Cel szkolenia:

In this 4 day course, students are provided with a functional understanding of how to deploy, tune, and operate F5 Advanced Web Application Firewall to protect their web applications from HTTP-based attacks.

The course includes lecture, hands-on labs, and discussion about different F5 Advanced Web Application Firewall tools for detecting and mitigating threats from multiple attack vectors such as web scraping, Layer 7 Denial of Service, brute force, bots, code injection, and zero-day exploits.

**Course is based on the system version v14.**

**Course Objectives**

- Describe the role of the BIG-IP system as a full proxy device in an application delivery network
- Provision F5 Advanced Web Application Firewall resources
- Define a web application firewall
- Describe how F5 Advanced Web Application Firewall protects a web application by securing file types, URLs, and parameters
- Deploy F5 Advanced Web Application Firewall using the Rapid Deployment template (and other templates) and define the security checks included in each
- Define learn, alarm, and block settings as they pertain to configuring F5 Advanced Web
Application Firewall
- Define attack signatures and explain why attack signature staging is important
- Contrast positive and negative security policy implementation and explain benefits of each
- Configure security processing at the parameter level of a web application
- Use an application template to protect a commercial web application
- Deploy F5 Advanced Web Application Firewall using the Automatic Policy Builder
- Tune a policy manually or allow automatic policy building
- Integrate third party application vulnerability scanner output into a security policy
- Configure login enforcement and session tracking
- Configure protection against brute force, web scraping, and Layer 7 denial of service attacks
- Implement iRules using specific F5 Advanced Web Application Firewall events and commands
- Use Content Profiles to protect JSON and AJAX-based applications
- Implement Bot Signatures
- Implement Proactive Bot Defense

Audience:
this course is intended for security and network administrators who will be responsible for the installation, deployment, tuning, and day-to-day maintenance of the F5 Advanced Web Application Firewall.

Plan szkolenia:

- Setting Up the BIG-IP System
  - Introducing the BIG-IP System
  - Initially Setting Up the BIG-IP System
  - Archiving the BIG-IP System Configuration
  - Leveraging F5 Support Resources and Tools
- Traffic Processing with BIG-IP
  - Identifying BIG-IP Traffic Processing Objects
  - Overview of Network Packet Flow
  - Understanding Profiles
  - Overview of Local Traffic Policies
  - Visualizing the HTTP Request Flow
- Web Application Concepts
  - Overview of Web Application Request Processing
  - Web Application Firewall: Layer 7 Protection
  - F5 Advanced WAF Layer 7 Security Checks
  - Overview of Web Communication Elements
- Overview of the HTTP Request Structure
- Examining HTTP Responses
- How F5 Advanced WAF Parses File Types, URLs, and Parameters
- Using the Fiddler HTTP Proxy

- Common Web Application Vulnerabilities
  - A Taxonomy of Attacks: The Threat Landscape
  - What Elements of Application Delivery are Targeted?
  - Common Exploits Against Web Applications

- Security Policy Deployment
  - Defining Learning
  - Comparing Positive and Negative Security Models
  - The Deployment Workflow
  - Policy Type: How Will the Policy Be Applied
  - Policy Template: Determines the Level of Protection
  - Policy Templates: Automatic or Manual Policy Building
  - Assigning Policy to Virtual Server
  - Deployment Workflow: Using Advanced Settings
  - Selecting the Enforcement Mode
  - The Importance of Application Language
  - Configure Server Technologies
  - Verify Attack Signature Staging
  - Viewing Requests
  - Security Checks Offered by Rapid Deployment
  - Defining Attack Signatures
  - Using Data Guard to Check Responses

- Policy Tuning and Violations
  - Post-Deployment Traffic Processing
  - Defining Violations
  - Defining False Positives
  - How Violations are Categorized
  - Violation Rating: A Threat Scale
  - Defining Staging and Enforcement
  - Defining Enforcement Mode
  - Defining the Enforcement Readiness Period
  - Reviewing the Definition of Learning
  - Defining Learning Suggestions
Choosing Automatic or Manual Learning
Defining the Learn, Alarm and Block Settings
Interpreting the Enforcement Readiness Summary
Configuring the Blocking Response Page

- Attack Signatures
  - Defining Attack Signatures
  - Attack Signature Basics
  - Creating User-Defined Attack Signatures
  - Defining Simple and Advanced Edit Modes
  - Defining Attack Signature Sets
  - Defining Attack Signature Pools
  - Understanding Attack Signatures and Staging
  - Updating Attack Signatures

- Positive Security Policy Building
  - Defining and Learning Security Policy Components
  - Defining the Wildcard
  - Defining the Entity Lifecycle
  - Choosing the Learning Scheme
  - How to Learn: Never (Wildcard Only)
  - How to Learn: Always
  - How to Learn: Selective
  - Viewing the Enforcement Readiness Period: Entities
  - Viewing Learning Suggestions and Staging Status
  - Violations Without Learning Suggestions
  - Defining the Learning Score
  - Defining Trusted and Untrusted IP Addresses
  - How to Learn: Compact

