

PENETRATION TEST REPORT

Project

Web application penetration testing

Target

BWAPP

Prepared by 5ynd1c473

Prepared for "BWAPP"

5ynd1c473

Professional Penetration tester

Address: H#108, Dhanmondi, Dhaka

Email: kmna2.jowel@gmail.com

Web site:

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Contact Information

Name	Designation	Contact Information
On behalf of "BWAPP"		
		Phone: Email:
		Phone: Email:
		Phone: Email:
On behalf of 5ynd1c473		
Kazi Md. Nur Alam Jowel		Phone: +880 1632 090893 Email: kmna2.jowel@gmail.com
		Phone: Email:
		Phone: Email:

ASSESSMENT OVERVIEW

During the period from “August 10, 2024 to August 12, 2024”, “BWAPP” partnered with **Syndicate473** to assess the security resilience of its infrastructure.

This evaluation was conducted in alignment with contemporary industry standards, incorporating methodologies such as the OWASP Testing Guide, Penetration Test Execution Standards (PTES), and tailored testing frameworks to address specific requirements. The penetration testing activities unfolded across distinct phases:

Planning	Commencing with a thorough understanding of customer objectives and engagement guidelines, this phase set the foundation for subsequent assessments.
Discovery	Employing scanning and enumeration techniques, the team probed the infrastructure to uncover potential vulnerabilities, weak points, and avenues for exploitation.
Attack	Validating scanning and enumeration techniques, the team iteratively progressed through a series of steps to gain unauthorized access, escalate privileges, and explore the environment for valuable assets and data.
Reporting	A comprehensive documentation of findings ensued, encompassing identified vulnerabilities, successful exploits, attempted intrusions and an assessment of the organization’s security strengths and weakness.

Additionally, the attack phase comprised several distinct steps, executed iteratively as information was discovered.

- Gained access to the system or environment in a way that was not intended.
- Escalated privileges to move from regular or anonymous user to a more privileged position.
- Browsed to explore the newly accessed environment and identify useful assets and data
- Deployed tools to attack further from the newly gained vantage point.
- Exfiltrated data.

Discovery & Reconnaissance

As the first step of this engagement, first performed discovery and reconnaissance of the environment. This included performing network or application scans, reviewing the system, network or application architecture or walking through a typical use case scenario for the environment. This results of discovery and reconnaissance determine vulnerable areas which may be exploited.

Validation & Exploitation

5ynd1c473 used the results of the reconnaissance efforts as a starting point for manual attempts to compromise the Confidentiality, Integrity and Availability (CIA) of the environment and the data contained therein.

The highest risk vulnerabilities were selectively chosen by the assessor for exploitation attempts. The detailed results of these exploitation and validation tests follow in the sections below. While **5ynd1c473** may not have had time to exploit every vulnerability found, the assessor chose those vulnerabilities that provided the best chance to successfully compromise the systems in the time available.

Scope and Timeframe

Testing and verification were performed between “date” the scope of this project was limited to the “company name” internal network. We conducted the tests using a production version of the “company name” internal network.

All other servers were out of scope. All testing and verification were conducted from “outside/inside” offices. User Account provided by “company name”. The following hosts were considered to be in scope for testing.

Scope	Description
Internal Network Scope	Assessing internal infrastructure to enhance system security
Network Devices Scope	Assessing device within the network for security enhancements

Client Allowance

“company name” provided the following IP Address-

IP Address	Briefed Overview
192.168.0.192	A host IP within the network

Our targeted web application

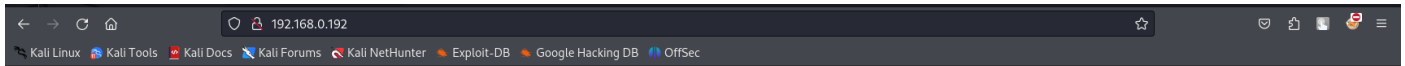
```
bee@bee-box:~$ ifconfig
eth0      Link encap:Ethernet  HWaddr 00:0c:29:56:d8:ec
          inet addr:192.168.0.192  Bcast:192.168.0.255  Mask:255.255.255.0
          inet6 addr: fe80::20c:29ff:fe56:d8ec/64 Scope:Link
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:7 errors:0 dropped:0 overruns:0 frame:0
          TX packets:63 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:1267 (1.2 KB)  TX bytes:10194 (9.9 KB)
          Interrupt:16 Base address:0x2024

lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:16436  Metric:1
          RX packets:678 errors:0 dropped:0 overruns:0 frame:0
          TX packets:678 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:0
          RX bytes:33900 (33.1 KB)  TX bytes:33900 (33.1 KB)

bee@bee-box:~$
```

1: Cross Site Scripting Reflected (Custom Headers)

1.1: Search bWAPP

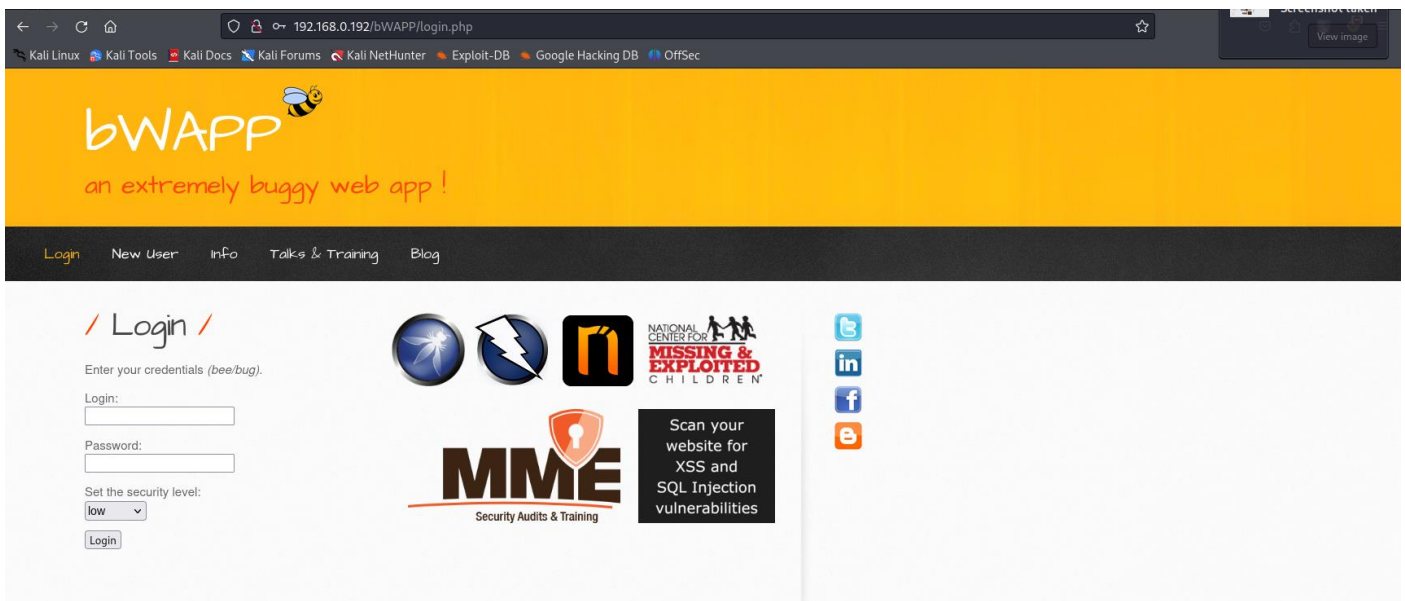


bWAPP, an extremely buggy web app !

