THE MOST TRUSTED SOURCE FOR INFORMATION SECURITY TRAINING, CERTIFICATION, AND RESEARCH

SANS Rocky Mountain 2016

Denver, CO | July 11-16

SANS OFFERS HANDS-ON, IMMERSION-STYLE

INFORMATION SECURITY TRAINING

TAUGHT BY REAL-WORLD PRACTITIONERS

"SANS courses are eye opening for everyone who cares about securing their information!"

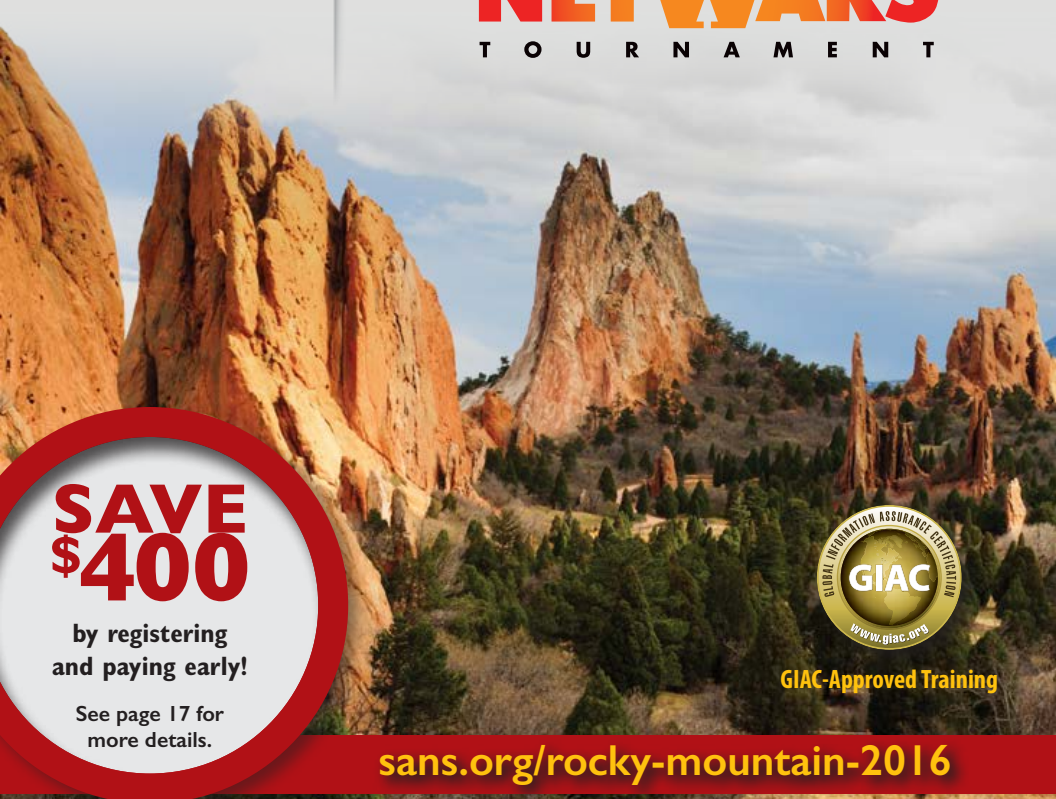
-Don Cervone, Bridgewater Associates

Protect your company and advance your career with information security training this summer from SANS

10 courses on cyber defense, pen testing, digital forensics, and security management!

ALSO FEATURING

CORE NETWARS TOURNAMENT



SAVE $400

by registering and paying early!

See page 17 for more details.

GIAC-Approved Training

sans.org/rocky-mountain-2016

SANS Instructors

SANS instructors are real-world practitioners who specialize in the subjects they teach. All instructors undergo rigorous training and testing in order to teach SANS courses. This guarantees that what you learn in class will be up-to-date and relevant to your job. The SANS Rocky Mountain 2016 lineup of instructors includes:

Ovie Carroll
Certified Instructor

Eric Conrad
Senior Instructor

Adrien de Beaupre
Certified Instructor

Jonathan Ham
Certified Instructor

G. Mark Hardy
Certified Instructor

David R. Miller
Certified Instructor

Bryan Simon
Certified Instructor

John Strand
Senior Instructor

James Tarala
Senior Instructor

Jake Williams
Certified Instructor

Evening Bonus Sessions

Take advantage of these extra evening presentations and add more value to your training. Learn more on page 12.

KEYNOTE: ***Using an Open-Source Threat Model for Prioritized Defense*** – James Tarala

HTTPDeux – Adrien de Beaupre

Offensive Countermeasures, Active Defenses, and Internet Tough Guys – John Strand

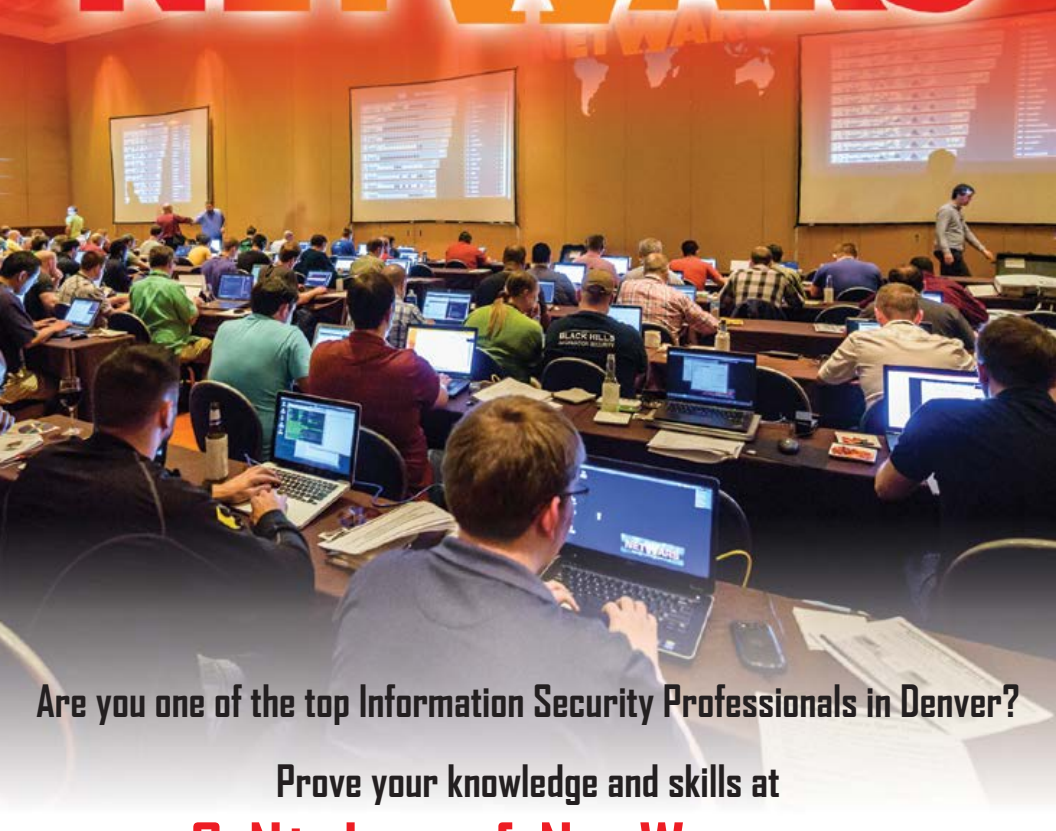
How Not to Suck at Cyber Attack Attribution – Jake Williams

