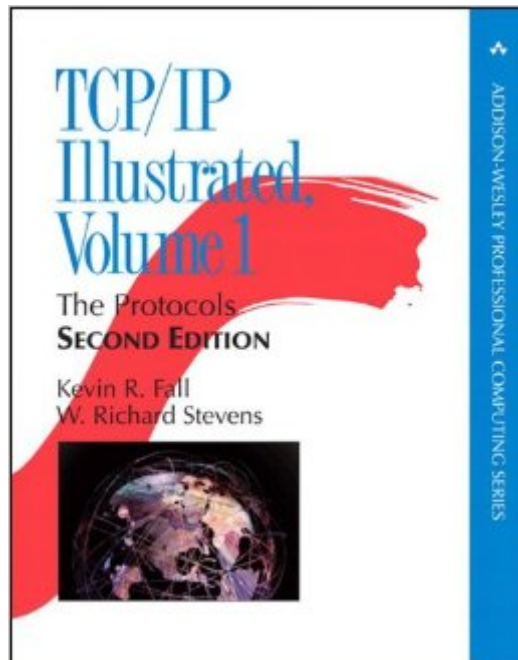


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# TCP/IP Illustrated, Volume 1: The Protocols (Addison-Wesley Professional Computing Series)



## Synopsis

For an engineer determined to refine and secure Internet operation or to explore alternative solutions to persistent problems, the insights provided by this book will be invaluable. • Vint Cerf, Internet pioneer

TCP/IP Illustrated, Volume 1, Second Edition, is a detailed and visual guide to today's TCP/IP protocol suite. Fully updated for the newest innovations, it demonstrates each protocol in action through realistic examples from modern Linux, Windows, and Mac OS environments. There's no better way to discover why TCP/IP works as it does, how it reacts to common conditions, and how to apply it in your own applications and networks. Building on the late W. Richard Stevens' classic first edition, author Kevin R. Fall adds his cutting-edge experience as a leader in TCP/IP protocol research, updating the book to fully reflect the latest protocols and best practices. He first introduces TCP/IP's core goals and architectural concepts, showing how they can robustly connect diverse networks and support multiple services running concurrently. Next, he carefully explains Internet addressing in both IPv4 and IPv6 networks. Then, he walks through TCP/IP's structure and function from the bottom up: from link layer protocols such as Ethernet and Wi-Fi through network, transport, and application layers. Fall thoroughly introduces ARP, DHCP, NAT, firewalls, ICMPv4/ICMPv6, broadcasting, multicasting, UDP, DNS, and much more. He offers extensive coverage of reliable transport and TCP, including connection management, timeout, retransmission, interactive data flow, and congestion control. Finally, he introduces the basics of security and cryptography, and illuminates the crucial modern protocols for protecting security and privacy, including EAP, IPsec, TLS, DNSSEC, and DKIM. Whatever your TCP/IP experience, this book will help you gain a deeper, more intuitive understanding of the entire protocol suite so you can build better applications and run more reliable, efficient networks.

## Book Information

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## Customer Reviews

I owned the original first edition of Volume 1 and purchased the second edition for coverage of the new material. I think that Fall did an admirable job of adding the new coverage of things that have arisen since the first edition was written, but I was very disappointed in the writing style. I disagree with the other reviewers who state that Fall retains the excellent writing style of the original.

Whereas Stevens is known for succinct, clear prose that covers topics in a straightforward, readable way, Fall seems to have felt that adding verbosity was a necessary step in adding additional topic coverage. For an example, just read the first page of the introduction for both editions. I had read the first edition a few years ago and was amazed at how Stevens made even the complex subjects easily understandable, but I paused while reading Fall's edition half-way through the introduction, asking myself "Why is this prose so difficult to understand? I don't remember the original being like this." After showing both editions to a friend of mine who is an English professor, she said that she is going to use excerpts from each book as a way to contrast good technical writing with bad technical writing (first edition, good; second edition, bad). In fact, after reading the first paragraph of the introduction of the second edition, she laughed at the quoted dictionary definition of "protocol," noting that English professors joke among themselves about how they all have to re-train high school graduates not to do this, since it is such a bad practice and so common among incoming college freshmen.

I'm a network engineer who troubleshoots with packet captures (among other things) for a living. The first edition of this book has been my bible for the last 17 years but the first edition was getting really long in the tooth. While much of the fundamentals of IPv4 have not substantially changed, the

first edition was woefully inadequate for things such as DHCP (one scant paragraph), any of the protocols developed since 1994 and most particularly, the changes in the TCP implementations since 1994. While Stevens provided an exhaustive treatment of how TCP behaves, a la 1994, that behavior has changed (dramatically IMHO) since then. This new edition once again provides an exhaustive treatment of the various TCP stacks and how their behavior changes from version to version. If you need to configure QoS (quality of service) on networks, this particular arena of network knowledge is absolutely essential. Without understanding the new TCP stacks, you are not an engineer, you are a technician. Obviously Stevens never covered IPv6 (in the 1st edition) though he did essentially say that it was "a twinkle in it's progenitors eyes" so to speak. Here in the second edition, we finally have a pretty comprehensive treatment of IPv6. If you need to implement, support or troubleshoot either IPv4 or IPv6, this book is ABSOLUTELY ESSENTIAL. If you need to do packet analysis or configure security appliances, this book is ABSOLUTELY ESSENTIAL. If you are implementing QoS to support converged networks such as VoIP or video, this book is ABSOLUTELY ESSENTIAL. I've bought and given away more than 20 copies of the first edition.

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