Hacking Scada Industrial Control Systems The Pentest Guide

Secure Coding in C and C++Handbook of SCADA/Control Systems SecurityHandbook of SCADA/Control Systems SecurityCyber-security of SCADA and Other Industrial Control SystemsProtecting Industrial Control Systems from Electronic ThreatsHacking Exposed Industrial Control Systems: ICS and SCADA Security Secrets & SolutionsTribe of Hackers Red TeamSecurity of Industrial Control Systems and Cyber Physical SystemsRobust Control System NetworksCritical Infrastructure Protection IISecure Operations TechnologyIndustrial Automated Systems: Instrumentation and Motion ControlBlack IceProtecting Industrial Control Systems from Electronic ThreatsCritical Infrastructure Protection VIICybersecurity LexiconCybersecurity for Industrial Control SystemsCritical Infrastructure Protection XIIndustrial Automation and Control System Security PrinciplesCritical Infrastructure ProtectionCyber-security of SCADA and Other Industrial Control SystemsCritical Infrastructure Protection XHacking Scada/Industrial Control SystemsCyber-Assurance for the Internet of ThingsPenetration Testing and Network DefenseEmbedded Device SecurityScada and MeApplied Cyber Security and the Smart GridAt the AbyssIndustrial Network SecuritySandwormIndustrial CybersecurityIndustrial Automation with SCADAIndustrial Network SecuritySecuring SCADA SystemsCorporate Hacking and

Technology-driven CrimeCybersecurity for SCADA SystemsCybersecurity of Industrial SystemsICT Systems Security and Privacy ProtectionSCADA Security - What's broken and how to fix it

Secure Coding in C and C++

Bestselling author Ron Krutz once again demonstrates his ability to make difficult security topics approachable with this first in-depth look at SCADA (Supervisory Control And Data Acquisition) systems Krutz discusses the harsh reality that natural gas pipelines, nuclear plants, water systems, oil refineries, and other industrial facilities are vulnerable to a terrorist or disgruntled employee causing lethal accidents and millions of dollars of damage-and what can be done to prevent this from happening Examines SCADA system threats and vulnerabilities, the emergence of protocol standards, and how security controls can be applied to ensure the safety and security of our national infrastructure assets

Handbook of SCADA/Control Systems Security

The book delves into specific details and methodology of how to perform secuity assessments against the SCADA and Industrial control systems. The goal of this book is to provide a roadmap to the security assessors such as security analysts,

pentesters, security architects, etc. and use the existing techniques that they are aware about and apply them to perform security asessments against the SCADA world. The book shows that the same techniques used to assess IT environments can be used for assessing the efficacy of defenses that protect the ICS/SCADA systems as well.

Handbook of SCADA/Control Systems Security

Presents an Cyber-Assurance approach to the Internet of Things (IoT) This book discusses the cyber-assurance needs of the IoT environment, highlighting key information assurance (IA) IoT issues and identifying the associated security implications. Through contributions from cyber-assurance, IA, information security and IoT industry practitioners and experts, the text covers fundamental and advanced concepts necessary to grasp current IA issues, challenges, and solutions for the IoT. The future trends in IoT infrastructures, architectures and applications are also examined. Other topics discussed include the IA protection of IoT systems and information being stored, processed or transmitted from unauthorized access or modification of machine-2-machine (M2M) devices, radio-frequency identification (RFID) networks, wireless sensor networks, smart grids, and supervisory control and data acquisition (SCADA) systems. The book also discusses IA measures necessary to detect, protect, and defend IoT information and networks/systems to ensure their availability, integrity, authentication,

confidentially, and non-repudiation. Discusses current research and emerging trends in IA theory, applications, architecture and information security in the IoT based on theoretical aspects and studies of practical applications Aids readers in understanding how to design and build cyber-assurance into the IoT Exposes engineers and designers to new strategies and emerging standards, and promotes active development of cyber-assurance Covers challenging issues as well as potential solutions, encouraging discussion and debate amongst those in the field Cyber-Assurance for the Internet of Things is written for researchers and professionals working in the field of wireless technologies, information security architecture, and security system design. This book will also serve as a reference for professors and students involved in IA and IoT networking. Tyson T. Brooks is an Adjunct Professor in the School of Information Studies at Syracuse University; he also works with the Center for Information and Systems Assurance and Trust (CISAT) at Syracuse University, and is an information security technologist and science-practitioner. Dr. Brooks is the founder/Editor-in-Chief of the International Journal of Internet of Things and Cyber-Assurance, an associate editor for the Journal of Enterprise Architecture, the International Journal of Cloud Computing and Services Science, and the International Journal of Information and Network Security.

