

Wireshark® Network Analysis

The Official Wireshark Certified Network Analyst Study Guide

Second Edition

Laura Chappell

- Learn **insider tips and tricks** to spot the cause of lousy network performance
- Discover **basic through advanced Wireshark techniques** to quickly identify evidence of discovery processes and breached hosts
- Analyze real world case studies to see how network problems have been solved by IT professionals just like **YOU!**



Foreword by
Gerald Combs
Creator of Wireshark



Wireshark® Network Analysis
The Official Wireshark Certified Network Analyst™ Study Guide
2nd Edition (Version 2.1b)

Laura Chappell
Founder, Chappell University™
Founder, Wireshark University™



Readers interested in this book may also be interested in the associated **Wireshark Certified Network Analyst Official Exam Prep Guide – Second Edition.**

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PhoneFactor™ SSL/TLS vulnerabilities documents and trace files referenced on the book website, www.wiresharkbook.com, were created by Steve Dispensa and Ray Marsh (www.phonefactor.com).

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Dedication

This Second Edition is dedicated to Gerald Combs, creator of Wireshark (formerly Ethereal) and a good friend.

Twelve years ago, I sent Gerald a note—just out of the blue—"may I include Ethereal on my CD? I want to give it away at conferences." Expecting some pushback—after all, he didn't know who the heck I was—I was amazed and thrilled to receive his response stating "sure, go ahead—that would be great!"

Gerald is more than the creator of Wireshark. Gerald is one of us. He struggled with a problem. He formulated a solution. Then he did something extraordinary—he shared his solution with the world. In his typical unselfish mode, Gerald opened up his project for the contribution and participation of others.

Ethereal morphed into Wireshark, and Wireshark continued to mature. Wireshark has surpassed every other network analyzer product in the industry to become the de facto standard for network traffic analysis.

In 2011 Wireshark was voted the #1 Security Tool on the SecTools.org Top 125 Network Security Tools survey (conducted by Gordon Lyons, creator of Nmap). This is a much deserved recognition that Wireshark and packet analysis is a must-have skill for IT security professionals.

Throughout Wireshark's rise in popularity, Gerald has remained one of the most honest, humble, dedicated professionals in our field.



Thank you Gerald.

p.s. Again I want to express very special thanks to Gerald's wife, Karen, and their absolutely cute-beyond-belief, I-have-my-Daddy-wrapped-around-my-little-finger, smarty-pants-who-melts-your-heart daughter! Gerald always beams when he talks about you two very special ladies and it is a treat spending time with you both <girl power!>. I am grateful for the love, support and inspiration you have provided Gerald. Your tremendous humor and joie de vivre inspires me!

ACKs

There are many people who were directly and indirectly involved in creating the First and Second Editions of this book.

First and foremost, I would like to thank my children, **Scott and Ginny**, for your patience, support and humor during the many hours I was huddled over my computer to complete this book. Your words of encouragement really helped me balance work and life during some long days and nights of deadline. It will be a treat to write that "Cooking Badly" book with you someday!

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Special thanks to **Brenda Cardinal and Jill Poulsen** who have worked with me for over 10 years each—you masochists! I am fortunate to have both of you around to brighten my days and put life in perspective.

To **Colton Cardinal**, who provided humorous distractions, smiles and, giggles—thanks for all the time staring at the clocks during the past year and a half. I feel very fortunate to have the chance to watch you grow up!

Joy DeManty—I'm sure you're sick of reading this book over and over and over again! I appreciate your keen eye in reviewing this second edition. Let's agree on this - no more 1,000 page books!

Lanell Allen—again you really pulled through for us on this project! Your tireless hours of work put into finding my typos, half-sentences and dangling prepositions (he he) was invaluable. Thank you for taking on this project.

Gerald Combs—what can I say? You have selflessly shared with us a tremendous tool and I am so very grateful for your devotion to Wireshark. The first and second editions of this book are dedicated to you.

The Wireshark developers—what a group! It has been a pleasure meeting so many of you in person at the Sharkfest conferences. Your continued efforts to improve and enhance Wireshark have helped so many IT professionals find the root of network issues. Thank you for the many hours you have dedicated to making Wireshark the world's most popular network analyzer solution! You can find the developer list at **Help | About Wireshark | Authors**. I hope this book accurately explains the features you have spent so many hours implementing. If I missed anything you'd like included in future editions of this book, please let me know.

Gordon "Fyodor" Lyon—the creation of the First Edition of this book was triggered when you released "Nmap Network Scanning"—an excellent book that every networking person should own. I appreciate your time and effort looking over the network scanning section. I look forward to working with you on some future projects—there are so many possibilities!

Ryan Woodings and Mark Jensen of MetaGeek—it has been a pleasure collaborating with you folks on ideas and microwave popping methods (g)! It has been a blast showing Wi-Spy/Chanalyzer Pro at conferences and sharing these hot products with the IT community. I look forward to more brainstorming sessions. Special thanks to **Trent Cutler** for reviewing the WLAN chapter and sending on some great feedback.

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Stig Bjørlykke, Wireshark Core Developer—you came up with so many great additions to the First Edition of this book and recent versions of Wireshark! Your understanding of the inner workings of Wireshark as well as the areas that often perplex people helped make this book much more valuable to the readers. We all appreciate your development efforts to make Wireshark such a valuable tool!

Sean Walberg—Thanks for being such a great resource on the VoIP chapter. You really have such a wonderful talent explaining the inner workings of VoIP communications. I loved your presentation at Sharkfest—funny and geeky at the same time! I appreciate your efforts to clarify the VoIP chapter in this book.

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The pcapr Team—I appreciate you allowing me to provide readers with several trace files from your online repository at www.pcapr.net. Thank you to **Mu Dynamics** (www.mudynamics.com) for supporting the *pcapr.net* project.

David Teng—Thanks for your thorough read through of the first edition and the numerous edits and suggestions you provided. It is difficult to imagine the effort you put into translating this huge book from Chinese, but I do hope to see it in print someday.

My Students—Sincere thanks to the **hundreds of thousands of students** who have taken my online training courses, instructor-led courses and self-paced courses over 20 years of teaching. I've gotten to know so many of you as friends. Your honest and direct feedback has always helped me hone my training materials (and my jokes).

Gary Lewis—you wild guy, you! If anyone out there needs graphic design services, Gary is the "go to" guy with a great (and somewhat twisted) sense of humor. Thanks for a great cover design on the First Edition—and a lovely rework of the Second Edition!

Case Study/Tip Submitters—Case studies were submitted from all around the world. Thanks to all you who overloaded my email with your Wireshark success stories. The following individuals provided case studies that were included in this book to offer a glimpse into how folks use Wireshark to save time and money.

LabNuke99 - P.C. - Jim Aragon - Roy B. - Martin B. - Bill Back - Sake Blok - Jeff Carrell - Coleen D
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If I've missed anyone in this ACK section, I apologize and plead brain-drain at this point!

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