

80211 Wi Fi Network Handbook

Provides research on security issues in various wireless communications, recent advances in wireless security, the wireless security model, and future directions in wireless security.

With transfer speeds up to 11 Mbps the 802.11 wireless network standard is set to revolutionize wireless LANs. Matthew Gast's definitive guide to the standard is aimed at administrators, architects and security professionals.

Sybex is now the official publisher for Certified Wireless Network Professional, the certifying vendor for the CWSP program. This guide covers all exam objectives, including WLAN discovery techniques, intrusion and attack techniques, 802.11 protocol analysis. Wireless intrusion-prevention systems implementation, layer 2 and 3 VPNs used over 802.11 networks, and managed endpoint security systems. It also covers enterprise/SMB/SOHO/Public-Network Security design models and security solution implementation, building robust security networks, wireless LAN management systems, and much more.

As we all know by now, wireless networks offer many advantages over fixed (or wired) networks. Foremost on that list is mobility, since going wireless frees you from the tether of an Ethernet cable at a desk. But that's just the tip of the cable-free iceberg. Wireless networks are also more flexible, faster and easier for you to use, and more affordable to deploy and maintain. The de facto standard for wireless networking is the 802.11 protocol, which includes Wi-Fi (the wireless standard known as 802.11b) and its faster cousin, 802.11g. With easy-to-install 802.11 network hardware available everywhere you turn, the choice seems simple, and many people dive into wireless computing with less thought and planning than they'd give to a wired network. But it's wise to be familiar with both the capabilities and risks associated with the 802.11 protocols. And *802.11 Wireless Networks: The Definitive Guide, 2nd Edition* is the perfect place to start. This updated edition covers everything you'll ever need to know about wireless technology. Designed with the system administrator or serious home user in mind, it's a no-nonsense guide for setting up 802.11 on Windows and Linux. Among the wide range of topics covered are discussions on: deployment considerations network monitoring and performance tuning wireless security issues how to use and select access points network monitoring essentials wireless card configuration security issues unique to wireless networks With wireless technology, the advantages to its users are indeed plentiful. Companies no longer have to deal with the hassle and expense of wiring buildings, and households with several computers can avoid fights over who's online. And now, with *802.11 Wireless Networks: The Definitive Guide, 2nd Edition*, you can integrate wireless technology into your current infrastructure with the utmost confidence.

The bestselling CWNA study guide, updated for the latest exam *The CWNA: Certified Wireless Network Administrator Study Guide* is the ultimate preparation resource for the CWNA exam. Fully updated to align with the latest version of the exam, this book features expert coverage of all exam objectives to help you internalize essential information. A pre-assessment test reveals what you already know, allowing you to focus your study time on areas in need of review, while hands-on exercises allow you to practice applying CWNA concepts to real-world scenarios. Expert-led discussion breaks

complex topics down into easily-digestible chunks to facilitate clearer understanding, and chapter review questions help you gauge your progress along the way. You also get a year of free access to the Sybex online interactive learning environment, which features additional resources and study aids including bonus practice exam questions. The CWNA exam tests your knowledge of regulations and standards, protocols and devices, network implementation, security, and RF site surveying. Thorough preparation gives you your best chance of passing, and this book covers it all with a practical focus that translates to real on-the-job skills. Study 100% of the objectives for Exam CWNA-107 Assess your practical skills with hands-on exercises Test your understanding with challenging chapter tests Access digital flashcards, white papers, bonus practice exams, and more The CWNA certification is a de facto standard for anyone working with wireless technology. It shows employers that you have demonstrated competence in critical areas, and have the knowledge and skills to perform essential duties that keep their wireless technology functioning and safe. The CWNA: Certified Wireless Network Administrator Study Guide gives you everything you need to pass the exam with flying colors.