How to Commit Card Fraud – G. Mark Hardy

Be sure to register and pay by May 18th for a $400 tuition discount!

Courses-at-a-Glance

NETWARS



Are you one of the top Information Security Professionals in Denver?

Prove your knowledge and skills at

2 Nights of NetWars at SANS Rocky Mountain 2016!

THU, JULY 14 – FRI, JULY 15 6:30-9:30 PM

Come and join us for this exciting event to test your skills in a challenging and fun learning environment. Registration for NetWars is **FREE OF CHARGE TO ALL STUDENTS AT SANS ROCKY MOUNTAIN 2016.** External participants are welcome to join for an entry fee of $1,450.

SANS NetWars is a dynamic cyber range that allows participants to build, practice, and measure their skills in a real-world environment using defensive, analytic, and offensive tactics. We designed NetWars to appeal to a wide range of participant skill sets by using a system with different levels.

All players start at Level 1, which measures foundational cybersecurity skills. More skilled players can rise rapidly through the ranks to a level suitable for their skill set – top players can make it to Level 4, and only the best of the best can reach level 5.

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SEC401:
Security Essentials Bootcamp Style

SANS

Six-Day Program
Mon, July 11 - Sat, July 16
9:00am - 7:00pm (Days 1-5)
9:00am - 5:00pm (Day 6)
Laptop Required
46 CPEs
Instructor: Bryan Simon

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WITH THIS COURSE
sans.org/ondemand

sans.org/simulcast

"The success of this course rides on the delivery of the instructor. Bryan makes a 10-hour day go by very fast, and his teaching is stellar."
-Carroll Anne Smith, DHS CBP OIJ CSPD

Learn the most effective steps to prevent attacks and detect adversaries with actionable techniques that you can directly apply when you get back to work. Learn tips and tricks from the experts so that you can win the battle against the wide range of cyber adversaries that want to harm your environment.

Learn to build a security roadmap that can scale today and into the future.

SEC401: Security Essentials Bootcamp Style is focused on teaching you the essential information security skills and techniques you need to protect and secure your organization's critical information assets and business systems. This course will show you how to prevent your organization's security problems from being headline news in the *Wall Street Journal*!

Who Should Attend

- Security professionals who want to fill the gaps in their understanding of technical information security
- Managers who want to understand information security beyond simple terminology and concepts
- Operations personnel who do not have security as their primary job function but need an understanding of security to be effective
- IT engineers and supervisors who need to know how to build a defensible network against attacks

PREVENTION IS IDEAL BUT DETECTION IS A MUST.

With the rise in advanced persistent threats, it is almost inevitable that organizations will be targeted. Whether the attacker is successful in penetrating an organization's network depends on the effectiveness of the organization's defense. Defending against attacks is an ongoing challenge, with new threats emerging all the time, including the next generation of threats. Organizations need to understand what really works in cybersecurity. What has worked, and will always work, is taking a risk-based approach to cyber defense. Before your organization spends a dollar of its IT budget or allocates any resources or time to anything in the name of cybersecurity, three questions must be answered:

- What is the risk?
- Is it the highest priority risk?
- What is the most cost-effective way to reduce the risk?

Security is all about making sure you focus on the right areas of defense. In SEC401 you will learn the language and underlying theory of computer and information security. You will gain the essential and effective security knowledge you'll need if you are given the responsibility for securing systems and/or organizations. This course meets both of the key promises SANS makes to our students: (1) You will learn up-to-the-minute skills you can put into practice immediately upon returning to work; and (2) You will be taught by the best security instructors in the industry.

Bryan Simon *SANS Certified Instructor*

Bryan Simon is an internationally recognized expert in cybersecurity and has been working in the information technology and security field since 1991. Over the course of his career, he has held various technical and managerial positions in the education, environmental, accounting, and financial services sectors. Bryan speaks on a regular basis at international conferences and with the press on cybersecurity issues. He has instructed individuals from organizations such as the FBI, NATO, and the UN in matters of cybersecurity, on two continents. Bryan has specialized expertise in defensive and offensive capabilities. He has received recognition for his work in IT security, and was most recently profiled by McAfee (part of Intel Security) as an IT Hero. Bryan holds 11 GIAC certifications including GSEC, GCWN, GCIH, GCFA, GPEN, GWAPT, GAWN, GISP, GCIA, GCED, and GCUX. Bryan's scholastic achievements have resulted in the honor of sitting as a current member of the Advisory Board for the SANS Institute, and his acceptance into the prestigious SANS Cyber Guardian program. Bryan is a SANS instructor for SEC401, SEC501, SEC505, and SEC511. @BryanOnSecurity

SEC503:
Intrusion Detection In-Depth

SANS

Six-Day Program
Mon, July 11 - Sat, July 16
9:00am - 5:00pm
36 CPEs
Laptop Required
Instructor: Jonathan Ham

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Bundle OnDemand
with this course
sans.org/ondemand

"This training allowed me to gain the knowledge to better defend systems and understand the underlying concept, communication, and means of analysis."
-Ryan Hunt, Alert Logic

Reports of prominent organizations being hacked and suffering irreparable reputational damage have become all too common. How can you prevent your company from becoming the next victim of a major cyber attack?

