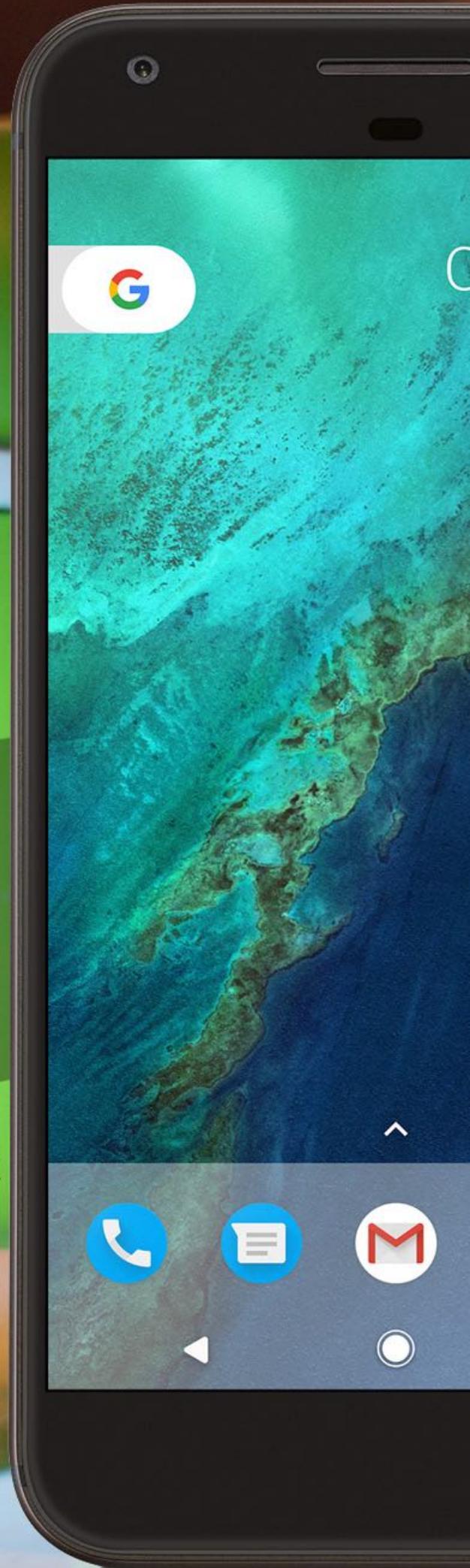# THE COMPLETE GUIDE TO ROOTING YOUR ANDROID PHONE OR TABLET

BY KHAMOSH PATHAK

The Complete Guide to Rooting Your Android Phone or Tablet

Written by Khamosh Pathak

Published August 2017.

Read the original article here: **http://www.makeuseof.com/tag/take-control-android-rooting-guide/**

Table of contents

The Android phone you're using right now is running in a sandboxed environment. Unlike your Windows PC or Mac, you can't go looking around or messing with system files. You can only operate within predefined parameters that are defined by Google and your manufacturer. Root access is the way to break free.
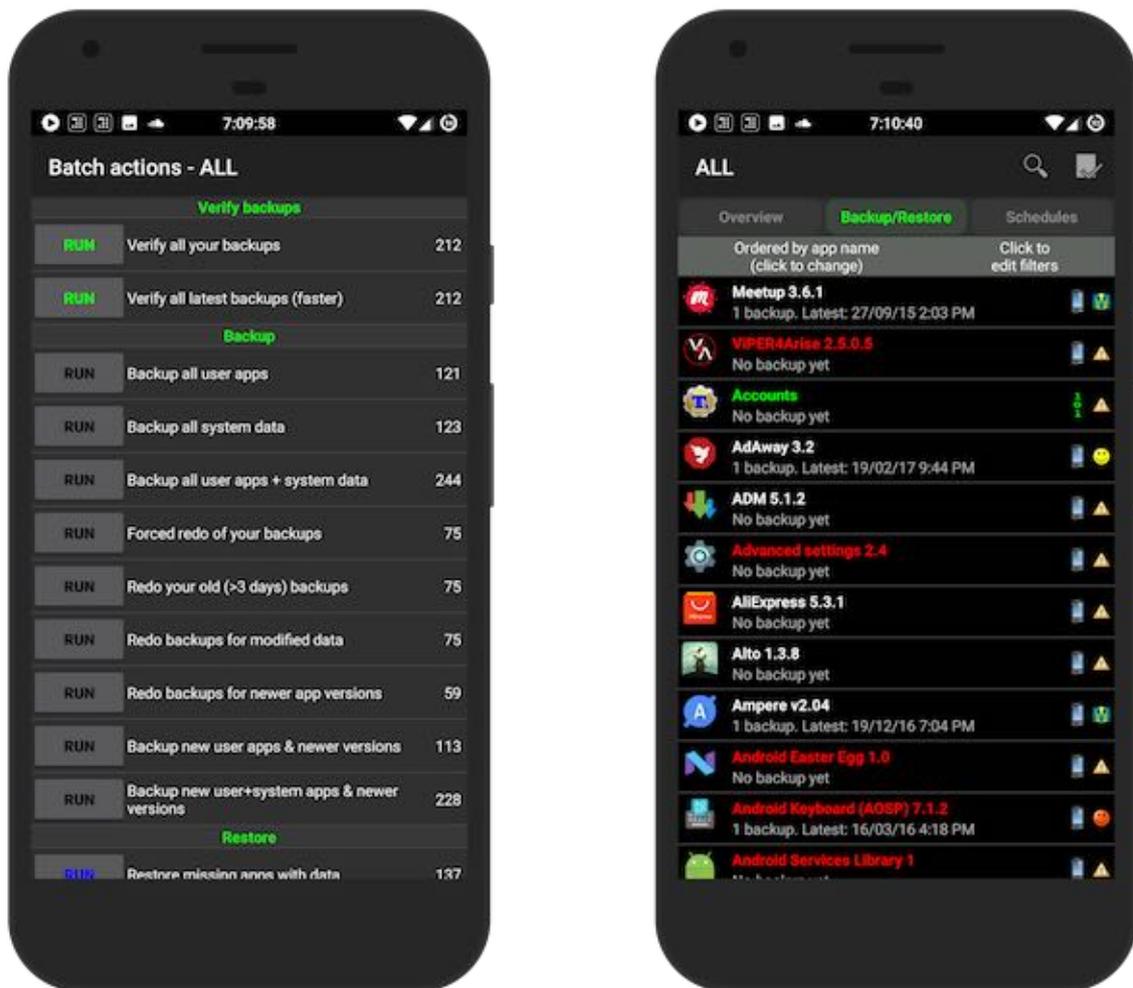
In the simplest terms, rooting your Android phone means taking control of your entire device, right from the code that's running the operating system. It is beautiful, dangerous, and super rewarding. Rooting gives you access to system files, folders, and system commands — things that are normally hidden from the user.

