

## **Inside Windows Debugging A Practical Guide To Debugging And Tracing Strategies In Windows Author Tarik Soulami May 2012**

Delve inside Windows architecture and internals—and see how core components work behind the scenes. Led by three renowned internals experts, this classic guide is fully updated for Windows 7 and Windows Server 2008 R2—and now presents its coverage in two volumes. As always, you get critical insider perspectives on how Windows operates. And through hands-on experiments, you'll experience its internal behavior firsthand—knowledge you can apply to improve application design, debugging, system performance, and support. In Part 2, you'll examine: Core subsystems for I/O, storage, memory management, cache manager, and file systems Startup and shutdown processes Crash-dump analysis, including troubleshooting tools and techniques

Every software developer and IT professional understands the crucial importance of effective debugging. Often, debugging consumes most of a developer's workday, and mastering the required techniques and skills can take a lifetime. In *Effective Debugging*, Diomidis Spinellis helps experienced programmers accelerate their journey to mastery, by systematically categorizing, explaining, and illustrating the most useful debugging methods, strategies, techniques, and tools. Drawing on more than thirty-five years of experience, Spinellis expands your arsenal of debugging techniques, helping you choose the best approaches for each challenge. He presents vendor-neutral, example-rich advice on general principles, high-level strategies, concrete techniques, high-efficiency tools, creative tricks, and the behavioral traits associated with effective debugging. Spinellis's 66 expert techniques address every facet of debugging and are illustrated with step-by-step instructions and actual code. He addresses the full spectrum of problems that can arise in modern software systems, especially problems caused by complex interactions among components and services running on hosts scattered around the planet. Whether you're debugging isolated runtime errors or catastrophic enterprise system failures, this guide will help you get the job done—more quickly, and with less pain. Key features include High-level strategies and methods for addressing diverse software failures Specific techniques to apply when programming, compiling, and running code Better ways to make the most of your debugger General-purpose skills and tools worth investing in Advanced ideas and techniques for escaping dead-ends and the maze of complexity Advice for making programs easier to debug Specialized approaches for debugging multithreaded, asynchronous, and embedded code Bug avoidance through improved software design, construction, and management

Inside Windows Debugging Pearson Education

A reference book for technical support and escalation engineers troubleshooting

and debugging complex software issues. The book is also invaluable for software maintenance and development engineers debugging Windows applications and services.

“Mario Hewardt’s Advanced .NET Debugging is an excellent resource for both beginner and experienced developers working with .NET. The book is also packed with many debugging tips and discussions of CLR internals, which will benefit developers architecting software.” –Jeffrey Richter, consultant, trainer, and author at Wintellect “Mario has done it again. His Advanced Windows Debugging (coauthored with Daniel Pravat) is an invaluable resource for native code debugging, and Advanced .NET Debugging achieves the same quality, clarity, and breadth to make it just as invaluable for .NET debugging.” –Mark Russinovich, Technical Fellow, Microsoft Corporation The Only Complete, Practical Guide to Fixing the Toughest .NET Bugs Advanced .NET Debugging is the first focused, pragmatic guide to tracking down today’s most complex and challenging .NET application bugs. It is the only book to focus entirely on using powerful native debugging tools, including WinDBG, NTSD, and CDB, to debug .NET applications. Using these tools, author Mario Hewardt explains how to identify the real root causes of problems—far more quickly than you ever could with other debuggers. Hewardt first introduces the key concepts needed to successfully use .NET’s native debuggers. Next, he turns to sophisticated debugging techniques, using real-world examples that demonstrate many common C# programming errors. This book enables you to Make practical use of postmortem debugging, including PowerDBG and other “power tools” Understand the debugging details and implications of the new .NET CLR 4.0 Master and successfully use Debugging Tools for Windows, as well as SOS, SOSEX, CLR Profiler, and other powerful tools Gain a deeper, more practical understanding of CLR internals, such as examining thread-specific data, managed heap and garbage collector, interoperability layer, and .NET exceptions Solve difficult synchronization problems, managed heap problems, interoperability problems, and much more Generate and successfully analyze crash dumps A companion web site ([advanceddotnetdebugging.com](http://advanceddotnetdebugging.com)) contains all sample code, examples, and bonus content.

This updated reference offers a clear description of make, a central engine in many programming projects that simplifies the process of re-linking a program after re-compiling source files. Original. (Intermediate)

The rules of battle for tracking down -- and eliminating -- hardware and software bugs. When the pressure is on to root out an elusive software or hardware glitch, what's needed is a cool head courtesy of a set of rules guaranteed to work on any system, in any circumstance. Written in a frank but engaging style, Debugging provides simple, foolproof principles guaranteed to help find any bug quickly. This book makes those shelves of application-specific debugging books (on C++, Perl, Java, etc.) obsolete. It changes the way readers think about debugging, making those pesky problems suddenly much easier to find and fix.