Who Should Attend

- Intrusion detection analysts (all levels)
- Network engineers
- System, security, and network administrators
- Hands-on security managers

SEC503: Intrusion Detection In-Depth delivers the technical knowledge, insight, and hands-on training you need to defend your network with confidence. You will learn about the underlying theory of TCP/IP and the most-used application protocols, such as HTTP, so that you can intelligently examine network traffic for signs of an intrusion. You will get plenty of practice learning to configure and master different open-source tools like tcpdump, Wireshark, Snort, Bro, and many more. Daily hands-on exercises suitable for all experience levels reinforce the course book material so that you can transfer knowledge to execution. Basic exercises include assistive hints while advanced options provide a more challenging experience for students who may already know the material or who have quickly mastered new material. In addition, most exercises include an "extra credit" stumper question intended to challenge even the most advanced student.

Industry expert Mike Poor has created a VMware distribution, Packetrix, specifically for this course. As the name implies, Packetrix contains many of the tricks of the trade to perform packet and traffic analysis. It is supplemented with demonstration "pcaps," which are files that contain network traffic. This allows students to follow along on their laptops with the class material and demonstrations. The pcaps also provide a good library of network traffic to use when reviewing the material, especially for certification.

"The threats to our businesses and government agencies are ever increasing. We need to focus our IDS/IPS on our critical data and SEC503 helps us achieve that."
-Ed Brewster, SAIC, Inc.

Preserving the security of your site in today's threat environment is more challenging than ever before. The security landscape is continually changing from what was once only perimeter protection to protecting exposed and mobile systems that are almost always connected and often vulnerable. Security-savvy employees who can help detect and prevent intrusions are therefore in great demand. Our goal in **SEC503: Intrusion Detection In-Depth** is to acquaint you with the core knowledge, tools, and techniques to defend your networks. The training will prepare you to put your new skills and knowledge to work immediately upon returning to a live environment.

Jonathan Ham *SANS Certified Instructor*

Jonathan is an independent consultant who specializes in large-scale enterprise security issues ranging from policy and procedure to staffing and training, scalable prevention, detection, and response technology and techniques. With a keen understanding of ROI and TCO (and an emphasis on process over products), he has helped his clients achieve greater success for over 12 years, advising in both the public and private sectors, and from small upstarts to the Fortune 500. He's been commissioned to teach NCIS investigators how to use Snort, performed packet analysis from a facility more than 2,000 feet underground, and chartered and trained the CIRT for one of the largest U.S. federal agencies. He has held the CISSP, GSEC, GCIA, and GCIH certifications, and is a member of the GIAC Advisory Board. A former combat medic, Jonathan still spends some of his time practicing a different kind of emergency response – volunteering and teaching for both the National Ski Patrol and the American Red Cross. @jhamcorp

SEC504:

Hacker Tools, Techniques, Exploits, and Incident Handling

SANS

Six-Day Program
Mon, July 11 - Sat, July 16
9:00am - 7:15pm (Day 1)
9:00am - 5:00pm (Days 2-6)
37 CPEs
Laptop Required
Instructor: John Strand

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The Internet is full of powerful hacking tools and bad guys using them extensively. If your organization has an Internet connection or one or two disgruntled employees (and whose does not!), your computer systems will get attacked. From the five, ten, or even one hundred daily probes against your Internet infrastructure to the malicious insider slowly creeping through your most vital information assets, attackers are targeting your systems with increasing viciousness and stealth. As defenders, it is essential we understand these hacking tools and techniques.

Who Should Attend

- Incident handlers
- Penetration testers
- Ethical hackers
- Leaders of incident handling teams
- System administrators who are on the front lines defending their systems and responding to attacks
- Other security personnel who are first responders when systems come under attack

By helping you understand attackers' tactics and strategies in detail, giving you hands-on experience in finding vulnerabilities and discovering intrusions, and equipping you with a comprehensive incident handling plan, this course helps you turn the tables on computer attackers. It addresses the latest cutting-edge insidious attack vectors, the "oldie-but-goodie" attacks that are still prevalent, and everything in between. Instead of merely teaching a few hack attack tricks, this course provides a time-tested, step-by-step process for responding to computer incidents, and a detailed description of how attackers undermine systems so you can prepare, detect, and respond to them. In addition, the course explores the legal issues associated with responding to computer attacks, including employee monitoring, working with law enforcement, and handling evidence. Finally, students will participate in a hands-on workshop that focuses on scanning, exploiting, and defending systems. This will enable you to discover the holes in your system before the bad guys do!

The course is particularly well-suited to individuals who lead or are a part of an incident handling team. General security practitioners, system administrators, and security architects will benefit by understanding how to design, build, and operate their systems to prevent, detect, and respond to attacks.

"This course is foundational and core strength building in the most critical areas of incident handling. It reinforces and develops understanding around roles and TTPs of both adversary and defender." -Araceli Treu Gomes, Dell Secureworks

John Strand *SANS Senior Instructor*

Along with SEC504, John Strand also teaches SEC560: Network Penetration Testing and Ethical Hacking; SEC580: Metasploit Kung Fu for Enterprise Pen Testing; and SEC464: Hacker Detection for System Administrators. John is the course author for SEC464 and the co-author for SEC580. When not teaching for SANS, John co-hosts PaulDotCom Security Weekly, the world's largest computer security podcast. He also is the owner of Black Hills Information Security, specializing in penetration testing and security architecture services. He has presented for the FBI, NASA, the NSA, and DefCon. In his spare time he writes loud rock music and makes various futile attempts at fly fishing. @strandjs

SEC511:
Continuous Monitoring and Security Operations

New Extended Bootcamp Hours to Enhance Your Skills

SANS

Six-Day Program
Mon, July 11 - Sat, July 16
9:00am - 7:00pm (Days 1-5)
9:00am - 5:00pm (Day 6)
Laptop Required
46 CPEs
Laptop Required
Instructor: Eric Conrad

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"[SEC511] develops very practical skills as opposed to theoretical. I can go back to work and actually use this."
-CHARLES HILL, SEC

We continue to underestimate the tenacity of our adversaries! Organizations are investing a significant amount of time and financial and human resources trying to prevent and combat cyber attacks, but despite this tremendous effort organizations are still getting compromised. The traditional perimeter-focused, prevention-dominant approach to security architecture has failed to prevent intrusions. No network is impenetrable, a reality that business executives and security professionals alike have to accept. Prevention is crucial, and we can't lose sight of it as the primary goal. However, a new proactive approach to security is needed to enhance the capabilities of organizations to detect threats that will inevitably slip through their defenses.

