

9.8.3 Mobile Device Troubleshooting Facts

Mobile devices present a unique challenge for troubleshooting. Because of their mobile nature, they are prone to a variety of problems that can manifest in various ways.

This lesson covers the following topics:

- Troubleshooting tools
- Common mobile issues

Troubleshooting Tools

The following tools can be used to help troubleshoot mobile devices:

Tool	Description
App Scanner	<p>An app scanner is a tool that can be used to identify problems with installed apps.</p> <ul style="list-style-type: none">▪ When installed, the app scans all installed apps on the mobile device and uses a definitions list to identify any issues.▪ App scanners can be configured to automatically scan the mobile device on a specified schedule. <p>Because app scanners use a definitions list to identify problems, it is important that the list is always kept up to date.</p>
Wi-Fi Analyzer	<p>Wi-Fi analyzers are special apps that can be used to troubleshoot Wi-Fi connectivity issues. Most Wi-Fi analyzer apps provide the following functionality:</p> <ul style="list-style-type: none">▪ Identify the number of APs that are broadcasting▪ Display the signal strength and channel of each wireless network▪ Obtain wireless network information (e.g., signal band, SSID, security mode, etc.)
Cell Tower Analyzer	<p>A cell tower analyzer can be used to troubleshoot cellular network connectivity by displaying the following information:</p> <ul style="list-style-type: none">▪ Signal strength/interference▪ Number of cell towers in the area▪ The location of each cell tower▪ Mobile network information (e.g., network type, data activity, service provider, etc.)

Common Mobile Issues

The following table describes some of the most common mobile issues and the steps you can take to identify and fix the problem:

Issue	Description
No Display	<p>A mobile device's display can stop working for a several reasons. If you are troubleshooting a mobile device with a display issue, consider the following:</p> <ul style="list-style-type: none">▪ Make sure the device is fully charged and powered on. It is possible that the device is powered off or the battery is drained.▪ Check the device's brightness level. If the brightness level is too low, it may appear as though the display is off. Look at the screen in a dark room to make sure this isn't the case.▪ Find out if the device was dropped. When a mobile device is dropped, it is possible for the screen to be damaged, even if there is no physical damage.▪ Look for physical damage. If the screen is cracked or the device has physical damage, the display is most likely broken and needs to be replaced.▪ If your device is displaying but won't cast to an external device, such as a television, make sure both devices are using updated versions, have permission to connect to other devices, and have paired correctly. Use online forums to search your symptoms and find solutions for your specific devices or contact the devices' manufacturers for support.
Non-Responsive Touchscreen	<p>Mobile devices use capacitive touchscreens, which require a conductive material touching the screen to work. If the touchscreen is not functioning or is inaccurate, you should:</p> <ul style="list-style-type: none">▪ Look for liquid on the screen. Because water is conductive, any type of moisture on the screen will result in erratic touchscreen behavior.▪ Check for cracks or physical damage. A cracked screen can disrupt the current flow across the screen and cause specific sections of the touchscreen to fail.▪ Make sure the screen is calibrated. If the touchscreen is inaccurate, try calibrating it using the device's built-in calibration app.

Unauthorized Access	<p>Mobile devices are vulnerable to many of the same attacks that target desktop systems. One such attack is unauthorized access, where an attacker gains access to a specific feature or functionality of the mobile device.</p> <ul style="list-style-type: none"> Unauthorized account access occurs when an attacker obtains the login credentials for a cloud backup service or the device itself. This can result in leaked personal files and data. To protect against this, make sure to use some sort of authentication on the mobile device. Also make sure to use complex passwords and, if possible, set up two-factor authentication with all accounts that contain sensitive information. Unauthorized root access is typically the result of a virus or malicious program installed on the mobile device. With root access, the malicious program can make low-level system changes to the mobile device, including modifying root certificates. To protect against unintended root access, install an anti-malware app on the mobile device and keep it up to date. Unauthorized location tracking occurs when the GPS on the device is being used to track your location without your permission. To protect against this, review the device's security settings and identify which installed apps have access to location services. You can then modify each app's permissions to deny location tracking access. Unauthorized camera/microphone activation is when the device's camera or microphone is being used without the user's permission. This can be caused by a malicious program or individual, or it could be caused by an installed application that has been granted permission to use these services. Most mobile devices have an LED or icon that indicates if the camera is being used. If a camera is being used without permission, review the device's security settings and app permission settings. In addition, you can install an anti-malware app and run a scan on the device to remove any malicious apps. If you become locked out of your phone, you can always get back in by performing a factory reset, but note that this will remove all data from your device.
Weak or No Signal	<p>Most connectivity issues are a result of a weak signal or some sort of interference. If a mobile device is having connectivity problems, try the following:</p> <ul style="list-style-type: none"> If the device is having problems connecting to a wireless network: <ul style="list-style-type: none"> Make sure the wireless adapter is turned on. Verify that the wireless configuration settings are correct. Use a Wi-Fi analyzer to identify the network's signal strength as well as interference sources (e.g., other network signals). Verify that you are not over your data limit and being denied data access. If the device is having problems with cellular service: <ul style="list-style-type: none"> Make sure the mobile device has a SIM card installed. Use a cell tower analyzer to identify network coverage, signal strength, and network type (i.e., 1x, 3G, 4G). Identify whether or not the mobile device has a data plan. If it does, make sure the device has not gone over the data limits specified in the plan.
Slow Performance	<p>If the device seems to be running slow, there are a couple things you can look at in order to identify the problem:</p> <ul style="list-style-type: none"> Identify system resources and usage. Many mobile devices have a system monitor that can be used to identify which apps are using system resources (i.e., memory, processor, etc.). Make sure the app being used is compatible with the mobile device. Older mobile devices have slower processors and might not be able to run all the latest mobile apps available to it. Check the amount of free storage on the mobile device. If a mobile device's storage is more than 80% full, performance can be reduced considerably. If the cell phone overheats, turn it off and place it in a cool place out of direct sunlight. It is possible for overheating to damage hardware, but generally, cooling down will correct issues. Avoid overheating by keeping the phone out of direct sunlight and extremely hot places, such as a car parked in direct sunlight. If your speakers do not perform correctly, begin troubleshooting by checking your sound settings. Make sure nothing is set to Mute, Vibrate, Do not Disturb, or Silent. Make sure your phone isn't connected to another device with Bluetooth. After that, plug headphones into your device. If you can hear sound through the headphones but not through the device's speakers, you may have a hardware issue. If turning the phone off and back on again doesn't fix the problem, you should contact your phone's manufacturer or your cell service provider for support. If your GPS isn't functioning, first, make sure your phone is receiving a clear signal. You need a clear signal for the GPS to work and to troubleshoot any GPS problems. Make sure you have enabled location permissions for the app you are trying to use. You can refresh location services by turning the Location function on and off or putting your phone in Airplane mode for a few moments. If these solutions don't work, you may have to reset all of your location and network data or restore your device's factory settings. You can review security and performance logs on your phone just as you can on a PC. This can help you troubleshoot performance issues. Review materials from your device manufacturer to learn how review logs on your phone. Note that you may need to connect your phone to a computer with a USB.