Once you have root access, you'll be able to do things mere mortals can only dream of. You'll be able to remove carrier bloat, update to the latest version of Android even if it's not officially supported, and you'll be able to mod every part of the software. But as our friendly neighborhood superhero always says: With great power comes great responsibility.

Which brings us to the question — is it worth it?

The Advantages of Root Access

It's important to note that just gaining root access won't immediately solve all your problems. Rooting will just give you the power to do so. Here are all the clear advantages of using a rooted Android phone.

Batch actions - ALL   7:09:58

Verify backups
RUN Verify all your backups   212
RUN Verify all latest backups (faster)   212
Backup
RUN Backup all user apps   121
RUN Backup all system data   123
RUN Backup all user apps + system data   244
RUN Forced redo of your backups   75
RUN Redo your old (>3 days) backups   75
RUN Redo backups for modified data   75
RUN Redo backups for newer app versions   59
RUN Backup new user apps & newer versions   113
RUN Backup new user+system apps & newer versions   228
Restore
RUN Restore missing apps with data   137

ALL   7:10:40

Overview Backup/Restore Schedules

Ordered by app name (click to change)   Click to edit filters

Meetup 3.6.1
1 backup. Latest: 27/09/15 2:03 PM

ViPER4Arise 2.5.0.5
No backup yet

Accounts
No backup yet

AdAway 3.2
1 backup. Latest: 19/02/17 9:44 PM

ADM 5.1.2
No backup yet

Advanced settings 2.4
No backup yet

AliExpress 5.3.1
No backup yet

Alto 1.3.8
No backup yet

Ampere v2.04
1 backup. Latest: 19/12/16 7:04 PM

Android Easter Egg 1.0
No backup yet

Android Keyboard (AOSP) 7.1.2
1 backup. Latest: 16/03/16 4:18 PM

Android Services Library 1

Remove bloatware: You'll be able to remove carrier or manufacturer bloatware that was preinstalled on your phone.

Better backups: You'll be able to back up **individual apps along with their app data** using **Titanium Backup**. And a **Nandroid backup** will let you backup your entire operating system with just a tap.

Custom ROMs: If your phone is running slow, just **switch to a custom ROM**. It usually comes with the latest version of Android and the latest security patches. Most **custom ROMs run on stock Android**, so your phone will run much faster.

Extra apps and features: You'll be able to run apps that aren't available on the Play Store, and you'll be able to tweak not just the software, but the hardware as well (by overclocking and underclocking the CPU).

Extended life: The HTC HD 2 is a legend in the rooting world. The phone was released in late 2009, but thanks to custom ROMs, it is able to run **Android 7.0 Nougat seven years after its release**. For you, a custom ROM could mean an extra year or two out of your current phone.

Things You Lose by Rooting

Let's talk about the cons. While it's **no longer illegal to root your Android phone** in countries like the US, you do void your warranty by doing so. That's not the end of the world, though, because you can usually unroot your device and **get back to stock** if you want. After that, it should be back under warranty. Some manufacturers implement ways to know if you've ever rooted, but there are often workarounds for those.

Something that will affect you on a day-to-day basis is the incompatibility with some apps. **Apps like WhatsApp** and Netflix will throw up a warning. Certain banking apps might lock you out entirely. Once you're rooted, you'll need to be wary of software updates. A major update might affect your root status, and if you have customizations installed, you could end up bricking your phone.

Lastly, you'll need to be extra careful about what you do with your phone. Because apps have root access, a malicious app or tweak can do much more damage now.

Rooting Dictionary

Bootloader: The bootloader is the piece of software on your phone that boots up the system recovery and the operating system. When you boot up the phone, this is the first piece of software that runs.

Root: The term "root" is a relic of the Linux world (Android runs on Linux). Gaining root access means gaining administrator or superuser access to the entire device, at its most basic level.

Recovery: The first thing the bootloader rings up is the recovery. A custom recovery like TWRP will let you back up the entire device, flash tweaks, and install a new custom operating system.

Custom ROM: A custom ROM is a replacement operating system. It's compatible on the most fundamental level, but customized or changed in some other aspect. A custom ROM can have special apps, extra features, or tweaks to the code that make your phone faster and more secure.

SuperUser: When you root your phone, it installs a "su" binary. You can use apps like SuperSU to manage superuser access. Grant it to apps so they can interact with the root level of the operating system.

ADB: Android Debug Bridge lets you communicate to your Android device from your PC using the command line. For some devices, this is the only way to gain root access.

Kernel: A kernel is what sits between the phone's hardware and software, making it easy for the software to communicate, interact, and tinker with the hardware. If you're the ambitious kind, you can **switch out the kernel for something custom**. This can give you a performance increase and access to more features.

Xposed Framework: Xposed **is a modding tool**. The modules available for Xposed let you tweak system and app behavior. You can get features from custom ROMs without actually switching to one.

Brick: When your phone just won't boot up, it's officially bricked. Don't worry — you can usually get it up and running again by restoring a Nandroid backup.

Nandroid: Once you're rooted, you'll be able to perform Nandroid backups using the custom recovery. This backs up your entire phone, including apps and data that you can restore after you've installed a different custom ROM. So even if you update a ROM, you won't lose out on any data.