Who Should Attend

- Security architects
- Senior security engineers
- Technical security managers
- Security Operations Center (SOC) analysts
- SOC analysts, engineers, and managers
- Individuals working to implement Continuous Diagnostics and Mitigation (CDM), Continuous Security Monitoring (CSM), or Network Security Monitoring (NSM)

The underlying challenge for organizations victimized by an attack is timely incident detection. Industry data suggest that most security breaches typically go undiscovered for an average of seven months. Attackers simply have to find one way into most organizations, because they know that the lack of visibility and internal security controls will then allow them to methodically carry out their mission and achieve their goals.

"This training is valuable because it helped me to understand network security from various types of prevention and provided good insight into endpoint security."
-STEPHEN L. PERRY, ARDENT HEALTH SERVICES

The Defensible Security Architecture, Network Security Monitoring (NSM)/Continuous Diagnostics and Mitigation (CDM)/Continuous Security Monitoring (CSM) taught in this course will best position your organization or Security Operations Center (SOC) to analyze threats and detect anomalies that could indicate cybercriminal behavior. The payoff for this new proactive approach is early detection of an intrusion, or successfully thwarting the efforts of attackers altogether. The National Institute of Standards and Technology (NIST) developed guidelines described in NIST SP 800-137 for Continuous Monitoring (CM), and this course will greatly increase your understanding and enhance your skills in implementing CM utilizing the NIST framework.

Eric Conrad *SANS Senior Instructor*

Eric Conrad is lead author of the book *The CISSP Study Guide*. Eric's career began in 1991 as a UNIX systems administrator for a small oceanographic communications company. He gained information security experience in a variety of industries, including research, education, power, Internet, and healthcare. He is now president of Backshore Communications, a company focusing on intrusion detection, incident handling, information warfare, and penetration testing. He is a graduate of the SANS Technology Institute with a master of science degree in information security engineering. In addition to the CISSP, he holds the prestigious GIAC Security Expert (GSE) certification as well as the GIAC GPEN, GCIH, GCIA, GCFA, GAWN, and GSEC certifications. Eric also blogs about information security at ericconrad.com. @eric_conrad

SEC560:

Network Penetration Testing and Ethical Hacking

SANS

Six-Day Program
Mon, July 11 - Sat, July 16
9:00am - 7:15pm (Day 1)
9:00am - 5:00pm (Days 2-6)
37 CPEs
Laptop Required
Instructor: Adrien de Beaupre

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with this course
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"SEC560 has helped me have a more in-depth knowledge of penetration testing. The instructor's flow and method made it easier to understand."
-Mithra Ravendran, BAE Systems Applied Intel

As a cybersecurity professional, you have a unique responsibility to find and understand your organization's vulnerabilities, and to work diligently to mitigate them before the bad guys pounce. Are you ready? SANS SEC560, our flagship course for penetration testing, fully arms you to address this task head-on.

Who Should Attend

- Security personnel whose job involves assessing networks and systems to find and remediate vulnerabilities
- Penetration testers
- Ethical hackers
- Defenders who want to better understand offensive methodologies, tools, and techniques
- Auditors who need to build deeper technical skills
- Red and blue team members
- Forensics specialists who want to better understand offensive tactics

SEC560 is the must-have course for every well-rounded security professional.

With comprehensive coverage of tools, techniques, and methodologies for network penetration testing, SEC560 truly prepares you to conduct high-value penetration testing projects step-by-step and end-to-end. Every organization needs skilled information security personnel who can find vulnerabilities and mitigate their effects, and this entire course is specially designed to get you ready for that role. The course starts with proper planning, scoping and recon, then dives deep into scanning, target exploitation, password attacks, and web app manipulation, with over 30 detailed hands-on labs throughout. The course is chock full of practical, real-world tips from some of the world's best penetration testers to help you do your job safely, efficiently…and masterfully.

Learn the best ways to test your own systems before the bad guys attack.

SEC560 is designed to get you ready to conduct a full-scale, high-value penetration test – and on the last day of the course you'll do just that. After building your skills in comprehensive and challenging labs over five days, the course culminates with a final full-day, real-world penetration test scenario. You'll conduct an end-to-end pen test, applying knowledge, tools, and principles from throughout the course as you discover and exploit vulnerabilities in a realistic sample target organization, demonstrating the knowledge you've mastered in this course.

This course equips security organizations with comprehensive penetration testing and ethical hacking know-how.

You will learn how to perform detailed reconnaissance, studying a target's infrastructure by mining blogs, search engines, social networking sites, and other Internet and intranet infrastructures. Our hands-on labs will equip you to scan target networks using best-of-breed tools. We won't just cover run-of-the-mill options and configurations, we'll also go over the lesser-known but super-useful capabilities of the best pen test toolsets available today. After scanning, you'll learn dozens of methods for exploiting target systems to gain access and measure real business risk. You'll dive deep into post-exploitation, password attacks, and web apps, pivoting through the target environment to model the attacks of real-world bad guys to emphasize the importance of defense in depth.

