you do, consider what you've done in the recent past. Have you been overclocking the CPU or chipset? Doing so can quickly eat up precious wattage and overtax the poor PSU. Have you added lots of stuff to your computer, such as a beefier graphics card, a bunch of bus-powered USB peripherals, a discreet sound card, multiple hard drives, or anything of that nature? Try removing or disconnecting some of that stuff and see if the computer's behavior smoothes out.

If, by chance, you're running in SLI a pair of Nvidia-based cards that require not one, but two PCI Express power leads, try this: Disconnect the PCI-E leads from the inner connector on each of your two graphics cards. With power coming only from the outermost connectors (those nearest the front of the PC), the computer should still boot an operating system—it just won't have the muscle to crank out demanding 3D graphics. If the computer stops rebooting, handing, shutting down, or whatever it was doing, you've just diagnosed a weak power supply.

What to do? Grab a higher-wattage PSU (or one from a trusted manufacturer)—if you're currently using a generic one. Trusted manufacturers include Cooler Master, PC Power and Cooling (now part of OCZ), Antec, Thermaltake, and a number of others. Or cut down the power demand in your PC. Lose one of the graphics cards if you're rocking an SLI or CrossFire system; replace high-demand parts with lower-wattage parts; stop overclocking. *Continued...*

That Game Looks Funny and Clean Those Contacts

We're not talking a Sam and Max comedy; maybe *Crysis* or *Company of Heroes* or *Call of Duty 4* is showing bizarre or missing textures, running in fits and starts, or otherwise being weird.

Almost every time a PC game acts like this, it can be traced to one of two issues: The graphics card is overheating (either stop overclocking it or see read about thermal problems on the

previous page), or you need a software fix. The software repair can be in the form of newer graphics drivers or a patch for the game.

As new big-name titles come out, both ATI and Nvidia tend to react quickly. ATI will sometimes release a hotfix for its current set of Catalyst drivers, whereas, Nvidia will release beta ForceWare drivers with optimizations for the new game. Download and install them as necessary.

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If you do install new drivers, make sure to properly uninstall old ones first. Today's drivers uninstall cleanly, so you don't need special driver uninstallers these days. But it's still safest to uninstall old drivers before installing new ones.

Meanwhile, it's important to keep up with game patches for *all* of your games. This is no longer a curse specific to PC gaming; even console games are afflicted with patchable bugs these days. Check each of your games' support sites regularly for patches, and keep an eye on game news sites like Blues News for patch announcements.

Out of Contact

Everything that has electrical contacts is subject to some sort of failure caused by dust, dirt, corrosion, or wear and tear. This includes everything from expansion cards to flash memory cards, from batteries to USB peripherals. I was reminded of this recently when my PlayStation Portable suddenly stopped seeing its inserted Memory Stick Duo. I turned the unit on one day, and it couldn't find any of my litany of photographs, saved games, or movies.

I did what any normal person would do: I broke into a sweat and panicked because I hadn't backed up the thing in ages. I'm halfway through *Jeanne D'Arc*, for Heaven's sake, and I really don't want to start over.

Then I thought about it for a moment, turned off the PSP, and popped out the Memory Stick Duo. Although I couldn't see any sign of corrosion on its contacts, I cleaned them anyway.

You can get a special contact cleaner from an electronics store, or you can use a simple, clean pencil eraser to work off any gunk, corrosion, finger oils, or whatever else might have built up on the gold electrical contacts. Then I reinserted it, powered up the PSP, and everything was right with the world.

I don't know why it hiccupped, but cleaning the contacts never hurts. Contact failure can result in all kinds of symptoms, depending on the electronics in question. For instance, a graphics card in poor contact with the motherboard might not allow the computer to POST, or it might behave oddly and cause visual artifacts. Poor battery contact can cause a device to stop working altogether.

To ensure good electrical contact, never touch the (usually gold) contact plates or pins on anything, ever. And don't get anything on them. This includes memory modules, batteries, and, yes, Memory Stick Duos. *Continued...*

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Don't Cry over Spilt Milk or the Red Ring of Death

Kids and computers don't always mix. In fact, even grownups do dumb things like set a beer right next to the keyboard, forget about it, and knock it over so that it pours onto the poor input device.

This solution works better the sooner you get to it. It's also not limited to keyboard, but pretty much any electronic device with gaps in it that liquid can seep into, including remotes, notebook computers, and PDAs.

Cut power to the device (remove any batteries if necessary) and take the thing apart as fast as you can. Many particles in many beverages are conductive. If the liquid shorts something, the device can be permanently damaged.

