Training: F5 Networks
Configuring BIG-IP F5 Advanced WAF

<table>
<thead>
<tr>
<th>FORM OF TRAINING</th>
<th>MATERIALS</th>
<th>PRICE</th>
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<tbody>
<tr>
<td>Traditional</td>
<td>Hardcopy</td>
<td>3995 USD</td>
<td>4 days</td>
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<tr>
<td>Traditional</td>
<td>CTAB Tablet</td>
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LOCATIONS

Krakow - 5 Tatarska Street, II floor, hours: 9:00 am - 4:00 pm
Warsaw - 17 Bielska Street, hours: 9:00 am - 4:00 pm

TRAINING TERMS

2020-08-24 | 4 days | Virtual Classroom

TRAINING GOALS:

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.

CONSPECT:

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
  ○ Reviewing 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

REQUIREMENTS:

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

**Difficulty level**

![Difficulty level scale]

**CERTIFICATE:**

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

**TRAINER:**

Certified F5 Networks Trainer.