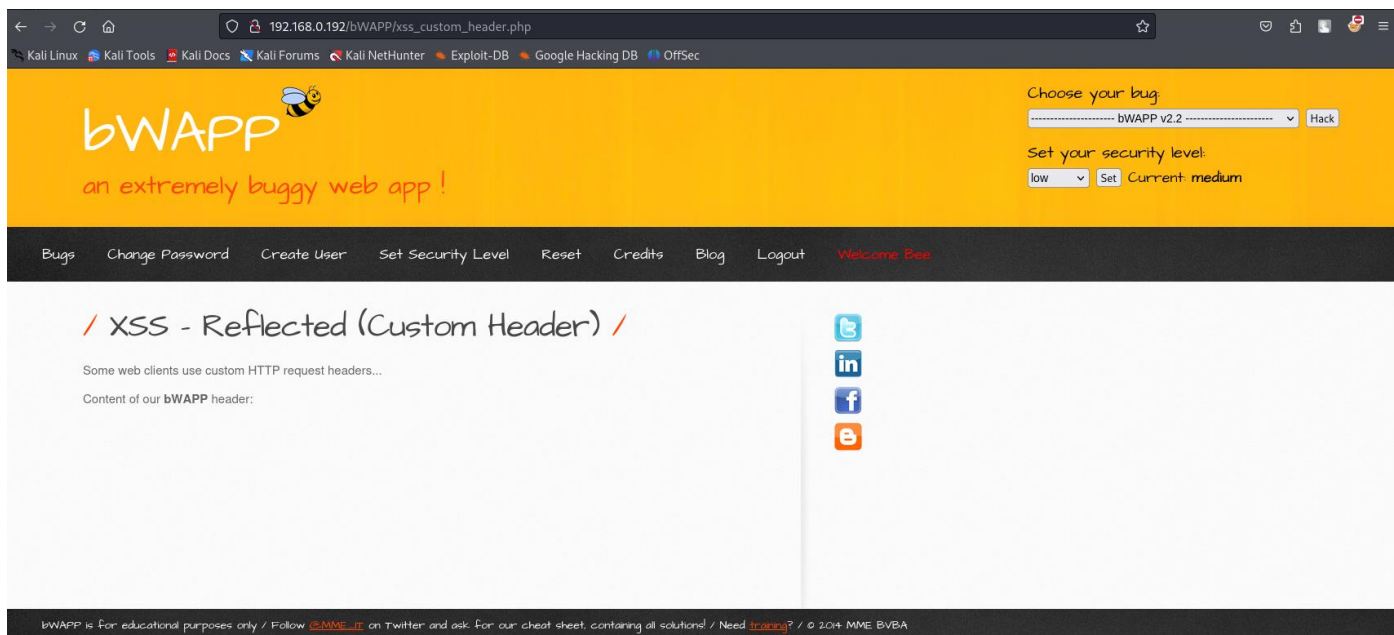
[bWAPP](#)
[Drupageddon](#)
[Evil folder](#)
[phpMyAdmin](#)
[SQLiteManager](#)