Cyber-security of SCADA and Other Industrial Control Systems

The information infrastructure - comprising computers, embedded devices, networks and software systems - is vital to operations in every sector: chemicals, commercial facilities, communications, critical manufacturing, dams, defense industrial base, emergency services, energy, financial services, food and agriculture, government facilities, healthcare and public health, information technology, nuclear reactors, materials and waste, transportation systems, and water and wastewater systems. Global business and industry, governments, indeed society itself, cannot function if major components of the critical information infrastructure are degraded, disabled or destroyed. Critical Infrastructure Protection XI describes original research results and innovative applications in the interdisciplinary field of critical infrastructure protection. Also, it highlights the importance of weaving science, technology and policy in crafting sophisticated, yet practical, solutions that will help secure information, computer and network assets in the various critical infrastructure sectors. Areas of coverage include: Infrastructure Protection, Infrastructure Modeling and Simulation, Industrial Control System Security, and Internet of Things Security. This book is the eleventh volume in the annual series produced by the International Federation for Information Processing (IFIP) Working Group 11.10 on Critical Infrastructure Protection, an international community of scientists, engineers, practitioners and policy makers dedicated to advancing research, development and implementation efforts focused on infrastructure protection. The book contains a selection of sixteen edited papers from the Eleventh Annual IFIP WG 11.10 International

Conference on Critical Infrastructure Protection, held at SRI International, Arlington, Virginia, USA in the spring of 2017. Critical Infrastructure Protection XI is an important resource for researchers, faculty members and graduate students, as well as for policy makers, practitioners and other individuals with interests in homeland security.

Protecting Industrial Control Systems from Electronic Threats

Your one-step guide to understanding industrial cyber security, its control systems, and its operations. About This Book Learn about endpoint protection such as anti-malware implementation, updating, monitoring, and sanitizing user workloads and mobile devices Filled with practical examples to help you secure critical infrastructure systems efficiently A step-by-step guide that will teach you the techniques and methodologies of building robust infrastructure systems Who This Book Is For If you are a security professional and want to ensure a robust environment for critical infrastructure systems, this book is for you. IT professionals interested in getting into the cyber security domain or who are looking at gaining industrial cyber security certifications will also find this book useful. What You Will Learn Understand industrial cybersecurity, its control systems and operations Design security-oriented architectures, network segmentation, and security support services Configure event monitoring systems, anti-malware applications, and endpoint security Gain knowledge of ICS risks, threat detection, and access

management Learn about patch management and life cycle management Secure your industrial control systems from design through retirement In Detail With industries expanding, cyber attacks have increased significantly. Understanding your control system's vulnerabilities and learning techniques to defend critical infrastructure systems from cyber threats is increasingly important. With the help of real-world use cases, this book will teach you the methodologies and security measures necessary to protect critical infrastructure systems and will get you up to speed with identifying unique challenges.Industrial cybersecurity begins by introducing Industrial Control System (ICS) technology, including ICS architectures, communication media, and protocols. This is followed by a presentation on ICS (in) security. After presenting an ICS-related attack scenario, securing of the ICS is discussed, including topics such as network segmentation, defense-in-depth strategies, and protective solutions. Along with practical examples for protecting industrial control systems, this book details security assessments, risk management, and security program development. It also covers essential cybersecurity aspects, such as threat detection and access management. Topics related to endpoint hardening such as monitoring, updating, and anti-malware implementations are also discussed. Style and approach A step-by-step guide to implement Industrial Cyber Security effectively.

Hacking Exposed Industrial Control Systems: ICS and SCADA

Security Secrets & Solutions

As industrial control systems (ICS), including SCADA, DCS, and other process control networks, become Internet-facing, they expose crucial services to attack. Threats like Duqu, a sophisticated worm found in the wild that appeared to share portions of its code with the Stuxnet worm, emerge with increasing frequency. Explaining how to develop and implement an effective cybersecurity program for ICS, Cybersecurity for Industrial Control Systems: SCADA, DCS, PLC, HMI, and SIS provides you with the tools to ensure network security without sacrificing the efficiency and functionality of ICS. Highlighting the key issues that need to be addressed, the book begins with a thorough introduction to ICS. It discusses business, cost, competitive, and regulatory drivers and the conflicting priorities of convergence. Next, it explains why security requirements differ from IT to ICS. It differentiates when standard IT security solutions can be used and where SCADA-specific practices are required. The book examines the plethora of potential threats to ICS, including hi-jacking malware, botnets, spam engines, and porn dialers. It outlines the range of vulnerabilities inherent in the ICS quest for efficiency and functionality that necessitates risk behavior such as remote access and control of critical equipment. Reviewing risk assessment techniques and the evolving risk assessment process, the text concludes by examining what is on the horizon for ICS security, including IPv6, ICSv6 test lab designs, and IPv6 and ICS sensors.