- Cookies and Other Headers
  - F5 Advanced WAF Cookies: What to Enforce
  - Defining Allowed and Enforced Cookies
  - Configuring Security Processing on HTTP headers

- Reporting and Logging
  - Overview: Big Picture Data
  - Reporting: Build Your Own View
  - Reporting: Chart based on filters
  - Brute Force and Web Scraping Statistics
○ Viewing F5 Advanced WAF Resource Reports
○ PCI Compliance: PCI-DSS 3.0
○ The Attack Expert System
○ Viewing Traffic Learning Graphs
○ Local Logging Facilities and Destinations
○ How to Enable Local Logging of Security Events
○ Viewing Logs in the Configuration Utility
○ Exporting Requests
○ Logging Profiles: Build What You Need
○ Configuring Response Logging

○ Lab Project 1
○ Advanced Parameter Handling
   ○ Defining Parameter Types
   ○ Defining Static Parameters
   ○ Defining Dynamic Parameters
   ○ Defining Dynamic Parameter Extraction Properties
   ○ Defining Parameter Levels
   ○ Other Parameter Considerations

○ Policy Diff and Administration
   ○ Comparing Security Policies with Policy Diff
   ○ Merging Security Policies
   ○ Restoring with Policy History
   ○ Examples of F5 Advanced WAF Deployment Types
   ○ ConfigSync and F5 Advanced WAF Security Data
   ○ ASMQKVIEW: Provide to F5 Support for Troubleshooting

○ Automatic Policy Building
   ○ Overview of Automatic Policy Building
   ○ Defining Templates Which Automate Learning
   ○ Defining Policy Loosening
   ○ Defining Policy Tightening
   ○ Defining Learning Speed: Traffic Sampling
   ○ Defining Track Site Changes

○ Web Application Vulnerability Scanner Integration
   ○ Integrating Scanner Output into F5 Advanced WAF
   ○ Will Scan be Used for a New or Existing Policy?
   ○ Importing Vulnerabilities
- Resolving Vulnerabilities
- Using the Generic XML Scanner XSD file

- Layered Policies
  - Defining a Parent Policy
  - Defining Inheritance
  - Parent Policy Deployment Use Cases

- Login Enforcement, Brute Force Mitigation, and Session Tracking
  - Defining Login Pages
  - Configuring Automatic Detection of Login Pages
  - Defining Session Tracking
  - What Are Brute Force Attacks?
  - Brute Force Protection Configuration
  - Defining Source-Based Protection
  - Source-Based Brute Force Mitigations
  - Defining Session Tracking
  - Configuring Actions Upon Violation Detection
  - Session Hijacking Mitigation Using Device ID

- Web Scraping Mitigation and Geolocation Enforcement
  - Defining Web Scraping
  - Mitigating Web Scraping
  - Defining Geolocation Enforcement
  - Configuring IP Address Exceptions

- Layer 7 DoS Mitigation and Advanced Bot Protection
  - Defining Denial of Service Attacks
  - The General Flow of DoS Protection
  - Defining the DoS Profile
  - Overview of TPS-based DoS Protection
  - Applying TPS mitigations
  - Create a DoS Logging Profile
  - Defining DoS Profile General Settings
  - Defining Bot Signatures
  - Defining Proactive Bot Defense
  - Defining Behavioral and Stress-Based Detection
  - Defining Behavioral DoS Mitigation

- F5 Advanced WAF and iRules
  - Common Uses for iRules
- Identifying iRule Components
- Triggering iRules with Events
- Defining F5 Advanced WAF iRule Events
- Defining F5 Advanced WAF iRule Commands
- Using F5 Advanced WAF iRule Event Modes

- Using Content Profiles
  - Defining Asynchronous JavaScript and XML
  - Defining JavaScript Object Notation (JSON)
  - Defining Content Profiles
  - The Order of Operations for URL Classification

- Review and Final Labs
  - Final Lab Project (Option 1) - Production Scenario
  - Final Lab Project (Option 2) - JSON Parsing with the Default JSON Profile
  - Final Lab Project (Option 3) – Managing Traffic with L7 Local Traffic Policies

Wymagania:

There are no F5-technology-specific prerequisites for this course. However, completing the following before attending would be very helpful for students with limited BIG-IP administration and configuration experience:

- Administering BIG-IP instructor-led course

-or-

- F5 Certified BIG-IP Administrator

The following free web-based training courses, although optional, will be very helpful for any student with limited BIG-IP administration and configuration experience. These courses are available at F5 University:

- [Getting Started with BIG-IP](#) web-based training
- [Getting Started with BIG-IP Application Security Manager (ASM)](#) web-based training

The following general network technology knowledge and experience are recommended before attending any F5 Global Training Services instructor-led course:

- OSI model encapsulation
- Routing and switching
- Ethernet and ARP
- TCP/IP concepts
- IP addressing and subnetting
- NAT and private IP addressing
- Default gateway
- Network firewalls
- LAN vs. WAN

### Poziom trudności

![Difficulty Level](image)

### Certyfikaty:

The participants will obtain certificates signed by F5 Networks (course completion).

### Prowadzący:

Certified F5 Networks Trainer.