INSIDE WINDOWS DEBUGGING A PRACTICAL GUIDE TO DEBUGGING AND TRACING STRATEGIES IN WINDOWS READ ONLY

Rosette Gagnon

Inside Windows Debugging A Practical Guide To Debugging And Tracing Strategies In Windows Introduction

Inside Windows Debugging

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

Inside Windows Debugging

Provides information on effective Windows debugging and tracing techniques.

Advanced Windows Debugging

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® VistaTM and 64-bit debugging, they address emerging topics head-on–and nothing is ever oversimplified or glossed over!

Hands-On Penetration Testing on Windows

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

Effective Debugging

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

Practical Reverse Engineering

Analyzing how hacks are done, so as to stop them in thefuture Reverse engineering is the process of analyzing hardware orsoftware 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 protectiontechniques Provides special coverage of Windows kernel-mode code(rootkits/drivers), a topic not often covered elsewhere, andexplains 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, WindowsKernel, and Reversing Tools provides crucial, up-to-dateguidance for a broad range of IT professionals.

Practical Malware Analysis

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.

Windows 2000 Performance Guide

For repairing performance loss or maximizing current potential, this guide aims to provide the information and conceptual framework that will enable readers to be performance experts. Includes information on processor performance, application profiling and hardware considerations.

Solid Code

Get best-in-class engineering practices to help you write more-robust, bug-free code. Two Microsoft .NET development experts share real-world examples and proven methods for optimizing the software development life cycle—from avoiding costly programming pitfalls to making your development team more efficient. Managed code developers at all levels will find design, prototyping, implementation, debugging, and testing tips to boost the quality of their code—today. Optimize each stage of the development process—from design to testing—and produce higher-quality applications. Use metaprogramming to reduce code complexity, while increasing flexibility and maintainability Treat performance as a feature—and manage it throughout the development life cycle Apply best practices for application scalability Employ preventative security measures to ward off malicious attacks Practice defensive programming to catch bugs before run time Incorporate automated builds, code analysis, and testing into the daily engineering process Implement better source-control management and check-in procedures Establish a quality-driven, milestone-based project rhythm—and improve your results!

Distributed Tracing in Practice

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

The Art of Debugging with GDB, DDD, and Eclipse

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.

Windows Internals

The definitive guide–fully updated for Windows 10 and Windows Server 2016 Delve inside Windows architecture and internals, and see how core components work behind the scenes. Led by a team of internals experts, this classic guide has been fully updated for Windows 10 and Windows Server 2016. Whether you are a developer or an IT professional, you’ll 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. This book will help you: · Understand the Window system architecture and its most important entities, such as processes and threads · Examine how processes manage resources and threads scheduled for execution inside processes · Observe how Windows manages virtual and physical memory · Dig into the Windows I/O system and see how device drivers work and integrate with the rest of the system · Go inside the Windows security model to see how it manages access, auditing, and authorization, and learn about the new mechanisms in Windows 10 and Server 2016

Debugging Windows Programs

For professional software developers, debugging is a way of life. This book is the definitive guide to Windows debugging, providing developers with the strategies and techniques they need to fulfill one of their most important responsibilities efficiently and effectively. Debugging Windows Programs shows readers how to prevent bugs by taking full advantage of the Visual C++ development tools and writing code in a way that makes certain types of bugs impossible. They also will learn how to reveal bugs with debugging statements that force bugs to expose themselves when the program is executed, and how to make the most of debugging tools and features available in Windows, Visual C++, MFC, and ATL. The authors provide specific solutions to the most common debugging problems, including memory corruption, resource leaks, stack problems, release build problems, finding crash locations, and multithreading problems. These essential topics are covered: The debugging process Writing C++ code for debugging Strategically using assertions, trace statements, and exceptions Windows postmortem debugging using Dr. Watson and MAP files Using the Visual C++ debugger Debugging memory Debugging multithreaded programs Debugging COM Each chapter provides developers with exactly what they need to master the subject and improve development productivity and software quality. Comprehensive, current, and practical, Debugging Windows Programs helps developers understand the debugging process and make the most of the Visual C++ debugging tools. 020170238XB04062001

