Training Course on MITRE ATT and CK Framework for Threat Hunting

Professional Development Training Course Outline

Category	Digital Forensics	**Duration**	10 Days
Base Fee	$3,000 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

Training Course on MITRE ATT and CK Framework for Threat Hunting provides cybersecurity professionals with the essential knowledge and practical skills to leverage the **MITRE ATT&CK Framework** for advanced **threat hunting**. Participants will gain a deep understanding of adversarial **tactics, techniques, and procedures (TTPs)**, enabling them to proactively detect, analyze, and respond to sophisticated cyber threats. Through hands-on exercises, real-world **case studies**, and **adversary emulation**, this program cultivates a **threat-informed defense** mindset, empowering security teams to enhance their **cyber resilience** and optimize **security operations**.

The curriculum emphasizes practical application, moving beyond theoretical concepts to equip attendees with actionable strategies for **proactive threat detection** and **incident response**. We will explore how to integrate ATT&CK into existing **security tools** and workflows, improve **threat intelligence analysis**, and conduct effective **security posture assessments**. This course is crucial for organizations seeking to mature their **cybersecurity capabilities** and build a robust defense against ever-evolving **advanced persistent threats (APTs)**.

Programme Curriculum

Training Course on MITRE ATT and CK Framework for Threat Hunting

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Course Objectives

1. Comprehend the fundamental structure, matrices (Enterprise, Mobile, ICS), and underlying philosophy of the MITRE ATT&CK Framework.
2. Analyze and categorize real-world **adversary TTPs** to understand attacker motivations and methodologies.
3. Integrate **ATT&CK-mapped threat intelligence** into security operations for enhanced situational awareness.
4. Develop and execute effective **threat hunting methodologies** utilizing ATT&CK as a guiding framework.
5. Engineer robust **detection rules** and **security controls** mapped directly to specific ATT&CK techniques.
6. Improve **incident response playbooks** and procedures by correlating security incidents with ATT&CK techniques.
7. Conduct comprehensive **security assessments** to identify gaps in defensive capabilities against known adversary behaviors.
8. Utilize ATT&CK for planning and executing realistic **adversary emulation** and **red team exercises**.
9. Facilitate **purple teaming** engagements to bridge the gap between offensive and defensive security teams.
10. Explore tools and techniques for **automating threat detection** and analysis based on ATT&CK.
11. Identify and mitigate **lateral movement techniques** commonly employed by sophisticated threat actors.
12. Understand and implement effective **privilege escalation** prevention and detection mechanisms.
13. Analyze and investigate **data exfiltration** techniques using the ATT&CK framework for comprehensive forensic analysis.

Organizational Benefits

- Proactively defend against sophisticated attacks by understanding and anticipating adversary behavior.
- Reduce false positives and accelerate incident triage through ATT&CK-informed detections.
- Expedite incident containment and recovery by mapping attack activities to known TTPs.
- Prioritize security tool investments and resource allocation based on real-world threat intelligence.
- Foster a common language for security discussions across different teams (SOC, CTI, Red Team).
- Shift from a reactive to a **proactive defense** strategy, staying ahead of emerging threats.
- Demonstrate robust security practices aligned with industry best practices and compliance frameworks.

- Identify and mitigate vulnerabilities by understanding how adversaries exploit weaknesses.
- Clearly articulate cyber risks and security posture to executive management using a standardized framework.

Target Audience

1. Security Operations Center (SOC) Analysts.
2. Threat Hunters
3. Incident Responders
4. Cyber Threat Intelligence (CTI) Analysts
5. Red Team / Penetration Testers
6. Security Architects & Engineers.
7. Security Managers & CISOs.
8. Digital Forensics Professionals

Course Outline

Module 1: Introduction to MITRE ATT&CK Framework

- What is MITRE ATT&CK? History, purpose, and its role in modern cybersecurity.
- Understanding the ATT&CK Matrix: Tactics, Techniques, and Procedures (TTPs).
- Navigating the ATT&CK website and resources (e.g., ATT&CK Navigator).
- ATT&CK vs. Cyber Kill Chain: Similarities, differences, and complementary usage.
- **Case Study:** Analyzing a basic malware attack (e.g., Emotet) and mapping its observed behaviors to initial ATT&CK tactics (e.g., Initial Access, Execution).