Aims to help you break free with the wireless networking capabilities of 802.11. This guide provides hardware advice, radio frequency fundamentals, performance tips, architecture requirements, and more. It also aims to provide clarity on connectivity issues for laptop computers, personal digital assistants (PDAs), and peripherals. While there are countless books on wireless networks, few actually quantify the key performance-limiting factors of wireless local area networks (WLANs) and describe various methods for improving WLAN performance. Fulfilling these needs, *Improving the Performance of Wireless LANs: A Practical Guide* provides both theoretical background and empirical results for the optimum planning and deployment of high performance WLAN systems in different residential and commercial buildings. Useful to students, faculties, researchers, engineers, and network developers, this must-have book not only explains the fundamentals of WLAN systems, including WLAN features and standards, but also: Supplies strategic guidelines for WLAN system design, modeling, and performance evaluation Includes radio propagation and site measurements as well as simulations for various network design scenarios Discusses environmental effects on WLAN performance, protocol redesign for routing and MAC, and traffic distribution Contains numerous illustrations and examples, plus chapter summaries, review questions, reading lists, mini-projects, an extensive glossary, and a list of acronyms Examines emerging and future network technologies, such as next generation Wi-Fi (802.11ac), very high throughput Wi-Fi (802.11ad), wireless mesh networking (802.11s), emergency QoS (802.11u), and vehicle-to-vehicle communications (802.11p) *Improving the Performance of Wireless LANs: A Practical Guide* makes the teaching, learning, and researching of advanced wireless network design and performance a more active process by using practical tools and exercises to add life to this highly technical subject.

Discusses the fundamentals of wireless security and of the popular wireless LAN protocol 802.11, covering topics including station security configurations, network weaknesses, access points, and client security.

Wireless has finally come of age. With a significant jump in throughput over previous standards, 802.11n is the first wireless technology that doesn't trade speed for mobility,

and users have stormed onto wireless networks with a passion. In this concise guide, Matthew Gast—chair of the IEEE group that produced revision 802.11-2012—shows you why wireless has become the default method of connecting to a network, and provides technical details you need to plan, design, and deploy 802.11n today. Building a network for the multitude of new devices is now a strategic decision for network engineers everywhere. This book gives you an in-depth look at key parts of 802.11n, and shows you how to achieve an Ethernet-free wireless office. Learn how MIMO's multiple data streams greatly increase wireless speed Discover how 802.11n modifications improve MAC efficiency Examine advanced PHY features such as beamforming and space-time code block Use advanced MAC features to maintain interoperability with older devices Plan an 802.11n network by determining traffic demand, key applications, power requirements, and security Choose the architecture, select hardware, and plan coverage to design and build your network

Make the most of your wireless network...without becoming a technical expert! This book is the fastest way to connect all your wireless devices, get great performance with everything from streaming media to printing, stay safe and secure, and do more with Wi-Fi than you ever thought possible! Even if you've never set up or run a network before, this book will show you how to do what you want, one incredibly clear and easy step at a time. Wireless networking has never, ever been this simple! Who knew how simple wireless networking could be? This is today's best beginner's guide to creating, using, troubleshooting, and doing more with your wireless network...simple, practical instructions for doing everything you really want to do, at home or in your business!

Here's a small sample of what you'll learn:

- Buy the right equipment without overspending
- Reliably connect Windows PCs, Macs, iPads, Android tablets, game consoles, Blu-ray players, smartphones, and more
- Get great performance from all your networked devices
- Smoothly stream media without clogging your entire network
- Store music and movies so you can play them anywhere in your home
- Keep neighbors and snoopers out of your network
- Share the files you want to share—and keep everything else private
- Automatically back up your data across the network
- Print from anywhere in the house—or from anywhere on Earth
- Extend your network to work reliably in larger homes or offices
- Set up a “guest network” for visiting friends and family
- View streaming videos and other web content on your living room TV
- Control your networked devices with your smartphone or tablet
- Connect to Wi-Fi hotspots and get online in your car
- Find and log onto hotspots, both public and hidden
- Quickly troubleshoot common wireless network problems

Michael Miller is the world's #1 author of beginning computer books. He has written more than 100 best-selling books over the past two decades, earning an international reputation for his friendly and easy-to-read style, practical real-world advice, technical accuracy, and exceptional ability to demystify complex topics. His books for Que include *Computer Basics Absolute Beginner's Guide*; *Facebook for Grown-Ups*; *My Pinterest*; *Ultimate Digital Music Guide*; *Speed It Up! A Non-Technical Guide for Speeding Up Slow PCs*, and *Googlepedia: The Ultimate Google Resource*. Category: Networking Covers: Wireless Networking User Level: Beginning

