


(/)



Curriculum



SE Foundations Average: 108.76% 

0x10. HTTPS SSL

DevOps

SysAdmin

Security

 By: Sylvain Kalache, co-founder at Holberton School Weight: 1 Project over - took place from Sep 7, 2023 6:00 AM to Sep 8, 2023 6:00 AM☒ An auto review will be launched at the deadline

In a nutshell...

- **Auto QA review:** 7.0/8 mandatory & 1.0/1 optional
- **Altogether: 175.0%**
 - Mandatory: 87.5%
 - Optional: 100.0%
 - Calculation: $87.5\% + (87.5\% * 100.0\%) == 175.0\%$

Concepts

For this project, we expect you to look at these concepts:

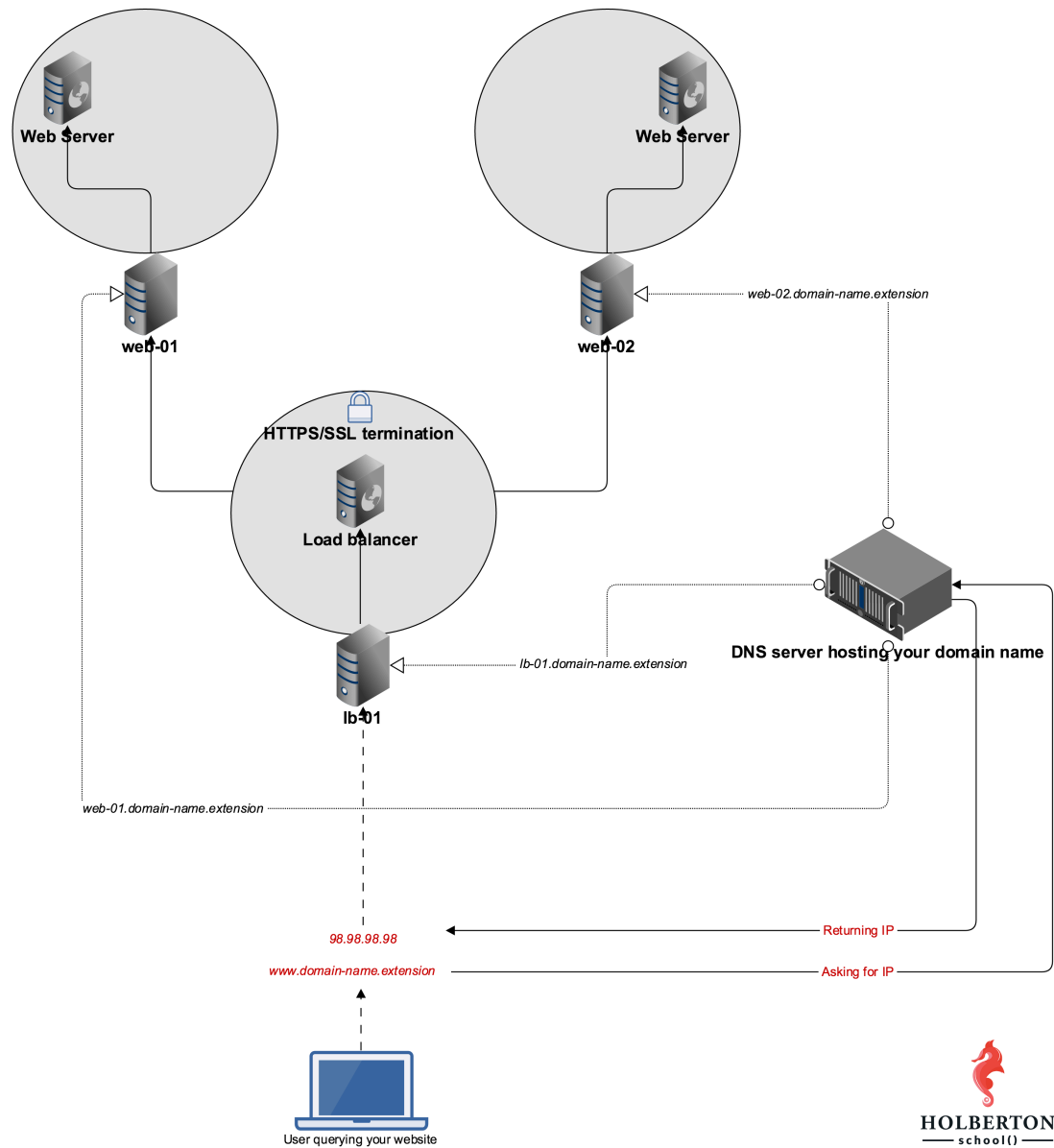
- DNS (/concepts/12)
- Web stack debugging (/concepts/68)



Help

(/)

HTTPS



Background Context

What happens when you don't secure your website traffic?