Module 2: Core Concepts of Threat Hunting

- Defining Threat Hunting: Proactive vs. Reactive security, hypothesis-driven approach.
- The Threat Hunting Loop: Hypothesis generation, investigation, and enrichment.
- Key enablers for effective threat hunting: Data sources, tools, and skilled analysts.
- Developing threat hunting hypotheses based on threat intelligence and ATT&CK.
- **Case Study:** Formulating a hypothesis to hunt for suspicious PowerShell execution (T1059.001) given recent intelligence on a specific threat actor.

Module 3: Initial Access & Execution Tactics

- Deep dive into Initial Access (TA0001): Phishing, Exploit Public-Facing Application, Valid Accounts.
- Understanding Execution (TA0002): Command and Scripting Interpreter, Scheduled Task/Job, PowerShell.
- Common techniques and sub-techniques within these tactics.
- Detection opportunities and mitigation strategies for initial compromise.
- **Case Study:** Investigating a simulated phishing campaign that leads to malicious macro execution (T1204.002) via a crafted document (T1566.001).

Module 4: Persistence & Privilege Escalation

- Exploring Persistence (TA0003): Boot or Logon Autostart Execution, Create Account, Registry Run Keys.
- Understanding Privilege Escalation (TA0004): Exploitation for Privilege Escalation, Abuse Elevation Control, Scheduled Task.
- How adversaries maintain access and gain higher privileges post-initial access.
- Techniques for detecting and preventing persistent footholds and escalation attempts.

- **Case Study:** Analyzing a scenario where an attacker establishes persistence via a new service (T1543.003) and then escalates privileges using a vulnerable kernel driver (T1068).

Module 5: Defense Evasion & Credential Access

- Deep dive into Defense Evasion (TA0005): Obfuscated Files or Information, Deobfuscate/Decode Files or Information, Disable or Modify Tools.
- Understanding Credential Access (TA0006): OS Credential Dumping, Brute Force, Steal or Forge Kerberos Tickets.
- Adversary methods for bypassing security controls and stealing credentials.
- Strategies for detecting evasion techniques and protecting credentials.
- **Case Study:** Simulating an attacker using a legitimate tool like Mimikatz (T1003) to dump LSASS credentials after disabling antivirus (T1562.001).

Module 6: Discovery & Lateral Movement

- Exploring Discovery (TA0007): System Information Discovery, Network Share Discovery, Remote System Discovery.
- Understanding Lateral Movement (TA0008): Remote Services, Pass the Hash, Remote Desktop Protocol.
- How attackers map the network and move between systems.
- Techniques for identifying and preventing lateral movement within the network.
- **Case Study:** Tracking an attacker's lateral movement from an infected workstation to a domain controller using PsExec (T1021.002) and stolen administrative credentials (T1078).

Module 7: Collection & Exfiltration

- Deep dive into Collection (TA0009): Data from Local System, Archive Collected Data, Screen Capture.
- Understanding Exfiltration (TA0010): Exfiltration Over C2 Channel, Exfiltration Over Other Network Medium, Data Compressed.
- Adversary methods for gathering target data and extracting it from the network.
- Strategies for detecting data collection and preventing exfiltration.
- **Case Study:** Investigating a breach where sensitive documents were collected (T1005), archived into a password-protected zip file (T1560.001), and then exfiltrated over HTTPS (T1041).

Module 8: Command and Control (C2) & Impact

- Exploring Command and Control (TA0011): Standard Application Layer Protocol, Custom Command and Control Protocol, Web Shell.
- Understanding Impact (TA0012): Data Destruction, Data Encrypted for Impact, Service Stop.
- How adversaries maintain communication and achieve their ultimate objectives.
- Detection and mitigation for C2 channels and destructive impact actions.
- **Case Study:** Analyzing a ransomware attack (T1486) where an established C2 channel (T1071.001) was used to encrypt critical files after disabling system restore (T1490).

Module 9: Mapping Threat Intelligence to ATT&CK

- Sources of threat intelligence and their relevance to ATT&CK.
- Techniques for parsing raw threat intelligence reports and extracting TTPs.
- Utilizing the ATT&CK framework to contextualize and prioritize threat intelligence.
- Creating ATT&CK Navigator layers for specific threat actors or campaigns.

- **Case Study:** Mapping a public threat intelligence report (e.g., a Mandiant or FireEye report on a specific APT group) to the ATT&CK framework to identify their common TTPs.

