

Agility 2020 Hands-on Lab Guide

Cooking with iRules - HTTP

F5 Networks, Inc.



d all other projects. Get the lages, photographs, royalty

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Getting Started

Please follow the instructions provided by the instructor to start your lab and access your jump host.

Note: All work for this lab will be performed exclusively from the Windows jumphost. No installation or interaction with your local system is required.

1.1 Lab Topology

The following components have been included in your lab environment:

- 2 x F5 BIG-IP VE (v12.1)
- 1 x F5 iWorkflow VE (v2.1)
- 1 x Linux LAMP Webserver (xubuntu 14.04)
- 1 x Windows Jumphost

1.1.1 Lab Components

The following table lists VLANS, IP Addresses and Credentials for all components:

Component	VLAN/IP Address(es)	Credentials
Sample Host	 Management: 10.1.1.250 Internal: 10.1.10.250 External: 10.1.20.250 	admin/admin

Cooking with iRules - HTTP

2

This class covers the following topics:

- HTTP Protocol Review
- HTTP Request Side Overview
- HTTP Response Side Overview
- HTTP Related Events
- HTTP Headers
- STREAM Command
- HTTP Payload Capture and Manipulation (If time permits)
- SSL::profile (If time permits)

Expected time to complete: 1.25 hours

Note: All work for this lab will be performed exclusively from the Windows jumphost. No installation or interaction with your local system is required.

2.1 Lab Components

The following table lists the Credentials for all components:

Component	VLAN/IP Address(es)	Credentials
BigIP	Management: bigip1	admin/admin.F5demo.com
Jumphost	Jumphost: TBD	external_user/P@ssw0rd!

2.1.1 Cooking with iRules Labs

This is the collection of HTTP Labs. Here is where you get to prove you listened in class :)

Lab 1 - Create an iRule that Parses the URI to Route Traffic

Creating your first HTTP iRule that routes traffic based upon the value of the Host name.

The goal of this lab is to route incoming HTTP requests to a specifc pool based on the incoming http host name.

Please create an iRule that will route traffic based on the following table:

Host Name	Pool Name
dvwa.f5lab.com	dvwa_pool_http
peruggia.f5lab.com	peruggia_http_pool
wackopicko.f5lab.com	wackopicko_http_pool

- Estimated completion time: 10 minutes
- 1. Open Chrome Browser
- 2. Enter https://bigip1 into the address bar and hit Enter

	BIG-IP Configuration Utility F5 Networks, Inc.
Hostname bigip01.f5demo.com IP Address 10.1.1.4 Username admin Password Log in	Welcome to the BIG-IP Configuration Utility. Log in with your username and password using the fields on the

- $3. \ \ \text{Login with username: admin password: admin.F5demo.com}$
- 4. Click Local Traffic -> iRules -> iRules List
- 5. Click Create button

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← → C ▲ Not secure 10.1.1.4/xui/						
🗰 Apps 🚯 bigip01 (10.1.1.4) 🔇 D	amn Vulnerable 🔇 W	ackoPicko.com 🔇	Peruggia 1.2			
Hostname bigip01.f5demo.com Date Jan 31, 2020 User admin IP Address 10.1.1.4 Tirne 8:10 AM (PST) Role Administrator						Partition: Common
ONLINE (ACTIVE) Standalone						
Main Help About	Local Traffic » iRules :	iRule List				
Statistics	🔅 👻 iRule List	Data Group List	iFile List	Statistics		
iApps	C*	Se	arch			
S DNS	✓ A Name		\$	Verification		♦ Continuate ♦ Applicate
	Lab1_irule		No	one (4)		
	Lab2_irule		No	one U		
Network Map 🖉	Lab3_irule		No	one		
Virtual Servers	Cab4_irule		No	one		
Policies			No	one		
Profiles		eSupport_OA_BasicA	uth 🖭] F5 Verified		f5-irule.crt
Ciphers	Data Group List	∋Support_OA_NtImAu	th 🖭	F5 Verified		f5-irule.crt
iRules (2)	Statiation	eSupport_helper	0	F5 Verified		f5-irule.crt
Pools	Statistics M_Exchange	eSupport_main	0	F5 Verified		f5-irule.crt

- 6. Enter Name of URI_Routing_iRule
- 7. Enter your code
- 8. Click Finished
- 9. Click Local Traffic -> Virtual Servers -> Virtual Server List
- 10. Click on http_irules_vip

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Hostname bigip01.f5demo.com Date IP Address 10.1.1.4 Time 8	an 31, 2020 User admin :17 AM (PST) Role Administrator		Ра	artition: Con	nmon
ONLINE (ACTIVE) Standalone					
Main Help About	Local Traffic » Virtual Servers : Virtual Server List				
Mage Statistics	★ ✓ Virtual Server List Virtual Address List Statistics				
iApps	(4)				
100	* Search				
(3) DNS $(2)(3)$	Status Alame	Destination	Service Port	Type	Resource
	http_irules_vip	10.1.10.200	80 (HTTP)	Standard	Edit
Local Traffic	https_irules_vip	10.1.10.200	443 (HTTPS)	Standard	Edit
Network Map 📼	Enable Disable Delete				
Virtual Servers 💙 🔸	Virtual Sover List 💿				
Policies >	Virtual Address List				
Profiles	Statistics >				