Back up Before You Root

When the bootloader is unlocked, all your data will be wiped in the process. So it's really important **you backup your data** before you take the first step.
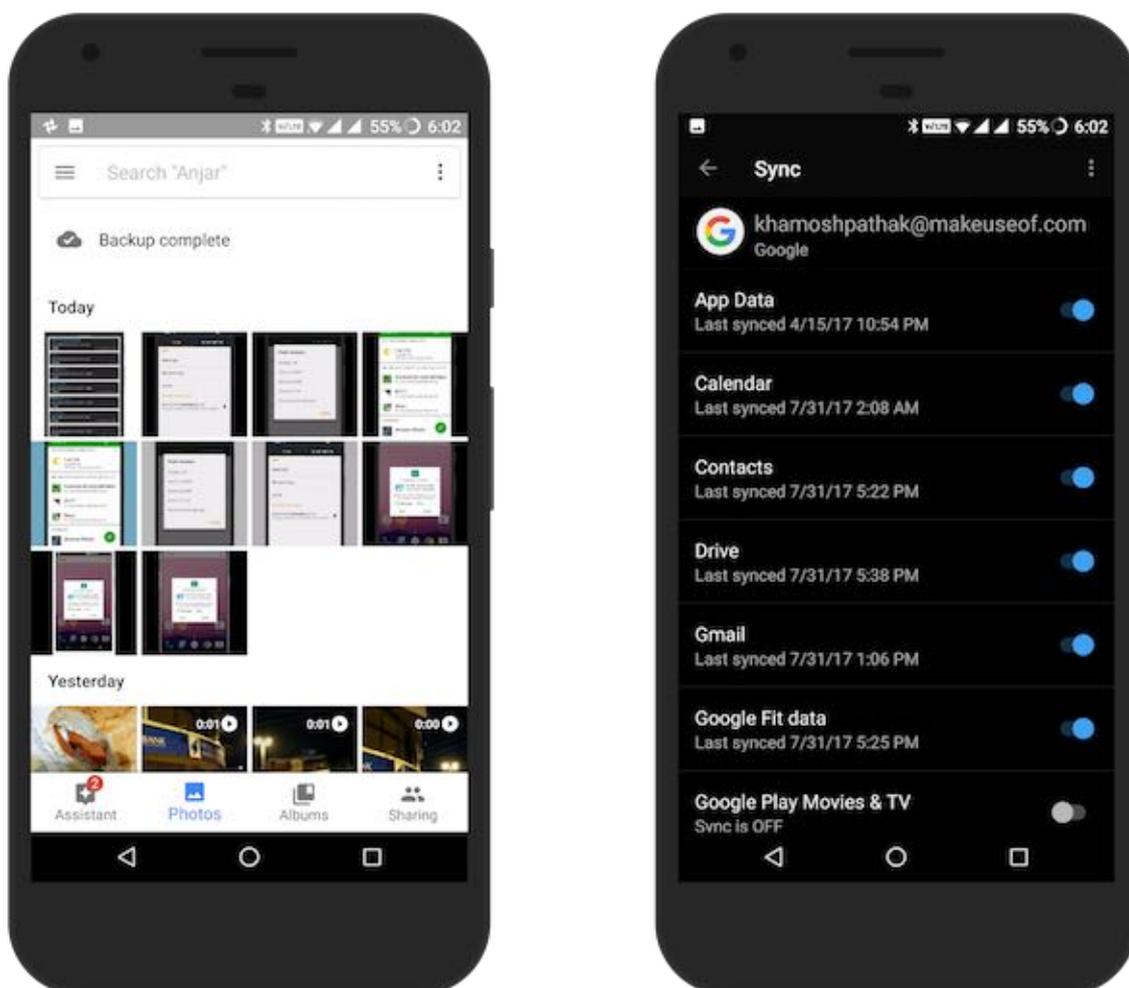
Android doesn't have a singular backup system for all apps and data (although you'll gain this ability once you're rooted). As rooting can be a risky affair, it's best to back up all your important data first — **contacts, messages**, work documents, images, etc. To make sure your Google data is being synced to Google's servers, go to **Settings** > **Accounts** > **Google**.

For contacts and email, just make sure Google sync is enabled, and should be good to go (as long as you use Gmail). For Photos, you can either copy them to your PC or upload **them to Google Photos**. For any important documents you might have on your device, we recommend you upload them to Google Drive **or Dropbox**.

There are also a **few apps that can help you back up other bits of data** you may have lying around.

How Rooting Actually Works

Usually, rooting is a three-step affair: Unlock the bootloader, flash a new recovery, then use the new recovery to flash a .ZIP file that will give you root access.

The first thing you need is an unlocked bootloader. For most popular devices, there's some kind of workaround to unlock the bootloader. Before going forward, check if your device's bootloader can be unlocked via a quick Google search. Every Android device is different.

Once the bootloader is unlocked, the next thing is to switch from the system recovery to a custom recovery. A third-party **recovery like TWRP** lets you do things like flash .ZIPs, install tweaks, make backups, and execute commands. We'll use our new recovery to flash a .ZIP that will give us root access.

Once you're running a recovery like TWRP, you'll flash a SuperSU file that gives you root access. When you reboot your device, you'll find that nothing has actually changed. You just gained the power to make changes. Don't worry, real change is coming. We'll talk about installing a new ROM, managing tweaks, and using root-enabled apps in the sections below.

Should You Root?
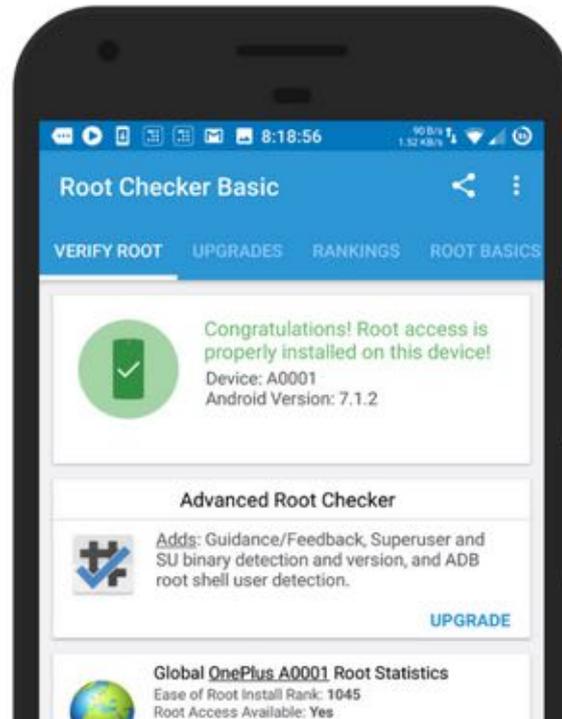
Now that you know what rooting is, the advantages, and how exactly you go about it, now is the time to ask the question: Should you root? Using a rooted phone is (and I say this without a hint of irony), a *lifestyle*. Just like brewing your own beer or **building retro game consoles** is a lifestyle. For some people, it works; for some, it doesn't.

At this point, you have to decide if it works for you. Or you can decide once you've already tried using a rooted device. If you're excited about the notion of complete control over your Android device (and everything that entails), go for it. If you're desperate for better performance out of the machine, go ahead and install a custom ROM.

Just keep in mind that you'll need to be mindful of a lot of things, and you'll need to do your due diligence before making a significant change to the operating system. Because when it comes to the *root life*, there are no shortcuts.

Why You Probably Shouldn't Use One Click Tools

If your device has an unlockable bootloader, there are 2 major directions you can take. You can either go the old-fashioned way, or you can use a one click tool.