Tribe of Hackers Red Team

Aimed at both the novice and expert in IT security and industrial control systems (ICS), this book will help readers gain a better understanding of protecting ICSs from electronic threats. Cyber security is getting much more attention and SCADA security (Supervisory Control and Data Acquisition) is a particularly important part of this field, as are Distributed Control Systems (DCS), Programmable Logic Controllers (PLCs), Remote Terminal Units (RTUs), Intelligent Electronic Devices (IEDs)-and all the other, field controllers, sensors, and drives, emission controls, and that make up the intelligence of modern industrial buildings and facilities. This book will help the reader better understand what is industrial control system cyber security, why is it different than IT security, what has really happened to date, and what needs to be done. Loads of practical advice is offered on everything from clarity on current cyber-security systems and how they can be integrated into general IT systems, to how to conduct risk assessments and how to obtain certifications, to future trends in legislative and regulatory issues affecting industrial security.

Security of Industrial Control Systems and Cyber Physical Systems

The availability and security of many services we rely upon including water treatment, electricity, healthcare, transportation, and financial transactions are routinely put at risk by cyber threats. The Handbook of SCADA/Control Systems Security is a fundamental outline of security concepts, methodologies, and relevant information pertaining to the

Robust Control System Networks

“The Cold War . . . was a fight to the death,” notes Thomas C. Reed, “fought with bayonets, napalm, and high-tech weaponry of every sort—save one. It was not fought with nuclear weapons.” With global powers now engaged in cataclysmic encounters, there is no more important time for this essential, epic account of the past half century, the tense years when the world trembled At the Abyss. Written by an author who rose from military officer to administration insider, this is a vivid, unvarnished view of America’s fight against Communism, from the end of WWII to the closing of the Strategic Air Command, a work as full of human interest as history, rich characters as bloody conflict. Among the unforgettable figures who devised weaponry, dictated policy, or deviously spied and subverted: Whittaker Chambers—the translator whose book, Witness, started the hunt for bigger game: Communists in our government; Lavrenti Beria—the head of the Soviet nuclear weapons program who apparently killed Joseph Stalin; Col. Ed Hall—the leader of America’s advanced missile system, whose own brother was a Soviet spy; Adm.

James Stockwell—the prisoner of war and eventual vice presidential candidate who kept his terrible secret from the Vietnamese for eight long years; Nancy Reagan—the “Queen of Hearts,” who was both loving wife and instigator of palace intrigue in her husband’s White House. From Eisenhower’s decision to beat the Russians at their own game, to the “Missile Gap” of the Kennedy Era, to Reagan’s vow to “lean on the Soviets until they go broke”—all the pivotal events of the period are portrayed in new and stunning detail with information only someone on the front lines and in backrooms could know. Yet At the Abyss is more than a riveting and comprehensive recounting. It is a cautionary tale for our time, a revelation of how, “those years . . . came to be known as the Cold War, not World War III.” From the Hardcover edition.

Critical Infrastructure Protection II

This book provides a comprehensive overview of the fundamental security of Industrial Control Systems (ICSs), including Supervisory Control and Data Acquisition (SCADA) systems and touching on cyber-physical systems in general. Careful attention is given to providing the reader with clear and comprehensive background and reference material for each topic pertinent to ICS security. This book offers answers to such questions as: Which specific operating and security issues may lead to a loss of efficiency and operation? What methods can be used to monitor and protect my system? How can I design my system to reduce

threats?This book offers chapters on ICS cyber threats, attacks, metrics, risk, situational awareness, intrusion detection, and security testing, providing an advantageous reference set for current system owners who wish to securely configure and operate their ICSs. This book is appropriate for non-specialists as well. Tutorial information is provided in two initial chapters and in the beginnings of other chapters as needed. The book concludes with advanced topics on ICS governance, responses to attacks on ICS, and future security of the Internet of Things.

Secure Operations Technology

This book constitutes the refereed proceedings of the 29th IFIP TC 11 International Information Security and Privacy Conference, SEC 2014, held in Marrakech, Morocco, in June 2014. The 27 revised full papers and 14 short papers presented were carefully reviewed and selected from 151 submissions. The papers are organized in topical sections on intrusion detection, data security, mobile security, privacy, metrics and risk assessment, information flow control, identity management, identifiability and decision making, malicious behavior and fraud and organizational security.

Industrial Automated Systems: Instrumentation and Motion

Control

This book brings together timely and comprehensive information needed for an Automation Engineer to work in the challenging and changing area of Industrial Automation. It covers all the basic SCADA components and how they combine to create a secure industrial SCADA system in its totality. The book Gives a deep understanding of the present industrial SCADA technology. Provides a comprehensive description of the Data Acquisition System and Advanced Communication Technologies. Imparts an essential knowledge of SCADA protocols used in industrial automation. Comprehensive coverage of cyber security challenges and solutions. Covers the state-of-the-art secure Communication, key strategies, SCADA protocols, and deployment aspects in detail. Enables practitioners to learn about upcoming trends, Technocrats to share new directions in research, and government and industry decision-makers to formulate major strategic decisions regarding implementation of a secure Industrial SCADA technology. Acquaints the current and leading-edge research on SCADA security from a holistic standpoint.