- 11. Click on the Resources tab
- 12. Click Manage button for the iRules section

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Hostname bigip01.f5demo.com Date J IPAddress 10.1.1.4 Time 8	an 31, 2020 User admin :25 AM (PST) Role Administrator		Partition: Common
CONLINE (ACTIVE) Standalone			
Main Help About	Local Traffic » Virtual Servers	: Virtual Server List » http_irules_vip	
Mage Statistics	🔅 🗸 Properties Reso	ources Statistics 🔊	
iApps	Load Balancing	•	12
S DNS	Default Pool	http_irules_pool	
Corrange Corrage Correction	Default Persistence Profile	None	
Network Map	Fallback Persistence Profile	None	
Virtual Servers	Update		
Policies			
Profiles	iRules		
Ciphers	Name		
	NO RECORDS TO DISPLAY.		

13. Click on **URI_Routing_iRule** from the Available box and click the << button, thus moving it to the Enabled box.

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Hostname bigip01.f5demo.com Date Fill IP Address 10.1.1.4 Time 8:	ieb 3, 2020 User admin :37 AM (PST) Role Administrator
ONLINE (ACTIVE) Standalone	3 2 1
Main Help About	Local Traffic » Virtual Servers : Virtual Server List » 1 tp_irules_vip
Mage Statistics	roperties Resources Statistics I
iApps	Resource Management
S DNS	Enabled Availab
Local Traffic	iRule
Network Map .=	Header_Log_Strip_iRule
Virtual Servers	Up Down
Policies	
Desfine	Cancer Finished

- 14. Click the **Finished** button
- 15. Open a new tab in Chrome
- 16. Enter http://dvwa.f5lab.com/ and ensure you get there
- 17. Now enter http://peruggia.f5lab.com/ and ensure you get to the app
- 18. Finally, enter http://wackopicko.f5lab.com/ and ensure you can get to that app

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19. If you see this image below - it means your iRule did not work.

Gn



Hint: If you need a basic hint here is some example code:

Here is a link to DevCentral: https://clouddocs.f5.com/api/irules/HTTP__host.html

If you are really stuck, here is what we are looking for:

- 1. When HTTP_Request comes in
- 2. Evaluate the HTTP_host name
- 3. If it matches send it to the correct pool.
- 4. Loop through all the host names you want to match on and continue to direct to the correct pools.
- Now you should have enough to understand and the majority of code needed to create the iRule. If not here is the complete iRule.

Lab 2 - Log and Change Headers

Your iRule should:

- 1. Log all HTTP request headers.
- 2. Log all HTTP **response** headers.
- 3. Remove the header named Server from all HTTP responses.

Attention: OPTIONAL: Instead of removing the Server header in the response, change the value of the Server header to Microsoft-IIS/7.0.

- Estimated completion time: 15 minutes
- 1. Open Chrome Browser
- 2. Enter https://bigip1 into the address bar and hit Enter

	BIG-IP Configuration Utility F5 Networks, Inc.
Hostname bigip01.f5demo.com IP Address 10.1.1.4 Username admin Password Log in	Welcome to the BIG-IP Configuration Utility. Log in with your username and password using the fields on the

- 3. Login with username: admin password: admin.F5demo.com
- 4. Click Local Traffic -> iRules -> iRules List
- 5. Click Create button

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Hostname bigip01.f5demo.com Date Jan 31, 2020 User admin IP.Address 10.1.1.4 Time 8:10 AM (PST) Role Administrator Part							
ONLINE (ACTIVE) Standalone							
Main Help About	Local Traffic » iRules :	iRule List					
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S DNS	✓ A Name		\$ \	/erification		♦ Continuate	cati
	Lab1_irule		No	ne (4)			
	Lab2_irule			None			
Network Map 📼	Lab3_irule		No	ne			
Virtual Servers	Cab4_irule		No	ne			
Policies			No	ne			
Profiles	Rule Lis	eSupport_OA_BasicA	uth 🖭	F5 Verified		f5-irule.crt	
Ciphers >	Data Group List	eSupport_OA_NtImAu	th 🖭	F5 Verified		f5-irule.crt	
iRules (2)	Ctatiatian	eSupport_helper	•=	F5 Verified		f5-irule.crt	
Pools	Statistics	Quanant main				ff inde est	

- 6. Enter Name of Header_Log_Strip_iRule
- 7. Enter Your Code
- 8. Click Finished
- 9. Click Local Traffic -> Virtual Servers -> Virtual Server List
- 10. Click on http_irules_vip