Adrien de Beaupre *SANS Certified Instructor*

Adrien de Beaupre works as an independent consultant in beautiful Ottawa, Ontario. His work experience includes technical instruction, vulnerability assessment, penetration testing, intrusion detection, incident response and forensic analysis. He is a member of the SANS Internet Storm Center (isc.sans.edu). He is actively involved with the information security community, and has been working with SANS since 2000. Adrien holds a variety of certifications including the GXPN, GPEN, GWAPT, GCIH, GCIA, GSEC, CISSP, OPST, and OPSA. When not geeking out he can be found with his family, or at the dojo. @adriendb

SEC566:

Implementing and Auditing the Critical Security Controls – In-Depth

SANS

Five-Day Program
Mon, July 11 - Fri, July 15
9:00am - 5:00pm
Laptop Required
30 CPEs
Laptop Required
Instructor: James Tarala

Cybersecurity attacks are increasing and evolving so rapidly that it is more difficult than ever to prevent and defend against them. Does your organization have an effective method in place to detect, thwart, and monitor external and internal threats to prevent security breaches? This course helps you master specific, proven techniques and tools needed to implement and audit the Critical Security Controls as documented by the Center for Internet Security (CIS).

As threats evolve, an organization's security should too. To enable your organization to stay on top of this ever-changing threat scenario, SANS has designed a comprehensive course on how to implement the Critical Security Controls, a prioritized, risk-based approach to security. Designed by private and public sector experts from around the world, the Controls are the best way to block known attacks and mitigate damage from successful attacks. They have been adopted by the U.S. Department of Homeland Security, state governments, universities, and numerous private firms.

The Controls are specific guidelines that CISOs, CIOs, IGs, systems administrators, and information security personnel can use to manage and measure the effectiveness of their defenses. They are designed to complement existing standards, frameworks, and compliance schemes by prioritizing the most critical threat and highest payoff defenses, while providing a common baseline for action against risks that we all face.

The Controls are an effective security framework because they are based on actual attacks launched regularly against networks. Priority is given to Controls that (1) mitigate known attacks, (2) address a wide variety of attacks, and (3) identify and stop attackers early in the compromise cycle. The British government's Center for the Protection of National Infrastructure describes the Controls as the "baseline of high-priority information security measures and controls that can be applied across an organisation in order to improve its cyber defence."

SANS' in-depth, hands-on training will teach you how to master the specific techniques and tools needed to implement and audit the Critical Controls. It will help security practitioners understand not only how to stop a threat, but why the threat exists, and how to ensure that security measures deployed today will be effective against the next generation of threats.

The course shows security professionals how to implement the Controls in an existing network through cost-effective automation. For auditors, CIOs, and risk officers, the course is the best way to understand how you will measure whether the Controls are effectively implemented.

ALSO AVAILABLE VIA SIMULCAST
sans.org/simulcast

Who Should Attend

- Information assurance auditors
- System implementers or administrators
- Network security engineers
- IT administrators
- Department of Defense personnel or contractors
- Staff and clients of federal agencies
- Private sector organizations looking to improve information assurance processes and secure their systems
- Security vendors and consulting groups looking to stay current with frameworks for information assurance

"This is a must-do course if you are looking to steer your company through some hefty controls to security."
-Jeff Evenson, AgStar Financial Services

GCCC
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James Tarala *SANS Senior Instructor*

James Tarala is a principal consultant with Enclave Security and is based in Venice, Florida. He is a regular speaker with the SANS Institute as well as a courseware author and editor for many SANS auditing and security courses. As a consultant, he has spent the past few years developing large enterprise IT security and infrastructure architectures, specifically working with many Microsoft-based directory services, e-mail, terminal services, and wireless technologies. He has also spent a large amount of time consulting with organizations to assist them in their security management, operational practices, and regulatory compliance issues, and he often performs independent security audits and assists internal audit groups in developing their internal audit programs. James completed his undergraduate studies at Philadelphia Biblical University and his graduate work at the University of Maryland. He holds numerous professional certifications. @isaudit

FOR408:
Windows Forensic Analysis

SANS

Six-Day Program
Mon, July 11 - Sat, July 16
9:00am - 5:00pm
36 CPEs
Laptop Required
Instructor: Ovie Carroll

giac.org

sans.edu

BUNDLE ONDEMAND
WITH THIS COURSE
sans.org/ondemand

digital-forensics.sans.org

"Ovie has got this thing down pat! He is informative, personal, very knowledgeable, and entertaining on top of it all! I really enjoyed his teaching methods."
-Mike Bowden, Boeing

Master Windows Forensics – You can't protect what you don't know about.

Every organization must prepare for cyber crime occurring on its computer systems and within its networks. Demand has never been greater for analysts who can investigate crimes like fraud, insider threats, industrial espionage, employee misuse, and computer intrusions. Government agencies increasingly require trained media exploitation specialists to recover key intelligence from Windows systems. To help solve these cases, SANS is training a new cadre of the world's best digital forensic professionals, incident responders, and media exploitation masters capable of piecing together what happened on computer systems second by second.

Who Should Attend

- Information security professionals
- Incident response team members
- Law enforcement officers, federal agents, and detectives
- Media exploitation analysts
- Anyone interested in a deep understanding of Windows forensics

FOR408: Windows Forensic Analysis focuses on building in-depth digital forensics knowledge of the Microsoft Windows operating systems. You can't protect what you don't know about, and understanding forensic capabilities and artifacts is a core component of information security. Learn to recover, analyze, and authenticate forensic data on Windows systems. Understand how to track detailed user activity on your network and how to organize findings for use in incident response, internal investigations, and civil/criminal litigation. Use your new skills for validating security tools, enhancing vulnerability assessments, identifying insider threats, tracking hackers, and improving security policies. Whether you know it or not, Windows is silently recording an unimaginable amount of data about you and your users. FOR408 teaches you how to mine this mountain of data.

"The methods taught and the tools introduced will be very beneficial to me as an analyst performing examinations. The topics are informative and relevant and a great guide that leads to productivity." -Thomas Farley, Raytheon

Proper analysis requires real data for students to examine. The completely updated FOR408 course trains digital forensic analysts through a series of new hands-on laboratory exercises that incorporate evidence found on the latest Microsoft technologies (Windows 7/8/10, Office and Office365, cloud storage, Sharepoint, Exchange, Outlook). Students leave the course armed with the latest tools and techniques and prepared to investigate even the most complicated systems they might encounter. Nothing is left out – attendees learn to analyze everything from legacy Windows XP systems to just-discovered Windows 10 artifacts.