Black Ice

Nowadays one only needs to read the newspaper headlines to appreciate the

importance of Industrial Network Security. Almost daily an article comes out describing the threat to our critical infrastructure, from spies in our electrical grid to the looming threat of cyberwar. Whether we talk about process control systems that run chemical plants and refineries, supervisory control and data acquisition (SCADA) systems for utilities, or factory automation systems for discrete manufacturing, the backbone of our nationA's critical infrastructure consists of these industrial networks and is dependent on their continued operation. This easy-to-read book introduces managers, engineers, technicians, and operators on how to keep our industrial networks secure amid rising threats from hackers, disgruntled employees, and even cyberterrorists.

Protecting Industrial Control Systems from Electronic Threats

This book provides a comprehensive overview of the fundamental security of Industrial Control Systems (ICSs), including Supervisory Control and Data Acquisition (SCADA) systems and touching on cyber-physical systems in general. Careful attention is given to providing the reader with clear and comprehensive background and reference material for each topic pertinent to ICS security. This book offers answers to such questions as: Which specific operating and security issues may lead to a loss of efficiency and operation? What methods can be used to monitor and protect my system? How can I design my system to reduce threats?This book offers chapters on ICS cyber threats, attacks, metrics, risk,

situational awareness, intrusion detection, and security testing, providing an advantageous reference set for current system owners who wish to securely configure and operate their ICSs. This book is appropriate for non-specialists as well. Tutorial information is provided in two initial chapters and in the beginnings of other chapters as needed. The book concludes with advanced topics on ICS governance, responses to attacks on ICS, and future security of the Internet of Things.

Critical Infrastructure Protection VII

Author Robert Lee created this wonderful illustrated guide to SCADA to educate and inform. Supervisory Control And Data Acquisition (SCADA) systems pervade every part of our technological life. They are embedded in hospitals, power grids, and manufacturing plants. Most systems were designed and deployed well before the modern day Internet and the incredible amount of cyber attacks we see in the news daily. SCADA systems are subject to those attacks and most are vulnerable. Understanding this vulnerability and moving the conversation towards protecting the critical infrastructure controlled by SCADA systems is the purpose of SCADA and Me. This easy-to-consume book is a must-have for anyone involved in cyber education.

Cybersecurity Lexicon

Aimed at both the novice and expert in IT security and industrial control systems (ICS), this book will help readers gain a better understanding of protecting ICSs from electronic threats. Cyber security is getting much more attention and SCADA security (Supervisory Control and Data Acquisition) is a particularly important part of this field, as are Distributed Control Systems (DCS), Programmable Logic Controllers (PLCs), Remote Terminal Units (RTUs), Intelligent Electronic Devices (IEDs)-and all the other, field controllers, sensors, and drives, emission controls, and that make up the intelligence of modern industrial buildings and facilities. This book will help the reader better understand what is industrial control system cyber security, why is it different than IT security, what has really happened to date, and what needs to be done. Loads of practical advice is offered on everything from clarity on current cyber-security systems and how they can be integrated into general IT systems, to how to conduct risk assessments and how to obtain certifications, to future trends in legislative and regulatory issues affecting industrial security.

Cybersecurity for Industrial Control Systems

Modern attacks routinely breach SCADA networks that are defended to IT

standards. This is unacceptable. Defense in depth has failed us. In ""SCADA Security"" Ginter describes this failure and describes an alternative. Strong SCADA security is possible, practical, and cheaper than failed, IT-centric, defense-in-depth. While nothing can be completely secure, we decide how high to set the bar for our attackers. For important SCADA systems, effective attacks should always be ruinously expensive and difficult. We can and should defend our SCADA systems so thoroughly that even our most resourceful enemies tear their hair out and curse the names of our SCADA systems' designers.