Designing and Deploying 802.11 Wireless Networks Second Edition A Practical Guide to Implementing 802.11n and 802.11ac Wireless Networks For Enterprise-Based Applications Plan, deploy, and operate high-performance 802.11ac and 802.11n

wireless networks The new 802.11ac standard enables WLANs to deliver significantly higher performance. Network equipment manufacturers have refocused on 802.11ac- and 802.11n-compliant solutions, rapidly moving older versions of 802.11 toward “legacy” status. Now, there’s a complete guide to planning, designing, installing, testing, and supporting 802.11ac and 802.11n wireless networks in any environment, for virtually any application. Jim Geier offers practical methods, tips, and recommendations that draw on his decades of experience deploying wireless solutions and shaping wireless standards. He carefully introduces 802.11ac’s fundamentally different design, site survey, implementation, and network configuration techniques, helping you maximize performance and avoid pitfalls. Geier organizes each phase of WLAN deployment into clearly defined steps, making the entire planning and deployment process easy to understand and execute. He illuminates key concepts and methods through realistic case studies based on current Cisco products, while offering tips and techniques you can use with any vendor’s equipment. To build your skills with key tasks, you’ll find several hands-on exercises relying on free or inexpensive tools. Whether you’re deploying an entirely new wireless network or migrating from older equipment, this guide contains all the expert knowledge you’ll need to succeed. Jim Geier has 30 years of experience planning, designing, analyzing and implementing communications, wireless, and mobile systems. Geier is founder and Principal Consultant of Wireless-Nets, Ltd., providing wireless analysis and design services to product manufacturers. He is also president, CEO, and co-founder of Health Grade Networks, providing wireless network solutions to hospitals, airports, and manufacturing facilities. His books include the first edition of *Designing and Deploying 802.11n Wireless Networks* (Cisco Press); as well as *Implementing 802.1X Security Solutions* and *Wireless Networking Handbook*. Geier has been active in the IEEE 802.11 Working Group and Wi-Fi Alliance; has chaired the IEEE Computer Society (Dayton Section) and various conferences; and served as expert witness in patent litigation related to wireless and cellular technologies. Review key 802.11 concepts, applications, markets, and technologies Compare ad hoc, mesh, and infrastructure WLANs and their components Consider the impact of radio signal interference, security vulnerabilities, multipath propagation, roaming, and battery limitations Thoroughly understand today’s 802.11 standards in the context of actual network deployment and support Plan your deployment: scoping, staffing, schedules, budgets, risks, feasibility analysis, and requirements Architect access networks and distribution system for maximum reliability, manageability, and performance Make the right tradeoffs and decisions to optimize range, performance, and roaming Secure WLANs via encryption, authentication, rogue AP detection, RF shielding, and policies Master design and site survey tools and methods for planning 802.11ac networks and migrations Efficiently install and test any 802.11ac or 802.11n wireless network Establish specialized support for wireless networks, including help desk operations Systematically troubleshoot connectivity, performance, and roaming issues Design efficient mesh networks and city-wide deployments

Handbook of Wireless Local Area Networks: Applications, Technology, Security, and Standards captures the current state of wireless LANs, and serves as the single comprehensive reference on the subject. Addressing challenges related to the further development of WLAN technology, the Handbook covers the entire spectrum of topics

from basic concepts t

This definitive handbook demystifies personal-area networking technologies and protocols and explores their application potential in a unique real-world context. The next frontier for wireless LANs is 802.11ac, a standard that increases throughput beyond one gigabit per second. This concise guide provides in-depth information to help you plan for 802.11ac, with technical details on design, network operations, deployment, and monitoring. Author Matthew Gast--an industry expert who led the development of 802.11-2012 and security task groups at the Wi-Fi Alliance--explains how 802.11ac will not only increase the speed of your network, but its capacity as well. Whether you need to serve more clients with your current level of throughput, or serve your existing client load with higher throughput, 802.11ac is the solution. This book gets you started. Understand how the 802.11ac protocol works to improve the speed and capacity of a wireless LAN Explore how beamforming increases speed capacity by improving link margin, and lays the foundation for multi-user MIMO Learn how multi-user MIMO increases capacity by enabling an AP to send data to multiple clients simultaneously Plan when and how to upgrade your network to 802.11ac by evaluating client devices, applications, and network connections

Written for network engineers by highly experienced wireless and Ethernet experts, this title is one of the first to provide the know-how for enterprise implementations.