Reversing

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

Introducing Windows 8.1 for IT Professionals

NOTE: This title is also available as a free eBook. It is offered for sale in print format as a convenience. Get a head start evaluating Windows 8.1 - with early technical insights from award-winning journalist and Windows expert Ed Bott. Based on the Windows 8.1 Preview release, this guide introduces new features and capabilities, with scenario-based advice on how Windows 8.1 can meet the needs of your business. Get the high-level overview you need to begin preparing your deployment now. Preview new features and enhancements, including: How features compare to Windows 7 and Windows XP The Windows 8.1 user experience Deployment Security features Internet Explorer 11 Delivering Windows apps Recovery options Networking and remote access Managing mobile devices Virtualization Windows RT 8.1

Writing Secure Code

Keep black-hat hackers at bay with the tips and techniques in this entertaining, eye-opening book! Developers will learn how to padlock their applications throughout the entire development process—from designing secure applications to writing robust code that can withstand repeated attacks to testing applications for security flaws. Easily digested chapters reveal proven principles, strategies, and coding techniques. The authors—two battle-scarred veterans who have solved some of the industry’s toughest security problems—provide sample code in several languages. This edition includes updated information about threat modeling, designing a security process, international issues, file-system issues, adding privacy to

applications, and performing security code reviews. It also includes enhanced coverage of buffer overruns, Microsoft .NET security, and Microsoft ActiveX development, plus practical checklists for developers, testers, and program managers.

Tools and Methods for Analysis, Debugging, and Performance Improvement of Equation-Based Models

Equation-based object-oriented (EOO) modeling languages such as Modelica provide a convenient, declarative method for describing models of cyber-physical systems. Because of the ease of use of EOO languages, large and complex models can be built with limited effort. However, current state-of-the-art tools do not provide the user with enough information when errors appear or simulation results are wrong. It is of paramount importance that such tools should give the user enough information to correct errors or understand where the problems that lead to wrong simulation results are located. However, understanding the model translation process of an EOO compiler is a daunting task that not only requires knowledge of the numerical algorithms that the tool executes during simulation, but also the complex symbolic transformations being performed. As part of this work, methods have been developed and explored where the EOO tool, an enhanced Modelica compiler, records the transformations during the translation process in order to provide better diagnostics, explanations, and analysis. This information is used to generate better error-messages during translation. It is also used to provide better debugging for a simulation that produces unexpected results or where numerical methods fail. Meeting deadlines is particularly important for real-time applications. It is usually essential to identify possible bottlenecks and either simplify the model or give hints to the compiler that enable it to generate faster code. When profiling and measuring execution times of parts of the model the recorded information can also be used to find out why a particular system model executes slowly. Combined with debugging information, it is possible to find out why this system of equations is slow to solve, which helps understanding what can be done to simplify the model. A tool with a graphical user interface has been developed to make debugging and performance profiling easier. Both debugging and profiling have been combined into a single view so that performance metrics are mapped to equations, which are mapped to debugging information. The algorithmic part of Modelica was extended with meta-modeling constructs (MetaModelica) for language modeling. In this context a quite general approach to debugging and compilation from (extended) Modelica to C code was developed. That makes it possible to use the same executable format for simulation executables as for compiler bootstrapping when the compiler written in MetaModelica compiles itself. Finally, a method and tool prototype suitable for speeding up simulations has been developed. It works by partitioning the model at appropriate places and compiling a simulation executable for a suitable parallel platform.