Critical Infrastructure Protection XI

Many people think of the Smart Grid as a power distribution group built on advanced smart metering—but that’s just one aspect of a much larger and more complex system. The "Smart Grid" requires new technologies throughout energy generation, transmission and distribution, and even the homes and businesses being served by the grid. This also represents new information paths between these new systems and services, all of which represents risk, requiring a more thorough approach to where and how cyber security controls are implemented. This insight provides a detailed architecture of the entire Smart Grid, with recommended cyber security measures for everything from the supply chain to the consumer. Discover the potential of the Smart Grid Learn in depth about its systems See its vulnerabilities and how best to protect it

Industrial Automation and Control System Security Principles

"The security of information systems has not improved at a rate consistent with the growth and sophistication of the attacks being made against them. To address this problem, we must improve the underlying strategies and techniques used to create our systems. Specifically, we must build security in from the start, rather than append it as an afterthought. That's the point of Secure Coding in C and C++. In careful detail, this book shows software developers how to build high-quality systems that are less vulnerable to costly and even catastrophic attack. It's a book that every developer should read before the start of any serious project." --Frank Abagnale, author, lecturer, and leading consultant on fraud prevention and secure documents Learn the Root Causes of Software Vulnerabilities and How to Avoid Them Commonly exploited software vulnerabilities are usually caused by avoidable software defects. Having analyzed nearly 18,000 vulnerability reports over the past ten years, the CERT/Coordination Center (CERT/CC) has determined that a relatively small number of root causes account for most of them. This book identifies and explains these causes and shows the steps that can be taken to prevent exploitation. Moreover, this book encourages programmers to adopt security best practices and develop a security mindset that can help protect software from tomorrow's attacks, not just today's. Drawing on the CERT/CC's reports and conclusions, Robert Seacord systematically identifies the program errors most likely to lead to security breaches, shows how they can be exploited,

reviews the potential consequences, and presents secure alternatives. Coverage includes technical detail on how to Improve the overall security of any C/C++ application Thwart buffer overflows and stack-smashing attacks that exploit insecure string manipulation logic Avoid vulnerabilities and security flaws resulting from the incorrect use of dynamic memory management functions Eliminate integer-related problems: integer overflows, sign errors, and truncation errors Correctly use formatted output functions without introducing format-string vulnerabilities Avoid I/O vulnerabilities, including race conditions Secure Coding in C and C++ presents hundreds of examples of secure code, insecure code, and exploits, implemented for Windows and Linux. If you're responsible for creating secure C or C++ software--or for keeping it safe--no other book offers you this much detailed, expert assistance.

Critical Infrastructure Protection

Learn to defend crucial ICS/SCADA infrastructure from devastating attacks the tried-and-true Hacking Exposed way This practical guide reveals the powerful weapons and devious methods cyber-terrorists use to compromise the devices, applications, and systems vital to oil and gas pipelines, electrical grids, and nuclear refineries. Written in the battle-tested Hacking Exposed style, the book arms you with the skills and tools necessary to defend against attacks that are debilitating—and potentially deadly. Hacking Exposed Industrial Control Systems: ICS and SCADA

Security Secrets & Solutions explains vulnerabilities and attack vectors specific to ICS/SCADA protocols, applications, hardware, servers, and workstations. You will learn how hackers and malware, such as the infamous Stuxnet worm, can exploit them and disrupt critical processes, compromise safety, and bring production to a halt. The authors fully explain defense strategies and offer ready-to-deploy countermeasures. Each chapter features a real-world case study as well as notes, tips, and cautions. Features examples, code samples, and screenshots of ICS/SCADA-specific attacks Offers step-by-step vulnerability assessment and penetration test instruction Written by a team of ICS/SCADA security experts and edited by Hacking Exposed veteran Joel Scambray

Cyber-security of SCADA and Other Industrial Control Systems

This book is an introduction for the reader into the wonderful world of embedded device exploitation. The book is supposed to be a tutorial guide that helps a reader understand the various skills required for hacking an embedded device. As the world is getting more and more into the phenomenon of "Internet of Things", such skill sets can be useful to hack from a simple intelligent light bulb to hacking into a car.

Critical Infrastructure Protection X

The information infrastructure--comprising computers, embedded devices, networks and software systems--is vital to operations in every sector. Global business and industry, governments, and society itself, cannot function effectively if major components of the critical information infrastructure are degraded, disabled or destroyed. This book contains a selection of 27 edited papers from the First Annual IFIP WG 11.10 International Conference on Critical Infrastructure Protection.

Hacking Scada/Industrial Control Systems

The practical guide to simulating, detecting, and responding to network attacks Create step-by-step testing plans Learn to perform social engineering and host reconnaissance Evaluate session hijacking methods Exploit web server vulnerabilities Detect attempts to breach database security Use password crackers to obtain access information Circumvent Intrusion Prevention Systems (IPS) and firewall protections and disrupt the service of routers and switches Scan and penetrate wireless networks Understand the inner workings of Trojan Horses, viruses, and other backdoor applications Test UNIX, Microsoft, and Novell servers for vulnerabilities Learn the root cause of buffer overflows and how to prevent them Perform and prevent Denial of Service attacks Penetration testing is a growing field but there has yet to be a definitive resource that instructs ethical hackers on how to perform a penetration test with the ethics and responsibilities of