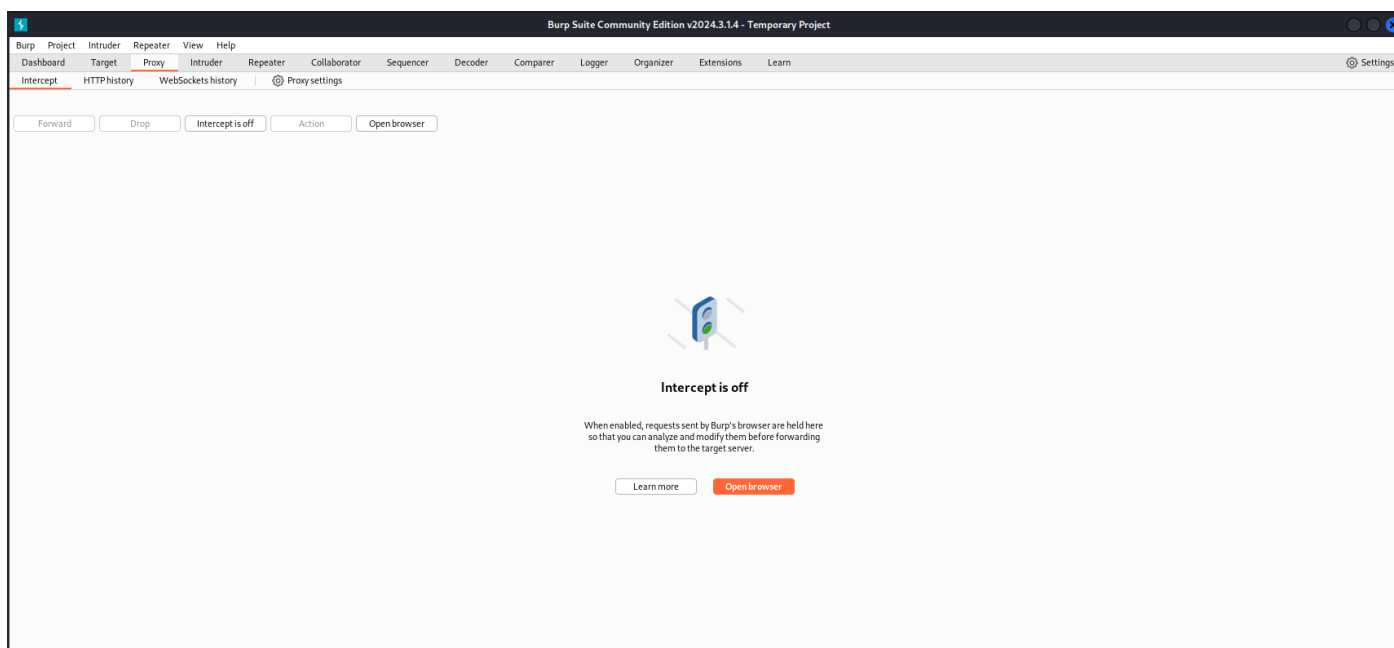
1.2: bwapp log in page



1.3: Set challenge and set level medium



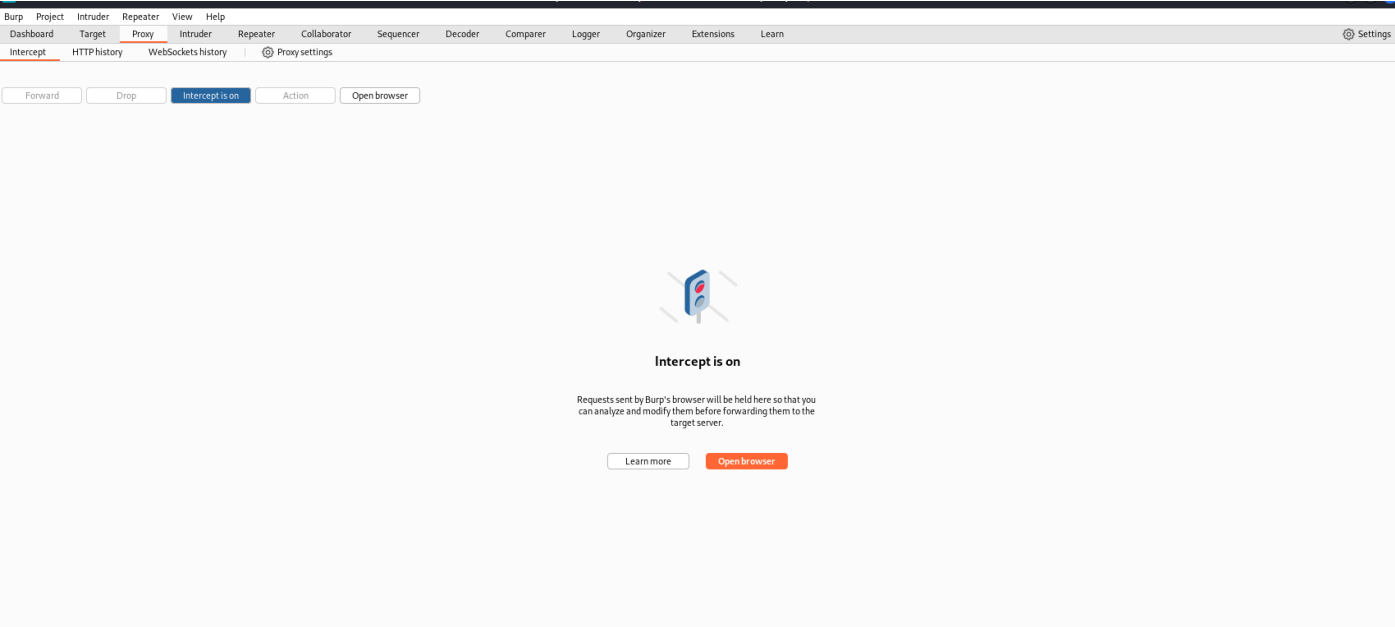
1.4: Open burp suit



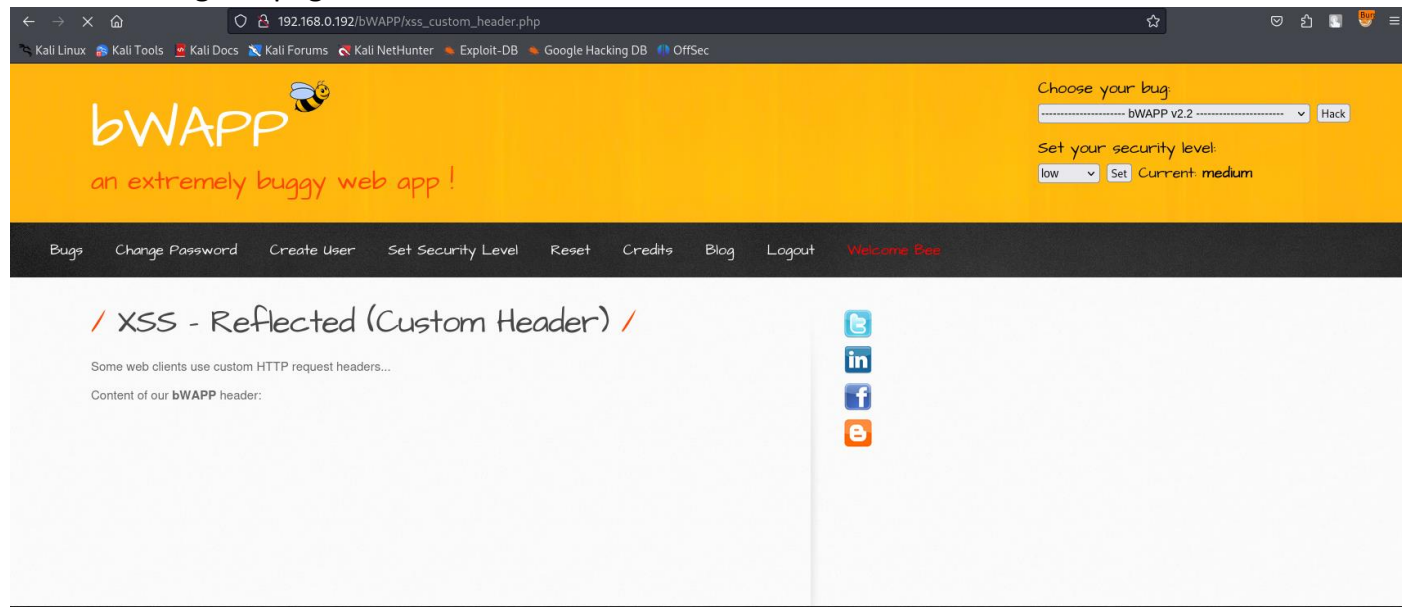
1.5: Turn on burp proxy



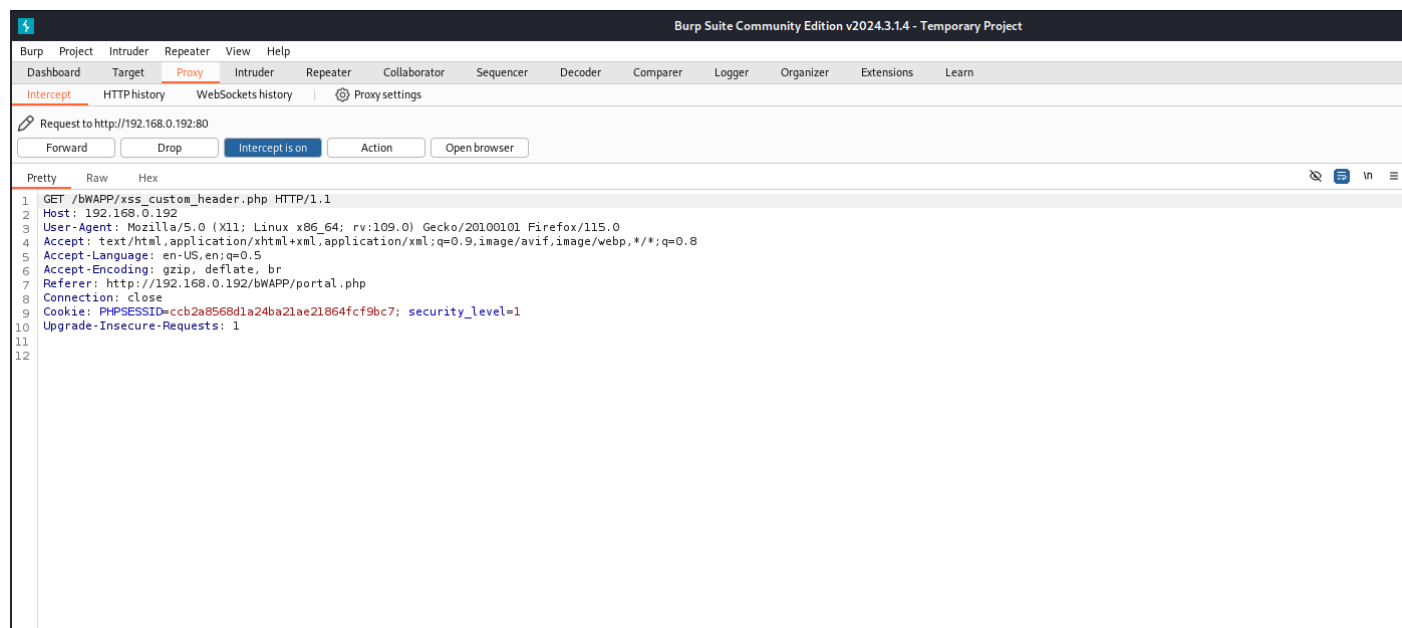
1.6: Intercept on



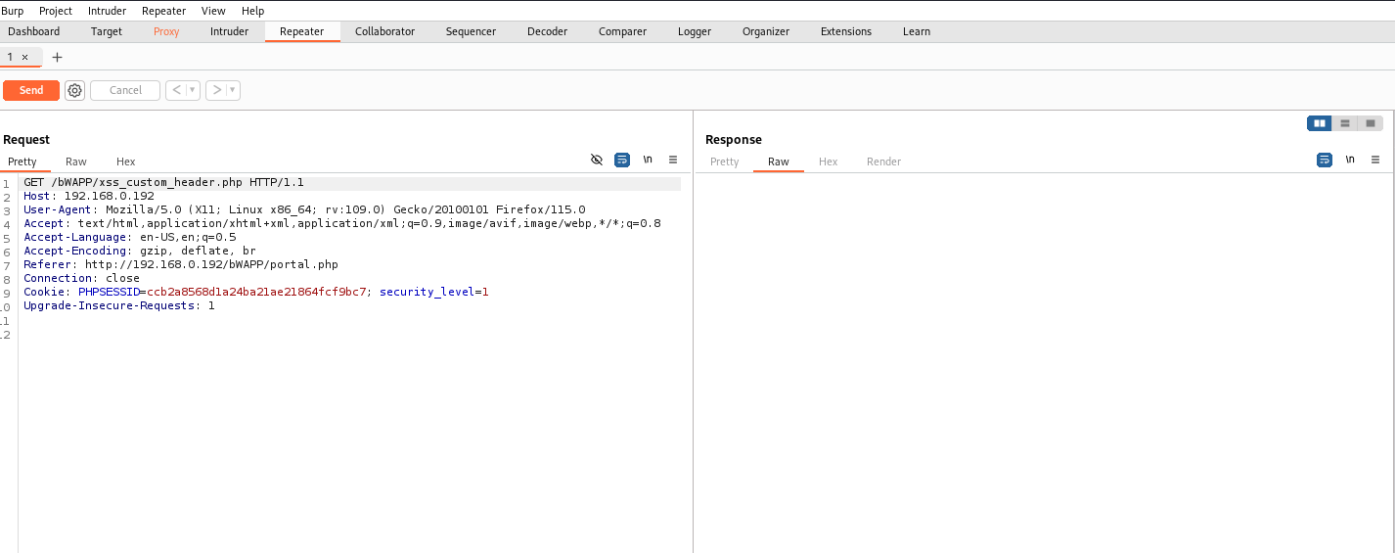
1.7: Reloading the page



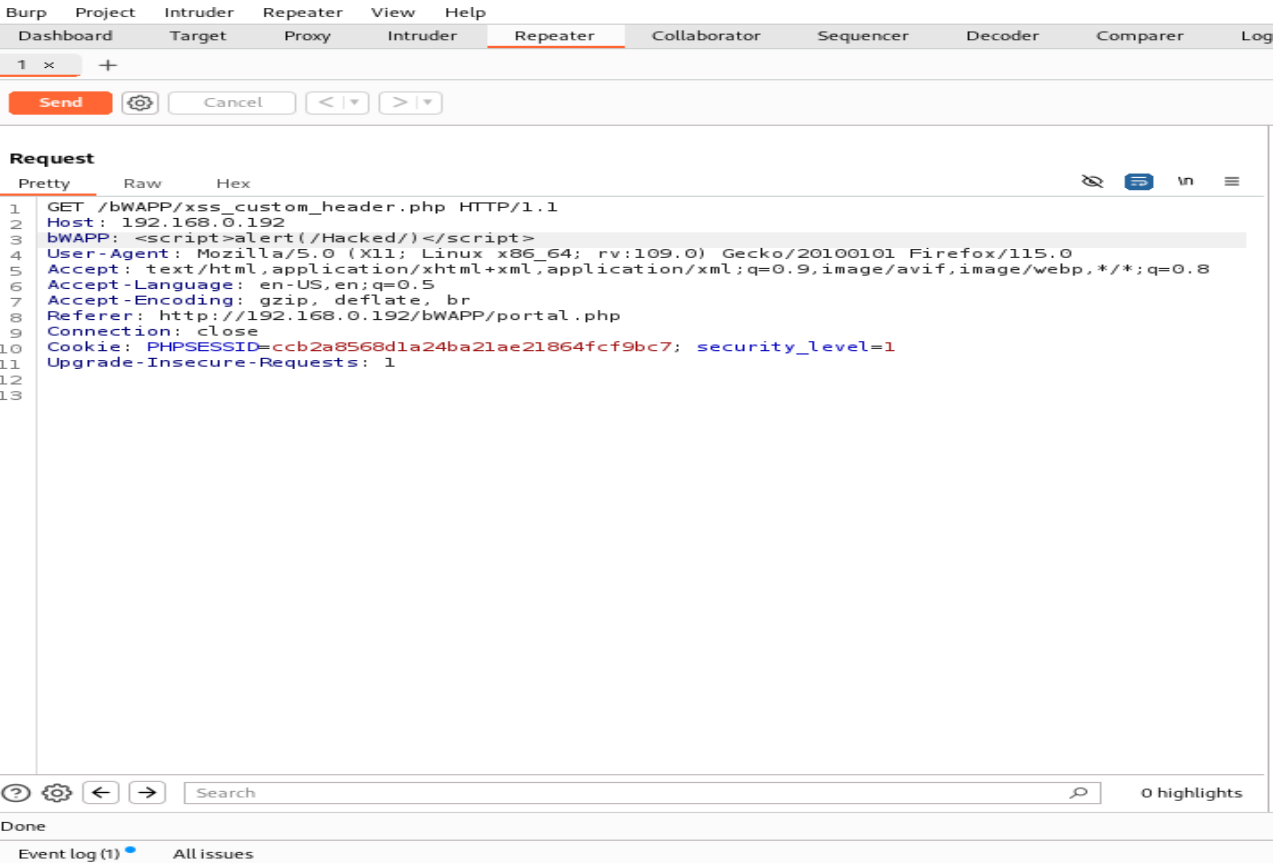
1.8: Capture the request