Practical Binary Analysis

Stop manually analyzing binary! Practical Binary Analysis is the first book of its kind to present advanced binary analysis topics, such as binary instrumentation, dynamic taint analysis, and symbolic execution, in an accessible way. As malware increasingly obfuscates itself and applies anti-analysis techniques to thwart our analysis, we need more sophisticated methods that allow us to raise that dark curtain designed to keep us out--binary analysis can help. The goal of all binary analysis is to determine (and possibly modify) the true properties of binary programs to understand what they really do, rather than what we think they should do. While reverse engineering and disassembly are critical first steps in many forms of binary analysis, there is much more to be learned. This hands-on guide teaches you how to tackle the fascinating but challenging topics of binary analysis and instrumentation and helps you become proficient in an area typically only mastered by a small group of expert hackers. It will take you from basic concepts to state-of-the-art methods as you dig into topics like code injection, disassembly, dynamic taint analysis, and binary instrumentation. Written for security engineers, hackers, and those with a basic working knowledge of C/C++ and x86-64, Practical Binary Analysis will teach you in-depth how binary programs work and help you acquire the tools and techniques needed to gain more control and insight into binary programs. Once you've completed an introduction to basic binary formats, you'll learn how to analyze binaries using techniques like the

GNU/Linux binary analysis toolchain, disassembly, and code injection. You'll then go on to implement profiling tools with Pin and learn how to build your own dynamic taint analysis tools with libdft and symbolic execution tools using Triton. You'll learn how to: - Parse ELF and PE binaries and build a binary loader with libbfd - Use data-flow analysis techniques like program tracing, slicing, and reaching definitions analysis to reason about runtime flow of your programs - Modify ELF binaries with techniques like parasitic code injection and hex editing - Build custom disassembly tools with Capstone - Use binary instrumentation to circumvent anti-analysis tricks commonly used by malware - Apply taint analysis to detect control hijacking and data leak attacks - Use symbolic execution to build automatic exploitation tools With exercises at the end of each chapter to help solidify your skills, you'll go from understanding basic assembly to performing some of the most sophisticated binary analysis and instrumentation. Practical Binary Analysis gives you what you need to work effectively with binary programs and transform your knowledge from basic understanding to expert-level proficiency.

A Practical Guide to TPM 2.0

A Practical Guide to TPM 2.0: Using the Trusted Platform Module in the New Age of Security is a straight-forward primer for developers. It shows security and TPM concepts, demonstrating their use in real applications that the reader can try out. Simply put, this book is designed to empower and excite the programming community to go out and do cool things with the TPM. The approach is to ramp the reader up quickly and keep their interest.A Practical Guide to TPM 2.0: Using the Trusted Platform Module in the New Age of Security explains security concepts, describes the TPM 2.0 architecture, and provides code and pseudo-code examples in parallel, from very simple concepts and code to highly complex concepts and pseudo-code. The book includes instructions for the available execution environments and real code examples to get readers up and talking to the TPM quickly. The authors then help the users expand on that with pseudo-code descriptions of useful applications using the TPM.

Briggs

How do you start? How should you build a plan for cloud migration for your entire portfolio? How will your organization be affected by these changes? This book, based on real-world cloud experiences by enterprise IT teams, seeks to provide the answers to these questions. Here, you’ll see what makes the cloud so compelling to enterprises; with which applications you should start your cloud journey; how your organization will change, and how skill sets will evolve; how to measure progress; how to think about security, compliance, and business buy-in; and how to exploit the ever-growing feature set that the cloud offers to gain strategic and competitive advantage.

Site Reliability Engineering

In this collection of essays and articles, key members of Google's Site Reliability Team explain how and why their commitment to the entire lifecycle has enabled the company to successfully build, deploy, monitor, and maintain some of the largest software systems in the world.

Windows Internals, Part 2

Drill down into Windows architecture and internals, discover how core Windows components work behind the scenes, and master information you can continually apply to improve architecture, development, system administration, and support. Led by three renowned Windows internals experts, this classic guide is now fully updated for Windows 10 and 8.x. As always, it combines unparalleled insider perspectives on how Windows behaves \"under the hood\" with hands-on experiments that let you experience these hidden behaviors firsthand. Part 2 examines these and other key Windows 10 OS components and capabilities: Startup and shutdown The Windows Registry Windows management mechanisms WMI System mechanisms ALPC ETW Cache Manager Windows file systems The hypervisor and virtualization UWP Activation

Revised throughout, this edition also contains three entirely new chapters: Virtualization technologies Management diagnostics and tracing Caching and file system support

