



Enterprise Computing Solutions - Education Services

TRAINING OFFERING

You can reach us at:

Arrow ECS B.V., Kromme Schaft 5, 3991 AR Houten, The Netherlands

Email: education.ecs.nl@arrow.com

Phone: +31 20 582 6109

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 Tools Chapter 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 iRules Chapter 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
- ? 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 (URI::path, URI::basename, URI::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.](#)