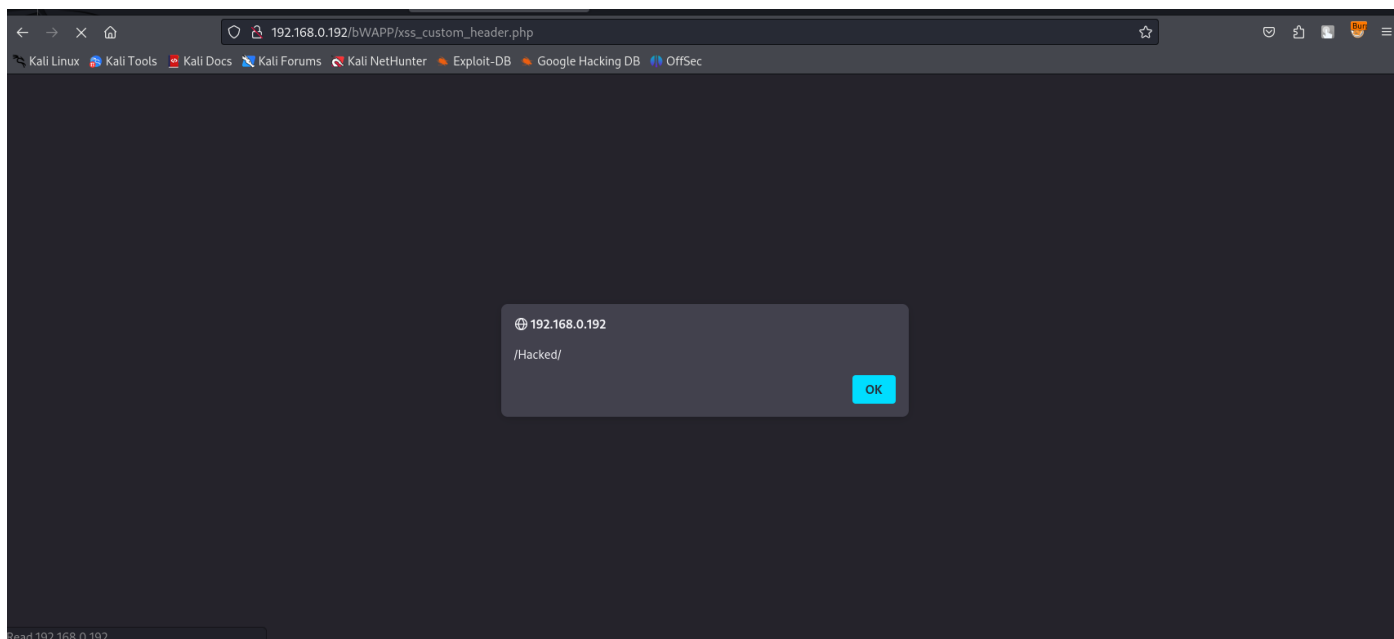
1.9: Send to repeater



1.10: Change into payload

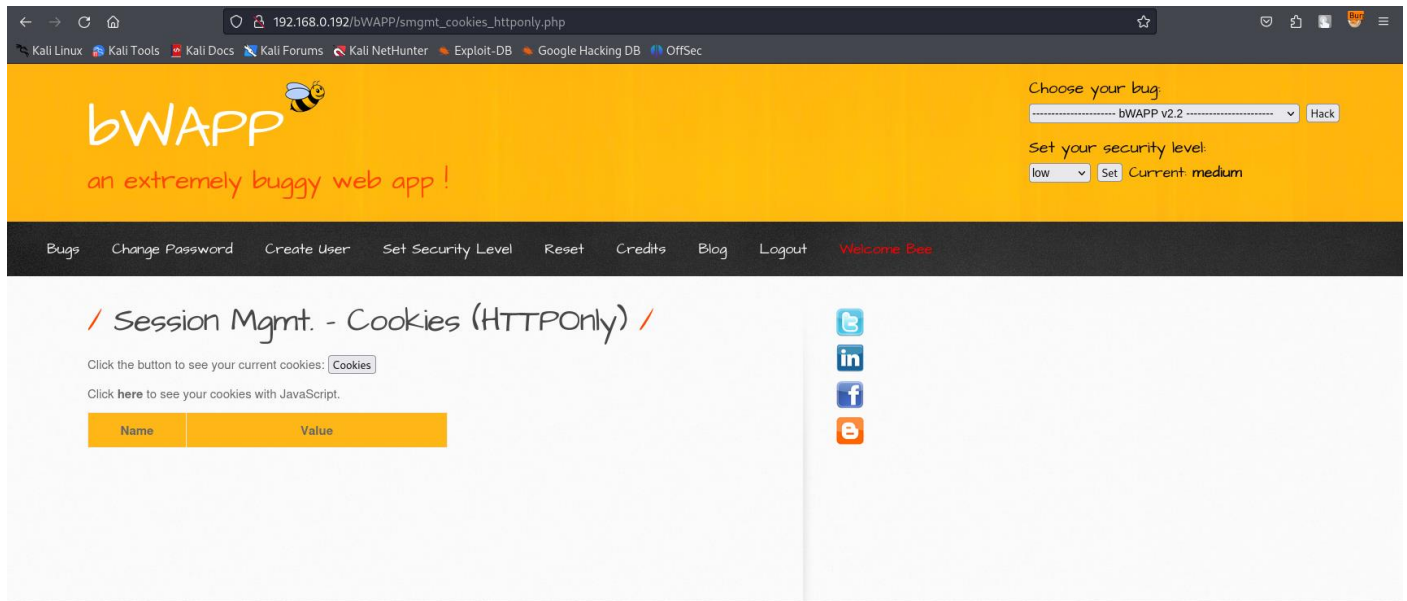


1.11: Copy the link and browse after change the payload

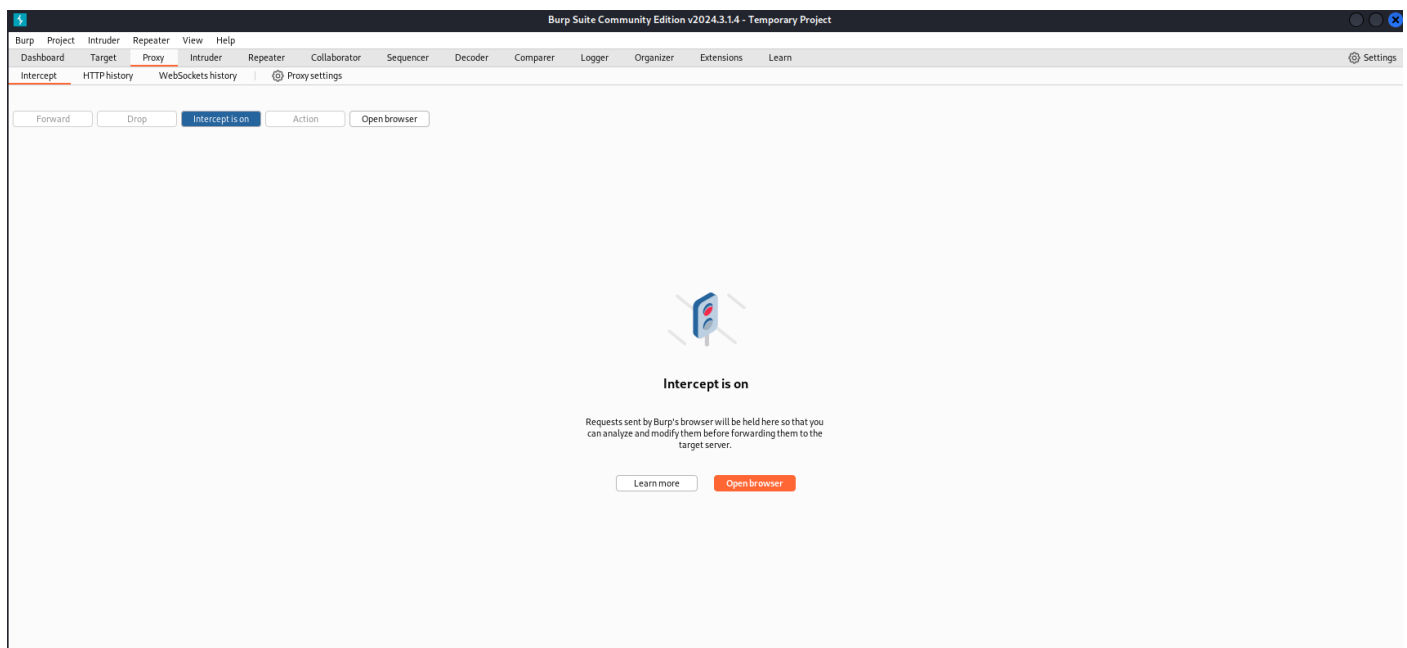


2: session management cookies (httponly)


2.1: Set challenge and set medium level



2.2: Intercept on



2.3: PHP Session id for bee user



an extremely buggy web app !

Choose your bug
