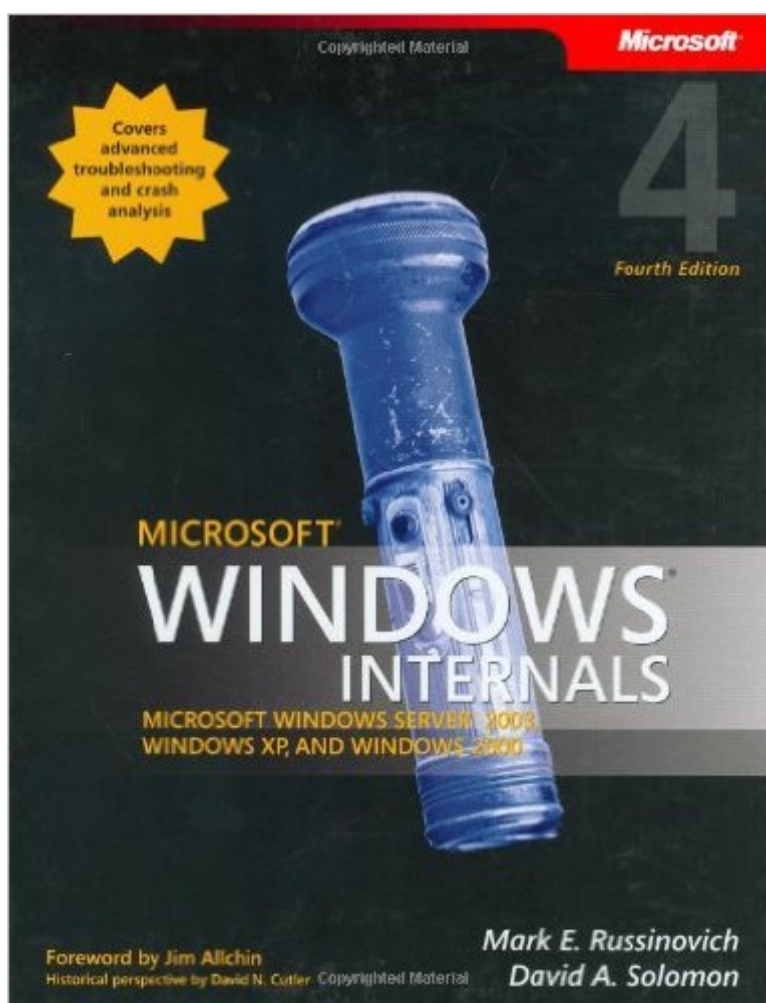# Microsoft Windows Internals (4th Edition): Microsoft Windows Server 2003, Windows XP, And Windows 2000

Synopsis

Delve inside the Windows kernel with noted internals experts Mark Russinovich and David Solomon, in collaboration with the Microsoft Windows product development team. This classic guideâ ”fully updated for Windows Server 2003, Windows XP, and Windows 2000, including 64-bit extensionsâ ”describes the architecture and internals of the Windows operating system. Youâ ™ll find hands-on experiments you can use to experience Windows internal behavior firsthand, along with advanced troubleshooting information to help you keep your systems running smoothly and efficiently. Whether youâ ™re a developer or a system administrator, youâ ™ll find critical architectural insights that you can quickly apply for better design, debugging, performance, and support.Get in-depth, inside knowledge of the Windows operating system: Understand the key mechanisms that configure and control Windows, including dispatching, startup and shutdown, and the registry Explore the Windows security model, including access, privileges, and auditing Investigate internal system architecture using the kernel debugger and other tools Examine the data structures and algorithms that deal with processes, threads, and jobs Observe how Windows manages virtual and physical memory Understand the operation and format of NTFS, and troubleshoot file system access problems View the Windows networking stack from top to bottom, including mapping, APIs, name resolution, and protocol drivers Troubleshoot boot problems and perform crash analysis