testing in mind. Penetration Testing and Network Defense offers detailed steps on how to emulate an outside attacker in order to assess the security of a network. Unlike other books on hacking, this book is specifically geared towards penetration testing. It includes important information about liability issues and ethics as well as procedures and documentation. Using popular open-source and commercial applications, the book shows you how to perform a penetration test on an organization's network, from creating a test plan to performing social engineering and host reconnaissance to performing simulated attacks on both wired and wireless networks. Penetration Testing and Network Defense also goes a step further than other books on hacking, as it demonstrates how to detect an attack on a live network. By detailing the method of an attack and how to spot an attack on your network, this book better prepares you to guard against hackers. You will learn how to configure, record, and thwart these attacks and how to harden a system to protect it against future internal and external attacks. Full of real-world examples and step-by-step procedures, this book is both an enjoyable read and full of practical advice that will help you assess network security and develop a plan for locking down sensitive data and company resources. "This book goes to great lengths to explain the various testing approaches that are used today and gives excellent insight into how a responsible penetration testing specialist executes his trade." -Bruce Murphy, Vice President, World Wide Security Services, Cisco Systems®

Cyber-Assurance for the Internet of Things

From the researcher who was one of the first to identify and analyze the infamous industrial control system malware "Stuxnet," comes a book that takes a new, radical approach to making Industrial control systems safe from such cyber attacks: design the controls systems themselves to be "robust." Other security experts advocate risk management, implementing more firewalls and carefully managing passwords and access. Not so this book: those measures, while necessary, can still be circumvented. Instead, this book shows in clear, concise detail how a system that has been set up with an eye toward quality design in the first place is much more likely to remain secure and less vulnerable to hacking, sabotage or malicious control. It blends several well-established concepts and methods from control theory, systems theory, cybernetics and quality engineering to create the ideal protected system. The book's maxim is taken from the famous quality engineer William Edwards Deming, "If I had to reduce my message to management to just a few words, I'd say it all has to do with reducing variation." Highlights include: - An overview of the problem of "cyber fragility" in industrial control systems - How to make an industrial control system "robust," including principal design objectives and overall strategic planning - Why using the methods of quality engineering like the Taguchi method, SOP and UML will help to design more "armored" industrial control systems.

Penetration Testing and Network Defense

SCADA technology quietly operates in the background of critical utility and industrial facilities nationwide. "Cybersecurity for SCADA Systems" provides a high-level overview of this unique technology, with an explanation of each market segment. Readers will understand the vital issues, and learn strategies for decreasing or eliminating system vulnerabilities.

Embedded Device Security

Want Red Team offensive advice from the biggest cybersecurity names in the industry? Join our tribe. The Tribe of Hackers team is back with a new guide packed with insights from dozens of the world's leading Red Team security specialists. With their deep knowledge of system vulnerabilities and innovative solutions for correcting security flaws, Red Team hackers are in high demand. Tribe of Hackers Red Team: Tribal Knowledge from the Best in Offensive Cybersecurity takes the valuable lessons and popular interview format from the original Tribe of Hackers and dives deeper into the world of Red Team security with expert perspectives on issues like penetration testing and ethical hacking. This unique guide includes inspiring interviews from influential security specialists, including David Kennedy, Rob Fuller, Jayson E. Street, and Georgia Weidman, who share their real-world

learnings on everything from Red Team tools and tactics to careers and communication, presentation strategies, legal concerns, and more Learn what it takes to secure a Red Team job and to stand out from other candidates Discover how to hone your hacking skills while staying on the right side of the law Get tips for collaborating on documentation and reporting Explore ways to garner support from leadership on your security proposals Identify the most important control to prevent compromising your network Uncover the latest tools for Red Team offensive security Whether you're new to Red Team security, an experienced practitioner, or ready to lead your own team, Tribe of Hackers Red Team has the real-world advice and practical guidance you need to advance your information security career and ready yourself for the Red Team offensive.

Scada and Me

As the sophistication of cyber-attacks increases, understanding how to defend critical infrastructure systems—energy production, water, gas, and other vital systems—becomes more important, and heavily mandated. Industrial Network Security, Second Edition arms you with the knowledge you need to understand the vulnerabilities of these distributed supervisory and control systems. The book examines the unique protocols and applications that are the foundation of industrial control systems, and provides clear guidelines for their protection. This how-to guide gives you thorough understanding of the unique challenges facing

critical infrastructures, new guidelines and security measures for critical infrastructure protection, knowledge of new and evolving security tools, and pointers on SCADA protocols and security implementation. All-new real-world examples of attacks against control systems, and more diagrams of systems Expanded coverage of protocols such as 61850, Ethernet/IP, CIP, ISA-99, and the evolution to IEC62443 Expanded coverage of Smart Grid security New coverage of signature-based detection, exploit-based vs. vulnerability-based detection, and signature reverse engineering

Applied Cyber Security and the Smart Grid

"This book addresses various aspects of hacking and technology-driven crime, including the ability to understand computer-based threats, identify and examine attack dynamics, and find solutions"--Provided by publisher.