FIGHT CRIME. UNRAVEL INCIDENTS...ONE BYTE AT A TIME

Ovie Carroll *SANS Certified Instructor*

Ovie Carroll has over 20 years of federal law enforcement experience. Ovie was a special agent for the Air Force Office of Special Investigations (AFOSI) and Chief of the Washington Field Office Computer Investigations and Operations Branch responsible for investigating all national level computer intrusions into USAF computer systems. Following his career with the AFOSI he was the Special Agent in Charge of the Postal Inspector General's computer crimes unit where he was responsible for all computer intrusion investigations and for providing all computer forensic analysis in support of USPS-OIG investigations. Ovie is currently the Director of the Cybercrime Lab at the Department of Justice, Computer Crime and Intellectual Property Section (CCIPS) and an adjunct professor at George Washington University teaching computer crime investigations. In addition to his career fighting computer crime, Ovie has conducted investigations into a variety of offenses including murder, fraud, bribery, theft, gangs and narcotics.

FOR578:
Cyber Threat Intelligence

NEW

SANS

Five-Day Program
Mon, July 11 - Fri, July 15
9:00am - 5:00pm
30 CPEs
Laptop Required
Instructor: Jake Williams

DFIR
digital-forensics.sans.org

Make no mistake: current computer network defense and incident response contain a strong element of intelligence and counterintelligence that analysts must understand and leverage in order to defend their computers, networks, and proprietary data.

FOR578: Cyber Threat Intelligence will help network defenders and incident responders:

- Construct and exploit threat intelligence to detect, respond, and defeat advanced persistent threats (APTs)
- Fully analyze successful and unsuccessful intrusions by advanced attackers
- Piece together intrusion campaigns, threat actors, and nation-state organizations
- Manage, share, and receive intelligence on APT adversary groups
- Generate intelligence from their own data sources and share it accordingly
- Identify, extract, and leverage intelligence from APT intrusions
- Expand upon existing intelligence to build profiles of adversary groups
- Leverage intelligence to better defend against and respond to future intrusions

Who Should Attend

- Incident response team members
- Security Operations Center personnel and information security practitioners
- Experienced digital forensic analysts
- Federal agents and law enforcement officials
- SANS FOR408, FOR572, FOR508, or FOR610 graduates looking to take their skills to the next level

Conventional network defenses such as intrusion detection systems and anti-virus tools focus on the vulnerability component of risk, and traditional incident response methodology pre-supposes a successful intrusion. However, the evolving sophistication of computer network intrusions has rendered these approaches insufficient to address the threats faced by modern networked organizations. Today's adversaries accomplish their goals using advanced tools and techniques designed to circumvent most conventional computer network defense mechanisms, go undetected during the intrusion, and then remain undetected on networks over long periods of time.

The collection, classification, and exploitation of knowledge about adversaries – collectively known as cyber threat intelligence – gives network defenders information superiority that can be used to reduce the adversary's likelihood of success with each subsequent intrusion attempt. Responders need accurate, timely, and detailed information to monitor new and evolving attacks, as well as methods to exploit this information to put in place an improved defensive posture. Threat intelligence thus represents a force multiplier for organizations looking to update their response and detection programs to deal with increasingly sophisticated advanced persistent threats.

During a targeted attack, an organization needs a top-notch and cutting-edge incident response team armed with the critical intelligence necessary to understand how adversaries operate and to combat the threat. FOR578 will train you and your team to detect, scope, and select resilient courses of action in response to such intrusions and data breaches.

ALSO AVAILABLE VIA SIMULCAST
sans.org/simulcast

THERE IS NO TEACHER BUT THE ENEMY!

Jake Williams *SANS Certified Instructor*

Jake Williams is a Principal Consultant at Rendition Infosec. He has more than a decade of experience in secure network design, penetration testing, incident response, forensics, and malware reverse engineering. Before founding Rendition Infosec, Jake worked with various cleared government agencies in information security roles. He is well versed in cloud forensics and previously developed a cloud forensics course for a U.S. government client. Jake regularly responds to cyber intrusions performed by state-sponsored actors in financial, defense, aerospace, and healthcare sectors using cutting-edge forensics and incident response techniques. He often develops custom tools to deal with specific incidents and malware reversing challenges. Additionally, Jake performs exploit development and has privately disclosed a multitude of zero day exploits to vendors and clients. He found vulnerabilities in one of the state counterparts to healthcare.gov and recently exploited antivirus software to perform privilege escalation. Jake developed Dropsmack, a pentesting tool (okay, malware) that performs command and control and data exfiltration over cloud file sharing services. Jake also developed an anti-forensics tool for memory forensics, Attention Deficit Disorder, that demonstrated weaknesses in memory forensics techniques. @MalwareJake

MGT414:

SANS Training Program for CISSP® Certification

SANS

Six-Day Program
Mon, July 11 - Sat, July 16
9:00am - 7:00pm (Day 1)
8:00am - 7:00pm (Days 2-5)
8:00am - 5:00pm (Day 6)
46 CPEs
Laptop NOT Needed
Instructor: David R. Miller

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WITH THIS COURSE
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"This course has been fantastic in terms of boiling down years of IT security trends and best practices into a week of learning."
-Eric Pavlov, InnoMark

SANS MGT414: SANS Training Program for CISSP® Certification is an accelerated review course that has been specifically updated to prepare you to pass the 2015 version of the CISSP® exam.

Course authors Eric Conrad and Seth Misenar have revised MGT414 to take into account the 2015 updates to the CISSP® exam and prepare students to navigate all types of questions included in the new version.

MGT414 focuses solely on the eight domains of knowledge as determined by (ISC)² that form a critical part of the CISSP® exam. Each domain of knowledge is dissected into its critical components, and those components are then discussed in terms of their relationship with one another and with other areas of information security.

Who Should Attend

- Security professionals who want to understand the concepts covered in the CISSP® exam as determined by (ISC)²
- Managers who want to understand the critical areas of network security
- System, security, and network administrators who want to understand the pragmatic applications of the CISSP® eight domains
- Security professionals and managers looking for practical ways to apply the eight domains of knowledge to their current activities

You Will Be Able To:

- Understand the eight domains of knowledge that are covered on the CISSP® exam
- Analyze questions on the exam and be able to select the correct answer
- Apply the knowledge and testing skills learned in class to pass the CISSP® exam
- Understand and explain all of the concepts covered in the eight domains of knowledge
- Apply the skills learned across the eight domains to solve security problems when you return to work

Note:
The CISSP® exam itself is not hosted by SANS. You will need to make separate arrangements to take the CISSP® exam. Please note as well that the GISP exam offered by GIAC is NOT the same as the CISSP® exam offered by (ISC)².