The old-fashioned way entails connecting your Android phone to your PC and manually passing commands to the phone using the command line.
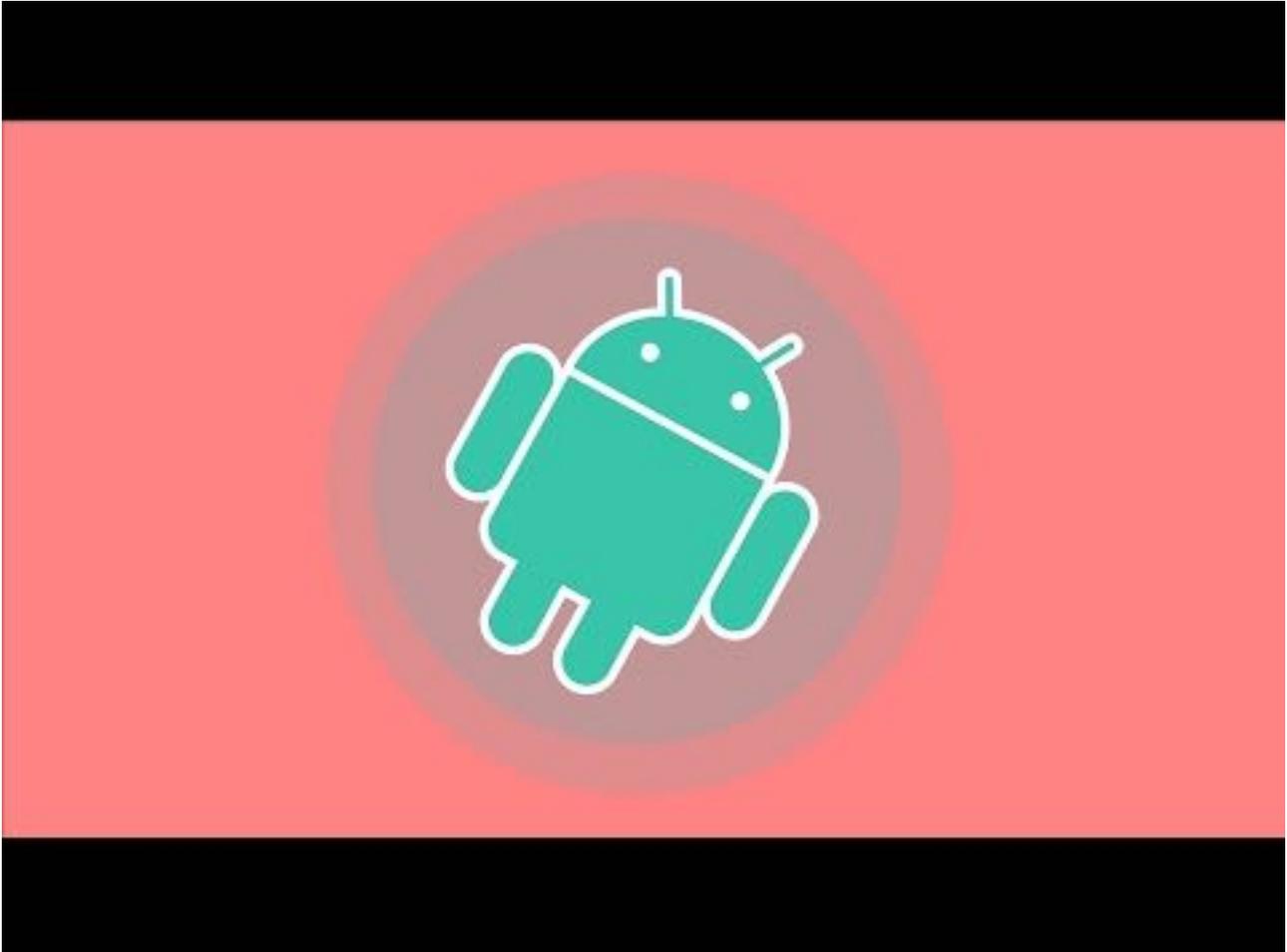

The appeal of a one click tool (one that works from the device itself or via a PC) is that it takes care of everything for you. The manual route gives you more control over the process and is far more reliable. When it comes to one click tools, you're at the mercy of its developer and how well it's customized for your device.

You'll find many one click rooting tools like **KingRoot**, **KingoRoot**, **CF-Auto-Root**, **OneClickRoot**, and so on.
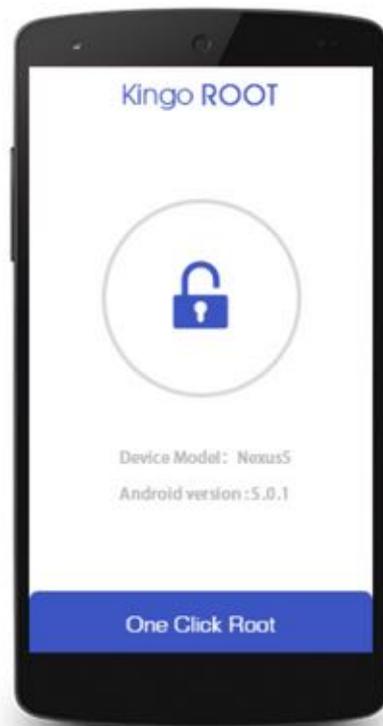
Here's how a one click rooting tool like KingRoot works. KingRoot is just a database of exploits. When you use the app, it uploads your device details to its server and downloads the relevant exploit back on the device which disables the security parameters. This allows the app to gain root access.