"Building a network for the multitude of new devices is now a strategic decision for network engineers everywhere. This book give you an in-depth look at key parts of 802.11n, and shows you how to acheive an Ethernet-free wireless office"--Back cover. This book describes new approaches to wireless security enabled by the recent development of new core technologies for Wi-Fi/802.11. It shows how the new approaches work and how they should be applied for maximum effect. For system administrators, product designers, or advanced home users.

Wireless home networks are better than ever! The emergence of new industry standards has made them easier, more convenient, less expensive to own and operate. Still, you need to know what to look for (and look out for), and the expert guidance you'll find in *Wireless Home Networks For Dummies, 3rd Edition* helps you ensure that your wire-free life is also a hassle-free life! This user-friendly, plain-English guide delivers all of the tips, tricks, and knowledge you need to plan your wireless home network, evaluate and select the equipment that will work best for you, install and configure your wireless network, and much more. You'll find out how to share your Internet connection over your network, as well as files, printers, and other peripherals. And, you'll learn how to avoid the "gotchas" that can creep in when you least expect them. Discover how to: Choose the right networking equipment Install and configure your wireless network Integrate Bluetooth into your network Work with servers, gateways, routers, and switches Connect audiovisual equipment to your wireless network Play wireless, multiuser computer games Establish and maintain your network's security Troubleshoot networking problems Improve network performance Understand 802.11n Whether you're working with Windows PCs, Mac OS X machines, or both *Wireless Home Networking For Dummies, 3rd Edition*, makes it fast and easy to

get your wireless network up and running—and keep it that way!

"Performing a wireless LAN (WLAN) site survey before installing a wireless network is the key to any successful WLAN deployment. Yet each location and company have unique needs that must be taken into account. 802.11 Wireless Network Site Surveying and Installation helps you understand the challenges associated with any site survey, including multipath mitigation, reflection, absorption, and radio wave interference, plus the added complexity of user and application demands. This book helps you identify obstacles to a successful deployment and guides your equipment decisions to ensure that your WLAN reaches its maximum potential."--BOOK JACKET.

This is Cisco's comprehensive practical guide to planning, designing, installing, testing, and supporting both 802.11ac and 802.11n wireless networks for enterprise-based applications. Fully updated for the new 802.11ac standard, this Second Edition delivers expert hands-on guidance for mastering 802.11ac's fundamentally different design, site survey, implementation, and network configuration techniques. Designing and Deploying 802.11 Wireless Networks, Second Edition presents multiple examples using Cisco wireless products, while offering methodologies and tips that are applicable with any vendor's equipment. The authors offer in-depth coverage of building new wireless networks and migrating existing wireless networks (802.11a,b,g,n) to 802.11ac. After introducing fundamental wireless and 802.11 concepts, the authors present fully-updated coverage of all aspects of network design: requirements, architecture, performance, roaming, RF considerations, security, and much more. Drawing on extensive field experience, they walk through installation and testing, and share comprehensive operational guidance for managing security, troubleshooting roaming and connections, and training support staff. This edition's revamped coverage ranges from new site survey methods to best practices for WPA authentication configuration; advanced design guidelines for city-wide deployments to the latest Cisco equipment. Simply put, you'll find all you need to succeed with your next wireless project -- in any environment, no matter how challenging.