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Customer Reviews

I've always been a bit twiddler - whether it's writing 16-bit drivers for Windows 3.1 or doing Windows Server 2003 storage related development, I've never shied away from getting into the meat of the system.In 1992, I got "Inside Windows NT" by Helen Custer to discover how Windows NT was structured. I purchased at least one of the other editions as well, which were authored by David Solomon and Mark Russinovich. The fourth edition has a hard cover and a new name, "Windows Internals, fourth edition".Solomon and Russinovich are well known for their knowledge of how Windows works deep under the covers. Russinovich produces a number of very cool tools, many of them free at his Sysinternals web site.This book does not cover details of Win32 API or the .NET Framework. It does cover the kernel, memory management, I/O sub-system including ACPI and Plug and Play, and storage. The fourth edition covers low-level changes in Windows XP and Windows Server 2003.This is not a book with coding examples. Developers working this level already have excellent API references from the Microsoft developer kits. This book is heavy on concepts and implementation, with exercises in practicality. However, its best feature is the great number of sidebars with various "experiments" you can do, often featuring unique ways of using the Sysinternals tools.While obviously system level developers will gain the most benefit from this book, there is a ton of information for IT professionals as well - particularly for system performance tuning. I was able to use the information regarding Event Tracing for Windows (ETW) in my current project. Sadly, the final chapter, on Crash Dump analysis, seems incomplete and ends rather abruptly. Being a Microsoft Press author myself, I wonder if schedule pressures were involved.

As an experienced UNIX device driver developer, I was looking for reference material on writing drivers for Windows. Recent books on Windows device driver development seemed much more sparse than I was expecting. After using this book, I think it may simply be due the fact that "Microsoft Windows Internals" is such an excellent reference.The chapters are segregated in such a way that makes it easy to obtain the specific information you are looking for. If you're a novice and are just looking for a How-To book, you would probably do better to consult the MSDN library. However, even for a beginner this book would be good as a reference, and it is phenomenal as a reference for the experienced developer. For myself, I found it very easy to transition into the Windows world from my UNIX universe with this read.If you aren't particularly familiar with Windows systems development, the first couple of chapters are quintessential, actually. They do an excellent job of pointing to references for tools and reading material which will help your comprehension of the material and your ability to use it. For example, even one of the later chapters pointed me to the

exact DDK I needed for the problem I was trying to solve. At the point I read the book, I had no idea there was a separate DDK for that particular problem. This is one of the few books where the informational sidebars are truly informational.All in all, if you're doing any kind of Windows system internals development, whether device driver level or just trying to understand how parts of the kernel work, this is an excellent reference. Highly recommended!

For owners of a copy of the third edition, there is enough of an incremental improvement from the third edition to justify buying this one. If you don't already have the third edition, then you must get a copy of the fourth. The book contains information on several subjects that you just can't get any where else. Personally, I found the material on 64-bit hardware, Wow64, etc to be enlightening. The chapter on system crash/hang debugging was helpful, but left me wanting more detailed coverage.On the down side, not having a CD with at least an electronic copy of the book is a problem. The index in the book isn't comprehensive enough to find small details that you remember reading, but don't recall what chapter that detail was in. A searchable electronic version of a reference book like this is simply a must.Also, there seem to be too many editing errors in the fourth edition, especially in the newer material. Unfortunately, just like the third edition, you are going to have to mark the fourth edition up a bit.

I read a LOT of "computer books" and this doesn't even fall into the same category! This is required reading if you want to get a glimpse at what Windows is truly all about.Mark E. Russinovich and David A. Solomon have once again put together a true masterpiece. This book is very well written and has information that you just can't get anywhere else. I think one of the best things that this book does is actually gives you real world ways you can apply this knowledge - not just a bunch of theory.To see a little more about the level of expertise behind this book check out Mark's site at [...] - you will also find some VERY helpful tools at that site, both free and for sale. If you do anything in Windows support you recognize that site!

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