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Hostname bigip01.f5demo.com Date IP Address 10.1.1.4 Time 8	an 31, 2020 User admin :17 AM (PST) Role Administrator		Ра	artition: Con	nmon
ONLINE (ACTIVE) Standalone					
Main Help About	Local Traffic » Virtual Servers : Virtual Server List				
Mage Statistics	★ ✓ Virtual Server List Virtual Address List Statistics				
iApps	(4)				
100	* Search				
(3) DNS $(2)(3)$	Status Alame	Destination	Service Port	Type	Resource
	http_irules_vip	10.1.10.200	80 (HTTP)	Standard	Edit
Local Traffic	https_irules_vip	10.1.10.200	443 (HTTPS)	Standard	Edit
Network Map 📼	Enable Disable Delete				
Virtual Servers 💙 🔸	Virtual Sover List 💿				
Policies >	Virtual Address List				
Profiles	Statistics >				

- 11. Click on the **Resources** tab
- 12. Click Manage button for the iRules section

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Hostname bigip01.f5demo.com Date J IP Address 10.1.1.4 Time 8	an 31, 2020 User admin :25 AM (PST) Role Administrator		Partition: Common
CONLINE (ACTIVE) Standalone			
Main Help About	Local Traffic » Virtual Servers	: Virtual Server List » http_irules_vip	
Statistics	🔅 🗸 Properties Reso	ources Statistics 🗩	
iApps	Load Balancing		2
S DNS	Default Pool	http_irules_pool	
Core Local Traffic	Default Persistence Profile	None	
Notwork Map	Fallback Persistence Profile	None	
Virtual Servers	Update		
Policies			
Profiles	iRules		
Ciphers	Name		
Date:	No records to display.		

13. Click on Header_Log_Strip_iRule from the Available box and click the << button, thus moving it to the Enabled box, your first and now second iRule should be in the Enabled box.

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Hostname bigip01.f5demo.com Date F IP Address 10.1.1.4 Time 8	eb 3, 2020 User admin :38 AM (PST) Role Administrato	r	Partition: Common
CONLINE (ACTIVE) Standalone	3	2	1
Main Help About	Local Traffic » Virtual Server	s : Virtual Server List » http_irues_vi	p /
Statistics	🔅 🚽 Properties Res	urces Statistics	
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S DNS		Enabled	Available
Local Traffic	iRule	URI_Routing_iRule Header_Log_Strip_iRule	_sys_aduh_ss_cc_loap _sys_auth_ssl_cridp _sys_auth_ssl_ocsp _sys_auth_targes
Network Map 🥏			_sys_https_redirect
Virtual Servers		Up Down	
Policies	Cancel Finished		
Profiles >	Cancel Finished		

- 14. Click the **Finished** button
- 15. Open the Firefox browser
- 16. Click the 3 horizontal line button on the far right of the address bar
- 17. Use developer tools in Mozilla, or use Chrome to view headers



- 18. Enter http://dvwa.f5lab.com/ and ensure you get there
- 19. Now enter http://wackopicko.f5lab.com/
- 20. Finally, enter http://peruggia.f5lab.com/ and ensure you can get to that app
- 21. Look at the headers for each of your requests. Did you log them all? What is the value of the Server header?





Hint: Basic Hint if you need a hint here is some example code:

Link to DevCentral: https://clouddocs.f5.com/api/irules/HTTP_header.html

If you are really stuck, here is what we are looking for:

- 1. When HTTP_Request comes in
- 2. Log the headers from the HTTP_REQUEST
- 3. When HTTP_RESPONSE comes back
- 4. Log the response headers
- 5. Now remove the HTTP::header named Server
- 6. Now you should have enough to understand and the majority of code to create the iRule. If not here is the complete iRule.

Lab 3 - HTTP to HTTPS Redirect

- 1. Create an iRule to redirect all traffic that arrives at an HTTP virtual server to be redirected to the same IP address but using an HTTPS port.
- 2. The full original HTTP request should be maintained when re-directing. Example http://my.domain. com/app1/index1.html should redirect to https://my.domain.com/app1/inex.html
- 3. Traffic goes to the HTTPS virtual server should still perform the pool selection and should still perform the header stripping from previous labs.