Controller-Based Wireless LAN Fundamentals An end-to-end reference guide to design, deploy, manage, and secure 802.11 wireless networks As wired networks are increasingly replaced with 802.11n wireless connections, enterprise users are shifting to centralized, next-generation architectures built around Wireless LAN Controllers (WLC). These networks will increasingly run business-critical voice, data, and video applications that once required wired Ethernet. In Controller-Based Wireless LAN Fundamentals, three senior Cisco wireless experts bring together all the practical and conceptual knowledge professionals need to confidently design, configure, deploy, manage, and troubleshoot 802.11n networks with Cisco Unified Wireless Network (CUWN) technologies. The authors first introduce the core principles, components, and advantages of next-generation wireless networks built with Cisco offerings. Drawing on their

pioneering experience, the authors present tips, insights, and best practices for network design and implementation as well as detailed configuration examples. Next, they illuminate key technologies ranging from WLCs to Lightweight Access Point Protocol (LWAPP) and Control and Provisioning of Wireless Access Points (CAPWAP), Fixed Mobile Convergence to WiFi Voice. They also show how to take advantage of the CUWN's end-to-end security, automatic configuration, self-healing, and integrated management capabilities. This book serves as a practical, hands-on reference for all network administrators, designers, and engineers through the entire project lifecycle, and an authoritative learning tool for new wireless certification programs. This is the only book that Fully covers the principles and components of next-generation wireless networks built with Cisco WLCs and Cisco 802.11n AP Brings together real-world tips, insights, and best practices for designing and implementing next-generation wireless networks Presents start-to-finish configuration examples for common deployment scenarios Reflects the extensive first-hand experience of Cisco experts Gain an operational and design-level understanding of WLAN Controller (WLC) architectures, related technologies, and the problems they solve Understand 802.11n, MIMO, and protocols developed to support WLC architecture Use Cisco technologies to enhance wireless network reliability, resilience, and scalability while reducing operating expenses Safeguard your assets using Cisco Unified Wireless Network's advanced security features Design wireless networks capable of serving as an enterprise's primary or only access network and supporting advanced mobility services Utilize Cisco Wireless Control System (WCS) to plan, deploy, monitor, troubleshoot, and report on wireless networks throughout their lifecycles Configure Cisco wireless LANs for multicasting Quickly troubleshoot problems with Cisco controller-based wireless LANs This book is part of the Cisco Press® Fundamentals Series. Books in this series introduce networking professionals to new networking technologies, covering network topologies, sample deployment concepts, protocols, and management techniques. Category: Wireless Covers: Cisco Controller-Based Wireless LANs Sybex is now the official publisher for CWNP, the certifying vendor for the CWNA program. This valuable guide covers all objectives for the newest version of the PW0-104 exam, including radio technologies; antenna concepts; wireless LAN hardware and software; network design, installation and management; wireless standards and organizations; 802.11 network architecture; wireless LAN security; performing site surveys; and troubleshooting. Also included are hands-on exercises, chapter review questions, a detailed glossary, and a pre-assessment test. The CD-ROM features two bonus exams, over 150 flashcards, and numerous White Papers and demo software. Note: CD-ROM materials for eBook purchases can be downloaded from CWNP's website at www.cwnp.com/sybex. Provides information on wireless networking, covering such topics as 802.11 standards, hotspots, and setting up a wireless network.

The classic and authoritative reference in the field of computer security, now

completely updated and revised With the continued presence of large-scale computers; the proliferation of desktop, laptop, and handheld computers; and the vast international networks that interconnect them, the nature and extent of threats to computer security have grown enormously. Now in its fifth edition, Computer Security Handbook continues to provide authoritative guidance to identify and to eliminate these threats where possible, as well as to lessen any losses attributable to them. With seventy-seven chapters contributed by a panel of renowned industry professionals, the new edition has increased coverage in both breadth and depth of all ten domains of the Common Body of Knowledge defined by the International Information Systems Security Certification Consortium (ISC). Of the seventy-seven chapters in the fifth edition, twenty-five chapters are completely new, including: 1. Hardware Elements of Security 2. Fundamentals of Cryptography and Steganography 3. Mathematical models of information security 4. Insider threats 5. Social engineering and low-tech attacks 6. Spam, phishing, and Trojans: attacks meant to fool 7. Biometric authentication 8. VPNs and secure remote access 9. Securing Peer2Peer, IM, SMS, and collaboration tools 10. U.S. legal and regulatory security issues, such as GLBA and SOX Whether you are in charge of many computers or just one important one, there are immediate steps you can take to safeguard your computer system and its contents. Computer Security Handbook, Fifth Edition equips you to protect the information and networks that are vital to your organization.

