Creating YARA Rules for Malware Detection Training Course

Professional Development Training Course Outline

Category	Data Security	**Duration**	5 Days
Base Fee	$1,500 USD	**Delivery Mode**	Online / On-site Hybrid

Course Introduction

In today?ÇÖs volatile cybersecurity landscape, relying solely on commercial antivirus and generic signatures leaves organizations critically vulnerable to zero-day exploits and advanced persistent threats (APTs). This course addresses the urgent industry demand for custom, proactive malware detection capabilities. YARA, the "pattern matching Swiss knife for malware researchers," is the essential skill that empowers threat hunters and security analysts to move beyond reactive defense. Mastering YARA rule creation enables security teams to craft surgical, high-fidelity detection signatures that effectively pinpoint emerging threats, classify malware families, and significantly reduce false positives, driving efficiency in the Security Operations Center (SOC).

Creating YARA Rules for Malware Detection Training Course is designed to transition participants from foundational knowledge to expert-level YARA rule writing. You will not just learn the YARA syntax; you will master the detection engineering mindset required for effective threat intelligence integration. Through practical, real-world case studies analyzing samples from notorious campaigns like Ransomware and banking Trojans you will learn how to extract reliable Indicators of Compromise (IOCs) and convert them into performant, robust YARA rules. Key topics include utilizing PE and ELF modules, employing advanced regular expressions (regex), and integrating YARA into modern Incident Response (IR) and Threat Hunting workflows, solidifying your role as a top-tier security practitioner.

Programme Curriculum

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Course Duration

5 days

Course Objectives

Upon completion of this course, participants will be able to:

1. Understand YARA Fundamentals and its critical role in Malware Analysis and Threat Detection.
2. Design the core components of a YARA Rule: meta, strings, and condition sections.
3. Implement String Matching techniques using ASCII, wide, and hexadecimal patterns for high-fidelity detection.
4. Apply Regular Expressions effectively within YARA for flexible, resilient Signature Development.
5. Leverage the PE Module for deep inspection of Windows executable metadata and file headers.
6. Utilize the ELF Module to craft detection rules for Linux-based Malware Samples.
7. Integrate Threat Intelligence (TI) feeds to rapidly develop rules for Emerging Threats and APTs.
8. Write rules that target specific Malware Families
9. Optimize YARA rules for Performance and minimize false positives in large-scale Threat Hunting environments.
10. Apply advanced logical operators and modules to perform Memory Forensics and Process Scanning.
11. Automate YARA rule testing and validation against a comprehensive Malware Corpus
12. Integrate YARA with Security Information and Event Management (SIEM) and Incident Response platforms.
13. Develop a sustainable YARA Rule Management strategy, adhering to industry Best Practices and naming conventions.

Target Audience

1. Security Operations Center (SOC) Analysts
2. Threat Hunters
3. Malware Analysts / Researchers
4. Incident Response (IR) Team Members
5. Detection Engineers
6. Digital Forensics Professionals
7. Cyber Threat Intelligence (CTI) Analysts
8. Vulnerability/Penetration Testers.

Course Modules

Module 1: YARA Foundation and Core Syntax

- Its purpose, history, and role in the Detection Lifecycle.
- Rule name, tags, metadata, strings, and condition.
- Implementing Textual Strings and Boolean conditions.
- Using Hexadecimal Patterns for detecting non-printable bytes and function prologues.
- Case Study: Writing a foundational rule to detect common obfuscation strings in a generic Trojan sample.

Module 2: Advanced String Matching and Regular Expressions

- Advanced String Modifiers.
- Mastering Regular Expressions in YARA for flexible, signature-resilient patterns.
- Using Wildcards and Fuzzy Hashing concepts in detection.
- Controlling match logic using Count and Offset Operators.
- Case Study: Developing a robust regex to detect C2 server configuration strings that bypass simple text matching in a known Banking Trojan.

