Introduction

chapter 1

in this chapter

- ☑ What is hacking?
- ☑ What do you need?
- ☑ Will you void the warranty?
- ☑ How to read this book

When I first heard about the PSP, I was ecstatic about the possibilities of having such powerful technology on a portable platform. Here was Sony, the inventors behind the incredible wizardry that went into the PlayStation 2, making a portable version that didn't skimp on features, and in fact was actually *in tune* with the wants and needs of modern gamers *and* computer geeks! Built-in Wi-Fi; full media playback capabilities; expansion capabilities with the use of Memory Sticks instead of some weird, expensive proprietary PSP-only format; a USB 2.0 port — it even played games! Wow, talk about a platform waiting not only to be played, but hacked to all get out. I was the first person in line at midnight at a GameStop in Indianapolis, Indiana. I plopped down the money, ate a few free doughnuts, and went home to see what my new toy could do.

So here we are, the second edition, and about a year and a half after the PSP's debut, and I've learned so much; it's still hard to fit it all in a book. In that time I've programmed the PSP; figured out new, interesting shortcuts on the device; found ways around limitations of the console; and even bought a dozen PSPs along the way so I could have many, many guinea pigs and test things out. And here you are, reading this book, wanting to find out how to do the same (without buying so many PSPs, of course). Well, let's not waste time — read on and see what possibilities the PSP has in store for you.

What Is Hacking?

Hacking is the act of using effective (many times creative) approaches to solve difficult types of problems. Years ago, hacking was considered a good skill to have. It is unfortunate that, these days, with all the viruses, trojans, phishing schemes, operating system vulnerabilities — the list goes on — it's considered bad, and can even label you a criminal. Seventh graders want to learn to "hack" so they can get their l33t w4r3z and songs off bittorrents.

Software and hardware engineers tend to fall into the hacker category, because they come up with ways to make systems do things that were never originally intended. Sure, these "hacks" may get around certain limitations purposefully imposed by the original system developer, but more often than not, they're used to exploit a system's full capabilities. What geeks don't want to make their system the baddest, fastest, most awe- and envy-inspiring system ever designed?

In the PSP, Sony has engineered a true marvel of technology. Combining amazingly powerful data and media processing capabilities in a slim, long-life, portable form factor, Sony has literally started the next generation of media on-the-go. Competitors such as Apple, Microsoft, Creative, iRiver, and many others are sure to latch onto the ability to have any type of media, anywhere you go. Add into the equation the power of built-in wireless Internet access, and any number of productivity and media applications, coupled with the high-resolution screen, and the PSP truly becomes a one-stop device.

Unfortunately, Sony has limited the capabilities of the PSP by letting only humongous game companies write applications for it, and letting it play only limited (yet omnipresent) music and media formats with no chance for the grass-roots developers, now called "hackers," to write powerful applications and build an industry around the PSP. Many companies have done this before, and hackers have always found a way around it. In this book we'll make the PSP do a lot of the stuff we know it can do.

Sony is catering to grass-roots developers with the PlayStation 3 and its Linux-based developer toolkit. Maybe this means they will eventually open up the PSP to independent, a.k.a. "indie" developers. Microsoft has pledged publically to eventually open the Xbox 360 platform to indies, and any portable game system they design is very likely to run a derivative of Windows, meaning anybody could technically develop software for such a portable platform. Microsoft's own Zune line of media players may also get this capability, possibly forcing Sony's hand to open the PSP platform.

If you haven't "hacked" before, never fear. I am going to hold your hand through the process and explain every step. Every chapter is organized so that a novice can do the projects, but a professional won't be bored (or, at least, that's what I have tried my best to do). Furthermore, if you have any questions, you can go to the official *Hacking the PSP* Web site at `www.hackingpsp.com` and post a message on the forums, or e-mail me from that very same site, and I will do my best to answer your questions as thoroughly and as expediently as possible. In addition, you can download all of the files you need from the Chapter Resources section of my Web site, and even sign up for a free PSP newsletter that I send out (almost) every day.

This book has two Web sites associated with it. The first is `www.wiley.com/go/extremetech`, which is the publisher's Web site for ExtremeTech titles. There you can find information about this book; about my other book, *Geek My Ride*; and about all the other great ExtremeTech titles. The other Web site, `www.hackingpsp.com`, is the official site for this book. HackingPSP.com is an awesome resource for getting everything you need to do the hacks in this book, getting support from yours truly — my screen name is on there, too — and getting the latest updates for this book. Make sure you check it out! You'll be glad you did!