Learning Windows Server 2003

With Windows Server 2003, Microsoft has the right server for a world now dominated by enterprise networks and web-based server applications. A number of significant improvements make this a more reliable server than Windows 2000, and those who switched have seen notable performance gains. Server 2003 is, in fact, a very competitive solution to Unix in terms of cost, performance, and application development productivity. But getting this server up and running, either as a stand-alone or as part of a multi-site, multi-server network, is a formidable task even for the most experienced system administrators. Our no-fluff guide gives you exactly what you need: all the nuts and bolts for installing, configuring, securing, and managing Server 2003. This focused and practical book clearly documents the complexities of this server, and offers hands-on advice for planning, implementing and growing Windows networks without trying to teach you how to be a system administrator. Learning Windows Server 2003 shows you how to create and manage user accounts (with particular attention to Active Directory), how to manage access to system resources such as printers and files, and how to configure and manage the server s plethora of major subsystems. The book goes into considerable detail about: Windows file and print services Active Directory IIS6 web server Group Policy and other security tools Patch management .NET Framework application server Windows Terminal Services (including their use in conjunction with Microsoft Office and the Small Business Edition) Various networking subsystems that ship with Server 2003 This highly instructive book also provides an introduction to clustering services, and thoroughly documents steps that should be taken to ensure the security of the server and its resources. Windows Server 2003 was designed to meet the needs of companies or organizations that rely on one or more internal computer networks, and our comprehensive reference is the ideal companion.

The Antivirus Hacker's Handbook

Hack your antivirus software to stamp out future vulnerabilities The Antivirus Hacker's Handbook guides you through the process of reverse engineering antivirus software. You explore how to detect and exploit vulnerabilities that can be leveraged to improve future software design, protect your network, and anticipate attacks that may sneak through your antivirus' line of defense. You'll begin building your knowledge by diving into the reverse engineering process, which details how to start from a finished antivirus software program and work your way back through its development using the functions and other key elements of the software. Next, you leverage your new knowledge about software development to evade, attack, and exploit antivirus software—all of which can help you strengthen your network and protect your data. While not all viruses are damaging, understanding how to better protect your computer against them can help you maintain the integrity of your network. Discover how to reverse engineer your antivirus software Explore methods of antivirus software evasion Consider different ways to attack and exploit antivirus software Understand the current state of the antivirus software market, and get recommendations for users and vendors who are leveraging this software The Antivirus Hacker's Handbook is the essential reference for software reverse engineers, penetration testers, security researchers, exploit writers, antivirus vendors, and software engineers who want to understand how to leverage current antivirus software to improve future applications.

Introduction to Programming with C++ for Engineers

A complete textbook and reference for engineers to learn the fundamentals of computer programming with modern C++ Introduction to Programming with C++ for Engineers is an original presentation teaching the fundamentals of computer programming and modern C++ to engineers and engineering students. Professor Cyganek, a highly regarded expert in his field, walks users through basics of data structures and algorithms with the help of a core subset of C++ and the Standard Library, progressing to the object-oriented domain and advanced C++ features, computer arithmetic, memory management and essentials of parallel

programming, showing with real world examples how to complete tasks. He also guides users through the software development process, good programming practices, not shunning from explaining low-level features and the programming tools. Being a textbook, with the summarizing tables and diagrams the book becomes a highly useful reference for C++ programmers at all levels. Introduction to Programming with C++ for Engineers teaches how to program by: Guiding users from simple techniques with modern C++ and the Standard Library, to more advanced object-oriented design methods and language features Providing meaningful examples that facilitate understanding of the programming techniques and the C++ language constructions Fostering good programming practices which create better professional programmers Minimizing text descriptions, opting instead for comprehensive figures, tables, diagrams, and other explanatory material Granting access to a complementary website that contains example code and useful links to resources that further improve the reader’s coding ability Including test and exam question for the reader’s review at the end of each chapter Engineering students, students of other sciences who rely on computer programming, and professionals in various fields will find this book invaluable when learning to program with C++.