Illustrating the rules with real-life bug-detection war stories, the book shows readers how to:

- \* Understand the system: how perceiving the "roadmap" can hasten your journey
- \* Quit thinking and look: when hands-on investigation can't be avoided
- \* Isolate critical factors: why changing one element at a time can be an essential tool
- \* Keep an audit trail: how keeping a record of the debugging process can win the day

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Use Visual Studio Code to write and debug code quickly and efficiently on any platform, for any device, using any programming language, and on the operating system of your choice. Visual Studio Code is an open source and cross-platform development tool that focuses on code editing across a variety of development scenarios, including web, mobile, and cloud development. Visual Studio Code Distilled teaches you how to be immediately productive with Visual Studio Code, from the basics to some of the more complex topics. You will learn how to work on individual code files, complete projects, and come away with an understanding of advanced code-editing features that will help you focus on productivity, and source code collaboration with Git. What You'll Learn

Comprehend Visual Studio Code in a way that is not just theory or a list of

features, but an approach driven by developer tasks and needs Understand integrated support for team collaboration with Git for executing and debugging code, and the many ways you can extend and customize VS Code Debug code on multiple platforms though real-world guidance, such as working under corporate networks Expand your coding intelligence from web to mobile to the cloud, and even artificial intelligence Acquire valuable tips, tricks, and suggestions from hard-earned, real-world experience to be more productive Who This Book Is For All developers (including JavaScript, Java, NodeJS), not just those with a Microsoft background, who will benefit from learning and using VS code as a cross-platform and cross-language tool.

The First In-Depth, Real-World, Insider's Guide to Powerful Windows Debugging For Windows developers, few tasks are more challenging than debugging—or more crucial. Reliable and realistic information about Windows debugging has always been scarce. Now, with over 15 years of experience two of Microsoft's system-level developers present a thorough and practical guide to Windows debugging ever written. Mario Hewardt and Daniel Pravat cover debugging throughout the entire application lifecycle and show how to make the most of the tools currently available—including Microsoft's powerful native debuggers and third-party solutions. To help you find real solutions fast, this book is organized around real-world debugging scenarios. Hewardt and Pravat use detailed code examples to illuminate the complex debugging challenges professional developers actually face. From core Windows operating system concepts to security, Windows® Vista™ and 64-bit debugging, they address emerging topics head-on—and nothing is ever oversimplified or glossed over!

Use Windows debuggers throughout the development cycle—and build better software Rethink your use of Windows debugging and tracing tools—and learn how to make them a key part of test-driven software development. Led by a member of the Windows Fundamentals Team at Microsoft, you'll apply expert debugging and tracing techniques—and sharpen your C++ and C# code analysis skills—through practical examples and common scenarios. Learn why experienced developers use debuggers in every step of the development process, and not just when bugs appear. Discover how to: Go behind the scenes to examine how powerful Windows debuggers work Catch bugs early in the development cycle with static and runtime analysis tools Gain practical strategies to tackle the most common code defects Apply expert tricks to handle user-mode and kernel-mode debugging tasks Implement postmortem techniques such as JIT and dump debugging Debug the concurrency and security aspects of your software Use debuggers to analyze interactions between your code and the operating system Analyze software behavior with Xperf and the Event Tracing for Windows (ETW) framework

Offers application debugging techniques for Microsoft .NET 2.0, covering topics such as exception monitoring, crash handlers, and multithreaded deadlocks.

Offers application debugging techniques for Microsoft .NET Framework and

Windows, covering topics such as exception monitoring, crash handlers, and multithreaded deadlocks.

Master the essentials of concurrent programming, including testing and debugging. This textbook examines languages and libraries for multithreaded programming. Readers learn how to create threads in Java and C++, and develop essential concurrent programming and problem-solving skills. Moreover, the textbook sets itself apart from other comparable works by helping readers to become proficient in key testing and debugging techniques. Among the topics covered, readers are introduced to the relevant aspects of Java, the POSIX Pthreads library, and the Windows Win32 Applications Programming Interface. The authors have developed and fine-tuned this book through the concurrent programming courses they have taught for the past twenty years. The material, which emphasizes practical tools and techniques to solve concurrent programming problems, includes original results from the authors' research. Chapters include: \* Introduction to concurrent programming \* The critical section problem \* Semaphores and locks \* Monitors \* Message-passing \* Message-passing in distributed programs \* Testing and debugging concurrent programs As an aid to both students and instructors, class libraries have been implemented to provide working examples of all the material that is covered. These libraries and the testing techniques they support can be used to assess student-written programs. Each chapter includes exercises that build skills in program writing and help ensure that readers have mastered the chapter's key concepts. The source code for all the listings in the text and for the synchronization libraries is also provided, as well as startup files and test cases for the exercises. This textbook is designed for upper-level undergraduates and graduate students in computer science. With its abundance of practical material and inclusion of working code, coupled with an emphasis on testing and debugging, it is also a highly useful reference for practicing programmers.