..... bWAPP v2.2 Hack

Set your security level:
low Set Current: medium





Bugs Change Password Create User Set Security Level Reset Credits Blog Logout Welcome Bee

/ Session Mgmt. - Cookies (HTTPOnly) /


Click the button to see your current cookies: [Cookies](#)

Click [here](#) to see your cookies with JavaScript.

Name	Value
PHPSESSID	0c2a6560751e8bb9e13f7e97b61e92ab
security_level	1
top_security	maybe



2.4: Creating a user name nur and PHP Session id



an extremely buggy web app !

Choose your bug
..... bWAPP v2.2 Hack

Set your security level:
low Set Current: medium





Bugs Change Password Create User Set Security Level Reset Credits Blog Logout Welcome Nur

/ Session Mgmt. - Cookies (HTTPOnly) /

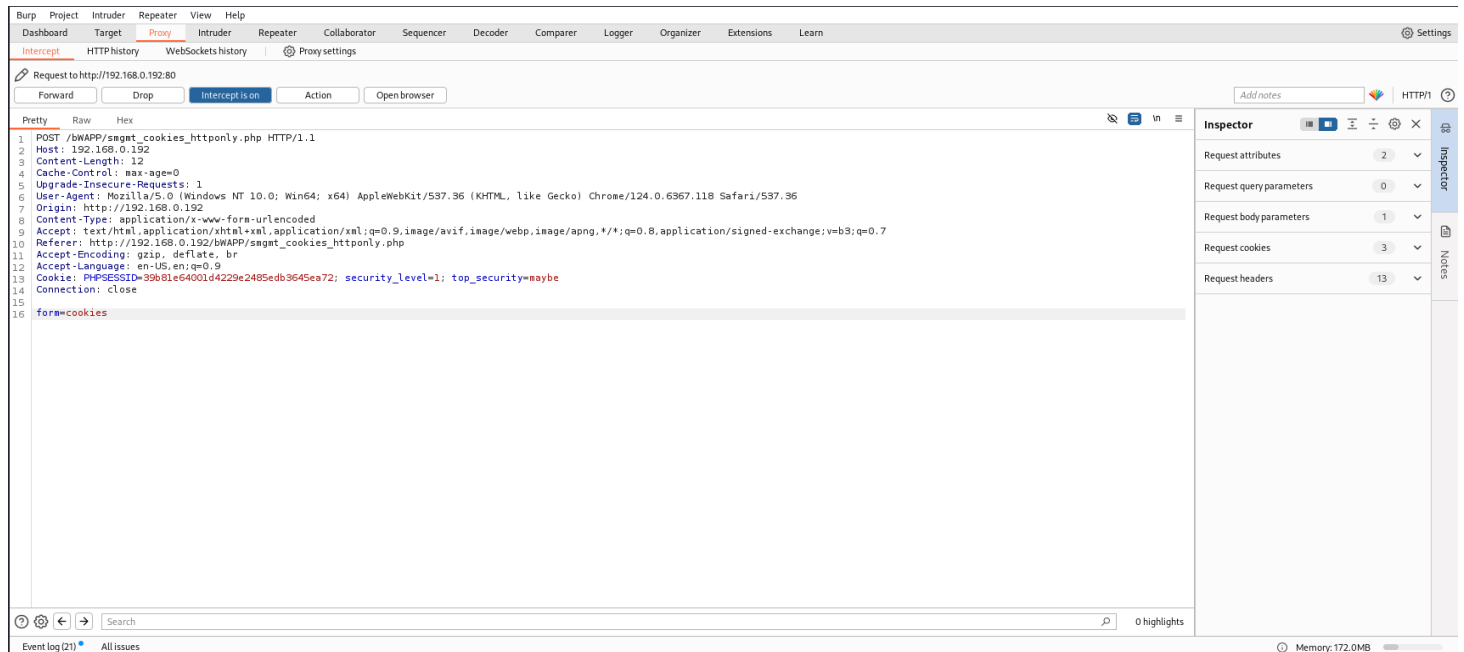
Click the button to see your current cookies: [Cookies](#)

Click [here](#) to see your cookies with JavaScript.