You can rinse the electronics of the device clean with several liquids. Hydrogen peroxide will dissolve any sugar that makes its way to the circuitry and so will distilled water. *Don't use tap water; it contains minerals that make it electrically conductive, and when it dries they will remain on the circuit boards*. In a pinch, you can use rubbing alcohol to rinse the device thoroughly, but distilled water tends to be more effective. Better than both is reagent grade isopropyl alcohol or a true degreasing solvent, which you can find at a local electronics shop.

Allow the device to dry *completely* before you reassemble it. I mean, give it a few days, especially if you can't get it fully apart. Make sure there's absolutely no more liquid on or inside it, and then replace its power source or connect it back to the PC. When you try to use it again, test every function, or key, or what have you, thoroughly before you declare the emergency measure a success.

Red Ring Might Not Mean Death

If you're an Xbox 360 enthusiast, you might live in fear of what's called the Red Ring of Death. Each red-lit segment in the normally-green ring around a 360's power button indicates a different symptom. The dreaded Red Ring of Death is indicated by three of the four segments glowing red—all but the upper-right quadrant.

Before you cry out in pain, turn the 360 off, disconnect all of its cables, reconnect them, and turn it back on. If you still see the evil red lights, turn it off again, disconnect the hard drive, and turn it back on. If the 360 acts normal, the hard drive might be toast.

Alternately, you might not even see the Red Ring of Death even when you see red ring segments. For instance, if all four segments glow red, there's an A/V problem; check the seating of the audio-video cable and be sure the switch on the cable is in the correct position for your A/V needs.

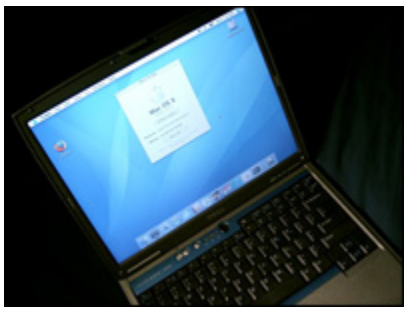
If you do see any red ring segments when you turn on your 360, and you've tried the above steps, call 1-800-4MY-XBOX to get tech help. The worst-case scenario is that they'll send you a "coffin," in other words a shipping container in which you can send the 360 to the repair center.
Continued...

The Case of the Broken Wire and the Kicker

This one was a stumper. My wife's notebook battery died. It was pretty old, so that's not really surprising. Yes, I did check the contacts.

Whenever she used it, she had to do so with the power cord plugged in. Suddenly, however, the notebook started to shut off without warning. At first, I tried to trace a pattern in its behavior, but there wasn't any rhyme or reason to the occurrences. It would shut down at any given time, when she was playing Spider Solitaire, or when she was working on a school project, or when she was surfing the Web, and so on.

Knowing she kept it plugged in, I couldn't figure out why it would do that. Ready to conclude that it was either a thermal problem or an electrical problem within its own, internal power circuitry, I then noticed that it usually happened when she *moved*.



I immediately grabbed the power cable and, using my multi-meter to ohm it, I determined that a wire within the cable was broken. It showed contact unless I wiggled it just right, then contact would fail. Power was lost. Without a working battery, the laptop simply shut down.

I could have stripped the insulation off the cable, located the broken wire, soldered it together and taped it up, but the break was on the very edge of the terminator on the notebook side. Since the cable and the power brick were proprietary to the notebook, I had to get a replacement; thankfully, a dude on eBay was selling exactly what I needed for far less money than the laptop manufacturer wanted.

The Kicker

Now I have to take my own advice and go replace a power supply. That's right, those of us who write the stuff you read here at ExtremeTech are just as susceptible to PC and gadget failures as anyone else. I think I toasted the PSU when I tried to SLI a pair of GeForce 8800 GTX cards

with the quad-core CPU overclocked from 2.93GHz up to 3.40GHz, and the memory running at 850MHz up from 800MHz. Oops.

Read about 5 Tech Mistakes to Avoid.

The one thing to take away from this article is that failure doesn't always mean the worst possible case. I thought there was an internal problem in my wife's notebook, which would have to be replaced in its entirety, but it was just a wire in a cable that was causing the trouble. You might think your hard drive is fried, only to discover your PC was trying to boot a non-bootable eSATA drive.

When failure occurs, keep your head. Don't panic, just *think*. Think the problem through and remember: The simplest explanation is usually the right one.

Sometimes, even walking away from a problem for a few minutes, or even overnight, can clear your head and ideas will start flowing. The human mind is a funny thing, so patience is often better than trying to come up with an answer under pressure. Of course, there are times when you have to come up with an answer quickly. Even then, a little patience may pay off in a big way.