- · Estimated completion time: 20 minutes
- 1. Open Chrome Browser
- 2. Enter https://bigip1 into the address bar and hit Enter

	BIG-IP Configuration Utility F5 Networks, Inc.
Hostname bigip01.f5demo.com IP Address 10.1.1.4 Username admin Password ••••••••••••••••••••••••••••••••••••	Welcome to the BIG-IP Configuration Utility. Log in with your username and password using the fields on the

- 3. Login with username: admin password: admin.F5demo.com
- 4. Click Local Traffic -> iRules -> iRules List
- 5. Click Create button

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Hostname bigip01.f5demo.com Date J IP Address 10.1.1.4 Time 8	an 31, 2020 User admir :10 AM (PST) Role Admir	nistrator			Partition: C	ommon
ONLINE (ACTIVE) Standalone						
Main Help About	Local Traffic » iRules :	iRule List				
Statistics	🚓 🚽 iRule List	Data Group List	iFile List	Statistics		
iApps	C*	S	earch			
S DNS	✓ A Name		\$	Verification	♦ Continuate	Applicati
	Lab1_irule		N	one 4		
Local framic	Lab2_irule		N	lone		
Network Map	Lab3_irule		N	lone		
Virtual Servers	Cab4_irule		N	lone		
Policies			N	lone		
Profiles	Data Graup List	eSupport_OA_BasicA	uth 🖻	F5 Verified	f5-irule.crt	
Ciphers >		eSupport_OA_NtImAu	th 🖻	F5 Verified	f5-irule.crt	
iRules (2)	Statistics	eSupport_helper	0	F5 Verified	f5-irule.crt	
Pools	M_Exchange	eSupport_main	0	5 Verified	f5-irule.crt	

- 6. Enter Name of HTTP_to_HTTPS_iRule
- 7. Enter Your Code
- 8. Click Finished
- 9. Click Local Traffic -> Virtual Servers -> Virtual Server List
- 10. Click on http_irules_vip

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Hostname bigip01.f5demo.com Date J IP Address 10.1.1.4 Time 8	an 31, 2020 User admin :17 AM (PST) Role Administrator		Ра	artition: Con	nmon
ONLINE (ACTIVE) Standalone					
Main Help About	Local Traffic » Virtual Servers : Virtual Server List				
Mage Statistics	☆ → Virtual Server List Virtual Address List Statistics →				
iApps	(4)				
1000	* Search				
(3) DNS $(2)(3)$	Status Application + Application	Destination	Service Port	Type	Resource
	http_irules_vip	10.1.10.200	80 (HTTP)	Standard	Edit
Local Traffic	https_irules_vip	10.1.10.200	443 (HTTPS)	Standard	Edit
Network Map 🖃	Enable Disable Delete				
Virtual Servers 💙 🔸	Virtual Sorver List 💿				
Policies >	Virtual Address List				
Profiles >>	Statistics >				

- 11. Click on the **Resources** tab.
- 12. Click Manage button for the iRules section.

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Hostname bigip01.f5demo.com Date Ja IP Address 10.1.1.4 Time 8	an 31, 2020 User admin :25 AM (PST) Role Administrator		Partition: Common
ONLINE (ACTIVE) Standalone			
Main Help About	Local Traffic » Virtual Servers	: Virtual Server List » http_irules_vip	
Mage Statistics	🔅 🗸 Properties Reso	ources Statistics 🗩	
iApps	Load Balancing	Q	12
S DNS	Default Pool	http_irules_pool	
Local Traffic	Default Persistence Profile	None 🔻	
Natural: Man	Fallback Persistence Profile	None 🔻	
Virtual Services	Update		
Policies			
Profiles	iRules		
Ciphorp	Name		
	No records to display.		

13. Click on HTTP_to_HTTPS_iRule from the Available box and click the << button, thus moving it to the Enabled box, your first, second, and now third iRule's should be in the Enabled box.

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Hostname bigip01.f5demo.com Date I IP Address 10.1.1.4 Time 9	Feb 3, 2020 User admin 9:23 AM (PST) Role Administrator	
ONLINE (ACTIVE) Standalone	3 2 1	
Main Help About	Local Traffic » Virtual Servers : Virtual Server List » http_in les_vip	
Mag Statistics	🚓 🚽 Properties Resources Statistics 💌	
iApps	Resource Management	
S DNS	Enabled 💄 😓 📕 Avai	labl
Local Traffic	iRule //Common URI_Routing_iRule //Common Lab1_irule Header_Log_Strip_iRule Lab2_irule	
Network Map .=	HTTP_to_HTTPS_IRule Lab3_Irule	
Virtual Servers	Up Down	
Policies		
Profiles	Cancel Finished	

- 14. Click the **Finished** button.
- 15. Click Local Traffic -> Virtual Servers -> Virtual Server List.
- 16. Click on https_irules_vip

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\leftrightarrow \rightarrow C \land Not secure 10.	1.1.4/xui/					
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Hostname bigip01.f5demo.com Date J IP Address 10.1.1.4 Time 8	Jan 31, 2020 User admin 3:17 AM (PST) Role Administrator			Ра	artition: Con	nmon
CONLINE (ACTIVE)						
Main Help About	Local Traffic » Virtual Servers : Virtual	Server List				
Magazine Statistics	🔅 🚽 Virtual Server List Virtual Address	s List Statistics -				
iApps	. (4)	Search				
(3) DNs $(2)(3)$	Status 🔺 Name		Destination	Service Port	Type	Resourc
	http_irules_vip		10.1.10.200	80 (HTTP)	Standard	Edit
	🔲 🥥 🍡 https_irules_vip		10.1.10.200	443 (HTTPS)	Standard	Edit
Network Map 🤄	Enable Disable Delete					
Virtual Servers 💙 🔸	Virtual Sarver List 💿					
Policies >	Virtual Address List					
Profiles	Statistics					