Eclipse is the world's most popular IDE for Java development. And although there are plenty of large tomes that cover all the nooks and crannies of Eclipse, what you really need is a quick, handy guide to the features that are used over and over again in Java programming. You need answers to basic questions such as: Where was that menu? What does that command do again? And how can I set my classpath on a per-project basis? This practical pocket guide gets you up to speed quickly with Eclipse. It covers basic concepts, including Views and editors, as well as features that are not commonly understood, such as Perspectives and Launch Configurations. You'll learn how to write and debug your Java code--and how to integrate that code with tools such as Ant and JUnit. You'll also get a toolbox full of tips and tricks to handle common--and sometimes unexpected--tasks that you'll run across in your Java development cycle. Additionally, the Eclipse IDE Pocket Guide has a thorough appendix detailing all of Eclipse's important views, menus, and commands. The Eclipse IDE Pocket Guide is just the resource you need for using Eclipse, whether it's on a daily,

weekly, or monthly basis. Put it in your back pocket, or just throw it in your backpack. With this guide in hand, you're ready to tackle the Eclipse programming environment.

Written by the founder of DumpAnalysis.org, this resource can help technical support and escalation engineers and Windows software testers without the knowledge of assembly language master necessary prerequisites to understand and start debugging and crash dump analysis on X64 Windows platforms.

Tips for the practical use of debuggers, such as NuMega SoftIce, Microsoft Visual Studio Debugger, and Microsoft Kernel Debugger, with minimum binding to a specific environment are disclosed in this debugger guide. How debuggers operate and how to overcome obstacles and repair debuggers is demonstrated. Programmers will learn how to look at what is inside a computer system, how to reconstruct the operating algorithm of a program distributed without source code, how to modify the program, and how to debug drivers. The use of debugging applications and drivers in Windows and Unix operating systems on Intel Pentium/DEC Alpha-based processors is also detailed.

A detailed handbook for experienced developers explains how to get the most out of Microsoft's Visual Studio .NET, offering helpful guidelines on how to use its integrated development environment, start-up templates, and other features and tools to create a variety of applications, including Web services. Original.

(Advanced)

The full transcript of Software Diagnostics Services training with step-by-step exercises, notes, and source code to learn live local and remote debugging techniques in kernel, user process and managed .NET spaces using WinDbg debugger. The second edition was fully reworked and updated to use the latest WinDbg version and Windows 10.

Every other day we hear about new ways to put deep learning to good use: improved medical imaging, accurate credit card fraud detection, long range weather forecasting, and more. PyTorch puts these superpowers in your hands, providing a comfortable Python experience that gets you started quickly and then grows with you as you—and your deep learning skills—become more sophisticated. Deep Learning with PyTorch will make that journey engaging and fun. Summary

Every other day we hear about new ways to put deep learning to good use: improved medical imaging, accurate credit card fraud detection, long range weather forecasting, and more. PyTorch puts these superpowers in your hands, providing a comfortable Python experience that gets you started quickly and then grows with you as you—and your deep learning skills—become more sophisticated. Deep Learning with PyTorch will make that journey engaging and fun. Foreword by Soumith Chintala, Cocreator of PyTorch. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the technology Although many deep learning tools use Python, the PyTorch library is truly Pythonic. Instantly familiar to anyone who knows PyData tools like NumPy and scikit-learn, PyTorch simplifies deep learning without sacrificing

advanced features. It's excellent for building quick models, and it scales smoothly from laptop to enterprise. Because companies like Apple, Facebook, and JPMorgan Chase rely on PyTorch, it's a great skill to have as you expand your career options. It's easy to get started with PyTorch. It minimizes cognitive overhead without sacrificing the access to advanced features, meaning you can focus on what matters the most - building and training the latest and greatest deep learning models and contribute to making a dent in the world. PyTorch is also a snap to scale and extend, and it partners well with other Python tooling. PyTorch has been adopted by hundreds of deep learning practitioners and several first-class players like FAIR, OpenAI, FastAI and Purdue. About the book Deep Learning with PyTorch teaches you to create neural networks and deep learning systems with PyTorch. This practical book quickly gets you to work building a real-world example from scratch: a tumor image classifier. Along the way, it covers best practices for the entire DL pipeline, including the PyTorch Tensor API, loading data in Python, monitoring training, and visualizing results. After covering the basics, the book will take you on a journey through larger projects. The centerpiece of the book is a neural network designed for cancer detection. You'll discover ways for training networks with limited inputs and start processing data to get some results. You'll sift through the unreliable initial results and focus on how to diagnose and fix the problems in your neural network. Finally, you'll look at ways to improve your results by training with augmented data, make improvements to the model architecture, and perform other fine tuning. What's inside Training deep neural networks Implementing modules and loss functions Utilizing pretrained models from PyTorch Hub Exploring code samples in Jupyter Notebooks About the reader For Python programmers with an interest in machine learning. About the author Eli Stevens had roles from software engineer to CTO, and is currently working on machine learning in the self-driving-car industry. Luca Antiga is cofounder of an AI engineering company and an AI tech startup, as well as a former PyTorch contributor. Thomas Viehmann is a PyTorch core developer and machine learning trainer and consultant. consultant based in Munich, Germany and a PyTorch core developer. Table of Contents PART 1 - CORE PYTORCH 1 Introducing deep learning and the PyTorch Library 2 Pretrained networks 3 It starts with a tensor 4 Real-world data representation using tensors 5 The mechanics of learning 6 Using a neural network to fit the data 7 Telling birds from airplanes: Learning from images 8 Using convolutions to generalize PART 2 - LEARNING FROM IMAGES IN THE REAL WORLD: EARLY DETECTION OF LUNG CANCER 9 Using PyTorch to fight cancer 10 Combining data sources into a unified dataset 11 Training a classification model to detect suspected tumors 12 Improving training with metrics and augmentation 13 Using segmentation to find suspected nodules 14 End-to-end nodule analysis, and where to go next PART 3 - DEPLOYMENT 15 Deploying to production