The problem is that their use of exploits makes them notoriously unreliable. Exploits are usually blocked with software updates. And sometimes they may vary depending on the version of the operating system and the type of phone it is.
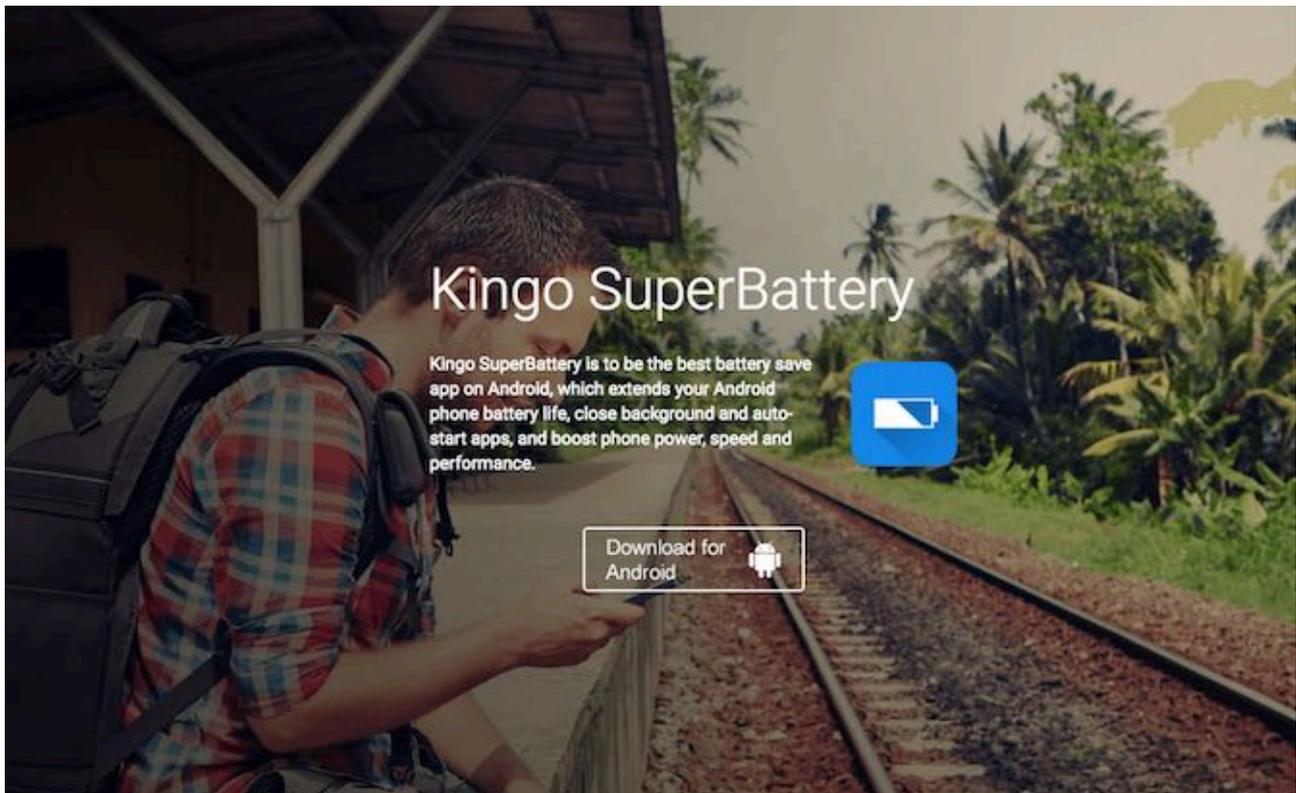
Apps like KingRoot and KingoRoot install their own cleaner apps in the process. So even if your phone does end up being rooted, you'll now have more bloatware to deal with. Plus, utilities like KingRoot only work if you have an unlocked bootloader, and they don't install a custom recovery like TWRP. If your end goal is to run a custom ROM, it's better if you go through the manual process.

The advice for using a one click rooting tool is simple: Only use it if it's your only option.

How to Root Your Android Phone

Thousands of different devices, hundreds of tools, and dozens of Android versions mean there are a million different ways to root an Android phone. But all *you* really need to think about is how it works for *your* device.
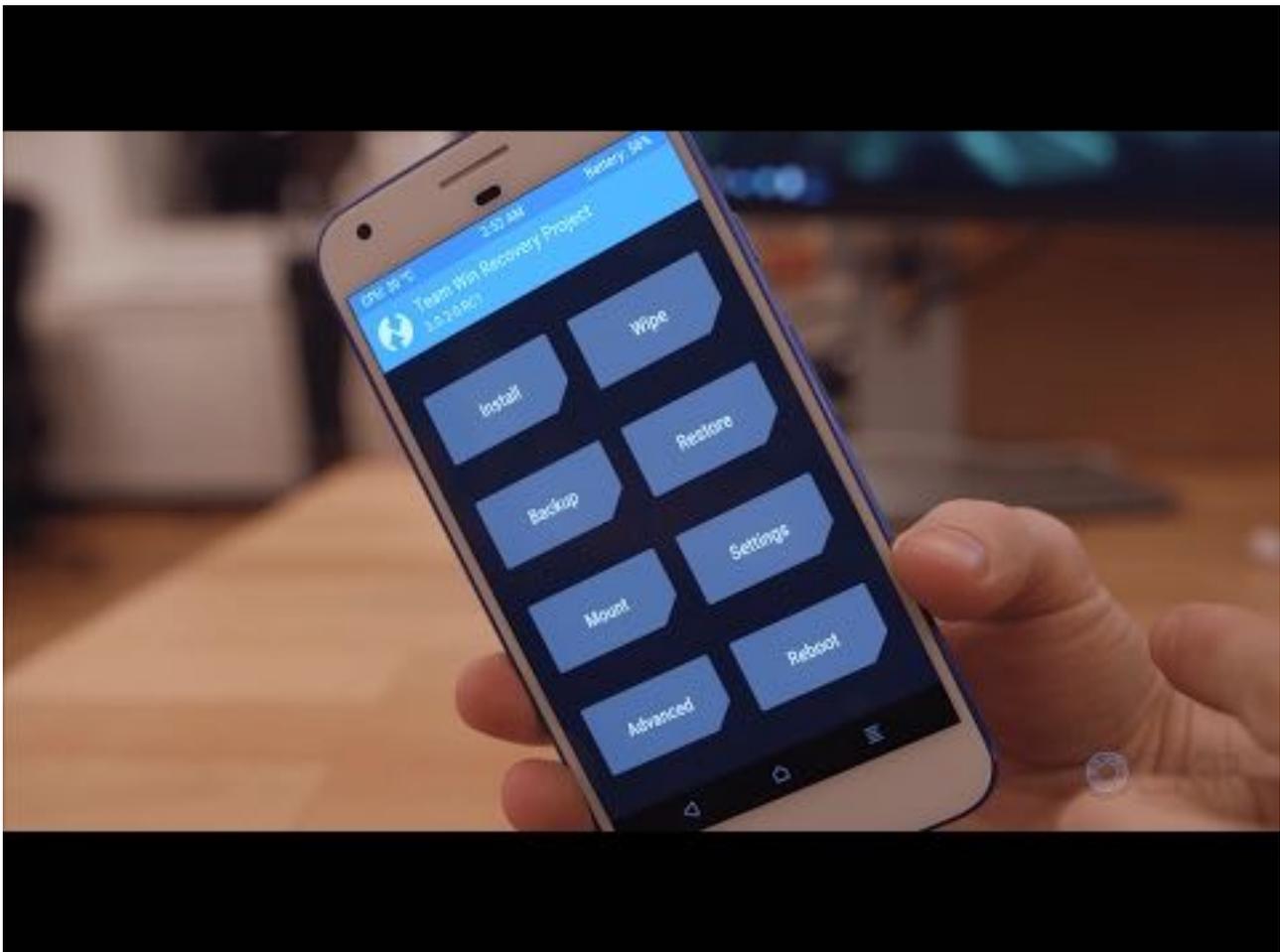

If you have a Nexus, Pixel, OnePlus, LG, or HTC phone, the process will be quite straightforward (even if it is slightly tedious). If you're using something from an obscure brand, it's going to be a bit harder. If you're using a carrier-locked Samsung flagship **like the Galaxy S8**, it might be downright impossible. Let's find out.