Take advantage of the SANS CISSP® Get Certified Program currently being offered.
sans.org/special/cissp-get-certified-program

David R. Miller *SANS Certified Instructor*

David has been a technical instructor since the early 1980s and has specialized in consulting, auditing, and lecturing on information systems security, legal and regulatory compliance, and network engineering. David has helped many enterprises develop their overall compliance and security program, including through policy writing, network architecture design to include security zones, development of incident response teams and programs, design and implementation of public key infrastructures, security awareness training programs, specific security solution designs like secure remote access and strong authentication architectures, disaster recovery planning and business continuity planning, and pre-audit compliance gap analysis and remediation. He serves as a security lead and forensic investigator on numerous enterprise-wide IT design and implementation projects for Fortune 500 companies, providing compliance, security, technology, and architectural recommendations and guidance. Projects include Microsoft Windows Active Directory enterprise designs, Security Information and Event Management systems, Intrusion Detection and Protection Systems, endpoint protection systems, patch management systems, configuration monitoring systems, and enterprise data encryption for data at rest, in transit, in use, and within email systems. David is an author, lecturer and technical editor of books, curriculum, certification exams, and computer-based training videos.

MGT512:

SANS Security Leadership Essentials for Managers with Knowledge Compression™

SANS

Five-Day Program
Mon, July 11 - Fri, July 15
9:00am - 6:00pm (Days 1-4)
9:00am - 4:00pm (Day 5)
33 CPEs
Laptop NOT Needed
Instructor: G. Mark Hardy

giac.org

sans.edu

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Bundle OnDemand
with this course
sans.org/ondemand

"The course content is great because it is consistently updated to reflect current IT trends. The instructor was knowledgeable, and very down to earth."
-Terence B., Officer Training Command

This completely updated course is designed to empower advancing managers who want to get up to speed quickly on information security issues and terminology. You won't just learn about security, you will learn how to manage security. Lecture sections are intense; the most common student comment is that it's like drinking from a fire hose. The diligent manager will learn vital, up-to-date knowledge and skills required to supervise the security component of any information technology project. In addition, the course has been engineered to incorporate the NIST Special Publication 800 series guidance so that it can be particularly useful to U.S. government managers and supporting contractors.

Who Should Attend

- All newly appointed information security officers
- Technically-skilled administrators who have recently been given leadership responsibilities
- Seasoned managers who want to understand what their technical people are telling them

Essential security topics covered in this management track include network fundamentals and applications, power, cooling and safety, architectural approaches to defense in depth, cyber attacks, vulnerability assessment and management, security policies, contingency and continuity planning, awareness management, risk management analysis, incident handling, web application security, and offensive and defensive information warfare, culminating with our management practicum. The material uses Knowledge Compression™, special charts, and other proprietary SANS techniques to help convey the key points of critical slides and keep the information flow rate at a pace senior executives demand every teaching hour of the course. The course has been evaluated and approved by CompTIA's CAQC Program for Security+ 2008 to ensure that managers and their direct reports have a common baseline for security terminology and concepts. You will be able to put what you learn into practice the day you get back into the office.

Knowledge Compression™

Maximize your learning potential!

Knowledge Compression™ is an optional add-on feature to a SANS class that aims to maximize the absorption and long-term retention of large amounts of data over a relatively short period of time. Through the use of specialized training materials, in-class reviews, examinations and test-taking instruction, Knowledge Compression™ ensures students have a solid understanding of the information presented to them. By attending classes that feature this advanced training product, you will experience some of the most intense and rewarding training programs SANS has to offer, in ways that you never thought possible!

G. Mark Hardy *SANS Certified Instructor*

G. Mark Hardy is founder and president of National Security Corporation. He has been providing cybersecurity expertise to government, military, and commercial clients for over 30 years, and is an internationally recognized expert who has spoken at over 250 events world-wide. He serves on the Advisory Board of CyberWATCH, an Information Assurance/Information Security Advanced Technology Education Center of the National Science Foundation. A retired U.S. Navy Captain, he was privileged to serve in command nine times, including responsibility for leadership training for 70,000 sailors. He also served as wartime Director, Joint Operations Center for U.S. Pacific Command, and Assistant Director of Technology and Information Management for Naval Logistics in the Pentagon, with responsibility for InfoSec, public key infrastructure, and Internet security. Captain Hardy was awarded the Defense Superior Service Medal, the Legion of Merit, five Meritorious Service Medals, and 24 other medals and decorations. A graduate of Northwestern University, he holds a BS in Computer Science, a BA in Mathematics, a Masters in Business Administration, a Masters in Strategic Studies, and the GSLC, CISSP, CISM, and CISA certifications. @g_mark

SANS@NIGHT EVENING TALKS

Enrich your SANS training experience!

Evening talks by our instructors and selected subject-matter experts help you broaden your knowledge, hear from the voices that matter in computer security, and get the most for your training dollar.

KEYNOTE:

Using an Open-Source Threat Model for Prioritized Defense

– James Tarala

Threat actors are not magic and there is not an unlimited, unique list of threats for every organization. Enterprises face similar threats from similar threat sources and actors – so why does every organization need to perform completely unique risk assessments and prioritized control decisions? This presentation will show how specific, community-driven threat models can be used to prioritize an organization's defenses – without all the confusion. James Tarala will present a new, open, community-driven threat model that can be used by any industry to evaluate the risk it faces. Then he will show how to practically use this model to prioritize enterprise defense and map to existing compliance requirements. Whether you work for the Department of Defense or a mom-and-pop retailer, you will be able to use this model to specifically identify a prioritized defense for your organization.

HTTPDeux *– Adrien de Beaupre*

This talk will discuss the new HTTP/2 protocol, which has only recently been published and approved. The presentation will discuss the reasons why the new protocol was developed, how to implement it, tools that can use it, and challenges it presents to protocol testers.