What will you learn from this book? Dive into C# and create apps, user

interfaces, games, and more using this fun and highly visual introduction to C#, .NET Core, and Visual Studio. With this completely updated guide, which covers C# 8.0 and Visual Studio 2019, beginning programmers like you will build a fully functional game in the opening chapter. Then you'll learn how to use classes and object-oriented programming, create 3D games in Unity, and query data with LINQ. And you'll do it all by solving puzzles, doing hands-on exercises, and building real-world applications. By the time you're done, you'll be a solid C# programmer--and you'll have a great time along the way! What's so special about this book? Based on the latest research in cognitive science and learning theory, *Head First C#* uses a visually rich format to engage your mind rather than a text-heavy approach that puts you to sleep. Why waste your time struggling with new concepts? This multisensory learning experience is designed for the way your brain really works.

Delve inside the Windows Runtime - and learn best ways to design and build Windows Store apps. Guided by Jeffrey Richter, a recognized expert in Windows and .NET programming, along with principal Windows consultant Maarten van de Bospoort, you'll master essential concepts. And you'll gain practical insights and tips for how to architect, design, optimize, and debug your apps. With this book, you will:

- Learn how to consume Windows Runtime APIs from C#
- Understand the principles of architecting Windows Store apps
- See how to build, deploy, and secure app packages
- Understand how apps are activated and the process model controlling their execution
- Study the rich features available when working with files and folders
- Explore how to transfer, compress, and encrypt data via streams
- Design apps that give the illusion of running using live tiles, background transfers, and background tasks
- Share data between apps using the clipboard and the Share charm
- Get advice for monetizing your apps through the Windows Store

About This Book Requires working knowledge of Microsoft .NET Framework, C#, and the Visual Studio IDE Targeted to programmers building Windows Store apps Some chapters also useful to those building desktop apps Technologies Covered Windows 8.1 Microsoft Visual Studio 2013

A C# developer's book and eBook guide to the features and programming interfaces of Windows Workflow Foundation.

A total guide to debuggers: what they do, how they work, and how to use them to produce better programs "Debuggers are the magnifying glass, the microscope, the logic analyzer, the profiler, and the browser with which a program can be examined."-Jonathan B. Rosenberg Debuggers are an indispensable tool in the development process. In fact, during the course of the average software project, more hours are spent debugging software than in compiling code. Yet, not many programmers really know how to constructively interpret the results they get back from debuggers. And even fewer know what makes these complex suites of algorithms and data structures tick. Now in this extremely accessible guide, Jonathan B. Rosenberg demystifies debuggers for programmers and shows them how to make better use of debuggers in their next projects. Taking a hands-on,

problem-solving approach to a complex subject, Rosenberg explains how debuggers work and why programmers use them. Most importantly, he provides practical discussions of debugger algorithms and procedures for their use, accompanied by many practical examples. The author also discusses a wide variety of systems applications, from Microsoft's Win32 debug API to a large parallel architecture. Visit our Web site at: <http://www.wiley.com/compbooks/>