Open a new browser tab because it's time for some good old-fashioned internet research! First of all, go to the **XDA Developers forum** and search for your device.
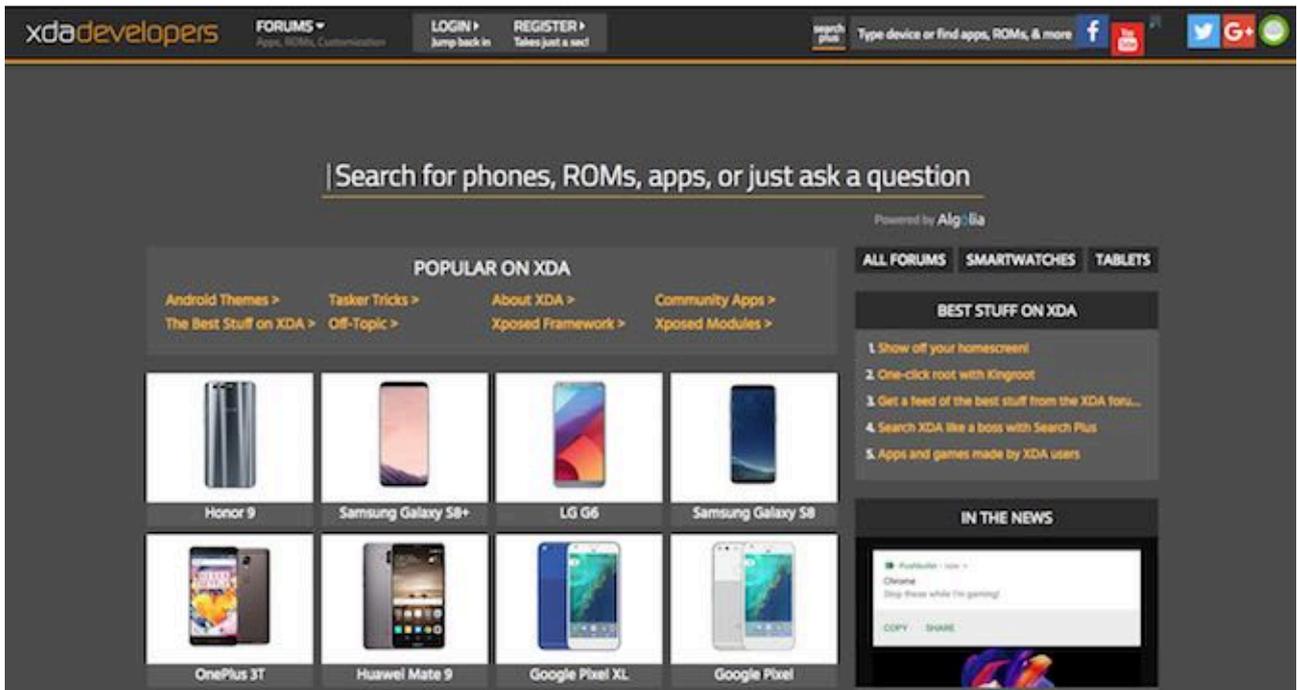
XDA is the best community resource for everything related to rooting, modding, and custom ROMs. You'll find detailed guides on how to root your device, how to install custom ROMs, and more. More importantly, the guides there will always be up-to-date. Certainly, more so than any step-by-step process I could outline for you here.

Alternatively, search on both Google and YouTube for phrases like "how to unlock (*your phone here*) bootloader" or "how to root (*your phone here*)". Here's the rule of thumb — favor the community-based result. A guide for rooting the OnePlus 3T that's **hosted on the official OnePlus forum** is going to be far more helpful than what some blog wrote about. Once you find the forum post, read the comments and cross check the steps with a couple of different sources.
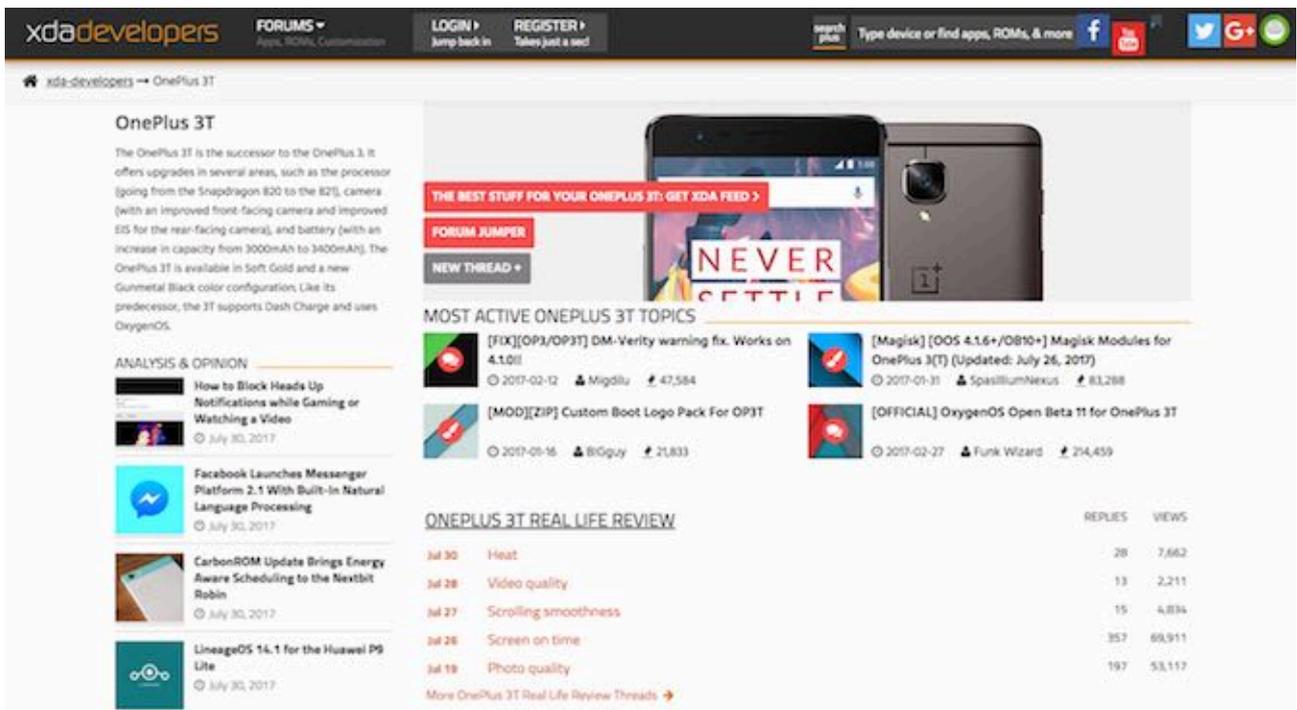
The steps will vary based on different devices but this is usually the way it goes:

1. On your PC, you'll need to install ADB and Fastboot drivers. On your phone, enable USB Debugging.

2. Once your phone is connected to the PC, put it in Fastboot mode and use the command prompt to send the commands to the phone. This is how you'll unlock the bootloader and then install a custom recovery like TWRP.