What You Need for These Hacks

For the majority of these hacks, any PSP will do. There have been many firmware revisions (also called "system software" revisions) for the PSP. The first PSP, released only in Japan, had firmware version 1.0. The U.S. PSP launched with version 1.5. Updates have been released — versions 1.51, 1.52, 2.0, 2.01, 2.50, 2.60, and 2.70, among others.

The only chapters that are truly affected by the different firmware versions are the programming chapters. The ability to run "homebrew" applications that you download from the Internet is also affected. Hundreds if not thousands of homebrew applications have been released, ranging from simple console applications to neat games to PDA-like applications to old game system and Linux emulators.

PSP firmware 1.0 allowed you to run these homebrew applications without any modification. PSP firmware 1.5 attempted to lock out homebrew applications (apparently, Sony doesn't want you running software on your PSP from which they get no royalties). Hackers got around this limitation with a few "exploits" that let you run the homebrew software on the U.S. PSPs, which shipped with firmware 1.5 only.

Exploit: A routine that exposes a vulnerability in a piece of software to enable other functionality or execute code that normally wouldn't be allowed to run.

With a firmware update feature built into the PSP, Sony quickly released a "system software update" (version 1.51) that was supposed to "increase the security of the PSP operating system." This was code for "We're gonna stop the hackers with this update." The update appeared to have foiled anybody's attempt to launch homebrew applications from then on until some genius hackers were able to take advantage of an exploit in Sony's PSP operating system and downgrade a PSP version 2.0 to version 1.5. Sony then released 2.01, 2.50, 2.60, 2.70, and 2.71 to counter the ability to run homebrew, only to be rebuked again by hackers Fanjita and Ditlew with their homebrew launcher, *eLoader*, which took advantage of a hole in the game Grand Theft Auto to run homebrew. Versions 2.70 and 2.71 weren't susceptible to such an exploit, but then along came a mod chip, Undiluted Platinum, which enabled any PSP to run homebrew at any time regardless of firmware version.

You may be thinking, "Hey, Sony, take the hint!" Well, they have, sort of. As reported by one fellow developer — whom Sony would consider a "hacker" — Sony told him they're fine with homebrew, because they can watch what is popular on PSP homebrew scene, and then they include those features in a new feature release; but at the same time they attempt to disable homebrew capability in the "upgrade." What a bummer, in my humble opinion, that they don't take their time to come up with a Software Development Kit (SDK) so that developers could write software for the PSP and expand the market of available PSP software.

It's always a good idea to update your PSP manually instead of using the built-in update feature. This way, you get to keep the EBOOT.PBP, which is the application that runs on your PSP in order to update it, similar to an EXE file on a PC. Should you need that EBOOT again, you will have access to it — otherwise you can't "roll back." This is a good practice to get into for any hardware platform you are hacking: Update only when you *need* to, and *always* have a backup!

Of course, over one million PSPs were sold with the 1.5 firmware, and millions more have been sold with versions 2.01 through 2.60, so chances are your PSP came with a version that can run homebrew. (You learn how to check your firmware version in Chapter 19, "Running Homebrew Applications.") You can also find version 1.5, 2.00, and other compatible PSPs in stores that sell

used equipment, such as GameStop, EB Games, eBay, and many others. If your PSP came with or you have upgraded to firmware 2.0 through 2.60, which includes a host of new features as well as an official Sony Web browser, you can still downgrade that device to 1.50 using the hack in Chapter 16, "Reverting from a 2.0 PSP to a 1.5 PSP and Other Firmware Hacks."

Either way, you can enjoy all of the hacks in this book, except the programming hacks, with any version of a PSP. Of course, if you want to program the PSP, I recommend getting a version that can run the hacks, because it's a lot of fun (then again, I'm a software developer).

Another item you should have handy is a USB cable to connect your PSP to your computer (these are usually mini-USB to full-size USB cables, available at any computer or electronics store). The only way to get data on your PSP effectively is through the USB port on the top of the device. Of course, you could use a Memory Stick reader connected to your computer, but the USB cable is much easier.

I hope you have a lot of fun with this book. It's been great putting all these hacks to the test, and I've spent the money to learn my lessons so you don't have to. The PSP is a great device, not just a toy, and I hope you get the most out of it by reading and doing everything in this book.