Master the art of identifying vulnerabilities within the Windows OS and develop the desired solutions for it using Kali Linux. Key Features Identify the vulnerabilities in your system using Kali Linux 2018.02 Discover the art of exploiting Windows kernel drivers Get to know several bypassing techniques to gain control of your Windows environment Book Description Windows has always been the go-to platform for users around the globe to perform administration and ad hoc tasks, in settings that range from small offices to global enterprises, and this massive footprint makes securing Windows a unique challenge. This book will enable you to distinguish yourself to your clients. In this book, you'll learn advanced techniques to attack Windows environments from the indispensable toolkit that is Kali Linux. We'll work through core network hacking concepts and advanced Windows exploitation techniques, such as stack and heap overflows, precision heap spraying, and kernel exploitation, using coding principles that allow you to leverage powerful Python scripts and shellcode. We'll wrap up with post-exploitation strategies that enable you to go deeper and keep your access. Finally, we'll introduce kernel hacking fundamentals and fuzzing testing, so you can discover vulnerabilities and write custom exploits. By the end of this book, you'll be well-versed in identifying vulnerabilities within the Windows OS and developing the desired solutions for them. What you will learn Get to know advanced pen testing techniques with Kali Linux Gain an understanding of Kali Linux tools and methods from behind the scenes See how to use Kali Linux at an advanced level Understand the exploitation of Windows kernel drivers Understand advanced Windows concepts and protections, and how to bypass them using Kali Linux Discover Windows exploitation techniques, such as stack and heap overflows and kernel exploitation, through coding principles Who this book is for This book is for penetration testers, ethical hackers, and individuals breaking into the pentesting role after demonstrating an advanced skill in boot camps. Prior experience with Windows exploitation, Kali Linux, and some Windows debugging tools is necessary

When it comes to network security, many users and administrators are running scared, and justifiably so. The sophistication of attacks against computer systems increases with each new Internet worm. What's the worst an attacker can do to you? You'd better find out, right? That's what Security Warrior teaches you. Based on the principle that the only way to defend yourself is to understand your attacker in depth, Security Warrior reveals how your systems can be attacked. Covering everything from reverse engineering to SQL attacks, and including topics like social engineering, antifoensics, and common attacks against UNIX

and Windows systems, this book teaches you to know your enemy and how to be prepared to do battle. Security Warrior places particular emphasis on reverse engineering. RE is a fundamental skill for the administrator, who must be aware of all kinds of malware that can be installed on his machines -- trojaned binaries, "spyware" that looks innocuous but that sends private data back to its creator, and more. This is the only book to discuss reverse engineering for Linux or Windows CE. It's also the only book that shows you how SQL injection works, enabling you to inspect your database and web applications for vulnerability. Security Warrior is the most comprehensive and up-to-date book covering the art of computer war: attacks against computer systems and their defenses. It's often scary, and never comforting. If you're on the front lines, defending your site against attackers, you need this book. On your shelf--and in your hands.

Debugging is crucial to successful software development, but even many experienced programmers find it challenging. Sophisticated debugging tools are available, yet it may be difficult to determine which features are useful in which situations. The Art of Debugging is your guide to making the debugging process more efficient and effective. The Art of Debugging illustrates the use three of the most popular debugging tools on Linux/Unix platforms: GDB, DDD, and Eclipse. The text-command based GDB (the GNU Project Debugger) is included with most distributions. DDD is a popular GUI front end for GDB, while Eclipse provides a complete integrated development environment. In addition to offering specific advice for debugging with each tool, authors Norm Matloff and Pete Salzman cover general strategies for improving the process of finding and fixing coding errors, including how to:

- Inspect variables and data structures
- Understand segmentation faults and core dumps
- Know why your program crashes or throws exceptions
- Use features like catchpoints, convenience variables, and artificial arrays
- Avoid common debugging pitfalls

Real world examples of coding errors help to clarify the authors' guiding principles, and coverage of complex topics like thread, client-server, GUI, and parallel programming debugging will make you even more proficient. You'll also learn how to prevent errors in the first place with text editors, compilers, error reporting, and static code checkers. Whether you dread the thought of debugging your programs or simply want to improve your current debugging efforts, you'll find a valuable ally in The Art of Debugging.

Visual Basic 6 Complete is a one-of-a-kind computer book-valuable both for its broad content and its low price. This book contains the essentials you need to know about programming with Visual Basic and VBA, for use in building Windows applications, scripting, and extending and integrating Office applications. With Visual Basic 6 Complete, you'll learn all about building Visual Basic applications - from working with forms and controls to using the Windows API and debugging Web applications -- and you'll quickly take advantage of all that Visual Basic has to offer. Get up to speed with Visual Basic, then move on to scripting objects,

VBA, and building internet applications and interactive Web sites. As you become more proficient with Visual Basic, you'll find the Visual Basic 6 Language Reference to be an invaluable daily tool. This comprehensive reference quickly puts every built-in function and statement at your fingertips. Visual Basic 6 Complete introduces you to the work of some of the finest Sybex authors, so you'll know where to go to learn even more about what's possible with Visual Basic. Inside: Introduction to Visual Basic \* Mastering the Integrated Development Environment (IDE) \* Working with forms and controls \* Understanding object-oriented programming \* Building sample VB applications Practical Visual Basic \* Debugging Visual Basic applications \* Extending VB with the Windows API \* Accessing the Windows Registry \* Building screen savers, and displaying an icon in the system tray with VB Visual Basic Scripting and the Internet \* Adding scripting support to your application \* Scripting objects \* Building Web-based applications with VB Visual Basic for Applications \* An Introduction to VBA \* The Word Object model \* The Access Object model revisited \* Professional development with VBA Visual Basic References \* Complete Visual Basic 6 Language Reference \* Visual Basic 6 Function Reference