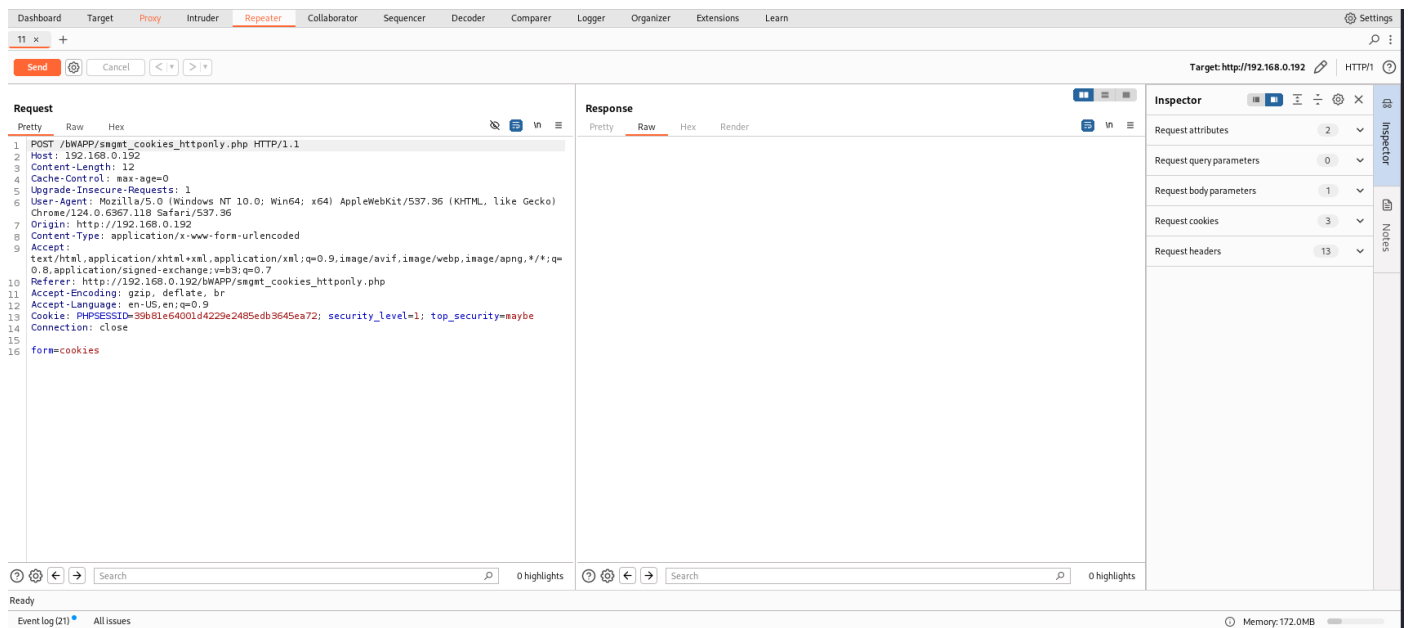
Name	Value
PHPSESSID	39b81e64001d4229e2485edb3645ea72
security_level	1
top_security	maybe



2.5: Capture the request using burp suit



2.6: Send to repeater and change bee's PHPSESSID with nur's PHPSESSID



2.7: After this bee user change into nur user

192.168.0.192/bWAPP/smgmt_cookies_httponly.php

Kali Linux Kali Tools Kali Docs Kali Forums Kali NetHunter Exploit-DB Google Hacking DB OffSec

bWAPP

an extremely buggy web app !

Choose your bug:
----- bWAPP v2.2 ----- Hack

Set your security level:
low Set Current: medium





Bugs Change Password Create User Set Security Level Reset Credits Blog Logout Welcome Nur


/ Session Mgmt. - Cookies (HTTPOnly) /

Click the button to see your current cookies: [Cookies](#)

Click [here](#) to see your cookies with JavaScript.

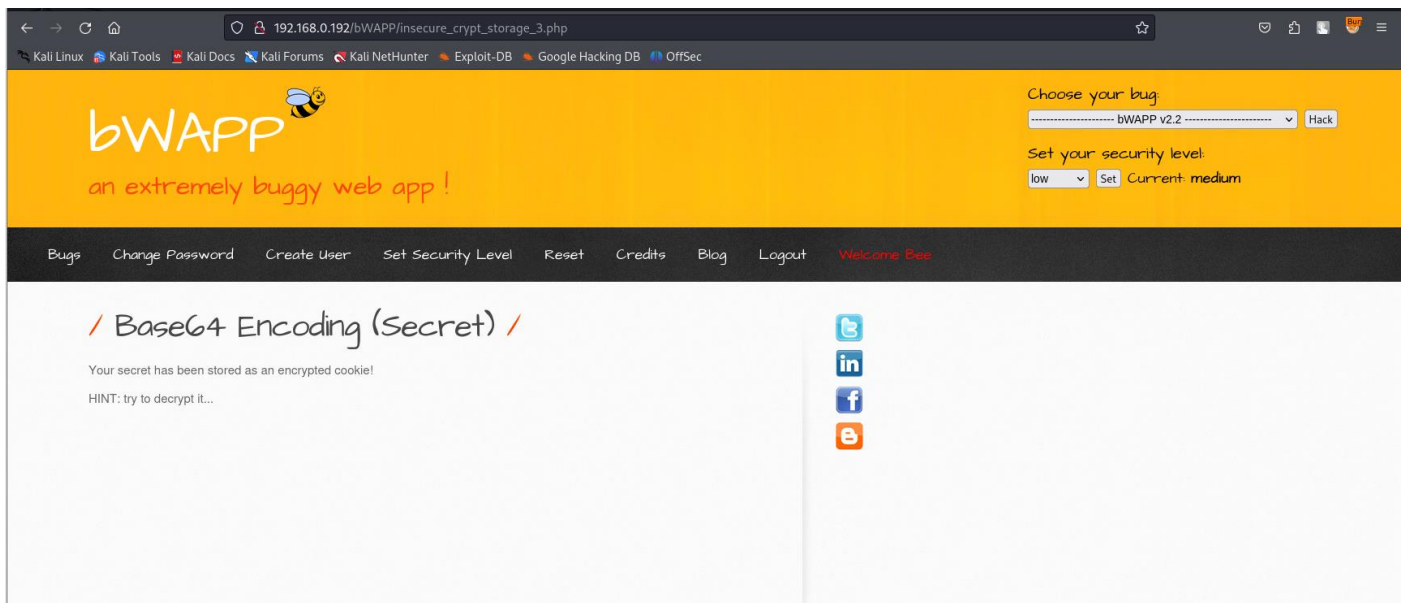
Name	Value
PHPSESSID	39b81e64001d4229e2485edb3645ea72
security_level	1
top_security	maybe