The purpose of this document is to provide guidance to organizations in securing their legacy IEEE 802.11 wireless local area networks (WLAN) that cannot use IEEE 802.11i. Details on securing WLANs capable of IEEE 802.11i can be found in NIST Special Publication (SP) 800-97. Recommendations for securely using external WLANs, such as public wireless access points, are outside the scope of this document. Finally--an 802.11 deployment guide for business and home use that demystifies the alphabet soup of IEEE standards and explains the features and benefits of each with regards to speeds and feeds.

'The WiFi Networking Book: WLAN Standards: IEEE 802.11 bgn, 802.11n, 802.11ac and 802.11ax' starts from the ground up for a new user and does a gradual progression into the technical details around IEEE 802.11 Wireless Lan communications standard. The book details the 'legacy' 802.11 stack (a/b/g) and also goes into the latest wave of 802.11 standards - 802.11n, ac and ax. Introduction A wireless LAN (WLAN) is a data transmission system designed to provide location-independent network access between computing devices by using radio waves rather than a cable infrastructure . In the corporate enterprise, wireless LANs are usually implemented as the final link between the existing wired network and a group of client computers, giving these users wireless access to the full resources and services of the corporate network across a building or campus setting. The widespread acceptance of WLANs depends on industry standardization to ensure product compatibility and reliability among the various manufacturers. The 802.11 specification as a standard for wireless LANS was ratified by the Institute of Electrical and Electronics Engineers (IEEE) in the year 1997. This version of 802.11 provides for 1 Mbps and 2 Mbps data rates and a set of fundamental

signaling methods and other services. Like all IEEE 802 standards, the 802.11 standards focus on the bottom two levels the ISO model, the physical layer and link layer. Any LAN application, network operating system, protocol, including TCP/IP and Novell NetWare, will run on an 802.11-compliant WLAN as easily as they run over Ethernet. What is inside Overview on Wireless Technologies, Usage Scenarios and related Taxonomy Wireless LAN and 802.11 WiFi: Architecture, 802.11 Physical Layer, 802.11 Data Link Layer, 802.11 Security 802.11 Standards: 802.11b, 802.11a, 802.11g, 802.11n MIMO, 802.11ac - Wave 1 and Wave 2, 802.11ax WiMax Networks: Forum, WiMax Protocol, WiMax Architecture

If you've been searching for a way to get up to speed on IEEE 802.11n and 802.11ac WLAN standards without having to wade through the entire specification, then look no further. This comprehensive overview describes the underlying principles, implementation details and key enhancing features of 802.11n and 802.11ac. For many of these features the authors outline the motivation and history behind their adoption into the standard. A detailed discussion of key throughput, robustness, and reliability enhancing features (such as MIMO, multi-user MIMO, 40/80/160 MHz channels, transmit beamforming and packet aggregation) is given, plus clear summaries of issues surrounding legacy interoperability and coexistence. Now updated and significantly revised, this 2nd edition contains new material on 802.11ac throughput, including revised chapters on MAC and interoperability, plus new chapters on 802.11ac PHY and multi-user MIMO. An ideal reference for designers of WLAN equipment, network managers, and researchers in the field of wireless communications.

The first generation 802.11 wireless market, once struggling to expand, has spread from largely vertical applications such as healthcare, point of sale, and inventory management to become much more broad as a general networking technology being deployed in offices, schools, hotel guest rooms, airport departure areas, airplane cabins, entertainment venues, coffee shops, restaurants, and homes. This has led to the tremendous growth of new sources of IEEE 802.11 devices. IEEE 802.11 equipment is now moving into its second stage, where the wireless LAN is being treated as a large wireless communication system. As a system, there is more to consider than simply the communication over the air between a single access point and the associated mobile devices. This has led to innovative changes in the equipment that makes up a wireless LAN. The IEEE 802.11 Handbook: A Designer's Companion, Second Edition is for the system network architects, hardware engineers and software engineers at the heart of this second stage in the evolution of 802.11 wireless LANs and for those designers that will take 802.11 to the next stage.