3. Boot into the TWRP custom recovery, flash the SuperSU file that you've copied over to the device, and you're rooted. Run the **Root Checker app** to confirm root access.

Install a Custom ROM

Now that you're rooted, you'll **want to install a custom ROM**. This time, the process is mostly the same no matter what device you're using. It's important to note that when you install a custom ROM, you're basically replacing the entire operating system with a new one. So you'll lose all your data.
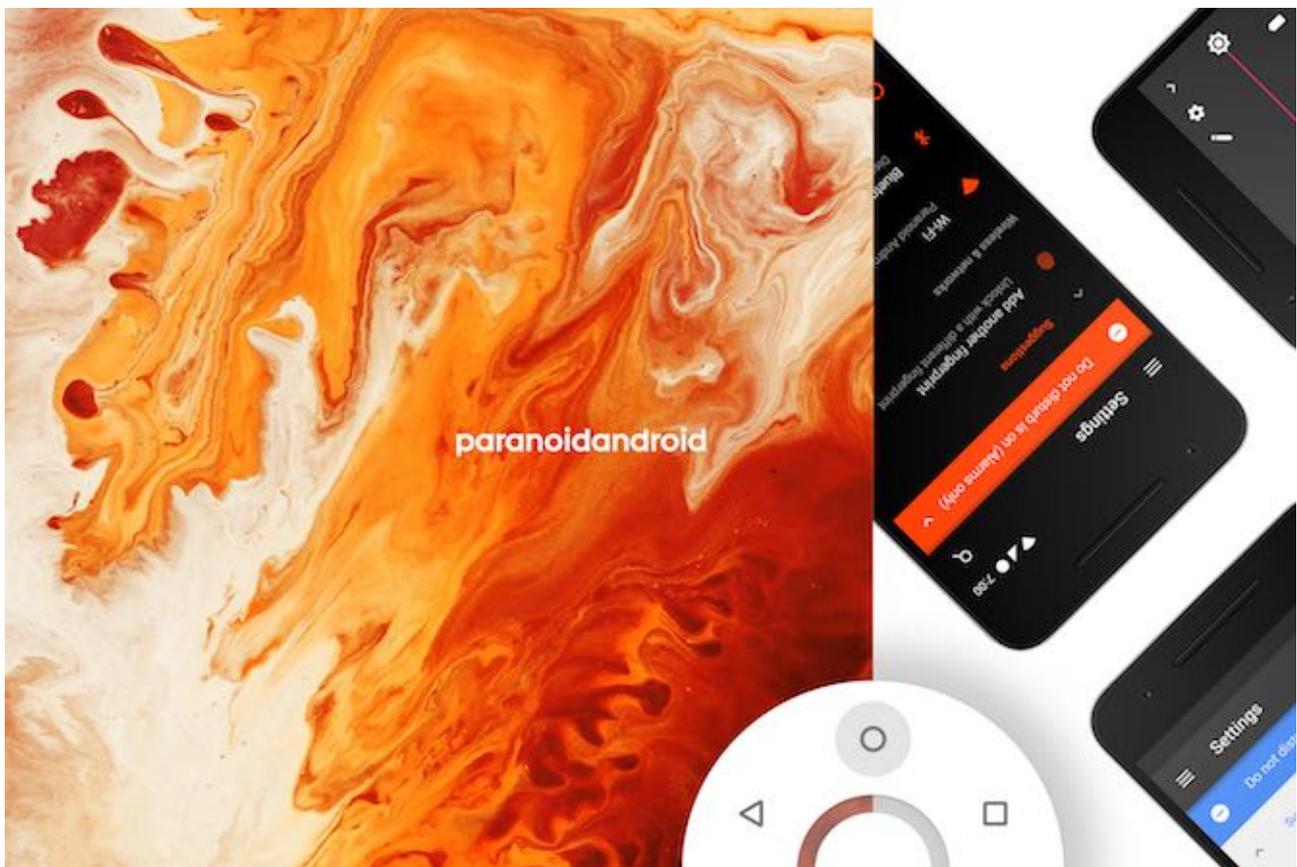