Let's get going!

Regarding Your Warranty

There's no nice way to say it: Some of the hacks in this book may void your PSP's warranty. The majority of the hacks will *not* void your warranty. However, taking apart your PSP, running homebrew software, downgrading your firmware — these hacks are taboo per the warranty. Of course, if you don't tell Sony that's what "bricked" your PSP, they'll probably fix or replace your unit anyway. I have done my best to point out any hacks that may cause potential warranty issues, but it should be pretty obvious that if you try to change the inner workings of your device, you're likely voiding the warranty (but hey, that's half the fun, right?).

Bricked: The action of killing your PSP, making it the equivalent of a $200 brick.

How to Read This Book

I've written this book so you can turn directly to any project and get started. Pick your fancy — if you want to start moving video to your PSP, check out Chapter 10, "Video Hacks." If you want to get started in PSP programming, head on over to Chapter 17, "Programming the PSP: Setting Up the Development Environment." All chapters with projects that require equipment beyond your PSP will give you a shopping list so you have everything before you start.

How This Book Is Organized

Here's an overview of how I've grouped related hacks in this book. Feel free to skip around as much as you like — I've written this book to be flexible so you can start pretty much anywhere. However, with the programming chapters, I suggest you start with Chapter 17, which covers setting up your development environment, just to make sure you cover all the bases (as you should do when learning any programming language).

Keep in mind that new hacks come out all the time. I will do my best to put new hacks up on the official *Hacking the PSP* Web site at `www.hackingpsp.com` so you can delve even deeper into making your PSP perform ever-cooler feats. Make sure to check the blog often, and sign up for the free e-mail newsletter (no, I don't sell e-mail addresses)!

Networking Hacks

These chapters cover hacking the PSP to enable Web browsing, using instant messaging and RSS applications on your PSP, increasing the speed of your Internet surfing and wireless multiplayer gaming, and more.

Audio Hacks

This chapter goes over the PSP's powerful audio capabilities, including how to get the best results when moving audio to the PSP, using your PSP like an iPod shuffle, synchronizing your music collection with your PSP, and much more.

Video Hacks

Your PSP is an awesome movie machine. This chapter tells you how to get the most video enjoyment out of your PSP — from UMD Video titles to movies you put on a Memory Stick. From putting your TiVo and ReplayTV shows on your PSP to tips on conversion and more, you'll find what you want to know about Video and your PSP. Even learn how to use your PSP with your television!

Image Hacks

Share your images, view comic strips, take your documents with you — learn how to leverage the image viewing capabilities of your PSP to maximize fun!

Game Hacks

Use a single UMD cartridge for multiplayer games instead of requiring a copy for every PSP, back up and restore your games, change your game backgrounds, and more!

Homebrew Applications and Programming

Don't let the title scare you — even if you've never programmed before, you'll get something out of these chapters. I walk you through how to run the hundreds, if not thousands, of applications freely available for download all over the Internet. I even teach you how to write your own applications, how to share them with your friends, and where to go for more information.

Appendixes

Following the project chapters are the appendixes. Appendix A includes Web sites for learning more about PSP development and getting games and utilities, forum sites and blogs, and third-party hack and add-on manufacturers, as well as how to contact Sony technical support. Appendix B covers what to do when something goes wrong. I've also included a Frequently Asked Questions section so you can quickly find answers to common questions, such as where to find UMD repair tools, how to find replacement LCD screens and motherboards, and even how to save your PSP after you've spilled Red Bull or Bawls on it.

Conventions Used in This Book

As you read through the book, you'll see various icons to alert you to notes of interest, cautions, warnings, tips, and other helpful recommendations. The following are some examples of the various icons used throughout the book.

These icons pertain to items of interest related to the subject at hand. Although you can safely skip these, I recommend that you read them at your leisure.

These are recommendations of best-practice methods, ways to save time or money, and information on the best approaches to this book's projects.

Terms used by hackers that may be new to you are defined when they are first introduced in the text.

These give you valuable information that helps you avoid making serious mistakes in performing various steps. Although Cautions are not as serious as Warnings, you should pay heed to these, so that you don't experience equipment malfunctions or other related frustrations.

Warnings contain important information you should read. The information in Warnings will help keep you out of trouble, such as protecting your PSP from damage and warranty concerns, losing data, and possibly even save you from getting arrested.