The de facto standard for wireless networking is the 802.11 protocol, which includes Wi-Fi—the wireless standard based on 802.11b, 802.11g, and 802.11n protocols. With easy-to-install 802.11 network hardware available everywhere you turn, the choice seems simple, and many people dive into wireless computing with less thought and planning than they'd give to a wired network. But it's wise to be familiar with both the capabilities and risks associated with the 802.11 protocols. And 802.11 Wireless Networks: The Definitive Guide, 3rd Edition is the perfect place to start. This thoroughly updated edition covers everything you'll need to know about wireless technology. Designed with system administrators and serious home users in mind, this book is a no-nonsense guide for setting up 802.11 on Windows and Linux.

This is the only complete, all-in-one guide to deploying, running, and troubleshooting wireless networks with Cisco® Wireless LAN Controllers (WLCs) and Lightweight Access Point Protocol (LWAPP)/Control and Provisioning of Wireless Access Points (CAPWAP). Authored by two of the most experienced Cisco wireless support professionals, the book presents start-to-finish coverage of implementing WLCs in existing wired and wireless network environments, troubleshooting design-related issues, and using LWAPP/CAPWAP solutions to achieve your specific business and technical goals. One step at a time, you'll walk through designing, configuring, maintaining, and scaling wireless networks using Cisco Unified Wireless technologies. The authors show how to use LWAPP/CAPWAP to control multiple Wi-Fi wireless access points at once, streamlining network administration and monitoring and maximizing scalability. Drawing on their extensive problem-resolution experience, the authors also provide expert guidelines for troubleshooting, including an end-to-end problem-solving model available in no other book. Although not specifically designed to help you pass the CCIE® Wireless written and lab exams, this book does provide you with real-world configuration and troubleshooting examples. Understanding the basic configuration practices, how the products are designed to function, the feature sets, and what to look for while troubleshooting these features will be invaluable to anyone wanting to pass the CCIE Wireless exams. Efficiently install, configure, and troubleshoot Cisco Wireless LAN Controllers Move autonomous wireless network solutions to LWAPP/CAPWAP Integrate LWAPP/CAPWAP solutions into existing wired networks Understand the next-generation WLC architecture Use Hybrid REAP and Home AP solutions to centrally configure and control branch/remote access points without deploying controllers in every location Use Mobility Groups to provide system-wide mobility easily and cost-effectively Use Cisco WLC troubleshooting tools, and resolve client-related problems Maximize quality in wireless voice applications Build efficient wireless mesh networks Use RRM to manage RF in real-time, optimizing efficiency and performance Reference the comprehensive WLC and AP debugging guide Part of the CCIE Professional Development Series, this is the first book to offer authoritative training for the new CCIE Wireless Exam. It will also serve as excellent preparation for Cisco's new CCNP® Wireless exam.

Designing and Deploying 802.11 Wireless Networks Second Edition A Practical Guide to Implementing 802.11n and 802.11ac Wireless Networks For Enterprise-Based Applications Plan, deploy, and operate high-performance 802.11ac and 802.11n wireless networks The new 802.11ac standard enables WLANs to deliver significantly higher performance. Network equipment manufacturers have refocused on 802.11ac- and 802.11n-compliant solutions, rapidly moving older versions of 802.11 toward "legacy" status. Now, there's a complete guide to planning, designing, installing, testing, and supporting 802.11ac and 802.11n wireless networks in any environment, for virtually any application. Jim Geier offers practical methods, tips, and recommendations that draw on his decades of experience deploying wireless solutions and shaping wireless standards. He carefully introduces 802.11ac's fundamentally different design, site survey, implementation, and network configuration techniques, helping you maximize performance and avoid pitfalls. Geier organizes each phase of WLAN deployment into clearly defined steps, making the entire planning and deployment process easy to understand and execute. He illuminates key concepts and methods