Module 3: PE File Module for Windows Malware

- Introduction to the Portable Executable file format and its relevance to detection.
- Leveraging the PE Module to check sections, imports, exports, and TimeDateStamp.
- Detecting Packing and Obfuscation using PE headers and entry point analysis.
- Identifying specific Imported Functions for behavioral detection.
- Case Study: Crafting a PE-based rule to identify common features shared by different variants of a Loader malware family.

Module 4: ELF and Other Module Applications

- Introduction to the Executable and Linkable Format and the ELF Module for Linux malware.
- Utilizing the Cuckoo and Hash modules for Threat Intelligence integration.
- Advanced condition logic for detecting high-entropy sections indicative of Encryption or Packing.
- Employing the Math Module for complex file size and entropy checks.
- Case Study: Writing a rule using the ELF module to target a specific section name used by a Linux Ransomware variant.

Module 5: Rule Optimization and False Positive Reduction

- Strategies for writing Performant YARA Rules prioritizing faster checks.
- Techniques for False Positive Reduction by incorporating Benign file characteristics.
- Managing and grouping large sets of rules using Tags and the include directive.
- Using Global Rules and Private Rules effectively.
- Case Study: Tuning an overly broad Suspicious File rule that was triggering on legitimate software updates to achieve a near-zero FP rate.

Module 6: Threat Hunting and Malware Family Classification

- The role of YARA in Proactive Threat Hunting and Retrospective Analysis.
- Malware Classification by writing rules that identify unique Malware Family characteristics.
- Developing Behavioral Rules based on common MITRE ATT&CK techniques.

- Writing generic rules to catch New Variants
- Case Study: Creating a set of APT-specific rules by analyzing a threat actor?ÇÖs custom file markers and coding style.

Module 7: Memory Forensics with YARA

- Understanding the challenge of In-Memory malware and process injection.
- Scanning Memory Dumps and live processes using YARA-compatible forensic tools.
- Detecting Reflective Loading and injected shellcode patterns in memory.
- Writing rules to identify decrypted strings and Command and Control (C2) channels in memory.
- Case Study: Detecting the presence of an unknown Keylogger by scanning for its unique function calls and data buffers in a live process memory dump.

Module 8: Automation, Integration, and Rule Management

- YARA Integration with popular platforms
- Automating rule testing using tools like YarGen and custom scripting.
- Implementing a formal Rule Change Management and version control process.
- Reviewing industry Best Practices for community contribution
- Case Study: Designing an automated pipeline to ingest new Threat Intelligence IOCs and immediately generate, test, and deploy a corresponding YARA rule.

Training Methodology

This course employs a participatory and hands-on approach to ensure practical learning, including:

- Interactive lectures and presentations.
- Group discussions and brainstorming sessions.
- Hands-on exercises using real-world datasets.
- Role-playing and scenario-based simulations.
- Analysis of case studies to bridge theory and practice.
- Peer-to-peer learning and networking.
- Expert-led Q&A sessions.
- Continuous feedback and personalized guidance.

Register as a group from 3 participants for a Discount

Send us an email: info@fineskilltrainingcenter.org or call +254769199797

Certification

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

Tailor-Made Course

We also offer tailor-made courses based on your needs.

Key Notes

a. The participant must be conversant with English.

b. Upon completion of training the participant will be issued with an Authorized Training Certificate

c. Course duration is flexible and the contents can be modified to fit any number of days.

d. The course fee includes facilitation training materials, 2 coffee breaks, buffet lunch and A Certificate upon successful completion of Training.

e. One-year post-training support Consultation and Coaching provided after the course.

f. Payment should be done at least a week before commence of the training, to Fineskill Training Center account, as indicated in the invoice so as to enable us prepare better for you.

Upcoming Scheduled Sessions

Start Date	End Date	Location	Price
21 Sep 2026	25 Sep 2026	Online	$1,000
21 Sep 2026	25 Sep 2026	Physical	$1,500
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0
21 Sep 2026	25 Sep 2026	Physical	$0

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