xdadevelopers'

ANDROID™ HACKER'S TOOLKIT

The Complete Guide to Rooting, ROMs and Theming

Jason Tyler with Will Verduzco

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Will Verduzco is a Johns Hopkins University graduate in neuroscience and is now currently studying to become a physician. He is also Portal Administrator for XDA-Developers, and has been addicted to mobile technology since the HTC Wizard. Starting with the Nexus One, however, his gadget love affair has shifted to Google’s little green robot.

Foreword

The XDA Developers (XDA) website was opened in 2003. Nine years may not seem like that long ago, but Facebook wasn't even a thing then. The iPhone and the first Android handset weren't released until 2007. So, in Internet time, XDA is old. In smartphone time, we're ancient.

xda-developers.com is a strange URL—not as imaginative, short or catchy as most high-traffic sites. There's a simple reason for this: the site wasn't created for you. We never envisioned a smartphone revolution—or if we did, we never envisioned that millions would care so much about what was happening on our little developer-focused forum.

XDA was created for developers and it is still a site for developers. They are incredibly smart, generally selfless, and hard-working individuals who share their creations (for free) with the world. When they see a book like this, they get concerned that their site will be overrun (more than it already is) by "newbs" with annoying questions and demands. They see the title of this book—with that overused "H"-word—and roll their eyes.

So, why did XDA lend its name to this guide? Honestly? It's because we can't stop you all from coming and we'd rather you be a bit better educated when you arrive. People spend more time touching their phones than their spouses and many of those people want their phones to be completely customizable (even as their spouses are generally not). They want to remove restrictions placed

on the devices by carriers and OEMs and make the phone *theirs*.

This book was written by a member of XDA. His goal was to share his enthusiasm about what he found on the site and across the Internet about the customizability of the Android operating system, to get you just as excited, and to show you the tools you need to put that excitement into action. As with most tech-related books, much of the text herein is outdated by the time it hits the shelves. But that’s OK. Even if the content is slightly stale, even if you don’t have any of the devices listed in the tutorial chapters, we still urge you to read it carefully so that you are better prepared to understand as you explore XDA for your device.

As a site for developers, XDA’s goal is to make sure you have you respect for all those who have blazed the trail to make all this good stuff possible. We want you to use XDA responsibly—read everything before posting, understand the risks of rooting and customizing your device, and, as you learn, become a helpful, contributing member of the community.

The XDA Admin Team

Introduction

There’s a reason most Android geeks have such disdain for the other major smartphone operating system. The iPhone shackles the user, with its closed source code and ecosystem ruled with an iron fist. Android, on the other hand, frees developers to tear apart and rebuild nearly every aspect of the user’s experience with the operating system. Beyond the world of developer-created applications (apps), there is a vast universe of deeper customizations—custom kernels and ROMs, themes, CPU overclocks, and more.

In most cases, these tasks begin with gaining “root” access to your device. The goal of this book is to get you comfortable with the tools and vocabulary of Android hacking, to get you in the “root” mindset, and to point you towards the best online resources for expanding your knowledge even further.

First Things First: What Is XDA?

The XDA Developers (XDA) website, at http://www.xda-developers.com, is the largest smartphone community on the Internet. As the name implies, the site—launched in 2003—is a destination for developers. “XDA” was a line of phones based on Windows Mobile that were branded by O2 and developed by a small (at the time) Taiwanese manufacturer called High Tech Computer Corporation (HTC). According to XDA history:

It was these early O2 XDA devices that the founders of our site thought had much more potential than the sellers O2 and HTC were giving them credit for. With their geeky hats on they cracked them open and began to develop them beyond the standard fairly boring branded versions. To spread the word, they set up a small website and naturally called it xda- developers. In the early days they had less than a dozen members (2003).

As more and more phones were released, the XDA administrators launched a new forum for each one. The site was built around the spirit of community and cooperation. XDA itself is not an organization of developers. The site is merely a sandbox where developers congregate.

From those early few members, XDA became known as the go-to source for information on how to make phones do more great stuff and how to fix a phone that was otherwise broken. As more people were attracted to the site, enthusiasts were given a home to share the awesomeness of mobile device development. From that early core of a few dozen enthusiasts, geeks and developers, the XDA website now receives more than ten million visitors per month and thousands of informative posts every day.

The material in this book draws heavily on the work done by the fantastic community at XDA. The book combines the work of the XDA community, my technical teaching experience, and my work as an Android developer to provide a launching point for the budding Android hacker.

The XDA forums have become the foremost Internet destination for information about mobile devices: how to fix them, how to hack them and, generally, how to make

them better than the manufacturers make them. http://forum.xda-developers.com is laid out in forums dedicated to individual devices. Each forum contains a core group of people who work with and love the device, as well as thousands of helpful individuals on the same journey as you. When you visit XDA, you can use the “Forums” link and navigate through the forums to find your specific device (see Figure 1).

