



**Enterprise Computing Solutions - Education Services**

## **TRAINING OFFERING**

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# Developing iRules for BIG-IP v.15.1

CODE:	LENGTH:	PRICE:
F5N_BIG-IRULE-CFG	24 Hours (3 days)	€2,695.00

## Description

This 3 day course provides networking professionals a functional understanding of iRules development. The course builds on the foundation of the Administering BIG-IP or Configuring LTM course, demonstrating how to logically plan and write iRules to help monitor and manage common tasks involved with processing traffic on the BIG-IP system.

Extensive course labs consist of writing, applying and evaluating the effect of iRules on local traffic.

This hands-on course includes lectures, labs, and discussions. Topics Covered

- Setting up the BIG-IP system
- Getting started with iRules
- Leveraging DevCentral resources for iRule development
- Exploring iRule elements, including events, functions, commands, variables, and operators
- Using control structures for conditional branching and looping
- Mastering whitespace, grouping, and special symbols
- Measuring iRule efficiency using timing statistics
- Logging from an iRule using syslog-ng and high-speed logging (HSL)
- Optimizing iRules execution, including implementing efficiency best practices
- Modularizing iRules for administrative efficiency, including using procedures
- Securing web applications with iRules, including preventing common HTTP attacks, securing HTTP headers and cookies, and implementing HTTP strict transport security (HSTS)
- Working with strings, including using Tcl parsing commands and iRules parsing functions
- Accessing and manipulating HTTP traffic, including applying selective HTTP compression
- Working with iFiles and data groups
- Using iRules with universal persistence and stream profiles
- Gathering statistics using STATS and ISTATS
- Incorporating advanced variables, including arrays, static variables, and the session table

## Objectives

At the end of this course, the student will be able to:

- Describe the role of iRules in customizing application delivery on a BIG-IP system
- Describe best practices for using iRules
- Define event context, and differentiate between client-side and server-side contexts, request and response contexts, and local and remote contexts
- Trigger an iRule for both client-side and server-side request and response events
- Assign multiple iRules to a virtual server and control the order in which duplicate events trigger
- Describe and use a testing methodology for iRule development and troubleshooting
- Use local variables, static variables, lists, arrays, the session table, and data groups to store information needed for iRule execution
- Write iRules that are optimized for runtime and administrative efficiency
- Use control structures to conditionally branch or loop within an iRule
- Log from an iRule using Linux syslog-ng or TMOS high-speed logging (HSL)
- Incorporate coding best practices during iRule development
- Use analyzer tools to capture and view traffic flow on both client-side and server-side contexts
- Collect and use timing statistics to measure iRule runtime efficiency
- Write iRules to help mitigate and defend from some common HTTP attacks
- Differentiate between decimal, octal, hexadecimal, floating-point, and exponential notation
- Parse and manipulate strings using Tcl commands and iRule functions
- Write iRules to access and manipulate HTTP header information
- Write iRules to collect customized statistics
- Implement universal persistence via an iRule
- Modify payload content using an iRule with a stream profile

## Audience

This course is intended for system administrators, network administrators and application developers responsible for the customization of traffic flow through a BIG-IP system using iRules.

## Prerequisites

Students must complete one of the following F5 prerequisites before attending this course:

- ? Administering BIG-IP instructor-led course -or-
- ? Configuring BIG-IP LTM instructor-led course -or-
- ? F5 Certified BIG-IP Administrator

The following free web-based courses, although optional, will be very helpful for any student with limited BIG-IP administration and configuration experience.

These courses are available at LearnF5 (<https://www.f5.com/services/training>):

- ? Getting Started with BIG-IP
- ? Getting Started with BIG-IP Local Traffic Manager (LTM)

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

? HTTP protocol

The following course-specific knowledge and experience is suggested before attending this course: ? Any programming language

## Programme

- ? Introducing the BIG-IP System
- ? Initially Setting Up the BIG-IP System
- ? Archiving the BIG-IP System Configuration

Chapter 1: Setting Up the BIG-IP System? Leveraging F5 Support Resources and ToolsChapter 2: Getting Started with iRules