- 17. Click on the Resources tab
- 18. Click Manage button for the iRules section

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Hostname bigip01.f5demo.com Date J IP Address 10.1.1.4 Time 8	Jan 31, 2020 User admin 3:25 AM (PST) Role Administrator		Partition: Common
ONLINE (ACTIVE) Standalone			
Main Help About	Local Traffic » Virtual Servers	: Virtual Server List » http_irules_vip	
Man Statistics	🚓 🚽 Properties 🛛 Reso	urces Statistics 🔎	
iApps	Load Balancing		12
iApps	Load Balancing Default Pool	http_irules_pool	12
iApps DNS	Load Balancing Default Pool Default Persistence Profile	http_irules_pool	12
iApps DNS Local Traffic	Load Balancing Default Pool Default Persistence Profile Fallback Persistence Profile	http_irules_pool	12
iApps iApps DNS Local Traffic Network Map Virtual Sequence	Load Balancing Default Pool Default Persistence Profile Fallback Persistence Profile Update	http_irules_pool	12
	Load Balancing Default Pool Default Persistence Profile Fallback Persistence Profile Update	http_irules_pool	12
iApps iApps DNS Local Traffic Network Map Virtual Servers Policies Define	Load Balancing Default Pool Default Persistence Profile Fallback Persistence Profile Update	http_irules_pool	12
iApps iApps DNS Local Traffic Network Map Virtual Servers Policies Profiles	Load Balancing Default Pool Default Persistence Profile Fallback Persistence Profile Update iRules Name	http_irules_pool	12
iApps iApps DNS Local Traffic Network Map Virtual Servers Policies Profiles Ciphers	Load Balancing Default Pool Default Persistence Profile Fallback Persistence Profile Update iRules Name No records to display.	http_irules_pool	12

19. Click on the **2** iRules you require to enable **pool selection and Server header removal** from the previous labs from the Available box and click the << button, thus moving them to the Enabled box.



- 20. Enter http://dvwa.f5lab.com/ and ensure you get redirected to the HTTPS virtual server.
- 21. Now enter http://wackopicko.f5lab.com/ and ensure you get redirected to the HTTPS virtual server.
- 22. Finally, enter http://peruggia.f5lab.com/ ensure you get redirected to the HTTPS virtual server.



- 23. From the previous lab the next two tests should confirm everything is working as before, but using HTTPS.
- 24. Look at the headers for each of your requests. Did you log them all? What is the value of the Server header?





Hint: Basic Hint if you need a hint here is some example code:

Link to DevCentral: https://clouddocs.f5.com/api/irules/HTTP__redirect.html

If you are really stuck, here is what we are looking for:

- 1. When HTTP_Request comes in
- 2. Redirect from HTTP to HTTPS
- 3. Now you should have enough to understand and the majority of code to create the iRule. If not here is the complete iRule.

Lab 4 - Stream Profile

Create a Stream Profile to change the body of the DVWA site

- · Estimated completion time: 10 minutes
- 1. Open Chrome Browser
- 2. Enter https://bigip1 into the address bar and hit Enter

	BIG-IP Configuration Utility F5 Networks, Inc.
Hostname bigip01.f5demo.com IP Address 10.1.1.4 Username admin Password ••••••••••••••••••••••••••••••••••••	Welcome to the BIG-IP Configuration Utility. Log in with your username and password using the fields on the

- 4. Click Local Traffic -> iRules -> iRules List
- 5. Click Create button

-						
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Hostname bigip01.f5demo.com Date J IP Address 10.1.1.4 Time 8	an 31, 2020 User admir ::10 AM (PST) Role Admir	n nistrator			Partition: Com	nmon
ONLINE (ACTIVE) Standalone						
Main Help About	Local Traffic » iRules :	iRule List				
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iApps	C*	Se	arch			
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	Lab1_irule			None 4		
	Lab2_irule			None		
Network Map	Lab3_irule			None		
Virtual Servers	C Lab4_irule			None		
Policies				None		
Profiles	Data Graup List	eSupport_OA_BasicA	ıth	F5 Verified	f5-irule.crt	
Ciphers >		eSupport_OA_NtImAu	th	F5 Verified	f5-irule.crt	
iRules (2)	Statistics	eSupport_helper		F5 Verified	f5-irule.crt	
Pools	M_Exchange	eSupport_main		F5 Verified	f5-irule.crt	