Introducing Windows 8

Introduces Windows 8, including new features and capabilities, and offers scenario-based insights on planning, implementing, and maintaining the operating system.

Microsoft Mobile Development Handbook

Presents the basics for designing mobile applications for wireless-capable devices using .NET Compact Framework 2.0, SQL Server 2005, and Microsoft Windows Mobile 5.0.

The Security Development Lifecycle

Your customers demand and deserve better security and privacy in their software. This book is the first to detail a rigorous, proven methodology that measurably minimizes security bugs--the Security Development Lifecycle (SDL). In this long-awaited book, security experts Michael Howard and Steve Lipner from the Microsoft Security Engineering Team guide you through each stage of the SDL--from education and design to testing and post-release. You get their first-hand insights, best practices, a practical history of the SDL, and lessons to help you implement the SDL in any development organization. Discover how to: Use a streamlined risk-analysis process to find security design issues before code is committed Apply secure-coding best practices and a proven testing process Conduct a final security review before a product ships Arm customers with prescriptive guidance to configure and deploy your product more securely Establish a plan to respond to new security vulnerabilities Integrate security discipline into agile methods and processes, such as Extreme Programming and Scrum Includes a CD featuring: A six-part security class video conducted by the authors and other Microsoft security experts Sample SDL documents and fuzz testing tool PLUS--Get book updates on the Web. For customers who purchase an ebook version of this title, instructions for downloading the CD files can be found in the ebook.

Debugging with Fiddler

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.

Windows Embedded CE 6.0 Fundamentals

Help drive the next wave of smart, connected devices. Guided by two experts on Windows Embedded CE, you'll examine the core architecture, tools, and techniques that streamline the development process--and help get your ideas to market faster. Discover how to: Install the development environment and toolset Apply the device-planning practices that help optimize development time and resources Exploit the unified build system, including batch file and console utilities Use--or create--board support packages for hardware-specific code Dig into driver infrastructure, classes, and development processes Design and configure a custom run-time image Test and verify devices with the Windows Embedded CE Test Kit Create an SDK to extend your application to third-party developers

Debug It!

Provides information on the techniques of debugging software and code.

Python for Data Analysis

Get complete instructions for manipulating, processing, cleaning, and crunching datasets in Python. Updated for Python 3.6, the second edition of this hands-on guide is packed with practical case studies that show you how to solve a broad set of data analysis problems effectively. You'll learn the latest versions of pandas, NumPy, IPython, and Jupyter in the process. Written by Wes McKinney, the creator of the Python pandas project, this book is a practical, modern introduction to data science tools in Python. It's ideal for analysts new to Python and for Python programmers new to data science and scientific computing. Data files and related material are available on GitHub. Use the IPython shell and Jupyter notebook for exploratory computing Learn basic and advanced features in NumPy (Numerical Python) Get started with data analysis tools in the pandas library Use flexible tools to load, clean, transform, merge, and reshape data Create informative visualizations with matplotlib Apply the pandas groupby facility to slice, dice, and summarize datasets Analyze and manipulate regular and irregular time series data Learn how to solve real-world data analysis problems with thorough, detailed examples

Building Cloud Apps with Microsoft Azure

This ebook walks you through a patterns-based approach to building real-world cloud solutions. The patterns apply to the development process as well as to architecture and coding practices. The content is based on a presentation developed by Scott Guthrie and delivered by him at the Norwegian Developers Conference (NDC) in June of 2013 (part 1, part 2), and at Microsoft Tech Ed Australia in September 2013 (part 1, part 2). Many others updated and augmented the content while transitioning it from video to written form. Who should read this book Developers who are curious about developing for the cloud, are considering a move to the cloud, or are new to cloud development will find here a concise overview of the most important concepts and practices they need to know. The concepts are illustrated with concrete examples, and each chapter includes links to other resources that provide more in-depth information. The examples and the links to additional resources are for Microsoft frameworks and services, but the principles illustrated apply to other web development frameworks and cloud environments as well. Developers who are already developing for the cloud may find ideas here that will help make them more successful. Each chapter in the series can be read independently, so you can pick and choose topics that you're interested in. Anyone who watched Scott Guthrie's \"Building Real World Cloud Apps with Windows Azure\" presentation and wants more details and updated information will find that here. Assumptions This ebook expects that you have experience developing web applications by using Visual Studio and ASP.NET. Familiarity with C# would be helpful in places.