Resources

Read or watch:

- What is HTTPS? (/rltoken/XT1BAiBL3Jpq1bn1q6IYXQ)
- What are the 2 main elements that SSL is providing (/rltoken/STj5WkAPACBxOvwB77Ycrw)
- HAProxy SSL termination on Ubuntu16.04 (/rltoken/XD_RckEglds0UkoMsfxp2A)
- SSL termination (/rltoken/CKUICfppIWl6UC0coEMB8g)
- Bash function (/rltoken/zPjZ7-eSSQsLFsGA16C1HQ)

man or help:

- awk
- dig

Learning Objectives

At the end of this project, you are expected to be able to explain to anyone (/rltoken/fJ20wsMngb_yNAhGgBwzlQ), **without the help of Google**:

General

- What is HTTPS SSL 2 main roles
- What is the purpose encrypting traffic
- What SSL termination means

Requirements

General

- Allowed editors: vi , vim , emacs
- All your files will be interpreted on Ubuntu 16.04 LTS
- All your files should end with a new line
- A README.md file, at the root of the folder of the project, is mandatory
- All your Bash script files must be executable
- Your Bash script must pass Shellcheck (version 0.3.7) without any error
- The first line of all your Bash scripts should be exactly `#!/usr/bin/env bash`
- The second line of all your Bash scripts should be a comment explaining what is the script doing

Quiz questions

Great! You've completed the quiz successfully! Keep going! ([Show quiz](#))



- Must use:
 - awk
 - at least one Bash function
- You do not need to handle edge cases such as:
 - Empty parameters
 - Nonexistent domain names
 - Nonexistent subdomains

Example:

```
sylvain@ubuntu$ dig www.holberton.online | grep -A1 'ANSWER SECTION:'  
;; ANSWER SECTION:  
www.holberton.online. 87 IN A 54.210.47.110  
sylvain@ubuntu$ dig lb-01.holberton.online | grep -A1 'ANSWER SECTION:'  
;; ANSWER SECTION:  
lb-01.holberton.online. 101 IN A 54.210.47.110  
sylvain@ubuntu$ dig web-01.holberton.online | grep -A1 'ANSWER SECTION:'  
;; ANSWER SECTION:  
web-01.holberton.online. 212 IN A 34.198.248.145  
sylvain@ubuntu$ dig web-02.holberton.online | grep -A1 'ANSWER SECTION:'  
;; ANSWER SECTION:  
web-02.holberton.online. 298 IN A 54.89.38.100  
sylvain@ubuntu$  
sylvain@ubuntu$  
sylvain@ubuntu$ ./0-world_wide_web holberton.online  
The subdomain www is a A record and points to 54.210.47.110  
The subdomain lb-01 is a A record and points to 54.210.47.110  
The subdomain web-01 is a A record and points to 34.198.248.145  
The subdomain web-02 is a A record and points to 54.89.38.100  
sylvain@ubuntu$  
sylvain@ubuntu$ ./0-world_wide_web holberton.online web-02  
The subdomain web-02 is a A record and points to 54.89.38.100  
sylvain@ubuntu$
```

Repo:

- GitHub repository: alx-system_engineering-devops
- Directory: 0x10-https_ssl
- File: 0-world_wide_web

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1. HAproxy SSL termination

mandatory

Score: 100.0% (Checks completed: 100.0%)



"Terminating SSL on HAproxy" means that HAproxy is configured to handle encrypted traffic, unencrypt it and pass it on to its destination.

Create a certificate using `certbot` and configure `HAproxy` to accept encrypted traffic for your subdomain `www.`.

Requirements:

- `HAproxy` must be listening on port TCP 443
- `HAproxy` must be accepting SSL traffic
- `HAproxy` must serve encrypted traffic that will return the `/` of your web server
- When querying the root of your domain name, the page returned must contain `Holberton School`
- Share your `HAproxy` config as an answer file (`/etc/haproxy/haproxy.cfg`)

The file `1-haproxy_ssl_termination` must be your `HAproxy` configuration file

Make sure to install `HAproxy` 1.5 or higher, SSL termination (`/rltoken/CKUICfppiWI6UC0coEMB8g`) is not available before v1.5.

Example:

```
sylvain@ubuntu$ curl -sI https://www.holberton.online
HTTP/1.1 200 OK
Server: nginx/1.4.6 (Ubuntu)
Date: Tue, 28 Feb 2017 01:52:04 GMT
Content-Type: text/html
Content-Length: 30
Last-Modified: Tue, 21 Feb 2017 07:21:32 GMT
ETag: "58abea7c-1e"
X-Served-By: 03-web-01
Accept-Ranges: bytes
sylvain@ubuntu$
sylvain@ubuntu$ curl https://www.holberton.online
Holberton School for the win!
sylvain@ubuntu$
```

Repo:

- GitHub repository: `alx-system_engineering-devops`
- Directory: `0x10-https_ssl`
- File: `1-haproxy_ssl_termination`

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2. No loophole in your website traffic

#advanced

Score: 100.0% (Checks completed: 100.0%)



A good habit is to enforce HTTPS traffic so that no unencrypted traffic is possible. Configure `HAproxy` to automatically redirect HTTP traffic to HTTPS.

Requirements:

- This should be transparent to the user
- (/). HAproxy should return a 301 (/rltoken/yGdTSvZAzHMnDEhalTjNUw)
- HAproxy should redirect HTTP traffic to HTTPS
- Share your HAproxy config as an answer file (/etc/haproxy/haproxy.cfg)

The file 100-redirect_http_to_https must be your HAproxy configuration file

Example:

```
sylvain@ubuntu$ curl -sIL http://www.holberton.online
HTTP/1.1 301 Moved Permanently
Content-length: 0
Location: https://www.holberton.online/
Connection: close

HTTP/1.1 200 OK
Server: nginx/1.4.6 (Ubuntu)
Date: Tue, 28 Feb 2017 02:19:18 GMT
Content-Type: text/html
Content-Length: 30
Last-Modified: Tue, 21 Feb 2017 07:21:32 GMT
ETag: "58abea7c-1e"
X-Served-By: 03-web-01
Accept-Ranges: bytes

sylvain@ubuntu$
```


Repo:

- GitHub repository: alx-system_engineering-devops
- Directory: 0x10-https_ssl
- File: 100-redirect_http_to_https

☒ Done!

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QA Review