This is why you should first make a Nandroid backup in case the custom ROM doesn't work out. In the TWRP recovery, tap on Backup to get started. Also, back up individual apps and data using Titanium Backup so that once the custom ROM is installed, you can restore all your favorite apps just they way there were.
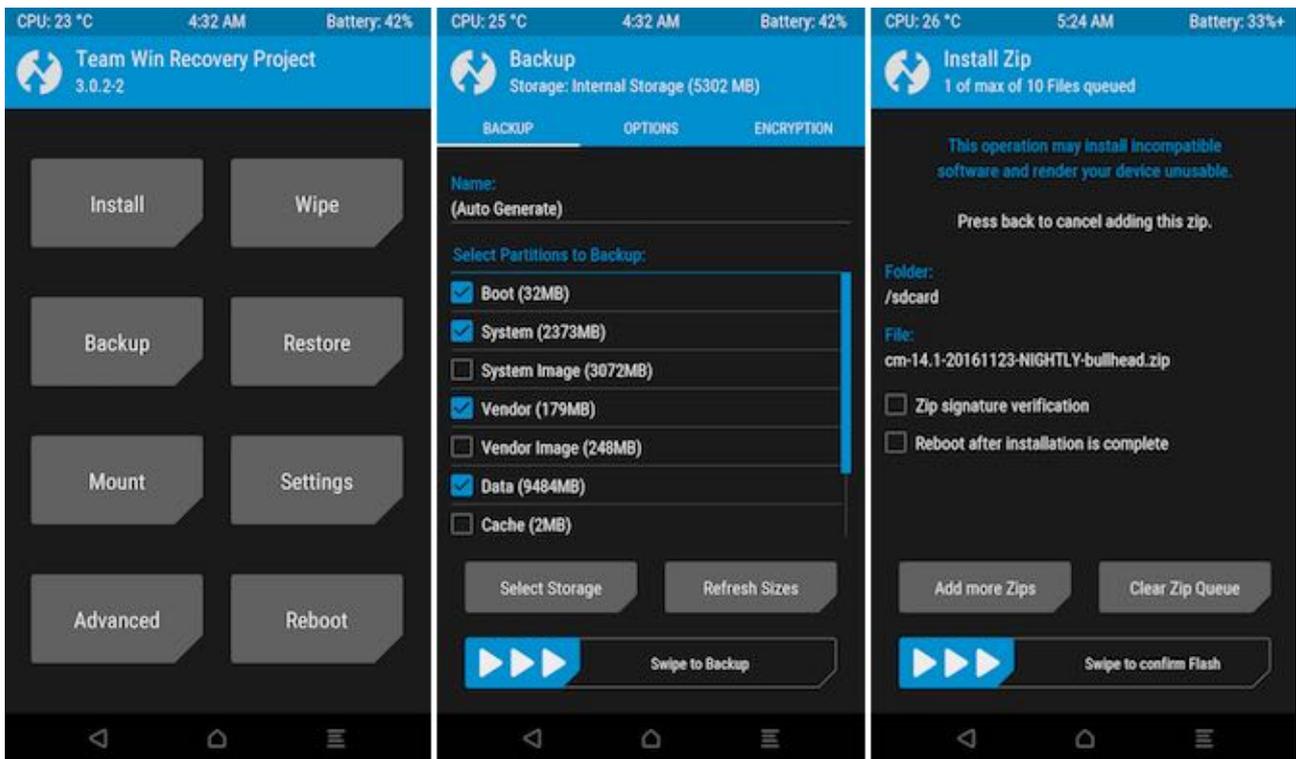
After you've made sure that the custom ROM is compatible with your device, download it to the internal memory of your phone. Boot into the TWRP recovery, find the file, and flash it. When you reboot, you'll be running an entirely new operating system. Here are a few of the major custom ROMs you should look into: **LineageOS**, **PAC-ROM**, **Paranoid Android**.

Root Apps You Must Try
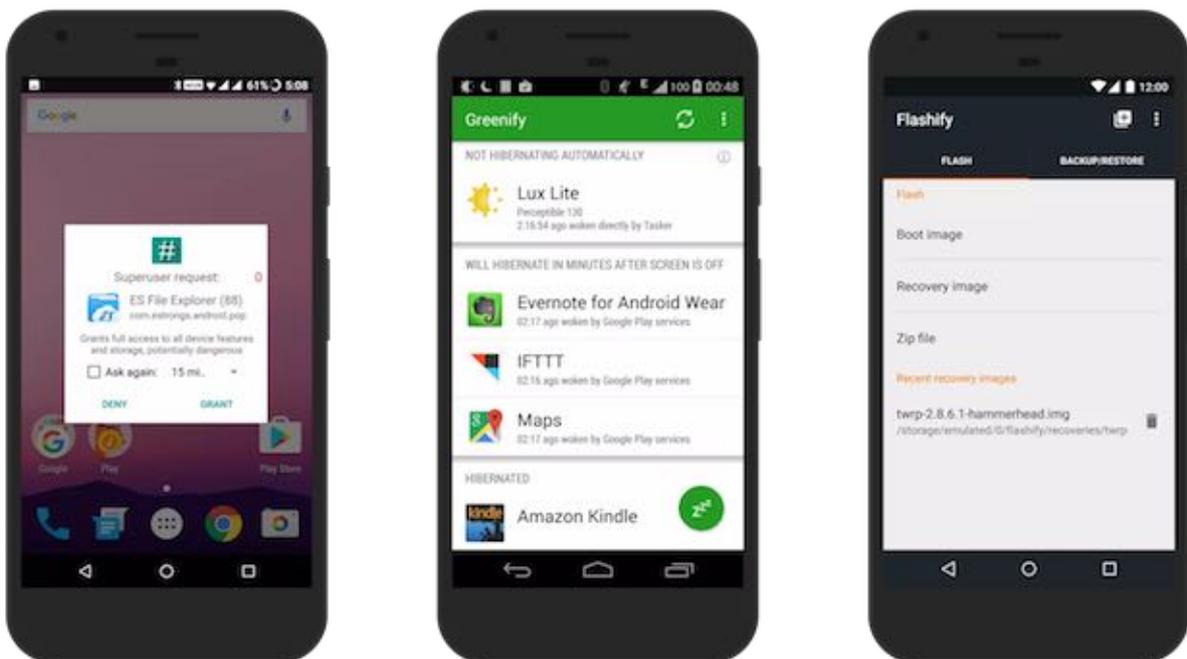
Titanium Backup: If you're going to be a custom ROM hopper, Titanium Backup is the first app you should install after rooting. The app will let you backup apps along with their data. You can even sync it using cloud services like **Dropbox** so that your app data will always be safe even if your phone ends up bricked.

Greenify: Greenify is the best way to improve your phone's battery life. Greenify shows you which apps are running in the background and how many times they're waking up your device from sleep. You can then decide to freeze background processes on a per-app basis. It's like **the Doze feature**, but on steroids.

Tasker: Tasker is a **powerful automation app**. You can set up IFTTT-style workflows that initiate a program you've already configured. You can have the lights turn off when you leave your house or automatically launch Spotify when you connect to your Bluetooth headphones.

Xposed Framework: The Xposed Framework app is required to install certain mods. The rich library of Xposed modules will let you tweak your device to your heart's content. Currently, the Xposed Framework **only works reliably on Lollipop and Marshmallow devices**.

Nandroid Manager: This app lets you interact with your Nandroid backups. You can extract files from them or easily backup apps and data.

Flashify: As a frequent flasher, Flashify will make your life easier. The app makes it easy to flash GAPPs, .ZIPs, kernel files, and more. Using Flashify's interface is much faster than twiddling around in the TWRP recovery.

Link2SD: The app creates a seamless link between your internal storage and SD card so the apps think you're just using your internal storage. This can help you move app data (especially media) to the SD card without tipping off the app.

Magisk: **This ingenious little app** helps you hide your root status from apps. This way you can **download movies from Netflix** even when you're rooted.

Stay Vigilant

As I've said before, rooting is a lifestyle and being alert is part of the package. So be careful when you're out there in the trenches, without the safety of the secure sandbox. Consult trusted sources like XDA and you'll be fine. Don't just flash anything (and if you are a troublemaker, make sure you're all backed up).

Did you decide to root your Android phone? Why? What kind of apps and custom ROMs are you using? Share with us in the comment section.

Image Credit: Niyazz via Shutterstock.com, Canon via Wikimedia Commons

Read more stories like this at