Module 10: Building ATT&CK-Driven Detections

- Principles of detection engineering: From Indicators of Compromise (IOCs) to Behaviors.
- Translating ATT&CK techniques into actionable detection rules (e.g., SIEM alerts, EDR queries).
- Developing analytics to identify suspicious behavioral patterns across multiple events.
- Baselines and anomaly detection using ATT&CK for context.
- **Case Study:** Developing detection rules in a SIEM (e.g., Splunk, Elastic) for a specific ATT&CK technique like "Process Injection" (T1055), considering various sub-techniques.

Module 11: Threat Hunting with MITRE ATT&CK Navigator

- Hands-on practical usage of MITRE ATT&CK Navigator for visualization and analysis.
- Creating custom layers to track threat actor TTPs, defensive coverage, and red team engagements.
- Comparing and contrasting different ATT&CK layers to identify gaps and overlaps.
- Using Navigator for communication and reporting within security teams.
- **Case Study:** Using ATT&CK Navigator to visualize the TTPs observed in a recent internal incident and identify areas for improved detection coverage.

Module 12: Adversary Emulation and Red Teaming with ATT&CK

- Planning and executing **adversary emulation** exercises based on ATT&CK.
- Designing realistic red team scenarios aligned with specific threat actor profiles.
- Measuring defensive efficacy against emulated ATT&CK techniques.
- Using tools like Caldera or Infection Monkey for automated adversary emulation.
- **Case Study:** Designing a small-scale adversary emulation exercise focused on a specific ATT&CK technique (e.g., Kerberoasting T1558.003) and evaluating blue team detection capabilities.

Module 13: Purple Teaming and Continuous Improvement

- The role of **purple teaming** in bridging the gap between offensive and defensive security.
- Facilitating collaborative exercises using ATT&CK as a common language.
- Iterative improvement of security controls based on red team findings and ATT&CK.
- Developing a continuous **threat-informed defense** strategy.
- **Case Study:** A simulated purple team exercise where a red team executes specific ATT&CK techniques, and the blue team attempts to detect and respond, followed by a collaborative review and improvement session.

Module 14: Advanced Threat Hunting Techniques & Data Sources

- Hunting for **Living Off The Land (LOTL) binaries** and fileless malware.
- Leveraging Sysmon logs for granular endpoint activity monitoring.
- Network traffic analysis for C2 detection and data exfiltration.
- Cloud environment threat hunting with ATT&CK for Cloud.
- **Case Study:** Hunting for suspicious LOLBIN usage (e.g., cmd.exe or powershell.exe executing unusual commands) using detailed endpoint logs.

Module 15: Operationalizing ATT&CK for Your Organization

- Strategies for integrating ATT&CK into existing security frameworks and processes.

- Building a **threat-informed defense** program tailored to your organization's risk profile.
- Measuring the maturity of your ATT&CK implementation.
- Future trends in MITRE ATT&CK and threat hunting.
- **Case Study:** Developing a roadmap for an organization to adopt and operationalize the MITRE ATT&CK framework across their security functions, including defining key metrics for success.

Training Methodology

This training course employs a **blended learning approach** combining:

- **Interactive Lectures**: Clear explanations of MITRE ATT&CK concepts, tactics, techniques, and procedures.
- **Hands-on Labs**: Practical exercises utilizing realistic scenarios and industry-standard tools (e.g., SIEM, EDR, forensic tools, ATT&CK Navigator, and potentially open-source emulation tools).
- **Real-world Case Studies**: In-depth analysis of actual cyber incidents and how ATT&CK could have been applied for detection and response.
- **Adversary Emulation Exercises**: Controlled simulations of adversary behaviors to test defensive capabilities.
- **Group Discussions & Collaboration**: Fostering peer-to-peer learning and knowledge sharing.
- **Quizzes & Assessments**: To reinforce learning and assess comprehension.
- **Practical Demonstrations**: Live demonstrations of tools and techniques.
- **Resource Sharing**: Providing participants with supplementary materials, templates, and further reading.

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Certification

Upon successful completion of this training, participants will be issued with a globally- recognized certificate.

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Key Notes

a. The participant must be conversant with English.

b. Upcoming Scheduled Sessions

Start Date	End Date	Location	Price

21 Sep 2026	02 Oct 2026	Online	$2,000
21 Sep 2026	02 Oct 2026	Physical	$3,000
21 Sep 2026	02 Oct 2026	Physical	$0
21 Sep 2026	02 Oct 2026	Physical	$0
21 Sep 2026	02 Oct 2026	Physical	$0
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