At the Abyss

INDUSTRIAL AUTOMATED SYSTEMS: INSTRUMENTATION AND MOTION CONTROL, is the ideal book to provide readers with state-of-the art coverage of the full spectrum of industrial maintenance and control, from servomechanisms to instrumentation. Readers will learn about components, circuits, instruments,

control techniques, calibration, tuning and programming associated with industrial automated systems. INDUSTRIAL AUTOMATED SYSTEMS: INSTRUMENTATION AND MOTION CONTROL, focuses on operation, rather than mathematical design concepts. It is formatted into sections so that it can be used for a variety of courses, such as electrical motors, sensors, variable speed drives, programmable logic controllers, servomechanisms, and various instrumentation and process classes. This book also offers readers a broader coverage of industrial maintenance and automation information than other books and provides them with a more extensive collection of supplements, including a lab manual and two hundred animated multimedia lessons on a CD. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Industrial Network Security

IT-SEC protects the information. SEC-OT protects physical, industrial operations from information, more specifically from attacks embedded in information. When the consequences of compromise are unacceptable ? unscheduled downtime, impaired product quality and damaged equipment ? software-based IT-SEC defences are not enough. Secure Operations Technology (SEC-OT) is a perspective, a methodology, and a set of best practices used at secure industrial sites. SEC-OT demands cyber-physical protections - because all software can be compromised.

SEC-OT strictly controls the flow of information ? because all information can encode attacks. SEC-OT uses a wide range of attack capabilities to determine the strength of security postures - because nothing is secure. This book documents the Secure Operations Technology approach, including physical offline and online protections against cyber attacks and a set of twenty standard cyber-attack patterns to use in risk assessments.

Sandworm

Originally published in hardcover in 2019 by Doubleday.

Industrial Cybersecurity

How to manage the cybersecurity of industrial systems is a crucial question. To implement relevant solutions, the industrial manager must have a clear understanding of IT systems, of communication networks and of control-command systems. They must also have some knowledge of the methods used by attackers, of the standards and regulations involved and of the available security solutions. Cybersecurity of Industrial Systems presents these different subjects in order to give an in-depth overview and to help the reader manage the cybersecurity of their installation. The book addresses these issues for both classic SCADA architecture

systems and Industrial Internet of Things (IIoT) systems.

Industrial Automation with SCADA

Industrial Network Security

Learn the threats and vulnerabilities of critical infrastructure to cybersecurity attack. Definitions are provided for cybersecurity technical terminology and hacker jargon related to automated control systems common to buildings, utilities, and industry. Buildings today are automated because the systems are complicated and so we depend on the building controls system (BCS) to operate the equipment. We also depend on a computerized maintenance management system (CMMS) to keep a record of what was repaired and to schedule required maintenance. SCADA, BCS, and CMMS all can be hacked. The Cybersecurity Lexicon puts cyber jargon related to building controls all in one place. The book is a handy desk reference for professionals interested in preventing cyber-physical attacks against their facilities in the real world. Discussion of attacks on automated control systems is clouded by a lack of standard definitions and a general misunderstanding about how bad actors can actually employ cyber technology as a weapon in the real world. This book covers: Concepts related to cyber-physical attacks and building hacks are

listed alphabetically with text easily searchable by key phrase Definitions are providesd for technical terms related to equipment controls common to industry, utilities, and buildings—much of the terminology also applies to cybersecurity in general What You'll learn Get a simple explanation of cybersecurity attack concepts Quickly assess the threat of the most common types of cybersecurity attacks to your facilities in real time Find the definition of facilities, engineering, and cybersecurity acronyms Who This Book Is For Architects, engineers, building managers, students, researchers, and consultants interested in cybersecurity attacks against facilities in the real world. Also for IT professionals getting involved in cybersecurity responsibilities.

Securing SCADA Systems

Looks at how cyberterrorism can occur, what its implications are in the United States and the world, and ways the United States is preparing for and preventing a cyberterrorism attack.

Corporate Hacking and Technology-driven Crime

This book constitutes the refereed proceedings of the First Conference on Cybersecurity of Industrial Control Systems, CyberICS 2015, and the First

Workshop on the Security of Cyber Physical Systems, WOS-CPS 2015, held in Vienna, Austria, in September 2015 in conjunction with ESORICS 2015, the 20th annual European Symposium on Research in Computer Security. The 6 revised full papers and 2 short papers of CyberICS 2015 presented together with 3 revised full papers of WOS-CPS 2015 were carefully reviewed and selected from 28 initial submissions. CyberICS 2015 focuses on topics covering ICSs, including cyber protection and cyber defense of SCADA systems, plant control systems, engineering workstations, substation equipment, programmable logic controllers, PLCs, and other industrial control system. WOS-CPS 2015 deals with the Security of Cyber Physical Systems, that exist everywhere around us, and range in size, complexity and criticality, from embedded systems used in smart vehicles, to SCADA systems in smart grids to control systems in water distribution systems, to smart transportation systems etc.