Windows Internals

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

Windows Debugging

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.

Comprehensive Functional Verification

One of the biggest challenges in chip and system design is determining whether the hardware works correctly. That is the job of functional verification engineers and they are the audience for this comprehensive text from three top industry professionals. As designs increase in complexity, so has the value of verification engineers within the hardware design team. In fact, the need for skilled verification engineers has grown dramatically--functional verification now consumes between 40 and 70% of a project's labor, and about half its cost. Currently there are very few books on verification for engineers, and none that cover the subject as comprehensively as this text. A key strength of this book is that it describes the entire verification cycle and details each stage. The organization of the book follows the cycle, demonstrating how functional verification engages all aspects of the overall design effort and how individual cycle stages relate to the larger design process. Throughout the text, the authors leverage their 35 plus years experience in functional verification, providing examples and case studies, and focusing on the skills, methods, and tools needed to complete each verification task. Comprehensive overview of the complete verification cycle Combines industry experience with a strong emphasis on functional verification fundamentals Includes real-world case studies

Windows 10 Inside Out (includes Current Book Service)

This is the eBook of the printed book and may not include any media, website access codes, or print supplements that may come packaged with the bound book. Conquer today’s Windows 10—from the inside out! Dive into Windows 10—and really put your Windows expertise to work. Focusing on the most powerful and innovative features of Windows 10, this supremely organized reference packs hundreds of timesaving solutions, tips, and workarounds—all fully reflecting the major Windows 10 Anniversary Update. From new Cortana and Microsoft Edge enhancements to the latest security and virtualization features, you’ll discover how experts tackle today’s essential tasks—and challenge yourself to new levels of mastery. Install, configure, and personalize the newest versions of Windows 10 Understand Microsoft’s revamped activation and upgrade processes Discover major Microsoft Edge enhancements, including new support for extensions Use today’s improved Cortana services to perform tasks, set reminders, and retrieve information Make the most of the improved ink, voice, touch, and gesture support in Windows 10 Help secure Windows 10 in business with Windows Hello and Azure AD Deploy, use, and manage new Universal Windows Platform (UWP) apps Take advantage of new entertainment options, including Groove Music Pass subscriptions and

connections to your Xbox One console Manage files in the cloud with Microsoft OneDrive and OneDrive for Business Use the improved Windows 10 Mail and Calendar apps and the new Skype app Fine-tune performance and troubleshoot crashes Master high-efficiency tools for managing Windows 10 in the enterprise Leverage advanced Hyper-V features, including Secure Boot, TPMs, nested virtualization, and containers In addition, this book is part of the Current Book Service from Microsoft Press. Books in this program will receive periodic updates to address significant software changes for 12 to 18 months following the original publication date via a free Web Edition. Learn more at https://www.microsoftpressstore.com/cbs.

The Rust Programming Language (Covers Rust 2018)

The official book on the Rust programming language, written by the Rust development team at the Mozilla Foundation, fully updated for Rust 2018. The Rust Programming Language is the official book on Rust: an open source systems programming language that helps you write faster, more reliable software. Rust offers control over low-level details (such as memory usage) in combination with high-level ergonomics, eliminating the hassle traditionally associated with low-level languages. The authors of The Rust Programming Language, members of the Rust Core Team, share their knowledge and experience to show you how to take full advantage of Rust's features--from installation to creating robust and scalable programs. You'll begin with basics like creating functions, choosing data types, and binding variables and then move on to more advanced concepts, such as: Ownership and borrowing, lifetimes, and traits Using Rust's memory safety guarantees to build fast, safe programs Testing, error handling, and effective refactoring Generics, smart pointers, multithreading, trait objects, and advanced pattern matching Using Cargo, Rust's built-in package manager, to build, test, and document your code and manage dependencies How best to use Rust's advanced compiler with compiler-led programming techniques You'll find plenty of code examples throughout the book, as well as three chapters dedicated to building complete projects to test your learning: a number guessing game, a Rust implementation of a command line tool, and a multithreaded server. New to this edition: An extended section on Rust macros, an expanded chapter on modules, and appendixes on Rust development tools and editions.