- 6. Enter Name of Stream_iRule
- 7. Enter Your Code
- 8. Click Finished
- 9. Click Local Traffic -> Virtual Servers -> Virtual Server List
- 10. Click on https_irules_vip

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Hostname bigip01.f5demo.com Date IP Address 10.1.1.4 Time 8	Jan 31, 2020 User admin 3:17 AM (PST) Role Administrator		Partition:	Common
ONLINE (ACTIVE) Standalone				
Main Help About	Local Traffic » Virtual Servers : Virtual Server List			
Mage Statistics	★ Virtual Server List Virtual Address List Statistics	*		
iApps	* (4) Search			
\bigcirc DNS $(2)(3)$	Status - Name	Application	♦ Service Port ♦ Type	Resource
	http_irules_vip	10.1.10.200	80 (HTTP) Standa	rd Edit
	https_irules_vip	10.1.10.200	443 (HTTPS) Standa	rd Edit
Network Map 🥏	Enable Disable Delete			
Virtual Servers 💙 🔸	Virtual Spyer List 💿			
Policies >	Virtual Address List			
Profiles	Statistics >>			

- 11. In the **Configuration** section ensure it says **Advanced** in the drop down
- 12. Go to the Stream Profile section and select stream

N	Nain He	elp At	pout	Local Traffic »	Virtual Servers	s : Virtual Serv	ver List » htt	ps_irules_v	/ip
M	Statistics			🔅 🚽 Properties	Res	ources	Statistics		
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<u></u>	мррэ			General Propertie	s				
53	DNS			Name		https_irules_	_vip		
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ىن	Local frame		_	Description					
	Network Ma	p	<u>.</u>	Туре		Standard	•]	
	Virtual Serve	ers		Source Address		Host A	Address List		
	Policies			Source Address		0.0.0/0			
	Profiles			Destination Addre	ee/Maek	• Host • A	Address List		
	Ciphers			Destination Addre	ssamaan	10.1.10.20	0		
	iRules		+	Service Port		Port P	Port List		
	Pools		+	our for		443	HTTPS	T	
	Nodes			Notify Status to V	firtual Address				
	Monitors		(\cdot)	Availability		Available	(Enabled) - Th	ne virtual ser	rver is ava
	Traffic Class	;	()	Syncookie Status	;	Inactive			
	Address Tra	nslation	+	State		Enabled •			
	Acceleration			Configuration:	dvanced 🔻	<	(1)		
	Acceleration			Protocol		TCP	\checkmark		
=	Device Manag	ement		Protocol Profile (Client)	tcp		•	
•	Shared Object	s		Protocol Profile (Server)	(Use Client	Profile)	T	
	Notwork			HTTP Profile (Clie	ent)	http	¥		-
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0 0	System			HTTP Proxy Con	nect Profile	None	-		-
				FTP Profile		None y			
				RTSP Profile		None 🔻			
				SOCKS Profile		None 🔻			
				Stream Profile		None	•		

- 13. Scroll to the bottom and click the **Update** button
- 14. Click on the **Resources** tab at the top of the page.

15. Click Manage button for the iRules section

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Hostname bigip01.15demo.com Date IP Address 10.1.1.4 Time	Jan 31, 2020 User admin 8:25 AM (PST) Role Administrator		Partition: Common
ONLINE (ACTIVE) Standalone			
Main Help About	Local Traffic » Virtual Servers	: Virtual Server List » http_irules_vip	
Mage Statistics	🗱 🗸 Properties Reso	ources Statistics 🗩	
iApps	Load Balancing	4	12
S DNS	Default Pool	http_irules_pool	
Local Traffic	Default Persistence Profile	None	
Network Map	Fallback Persistence Profile	None	
Virtual Servers >	Opdate		
Policies	iPulos		
Profiles	Name		
Ciphers	No records to display.		
(Dulas			

16. Click on Stream_iRule from the Available box and click the << button, thus moving it to the Enabled box, your first and now second iRule should be in the Enabled box.

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Hostname bigip01.f5demo.com Date IP Address 10.1.1.4 Time	Jan 31, 2020 User admin 8:29 AM (PST) Role Administrator	r	Partition: Common
ONLINE (ACTIVE) Standalone			
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Statistics	🔅 👻 Properties Res	ources Statistics 💌	
iApps	Resource Management		
S DNS		Enabled	
Local Traffic	iRule	Lab1_irule	
Network Map		Labs_indie	-
Virtual Servers		Up Down	
Policies	Cancel Einished	(3)	
Profiles			

- 17. Click the Finished button
- 18. Open the Firefox browser
- 19. Enter https://dvwa.f5lab.com and ensure you get there and it is HTTPS and that the word **Damn** is replaced with **Darn**

Hint: Basic Hint if you need a hint here is some example code:

Link to DevCentral: https://clouddocs.f5.com/api/irules/STREAM.html

If you are really stuck, here is what we are looking for:

- 1. When HTTP_Request comes in
- 2. Second we need to disable both encoding the stream profile for the request
- 3. When HTTP_RESPONSE comes back
- 4. Next we need to change our stream matching string and turn on the stream profile again.
- 5. Now you should have enough to understand and the majority of code to create the iRule. If not here is the complete iRule.