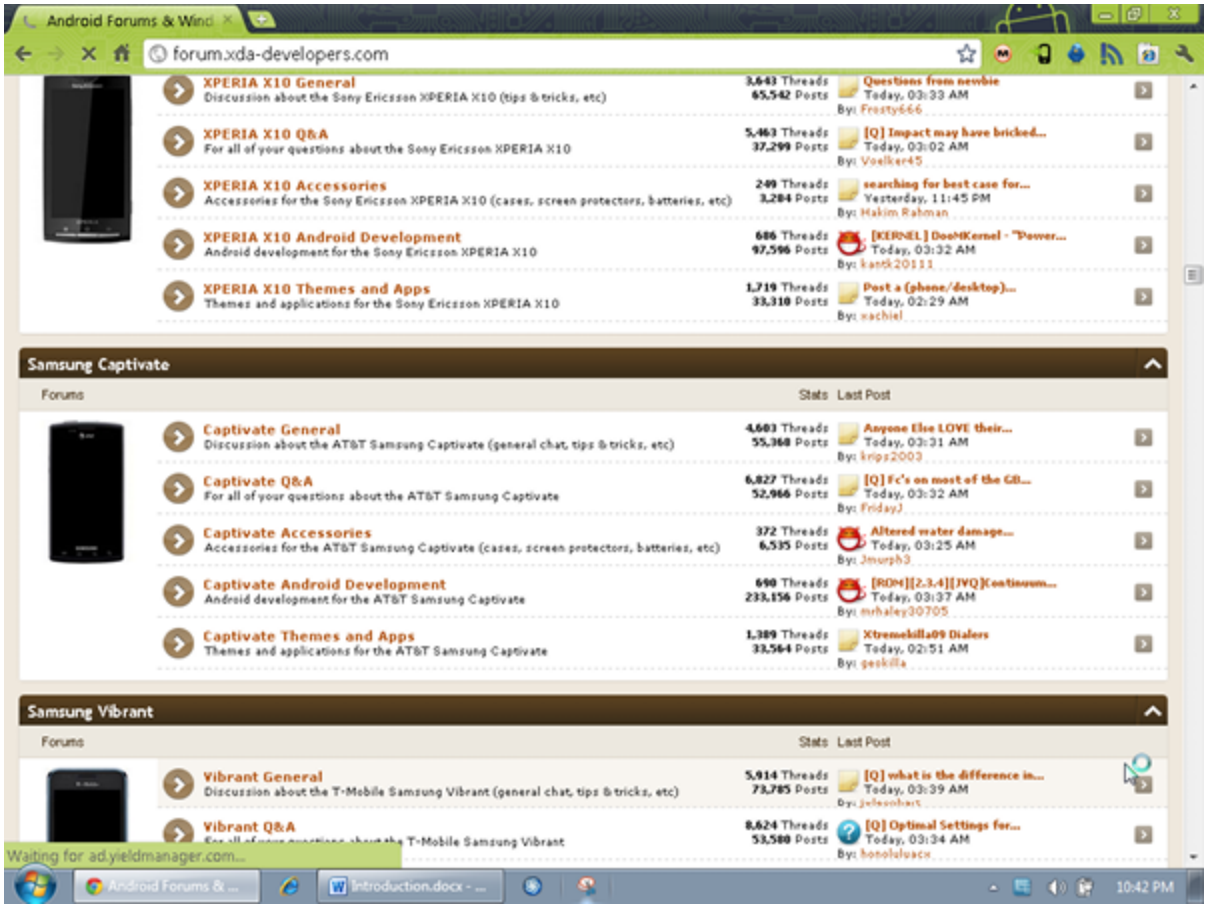

Figure 1: The device-specific forums at http://forum.xda-developers.com

The Dragons that Lie Ahead

The freedom offered to you when your device is rooted is liberating. It affords you such wonders as:

• complete backup of all applications and their data

• Google Apps, if they were not included with your device

• overclocking your device (speeding it up to run faster and better)

• fixing manufacturer issues, such as GPS errors or call dropping

• wireless tethering to create a quickie “hotspot”

• completely changing and customizing the device interface.

All of this and more is available to those who step out on a limb and root their Android device. However, there are two caveats to keep in mind before you get started.

You should know before you read any further that by even thinking about rooting your device you may have voided your warranty.

Not really, of course, but attempting any of the customizations that you read about in this book will void your manufacturer’s warranty and any insurance warranty you may have purchased. Manufacturers and mobile service carriers sell millions of devices every week. For every device they sell, they have to support a certain percentage of those devices that are defective. As far as your carrier and OEM are concerned, when you mess with the stuff they have spent millions on making, their responsibility to support you ends.

There are no exceptions to this rule. Most OEMs, carriers and support companies will instantly reject any sort of support or replacement request when they find the device has had its software, firmware or hardware altered outside normal parameters. Even so-called “developer” devices,