through realistic case studies based on current Cisco products, while offering tips and techniques you can use with any vendor's equipment. To build your skills with key tasks, you'll find several hands-on exercises relying on free or inexpensive tools. Whether you're deploying an entirely new wireless network or migrating from older equipment, this guide contains all the expert knowledge you'll need to succeed. Jim Geier has 30 years of experience planning, designing, analyzing and implementing communications, wireless, and mobile systems. Geier is founder and Principal Consultant of Wireless-Nets, Ltd., providing wireless analysis and design services to product manufacturers. He is also president, CEO, and co-founder of Health Grade Networks, providing wireless network solutions to hospitals, airports, and manufacturing facilities. His books include the first edition of *Designing and Deploying 802.11n Wireless Networks* (Cisco Press); as well as *Implementing 802.1X Security Solutions* and *Wireless Networking Handbook*. Geier has been active in the IEEE 802.11 Working Group and Wi-Fi Alliance; has chaired the IEEE Computer Society (Dayton Section) and various conferences; and served as expert witness in patent litigation related to wireless and cell ...

802.11 Wireless LAN Fundamentals gives you the background and practical details you need to select, design, install, and run your own WLAN. This book begins with an overview of Ethernet technologies, 802.11 standards, and physical layer technologies, providing you with a frame of reference for the rest of the book. Subsequent chapters address challenges and solutions associated with security, mobility, and QoS. Radio frequency fundamentals are reviewed in detail, as are site-surveying methods. A series of case studies that highlight WLAN design considerations in various business environments helps place all the concepts covered in this book in the context of real-world applications.

Make informed decisions about planning and installing 802.11 'Wi-Fi' wireless networks. This book helps you tackle the challenge, whether installing Wi-Fi within an existing corporate network or setting up a wireless network from scratch in any business

Learn the essentials of wireless networking Configure, manage, and secure wireless networks using the step-by-step details in this practical resource. *Wireless Network Administration: A Beginner's Guide* shows you how to work with the latest wireless networking standards, including the 802.11x family, on Windows, Mac, and Linux platforms. The book covers wireless network planning, design, hardware, services, protocols, device configuration, security, troubleshooting, and more. This hands-on guide will get you started administering wireless networks in no time. Get details on regulatory and technical organizations Learn about different wireless standards and the basics of RF technologies Understand and determine client-side hardware requirements, including chipsets and various wireless interfaces Select infrastructure-side wireless hardware, such as antennas, wireless access points (WAPs), residential gateways, switches/controllers, routers, and bridges Learn about WLANs, WWANs, WMANs, and WPANs Work with standard wireless network protocols--TCP/IP (IPv4 and IPv6) Understand DNS, DHCP, and other

supporting infrastructure services Secure wireless networks using cryptography
Configure infrastructure devices, including a wireless access point device and wireless network switches and controllers Configure and manage wireless Microsoft Windows, Mac OS X, and Linux clients Plan, design, survey, deploy, and troubleshoot your wireless network

Unlike most other references on the market, this next-generation resource goes well beyond Bluetooth specifications and thoroughly examines different implementation approaches - as taught by a "master instructor." This book discusses Bluetooth in detail, covering both operational characteristics as well as its use as a wireless communications system. It addresses the coexistence of Bluetooth with other wireless networks and provides information on the significant security problems that exist when communicating without wires. It is based on 2 very popular and highly effective courses the author has been teaching for more than a year.

The next frontier for wireless LANs is 802.11ac, a standard that increases throughput beyond one gigabit per second. This concise guide provides in-depth information to help you plan for 802.11ac, with technical details on design, network operations, deployment, and monitoring. Author Matthew Gast—an industry expert who led the development of 802.11-2012 and security task groups at the Wi-Fi Alliance—explains how 802.11ac will not only increase the speed of your network, but its capacity as well. Whether you need to serve more clients with your current level of throughput, or serve your existing client load with higher throughput, 802.11ac is the solution. This book gets you started.

Understand how the 802.11ac protocol works to improve the speed and capacity of a wireless LAN Explore how beamforming increases speed capacity by improving link margin, and lays the foundation for multi-user MIMO Learn how multi-user MIMO increases capacity by enabling an AP to send data to multiple clients simultaneously Plan when and how to upgrade your network to 802.11ac by evaluating client devices, applications, and network connections

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