- ? Customizing Application Delivery with iRules
- ? Triggering an iRule

? Leveraging the DevCentral Ecosystem

- ? Creating and Deploying iRules

Chapter 3: Exploring iRule Elements

- ? Introducing iRule Constructs
- ? Understanding iRule Events and Event Context
- ? Working with iRule Commands

? Logging from an iRule Using SYSLOG-NG (LOG Command)

? Working with User-Defined Variables

? Working with Operators and Data Types

? Working with Conditional Control Structures (IF and SWITCH)

? Incorporating Best Practices in iRules

Chapter 4: Developing and Troubleshooting iRules

? Mastering Whitespace and Special Symbols

? Grouping Strings

? Developing and Troubleshooting Tips

? Using Fiddler to Test and Troubleshoot iRulesChapter 5: Optimizing iRule Execution

? Understanding the Need for Efficiency

? Measure iRule Runtime Efficiency Using Timing Statistics

? Modularizing iRules for Administrative Efficiency

? Using Procedures to Modularize Code

? Optimizing Logging

? Using High-Speed Logging Commands in an iRule

? Implementing Other Efficiencies

? Using Looping Control Structures (WHILE, FOR, FOREACH Commands) Chapter 6: Securing Web Applications with iRules

? Integrating iRules into Web Application Defense

? Mitigating HTTP Version Attacks

? Mitigating Path Traversal Attacks

? Using iRules to Defends Against Cross-Site Request Forgery (CSRF)

? Mitigating HTTP Method Vulnerabilities

? Securing HTTP Cookies with iRules

? Adding HTTP Security Headers

? Removing Undesirable HTTP Headers

Chapter 7: Working with Numbers and Strings

? Understanding Number Forms and Notation

? Working with Strings (STRING and SCAN Commands)

? Combining Strings (Adjacent Variables, CONCAT and APPEND Commands)

? Using iRule String Parsing Functions (FINDSTR, GETFIELD, and SUBSTR Commands)

Chapter 8: Processing the HTTP Payload

? Reviewing HTTP Headers and Commands

? Introducing iRule HTTP Header Commands

? Accessing and Manipulating HTTP Headers (HTTP::header Commands)

? Other HTTP commands (HTTP::host, HTTP::status, HTTP::is\_keepalive, HTTP::method, HTTP::version, HTTP::redirect, HTTP::respond, HTTP::uri)

? Parsing the HTTP URI (URL::path, URL::basename, URL::query)

? Parsing Cookies with HTTP::cookie

? Selectively Compressing HTTP Data (COMPRESS Command)

? Working with iFiles

? Working with Data Groups

? Working with Old Format Data Groups (MATCHCLASS, FINDCLASS)

Chapter 9: Working with iFiles and Data Groups? Working with New Format Data Groups (CLASS MATCH, CLASS SEARCH)

Chapter 10: Using iRules with Universal Persistence, Stream, and Statistics Profiles

? Implementing Universal Persistence (PERSIST UIE Command)

? Working with the Stream Profile (STREAM Command)

? Collecting Statistics Using a Statistics Profile (STATS Command)

? Collecting Statistics Using iStats (ISTATS Command)

Chapter 11: Incorporating Advanced Variables

? Reviewing the Local Variable Namespace

? Working with Arrays (ARRAY Command)

? Using Static and Global Variables

? Using the Session Table (TABLE Command)

? Processing Session Table Subtables

? Counting “Things” Using the Session Table

## Follow on courses

F5N\_BIG-LTM-CFG-3, Configuring BIG-IP LTM: Local Traffic Manager v.15.1

F5N\_BIG-DNS-I, Configuring BIG-IP DNS (formerly GTM) v.15.1

F5N\_BIG-AWF-CFG, Configuring F5 Advanced WAF (previously licensed as ASM) v15.1

F5N\_BIG-EGW-APM, Configuring BIG-IP APM: Access Policy Manager v.15.1

F5N\_BIG-AFM, Configuring BIG-IP AFM: Advanced Firewall Manager v.15.1

Other courses available:F5N\_BIG-TRBL-INT2, Troubleshooting BIG-IP v.15.1

## Session Dates

On request. Please [contact us](#)

## Additional Information

[This training is also available as onsite training. Please contact us to find out more.](#)