See how the core components of the Windows operating system work behind the scenes—guided by a team of internationally renowned internals experts. Fully updated for Windows Server(R) 2008 and Windows Vista(R), this classic guide delivers key architectural insights on system design, debugging, performance, and support—along with hands-on experiments to experience Windows internal behavior firsthand. Delve inside Windows architecture and internals: Understand how the core system and management mechanisms work—from the object manager to services to the registry Explore internal system data structures using tools like the kernel debugger Grasp the scheduler's priority and CPU placement algorithms Go inside the Windows security model to see how it authorizes access to data Understand how Windows manages physical and virtual memory Tour the Windows networking stack from top to bottom—including APIs, protocol drivers, and network adapter drivers Troubleshoot file-system access problems and system boot problems Learn how to analyze crashes

Beginning with a basic primer on reverse engineering—including computer internals, operating systems, and assembly language—and then discussing the various applications of reverse engineering, this book provides readers with practical, in-depth techniques for software reverse engineering. The book is broken into two parts, the first deals with security-related reverse engineering and the second explores the more practical aspects of reverse engineering. In addition, the author explains how to reverse engineer a third-party software library to improve interfacing and how to reverse engineer a competitor's software to build a better product. \* The first popular book to show how software reverse engineering can help defend against security threats, speed up development, and unlock the secrets of competitive products \* Helps developers plug security

holes by demonstrating how hackers exploit reverse engineering techniques to crack copy-protection schemes and identify software targets for viruses and other malware \* Offers a primer on advanced reverse-engineering, delving into "disassembly"-code-level reverse engineering-and explaining how to decipher assembly language

What others in the trenches say about *The Pragmatic Programmer*... “The cool thing about this book is that it’s great for keeping the programming process fresh. The book helps you to continue to grow and clearly comes from people who have been there.” —Kent Beck, author of *Extreme Programming Explained: Embrace Change* “I found this book to be a great mix of solid advice and wonderful analogies!” —Martin Fowler, author of *Refactoring* and *UML Distilled* “I would buy a copy, read it twice, then tell all my colleagues to run out and grab a copy. This is a book I would never loan because I would worry about it being lost.” —Kevin Ruland, Management Science, MSG-Logistics “The wisdom and practical experience of the authors is obvious. The topics presented are relevant and useful.... By far its greatest strength for me has been the outstanding analogies—tracer bullets, broken windows, and the fabulous helicopter-based explanation of the need for orthogonality, especially in a crisis situation. I have little doubt that this book will eventually become an excellent source of useful information for journeymen programmers and expert mentors alike.” —John Lakos, author of *Large-Scale C++ Software Design* “This is the sort of book I will buy a dozen copies of when it comes out so I can give it to my clients.” —Eric Vought, Software Engineer “Most modern books on software development fail to cover the basics of what makes a great software developer, instead spending their time on syntax or technology where in reality the greatest leverage possible for any software team is in having talented developers who really know their craft well. An excellent book.” —Pete McBreen, Independent Consultant “Since reading this book, I have implemented many of the practical suggestions and tips it contains. Across the board, they have saved my company time and money while helping me get my job done quicker! This should be a desktop reference for everyone who works with code for a living.” —Jared Richardson, Senior Software Developer, iRenaissance, Inc. “I would like to see this issued to every new employee at my company....” —Chris Cleeland, Senior Software Engineer, Object Computing, Inc. “If I’m putting together a project, it’s the authors of this book that I want. . . . And failing that I’d settle for people who’ve read their book.” —Ward Cunningham

Straight from the programming trenches, *The Pragmatic Programmer* cuts through the increasing specialization and technicalities of modern software development to examine the core process--taking a requirement and producing working, maintainable code that delights its users. It covers topics ranging from personal responsibility and career development to architectural techniques for keeping your code flexible and easy to adapt and reuse. Read this book, and you'll learn how to Fight software rot; Avoid the trap of duplicating knowledge; Write flexible, dynamic, and adaptable code; Avoid

programming by coincidence; Bullet-proof your code with contracts, assertions, and exceptions; Capture real requirements; Test ruthlessly and effectively; Delight your users; Build teams of pragmatic programmers; and Make your developments more precise with automation. Written as a series of self-contained sections and filled with entertaining anecdotes, thoughtful examples, and interesting analogies, The Pragmatic Programmer illustrates the best practices and major pitfalls of many different aspects of software development. Whether you're a new coder, an experienced programmer, or a manager responsible for software projects, use these lessons daily, and you'll quickly see improvements in personal productivity, accuracy, and job satisfaction. You'll learn skills and develop habits and attitudes that form the foundation for long-term success in your career. You'll become a Pragmatic Programmer.