Offensive Countermeasures, Active Defenses, and Internet Tough Guys *– John Strand*

In this presentation, John Strand will demonstrate the Active Defense Harbinger Distribution, a DARPA-funded, free Active Defense virtual machine. He will clear up some of the confusion and debunk many of the myths and outright lies surrounding taking active action against attackers. From this presentation, you will not only know how to take action against attackers, you will learn how to do it legally.

How Not to Suck at Cyber Attack Attribution *– Jake Williams*

Cyber attack attribution is such an awesome buzzword, companies can't help but jump in to do it. Unfortunately, most do it poorly. Really poorly. In this session, we'll examine why most organizations suck at attribution, why they think it's necessary in the first place, and what they need to do to fix it and do it right.

How to Commit Card Fraud *– G. Mark Hardy*

Well, we're not going to show you how to commit fraud, but we will show you how the bad guys do it and how you can protect yourself and your business. We'll take a look into the "dark web" and see how these big card heists are pulled off, why chip-and-pin won't solve the fraud problem, and why payment technologies like Apple Pay pose new risks. You'll learn the ecosystem of fraud, and how it's become a big business that costs banks and merchants over $16 billion annually. See if your bank even bothers to use the security protections it could – we'll have a mag stripe card reader so you can really see what's in your wallet.

Vendor Showcase

Wednesday, July 13 | 10:00-10:20am & 3:00-3:20pm

Given that virtually everything in security is accomplished with a tool, exposure to those tools is a very important part of the SANS training event learning experience. Leading solution providers will be on hand for a one-day vendor expo, an added bonus for registered training event attendees.

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Austin, TX | Apr 18-23

Security West 2016
San Diego, CA | Apr 29 - May 6

Baltimore Spring 2016
Baltimore, MD | May 9-14

Houston 2016
Houston, TX | May 9-14

Security Operations Center
SUMMIT & TRAINING 2016
Crystal City, VA | May 19-26

SANSFIRE 2016
Washington, DC | Jun 11-18

Digital Forensics & Incident Response
SUMMIT & TRAINING 2016
Austin, TX | Jun 23-30

Salt Lake City 2016
Salt Lake City, UT | Jun 27 - Jul 2

Minneapolis 2016
Minneapolis, MN | Jul 18-23

San Antonio 2016
San Antonio, TX | Jul 18-23

ICS Security & Training – Houston 2016
Houston, TX | Jul 25-30

San Jose 2016
San Jose, CA | Jul 25-30

Information on all events can be found at
sans.org/security-training/by-location/all

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SANS ROCKY MOUNTAIN 2016

Hotel Information

Training Campus

Embassy Suites Denver Downtown Convention Center

1420 Stout Street | Denver, CO 80202
303-592-1000
sans.org/event/rocky-mountain-2016/location

The Embassy Suites Denver Downtown Convention Center hotel offers the perfect setting for business or pleasure. The hotel is a gateway to Denver's lively downtown scene. Boasting a contemporary convention venue, the hotel is within walking distance of the best attractions in the downtown area.

Special Hotel Rates Available

A special discounted rate of $205.00 S/D will be honored based on space availability. Government per diem rooms are available with proper ID; you will need to call reservations and ask for the SANS government rate. These rates include high-speed Internet in your room and are only available through 5pm MST June 17, 2016.

Top 5 reasons to stay at the Embassy Suites Denver Downtown Convention Center

1. All SANS attendees receive complimentary high-speed Internet when booking in the SANS block.
2. No need to factor in daily cab fees and the time associated with travel to alternate hotels.
3. By staying at the Embassy Suites Denver Downtown you gain the opportunity to further network with your industry peers and remain in the center of the activity surrounding the training event.
4. SANS schedules morning and evening events at the Embassy Suites Denver Downtown that you won't want to miss!
5. Everything is in one convenient location!

SANS ROCKY MOUNTAIN 2016

Registration Information

We recommend you register early to ensure you get your first choice of courses.

Register online at sans.org/rocky-mountain-2016/courses

Select your course or courses and indicate whether you plan to test for GIAC certification.

If the course is still open, the secure, online registration server will accept your registration. Sold-out courses will be removed from the online registration. Everyone with Internet access must complete the online registration form. We do not take registrations by phone.

Use code **EarlyBird16** when registering early

Pay Early and Save

	DATE	DISCOUNT	DATE	DISCOUNT
Pay & enter code before	**5-18-16**	**$400.00**	**6-8-16**	**$200.00**

Some restrictions apply.

Group Savings (Applies to tuition only)

10% discount if 10 or more people from the same organization register at the same time

5% discount if 5-9 people from the same organization register at the same time

To obtain a group discount, complete the discount code request form at sans.org/security-training/discounts prior to registering.

Cancellation

You may substitute another person in your place at any time, at no charge, by e-mail: registration@sans.org or fax: 301-951-0140. Cancellation requests without substitution must be submitted in writing, by mail, or fax, and postmarked by June 22, 2016 – processing fees may apply.

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Ask The Expert Webcasts – SANS experts bring current and timely information on relevant topics in IT Security.

Analyst Webcasts – A follow-on to the SANS Analyst Program, Analyst Webcasts provide key information from our whitepapers and surveys.

WhatWorks Webcasts – The SANS WhatWorks webcasts bring powerful customer experiences showing how end users resolved specific IT Security issues.

Tool Talks – Tool Talks are designed to give you a solid understanding of a problem, and to show how a vendor's commercial tool can be used to solve or mitigate that problem.

NEWSLETTERS

NewsBites – Twice-weekly high-level executive summary of the most important news relevant to cybersecurity professionals

OUCH! – The world's leading monthly free security-awareness newsletter designed for the common computer user

@RISK: The Consensus Security Alert – A reliable weekly summary of (1) newly discovered attack vectors, (2) vulnerabilities with active new exploits, (3) how recent attacks worked, and (4) other valuable data

OTHER FREE RESOURCES

- InfoSec Reading Room
- Top 25 Software Errors
- 20 Critical Controls
- Security Policies
- Intrusion Detection FAQ
- Tip of the Day
- Security Posters
- Thought Leaders
- 20 Coolest Careers
- Security Glossary
- SCORE (Security Consensus Operational Readiness Evaluation)

sans.org/security-resources