Debugging Applications for Microsoft .NET and Microsoft Windows

You get huge development advantages with Microsoft Visual Studio® .NET 2003—but you need a new bag of debugging tricks to take full advantage of them in today’s .NET and Win32® development worlds. Learn lethally effective, real-world application debugging techniques for .NET Framework 1.1 and Windows with this fully updated programming guide. Debugging expert John Robbins expands the first edition of his classic debugging book with all-new scenarios and bug-killing tools, tips, and techniques. You’ll see every .NET and Windows debugging scenario here—from XML Web services and Microsoft ASP.NET to Windows services and exceptions. Along with John’s expert guidance, you get more than 6 MB of his battle-tested source code—for the tools and tactics you need to ship better software faster! Topics covered include: Where bugs come from and how to think about solving them Debugging during coding Operating system debugging support and how Win32 debuggers work Advanced debugger usage and .NET debugging with Visual Studio .NET Advanced native code techniques with Visual Studio .NET and WinDBG Extending the Visual Studio .NET integrated development environment Managed exception monitoring Flow tracing and performance Finding source and line information with just a crash address Crash handlers Debugging Windows services and DLLs that load into services Multithreaded deadlocks Automated testing The Debug C run-time library A high-performance tracing tool for server applications Smoothing the working set Appendixes: Reading Dr. Watson log files, plus resources for .NET and Windows developers CD-ROM features: 6+ MB of professional-level source code samples written in Microsoft Visual C++®, Visual C#®, and Visual Basic® .NET Debugging Tools for Windows Microsoft .NET Framework 1.1 SDK Windows Application Compatibility Toolkit (ACT) A Note Regarding the CD or DVD The print version of this book ships with a CD or DVD. For those customers purchasing one of the digital formats in which this book is available, we are pleased to offer the CD/DVD content as a free download via O'Reilly Media's Digital Distribution services. To download this content, please visit O'Reilly's web site, search for the title of this book to find its

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Understanding the Linux Kernel

To thoroughly understand what makes Linux tick and why it's so efficient, you need to delve deep into the heart of the operating system--into the Linux kernel itself. The kernel is Linux--in the case of the Linux operating system, it's the only bit of software to which the term \"Linux\" applies. The kernel handles all the requests or completed I/O operations and determines which programs will share its processing time, and in what order. Responsible for the sophisticated memory management of the whole system, the Linux kernel is the force behind the legendary Linux efficiency. The new edition of Understanding the Linux Kernel takes you on a guided tour through the most significant data structures, many algorithms, and programming tricks used in the kernel. Probing beyond the superficial features, the authors offer valuable insights to people who want to know how things really work inside their machine. Relevant segments of code are dissected and discussed line by line. The book covers more than just the functioning of the code, it explains the theoretical underpinnings for why Linux does things the way it does. The new edition of the book has been updated to cover version 2.4 of the kernel, which is quite different from version 2.2: the virtual memory system is entirely new, support for multiprocessor systems is improved, and whole new classes of hardware devices have been added. The authors explore each new feature in detail. Other topics in the book include: Memory management including file buffering, process swapping, and Direct memory Access (DMA) The Virtual Filesystem and the Second Extended Filesystem Process creation and scheduling Signals, interrupts, and the essential interfaces to device drivers Timing Synchronization in the kernel Interprocess Communication (IPC) Program execution Understanding the Linux Kernel, Second Edition will acquaint you with all the inner workings of Linux, but is more than just an academic exercise. You'll learn what conditions bring out Linux's best performance, and you'll see how it meets the challenge of providing good system response during process scheduling, file access, and memory management in a wide variety of environments. If knowledge is power, then this book will help you make the most of your Linux system.