Malware analysis is big business, and attacks can cost a company dearly. When malware breaches your defenses, you need to act quickly to cure current infections and prevent future ones from occurring. For those who want to stay ahead of the latest malware, Practical Malware Analysis will teach you the tools and techniques used by professional analysts. With this book as your guide, you'll be able to safely analyze, debug, and disassemble any malicious software that comes your way. You'll learn how to:

- Set up a safe virtual environment to analyze malware
- Quickly extract network signatures and host-based indicators
- Use key analysis tools like IDA Pro, OllyDbg, and WinDbg
- Overcome malware tricks like obfuscation, anti-disassembly, anti-debugging, and anti-virtual machine techniques
- Use your newfound knowledge of Windows internals for malware analysis
- Develop a methodology for unpacking malware and get practical experience with five of the most popular packers
- Analyze special cases of malware with shellcode, C++, and 64-bit code

Hands-on labs throughout the book challenge you to practice and synthesize your skills as you dissect real malware samples, and pages of detailed dissections offer an over-the-shoulder look at how the pros do it. You'll learn how to crack open malware to see how it really works, determine what damage it has done, thoroughly clean your network, and ensure that the malware never comes back. Malware analysis is a cat-and-mouse game with rules that are constantly changing, so make sure you have the fundamentals. Whether you're tasked with securing one network or a thousand networks, or you're making a living as a malware analyst, you'll find what you need to succeed in Practical Malware Analysis.

Fiddler is a Web Debugging Proxy platform that monitors and modifies web traffic. This freeware tool enables developers, testers, and enthusiasts to inspect traffic, set breakpoints, and "fiddle" with incoming or outgoing data. Fiddler includes powerful event-based scripting, and can be extended using any .NET language. FiddlerCore, the core proxy engine underlying Fiddler, is available to integrate into any .NET application. In this book, you'll learn to fully exploit the power of Fiddler to debug traffic from virtually any web-related application, including Internet Explorer, Google Chrome, Apple Safari, Mozilla Firefox, Opera,

and thousands more. You'll see how to debug HTTPS traffic, and use Fiddler with popular devices like iPhone/iPod/iPad, Windows Phone, and others. After exploring the hundreds of built-in features, you'll learn to extend Fiddler using the FiddlerScript engine or build your own applications atop the FiddlerCore class library.

Delve inside Windows architecture and internals - and see how core components work behind the scenes. This classic guide has been fully updated for Windows 8.1 and Windows Server 2012 R2, and now presents its coverage in three volumes: Book 1, User Mode; Book 2, Kernel Mode; Book 3, Device Driver Models. In Book 1, you'll plumb Windows fundamentals, independent of platform - server, desktop, tablet, phone, Xbox. Coverage focuses on high-level functional descriptions of the various Windows components and features that interact with, or are manipulated by, user mode programs, or applications. You'll also examine management mechanisms and operating system components that are implemented in user mode, such as service processes. As always, you get critical insider perspectives on how Windows operates. And through hands-on experiments, you'll experience its internal behavior firsthand - knowledge you can apply to improve application design, debugging, system performance, and support. Planned chapters: Concepts & Tools; System Architecture; Windows Application Support; Windows Store Apps; Graphics & the Desktop; Management Mechanisms; User Mode Memory Management; Security; Storage; Networking; Hyper-V.

This resource helps technical support, escalation engineers, and Windows software testers master necessary prerequisites to understand and start debugging and crash dump analysis on Windows platforms.

The ability to solve difficult problems is what makes a good engineer great. This book teaches techniques and tools for developers to tackle even the most persistent bugs. You'll find that tough issues can be made simple with the right knowledge, tools, and practices. Practical Debugging for .NET Developers will transform you into the guy or gal who everyone turns to for help. Issues covered include .NET Core, C#, Memory Leaks, Performance Problems, ASP.NET, Performance Counters, ETW Events, Production Debugging, Memory Pressure, Visual Studio, Hangs, Profiling, Deadlocks, Crashes, Memory Dumps, and Azure.

- \* Discover the best tools in the industry to diagnose and fix problems
- \* Learn advanced debugging techniques with Visual Studio
- \* Fix memory leaks and memory pressure issues
- \* Detect, profile, and fix performance problems
- \* Find the root cause of crashes and hangs
- \* Debug production code and third-party code
- \* Analyze ASP.NET applications for slow performance, failed requests, and hangs
- \* Use dump files, Performance Counters, and ETW events to investigate what happens under the hood
- \* Troubleshoot cloud environments, including Azure VMs and App Services
- \* Code samples in C#
- \* Covering .NET Core, .NET Framework, Windows, and Linux

This training course is a combined and reformatted version of the two previous

books Windows Debugging: Practical Foundations and x64 Windows Debugging: Practical Foundations. The new format makes it easy to switch between and compare x86 and x64 versions. The book also has a larger format similar to other training courses from Software Diagnostics Services, punctuation and code highlighting improvements, the output and screenshots from the latest WinDbg 10, and consistently uses WinDbg (X86) for 32-bit examples and WinDbg (X64) for 64-bit examples. The book contains two separate sets of chapters and corresponding illustrations. They are named Chapter x86.NN and Chapter x64.NN respectively. There is some repetition of content due to the shared nature of x64 and x86 platforms. Both sets of chapters can be read independently. We included x86 chapters because many Windows applications are still 32-bit and executed in 32-bit compatibility mode on x64 Windows systems. This introductory training course can complement the more advanced course Accelerated Disassembly, Reconstruction and Reversing (ISBN: 978-1908043672).

