**Word Count:1042**

Video, Raspberry Pi Troubleshooting

In this video, we will learn about various troubleshooting methods to common Raspberry Pi Problems.

Whether you’re new to the world of Raspberry Pi, or you’ve been using them since they launched, there’s always a moment when something doesn’t quite work the way you want it to. This may be due to human error or due to a bug or software problem that you will need to workaround. The Raspberry Pi and Raspbian are pretty reliable, so you shouldn’t regularly encounter problems unless you’re trying to do something really complicated. When you do find a problem, however, here’s some guidance on what you can do to fix it.

Your first instinct may be that you’ve done everything correctly, so the Raspberry Pi must be at fault. However, each Raspberry Pi is tested once it leaves the production line. It definitely worked before it left the factory, and the chances of it turning up dead on arrival are very slim.

I have provided a Pi Troubleshooting Flowchart for easy rectification of problems.

Let us look at the first things to check for troubleshooting

1. Check all the connections - This may seem obvious, but it’s always worth wiggling a few cables. You should pay close attention to the micro SD card: make sure it’s pushed all the way in on the micro SD card slot. Also, check whether the display cable is loose.
2. Check the power - Are you using the correct power supply. For Raspberry Pi 4 we need to use 5V 3A Power Supply. Check that the power supply works on another device to rule out problems with the power supply. Usually, when you boot up a Pi, with insufficient power, it will show a lightning bolt icon on the top right corner.
3. The Raspberry Pi 4 design has a buggy USB C port because of a missing resistor. This causes problems for so-called “e-marked” cables, such as those supplied with MacBooks and other laptops fitted with USB-C Thunderbolt charging ports. These cables contain chips designed to manage features like power draw and to detect different kinds of accessories. If you try to power a Raspberry Pi 4 using one of these cables, it will detect the microcomputer as an “Audio Adaptor Accessory” and won’t power it. So any non premium USB C power cables should work. If you want to know more about this issue and about any possible future revisions of the board, please check out the resources section.
4. Just double check whether the monitor is turned on and set to the correct input. The Raspberry Pi 4 has two HDMI ports. The connector on the left marked "HDMI0" is the primary display, so you'll need to ensure this one is always plugged in. Also, if you are using an old monitor with no HDMI input, you will need a proper hdmi to vga converter to get output in the monitor.

If you face boot problems like if your raspberry pi not turning on, here are some things to look out for

1. Check the Status LEDs - There’s a green LED on the corner near the power supply input that blinks when the SD card is accessed. It’s labeled ACT, and it can be used to determine whether or not the SD card can be read. The LED should blink erratically when reading from the card during the boot process. If it’s not blinking when the Pi is switched on, it means the card cannot be read. The power LED will not light up if the voltage from the power supply drops below 4.65 volts. Check the power supply and replace it if you need a higher voltage. The status LEDs can also give different patterns of blinking to specify several different problems. Please check out the document in the resources section to know more.
2. Blown Polyfuse - If no power is delivered to the Raspberry Pi and the fault isn’t with the power supply, the resettable fuse on the Pi may have blown. Unfortunately, the only solution to this is to wait a few days for it to reset. Trying to turn it on before it has recovered will probably blow the fuse again and reset the waiting period.
3. Micro SD Card Issues - Your Raspberry Pi’s problem may not be with the software, but with the hardware. Your micro SD card might be corrupt. This can happen for many reasons, but the two most common causes are turning the Pi off repeatedly without doing a proper shutdown, and the other reason is writing a lot of data frequently to the card. Micro SD cards don’t last forever, so if a card is not working in your Pi, or on any other system, you may need to use a new SD card. Thus always back up your micro SD Card regularly.

If you face any network related issues, use these tips for fixing your network connection.

1. If you are using a wired connection, make sure that the Ethernet connector is firmly pushed in. If you are using a wireless connection, double-check whether you have entered the correct password. In the desktop environment, on the top right corner, you will see the status of your network connection. If your wireless connection is intermittent and fails regularly, try again by moving closer to your router. You can use an app on your smartphone called WiFi analyzer to find the optimum location.
2. Make sure that you are on the same network as the Raspberry Pi and scan the correct IP Address before using SSH via Putty or Remote Desktop Environment using VNC Viewer. You can use an application called “All IP Scanner” to find your Pi.
3. Sometimes Secure Shell via Putty will work, but VNC Server won't work. If this happens, make sure that the VNC Server is running.

Summary,

In this video, we have covered the following topics

* Various Troubleshooting Methods to common problems

Section Summary

In this section, we have covered the following topics

* Installing and Setting up the OS
* Remote Communication with the Raspberry Pi 4
* Overview of the Buster OS
* How to backup & restore in the Raspberry Pi 4
* Raspberry Pi Troubleshooting

In the next section, we will learn the basics of working with Linux.