Lab 5 - HTTP Payload Manipulation

Collect an HTTP payload, change it, and release it to the client. As in the previous lab replace Damn with Darn, or get creative. We arent going to use a stream profile this time we are using an HTTP::payload command instead.

- · Estimated completion time: 20 minutes
- 1. Open Chrome Browser
- 2. Enter https://bigip1 into the address bar and hit Enter

(5)	BIG-IP Configuration Utility F5 Networks, Inc.
Hostname bigip01.f5demo.com IP Address 10.1.1.4 Username admin Password ••••••••••••••••••••••••••••••••••••	Welcome to the BIG-IP Configuration Utility. Log in with your username and password using the fields on the

- 4. Click Local Traffic -> iRules -> iRules List
- 5. Click Create button

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Hostname bigip01.f5demo.com Date J. IP Address 10.1.1.4 Time 8	an 31, 2020 User admir :10 AM (PST) Role Admir	nistrator				Partition: C	ommon
ONLINE (ACTIVE) Standalone							
Main Help About	Local Traffic » iRules :	iRule List					
Mage Statistics	🚓 👻 iRule List	Data Group List	iFile List	Statistics			
iApps	C*	Se	arch				
S DNS	✓ ▲ Name			Verification		♦ Continuate	Application
	Lab1_irule			None			
Local framic	Lab2_irule			None	/		
Network Map	Lab3_irule			None			
Virtual Servers	C Lab4_irule			None			
Policies				None			
Profiles		eSupport_OA_BasicA	uth	F5 Verified		f5-irule.crt	
Ciphers		eSupport_OA_NtImAu	th	F5 Verified		f5-irule.crt	
iRules (2)	Statiation	eSupport_helper		F5 Verified		f5-irule.crt	
Pools	M_Exchange	eSupport_main		F5 Verified		f5-irule.crt	

- 6. Click Create button
- 7. Enter Name of HTTP_Payload_iRule
- 8. Enter Your Code
- 9. Click Finished
- 10. Click Local Traffic -> Virtual Servers -> Virtual Server List
- 11. Click on http_irules_vip

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Hostname bigip01.f5demo.com Date IP Address 10.1.1.4 Time 8	an 31, 2020 User admin :17 AM (PST) Role Administrator		Pa	artition: Con	nmon
ONLINE (ACTIVE) Standalone					
Main Help About	Local Traffic » Virtual Servers : Virtual Server List				
Mage Statistics	Virtual Server List Virtual Address List Statistics				
iAnns	(4)	_			
	* Search		-	_	-
(3) DNS $(2)(3)$	Status Allame	on Destination	Service Port	Type	Resource
	http_irules_vip	10.1.10.200	80 (HTTP)	Standard	Edit
	https_irules_vip	10.1.10.200	443 (HTTPS)	Standard	Edit
Network Map 📼	Enable Disable Delete				
Virtual Servers 💙 🔸	Virtual Server List 💿				
Policies >	Virtual Address List				
Profiles >	Statistics >				

- 12. Click on the **Resources** tab.
- 13. Click Manage button for the iRules section.

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Hostname bigip01.f5demo.com Date J IP Address 10.1.1.4 Time 8	lan 31, 2020 User admin x25 AM (PST) Role Administrator		Partition: Common
ONLINE (ACTIVE) Standalone			
Main Help About	Local Traffic » Virtual Servers	: Virtual Server List » http_irules_vip	
Maga Statistics	🔅 🗸 Properties Reso	urces Statistics 🔊	
iApps	Load Balancing	<	12
S DNS	Default Pool	http_irules_pool	
Coral Traffic	Default Persistence Profile	None	
Network Map	Fallback Persistence Profile	None	
Virtual Servers	Update		
Policies	iPulos		
Profiles	Name		
Ciphers >	No records to display.		
iDulos			

- 14. What should you do here? (Hint: Remove Stream_iRule and replace with HTTP_Payload_iRule)
- 15. Click the Finished button
- 16. Open the Firefox browser
- 17. Enter https://dvwa.f5lab.com and ensure you get there and it is HTTPS

Hint: Basic Hint

if you need a hint here is some example code:

Link to DevCentral: https://clouddocs.f5.com/api/irules/HTTP__collect.html

Link to DevCentral: https://clouddocs.f5.com/api/irules/HTTP__release.html

If you are really stuck, here is what we are looking for:

- 1. When HTTP_Request comes in
- 2. Second change the version of HTTP and disable compression for the request
- 3. When HTTP_RESPONSE comes back
- 4. Next we need to collect some HTTP::collect some data.
- 5. Now when we get HTTP_RESPONSE_DATA
- 6. Now we will set some find and replace strings.
- 7. Finally we will perform a regsub on the payload and replace with new text.
- Now you should have enough to understand and the majority of code to create the iRule. If not here
 is the complete iRule.

iRules Summary

Here is a summary of all the irules used in this lab

Lab 1 - Complete iRule

Completed iRule

```
# if / elseif version
when HTTP_REQUEST {
       if {[HTTP::host] equals "dvwa.f5lab.com"} {
               pool dvwa_pool_http
        } elseif {[HTTP::host] equals "peruggia.f5lab.com"} {
               pool peruggia_http_pool
        } elseif {[HTTP::host] equals "wackopicko.f5lab.com"} {
               pool wackopicko_http_pool
        }
}
# switch version
when HTTP_REQUEST {
       switch [HTTP::host] {
                dvwa.f5lab.com { pool dvwa_pool_http }
                peruggia.f5lab.com { pool peruggia_http_pool }
                wackopicko.f5lab.com { pool wackopicko_http_pool }
        }
}
# Advanced, data group lookup version!
when HTTP_REQUEST {
       if { [class match [HTTP::host] equals "hostnames_dg"] } {
               pool [class lookup [HTTP::host] "hostnames_dg"]
        }
}
```

Lab 2 - Complete iRule

Completed iRule

```
# Header_Strip_Log_iRule
when HTTP_REQUEST {
    log local0. "Request Headers: [HTTP::header names]"
}
when HTTP_RESPONSE {
    log local0. "Response Headers: [HTTP::header names]"
```

```
HTTP::header remove Server
}
# Advanced - Bonus and prettier
when HTTP_REQUEST {
        foreach header [HTTP::header names] {
                log local0. "Request Header $header: [HTTP::header $header]"
        }
}
when HTTP_RESPONSE {
        foreach header [HTTP::header names] {
                log local0. "Response Header $header: [HTTP::header $header]"
                if {$header equals "Server"} {
                        HTTP::header remove $header
                }
        }
        HTTP::header insert Server "Microsoft-IIS/8.0"
}
```

Lab 3 - Complete iRule

Completed iRule

```
# HTTP_to_HTTPS_iRule
when HTTP_REQUEST {
    HTTP::redirect "https://[HTTP::host][HTTP::uri]"
}
# Factory F5 https redirect iRule
when HTTP_REQUEST {
    HTTP::redirect https://[getfield [HTTP::host] ":" 1][HTTP::uri]
}
```

Lab 4 - Complete iRule

Completed iRule

```
# Stream_iRule
when HTTP_REQUEST {
    HTTP::header remove Accept-Encoding
    STREAM::disable
}
when HTTP_RESPONSE {
    STREAM::expression @Damn@Darn@
    STREAM::enable
}
```

Lab 5 - Complete iRule

Completed iRule

```
# HTTP_Payload_iRule
when HTTP_REQUEST {
    HTTP::version 1.0
    HTTP::header remove Accept-Encoding
}
when HTTP_RESPONSE {
    HTTP::collect [expr 1024*1024]
}
when HTTP_RESPONSE_DATA {
    set find "Damn"
    set replace "***"
    if {[regsub -all $find [HTTP::payload] $replace new_response] > 0} {
    HTTP::payload replace 0 [HTTP::payload length] $new_response
    }
}
```

iRules Events

Here is the link to the iRule Events

Complete listing of events - https://clouddocs.f5.com/api/irules/Events.html

Master list of iRule Commands - https://clouddocs.f5.com/api/irules/Commands.html

BIG-IP Commands and Events by Version - https://clouddocs.f5.com/api/irules/BIGIP_Commands_by_ Version.html

iRules HTTP Events

Here is the link to the iRule Events flow order

HTTP Flow Order grabbed form here - https://devcentral.f5.com/s/contentdocument/ 0691T000005oRxAQAU



iRules HTTPS Events

Here is the link to the iRule Events flow order

HTTPS Flow Order grabbed from here - https://devcentral.f5.com/s/contentdocument/ 0691T000005nCt6QAE











US Headquarters: 401 Elliott Ave W, Seattle, WA 98119 | 888-882-4447 // Americas: info@f5.com // Asia-Pacific: apacinfo@f5.com // Europe/Middle East/Africa: emeainfo@f5.com // Japan: f5j-info@f5.com ©2017 F5 Networks, Inc. All rights reserved. F5, F5 Networks, and the F5 logo are trademarks of F5 Networks, Inc. in the U.S. and in certain other countries. Other F5 trademarks are identified at f5.com. Any other products, services, or company names referenced herein may be trademarks of their respective owners with no endorsement or affiliation, express or implied, claimed by F5. These training materials and documentation are F5 Confidential Information and are subject to the F5 Networks Reseller Agreement. You may not share these training materials and documentation with any third party without the express written permission of F5.