Most applications today are distributed in some fashion. Monitoring the health and performance of these distributed architectures requires a new approach. Enter distributed tracing, a method of profiling and monitoring applications—especially those that use microservice architectures. There's just one problem: distributed tracing can be hard. But it doesn't have to be. With this practical guide, you'll learn what distributed tracing is and how to use it to understand the performance and operation of your software. Key players at Lightstep walk you through instrumenting your code for tracing, collecting the data that your instrumentation produces, and turning it into useful, operational insights. If you want to start implementing distributed tracing, this book tells you what you need to know. You'll learn: The pieces of a distributed tracing deployment: Instrumentation, data collection, and delivering value Best practices for instrumentation (the methods for generating trace data from your service) How to deal with or avoid overhead, costs, and sampling How to work with spans (the building blocks of request-based distributed traces) and choose span characteristics that lead to valuable traces Where distributed tracing is headed in the future

A guide to debugging Windows applications for professional developers covers resource leaks, memory corruption, stack problems, release build problems, multithreading problems, and finding crash locations.

Analyzing how hacks are done, so as to stop them in the future Reverse engineering is the process of analyzing hardware or software and understanding it, without having access to the sourcecode or design documents. Hackers are able to reverse engineersystems and exploit what they find with scary results. Now the goodguys can use the same tools to thwart these threats. PracticalReverse Engineering goes under the hood of reverse engineeringfor security analysts, security engineers, and system programmers,so they can learn how to use these same processes to stop hackersin their tracks. The book covers x86, x64, and ARM (the first book to cover allthree); Windows kernel-mode code rootkits and drivers; virtualmachine protection techniques; and much more. Best of all, itoffers a systematic approach to the material, with plenty ofhands-on exercises and real-world examples. Offers a systematic approach to understanding reverseengineering, with hands-on exercises and real-world examples Covers x86, x64, and advanced RISC machine (ARM) architecturesas well as

deobfuscation and virtual machine protection techniques Provides special coverage of Windows kernel-mode code (rootkits/drivers), a topic not often covered elsewhere, and explains how to analyze drivers step by step Demystifies topics that have a steep learning curve Includes a bonus chapter on reverse engineering tools Practical Reverse Engineering: Using x86, x64, ARM, Windows Kernel, and Reversing Tools provides crucial, up-to-date guidance for a broad range of IT professionals.

DCOM -- the Distributed Component Object Model -- is a recent upgrade of a time-honored and well-tested technology promoted by Microsoft for distributed object programming. Now that components are playing a larger and larger part in Windows 98, Windows NT 4.0, and Windows 2000, every Windows programmer will want to understand the technology. DCOM competes with CORBA as a rich and robust method for creating expandable and flexible components, allowing you to plug in new parts conveniently and upgrade without the need for code changes to every program that uses your component. This book introduces C++ programmers to DCOM and gives them the basic tools they need to write secure, maintainable programs. While using Visual C++ development tools and wizards where appropriate, the author never leaves the results up to magic. The C++ code used to create distributed components and the communications exchanged between systems and objects are described at a level where the reader understands their significance and can use the insights for such tasks as debugging and improving performance. The first few chapters explain both the remote procedure calls that underlie DCOM's communication and the way DCOM uses C++ classes. Readers become firmly grounded in the relation between components, classes, and objects, the ways objects are created and destroyed, how clients find servers, and the basics of security and threading. After giving you a grounding in how DCOM works, this book introduces you to the Microsoft tools that make it all easy. By showing what really happens each time you choose a button in a wizard, Learning DCOM makes it possible for you to choose what you need. This book is for anyone who wants to understand DCOM. While thoroughly practical in its goals, it doesn't stint on the background you need to make your programs safe, efficient, and easy to maintain. Topics include: MIDL (Microsoft Interface Definition Language, the language for defining COM interfaces) COM error and exception handling Custom, dispatch, and dual interfaces Standard and custom factories Management of in-process versus out-of-process servers Distributed memory management Pragmatic explanation of the DCOM wire protocol Standard, custom, handler, and automation marshaling Multithreading and apartments Security at the system configuration and programming level Active Template Library (ATL), ATL wizards -- and what they don't do Writing a component that can be invoked from Visual Basic Techniques for using distributed components Creating an ActiveX control and embedding it in a Web client Authentication and the use of Windows NT security features Techniques for merging marshaling code Connection and distributed events management An introduction to COM+ features This book gives detailed instructions on how to use, optimize, and troubleshoot mod\_perl. It shows how to get this Apache module running quickly and easily.

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