Cybersecurity for SCADA Systems

The information infrastructure - comprising computers, embedded devices, networks and software systems - is vital to day-to-day operations in every sector: information and telecommunications, banking and finance, energy, chemicals and hazardous materials, agriculture, food, water, public health, emergency services, transportation, postal and shipping, government and defense. Global business and industry, governments, indeed society itself, cannot function effectively if major

components of the critical information infrastructure are degraded, disabled or destroyed. Critical Infrastructure Protection describes original research results and innovative applications in the interdisciplinary field of critical infrastructure protection. Also, it highlights the importance of weaving science, technology and policy in crafting sophisticated, yet practical, solutions that will help secure information, computer and network assets in the various critical infrastructure sectors. Areas of coverage include: themes and issues; control systems security; infrastructure modeling and simulation; risk and impact assessment. This book is the tenth volume in the annual series produced by the International Federation for Information Processing (IFIP) Working Group 11.10 on Critical Infrastructure Protection, an international community of scientists, engineers, practitioners and policy makers dedicated to advancing research, development and implementation efforts focused on infrastructure protection. The book contains a selection of fourteen edited papers from the Tenth Annual IFIP WG 11.10 International Conference on Critical Infrastructure Protection, held at SRI International, Arlington, Virginia, USA in the spring of 2016. Critical Infrastructure Protection is an important resource for researchers, faculty members and graduate students, as well as for policy makers, practitioners and other individuals with interests in homeland security.

Cybersecurity of Industrial Systems

Critical Infrastructure Protection II describes original research results and innovative applications in the interdisciplinary field of critical infrastructure protection. Also, it highlights the importance of weaving science, technology and policy in crafting sophisticated solutions that will help secure information, computer and network assets in the various critical infrastructure sectors. This book is the second volume in the annual series produced by the International Federation for Information Processing (IFIP) Working Group 11.10 on Critical Infrastructure Protection, an international community of scientists, engineers, practitioners and policy makers dedicated to advancing research, development and implementation efforts focused on infrastructure protection. The book contains a selection of twenty edited papers from the Second Annual IFIP WG 11.10 International Conference on Critical Infrastructure Protection held at George Mason University, Arlington, Virginia, USA in the spring of 2008.

ICT Systems Security and Privacy Protection

This comprehensive handbook covers fundamental security concepts, methodologies, and relevant information pertaining to supervisory control and data acquisition (SCADA) and other industrial control systems used in utility and industrial facilities worldwide. A community-based effort, it collects differing expert perspectives, ideas, and attitudes r

SCADA Security - What's broken and how to fix it

The information infrastructure - comprising computers, embedded devices, networks and software systems - is vital to day-to-day operations in every sector: information and telecommunications, banking and finance, energy, chemicals and hazardous materials, agriculture, food, water, public health, emergency services, transportation, postal and shipping, government and defense. Global business and industry, governments, indeed society itself, cannot function effectively if major components of the critical information infrastructure are degraded, disabled or destroyed. Critical Infrastructure Protection VII describes original research results and innovative applications in the interdisciplinary field of critical infrastructure protection. Also, it highlights the importance of weaving science, technology and policy in crafting sophisticated, yet practical, solutions that will help secure information, computer and network assets in the various critical infrastructure sectors. Areas of coverage include: themes and issues; control systems security; infrastructure security; infrastructure modeling and simulation; and risk assessment. This book is the seventh volume in the annual series produced by the International Federation for Information Processing (IFIP) Working Group 11.10 on Critical Infrastructure Protection, an international community of scientists, engineers, practitioners and policy makers dedicated to advancing research, development and implementation efforts focused on infrastructure protection. The book contains a selection of fifteen edited papers from the Seventh Annual IFIP WG

11.10 International Conference on Critical Infrastructure Protection, held at George Washington University, Washington, DC, USA in the spring of 2013. Critical Infrastructure Protection VII is an important resource for researchers, faculty members and graduate students, as well as for policy makers, practitioners and other individuals with interests in homeland security. Jonathan Butts is an Assistant Professor of Computer Science at the Air Force Institute of Technology, Wright-Patterson Air Force Base, Ohio, USA. Sujeet Shenoi is the F.P. Walter Professor of Computer Science and a Professor of Chemical Engineering at the University of Tulsa, Tulsa, Oklahoma, USA.