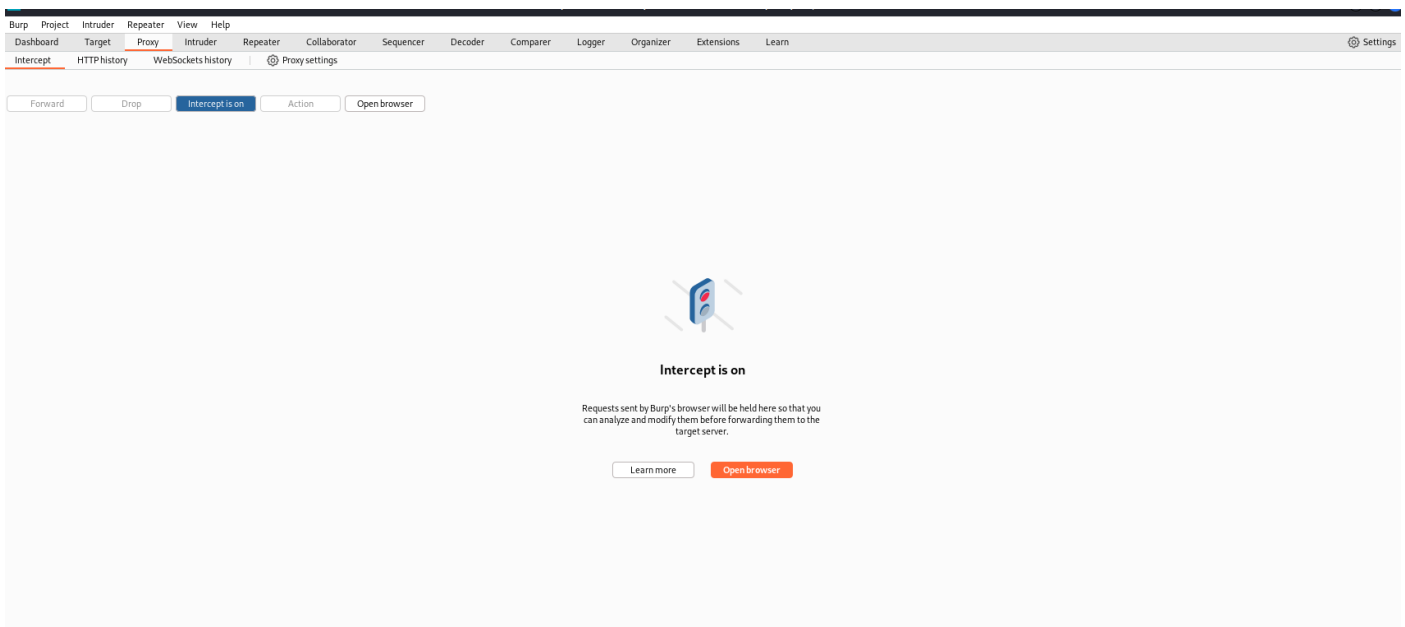
bWAPP is licensed under  © 2014 MME BVBA / Follow @MME_11 on Twitter and ask for our cheat sheet containing all solutions! / Need an exclusive [training](#)?

3: base64 encoding(secret)

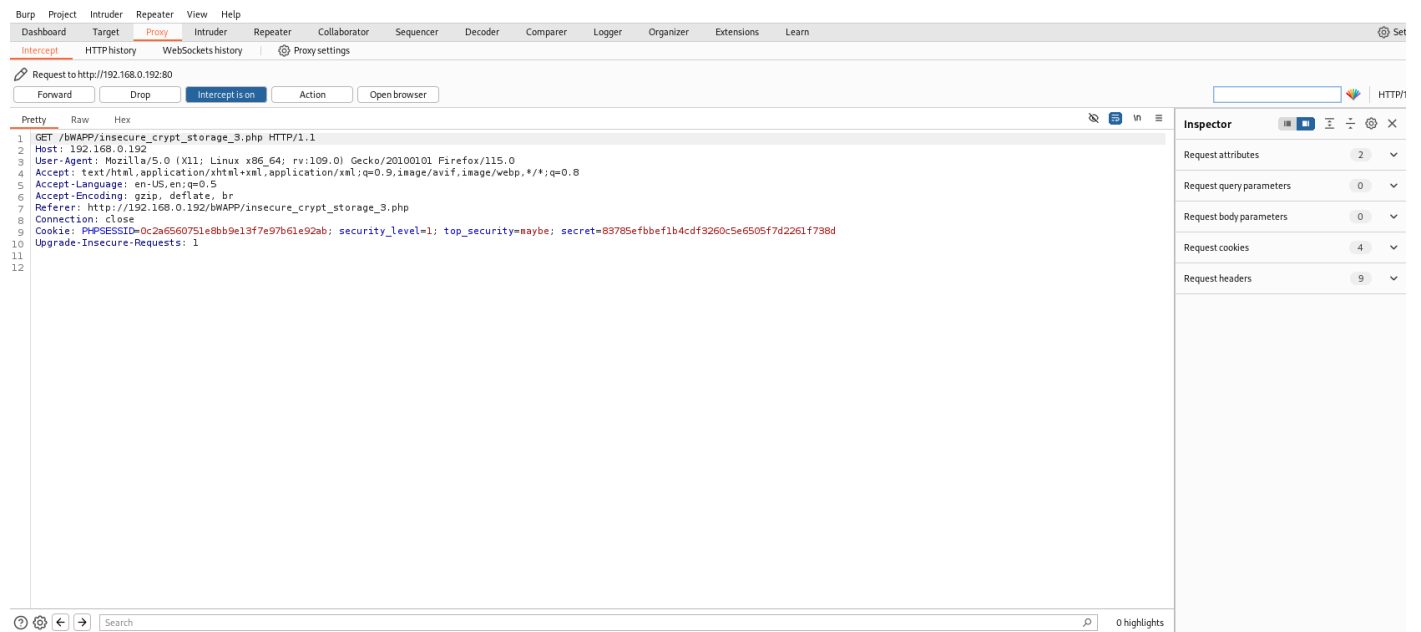
3.1: Set challenge and set medium level



3.2: Intercept on

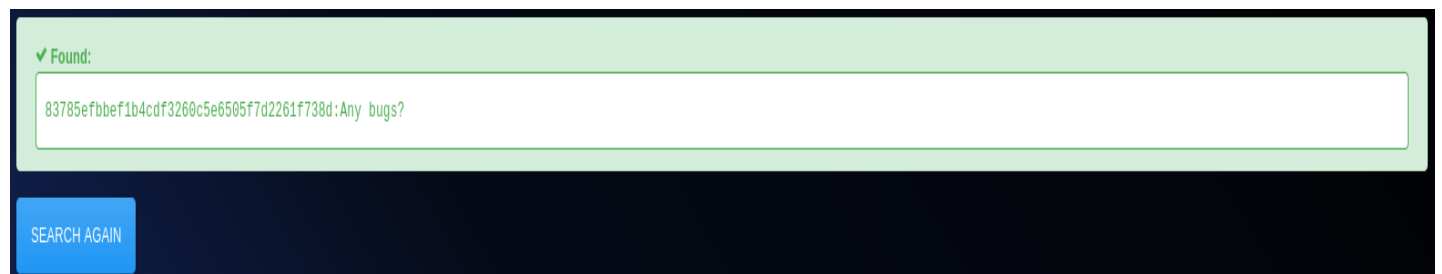


3.3: Capture the request



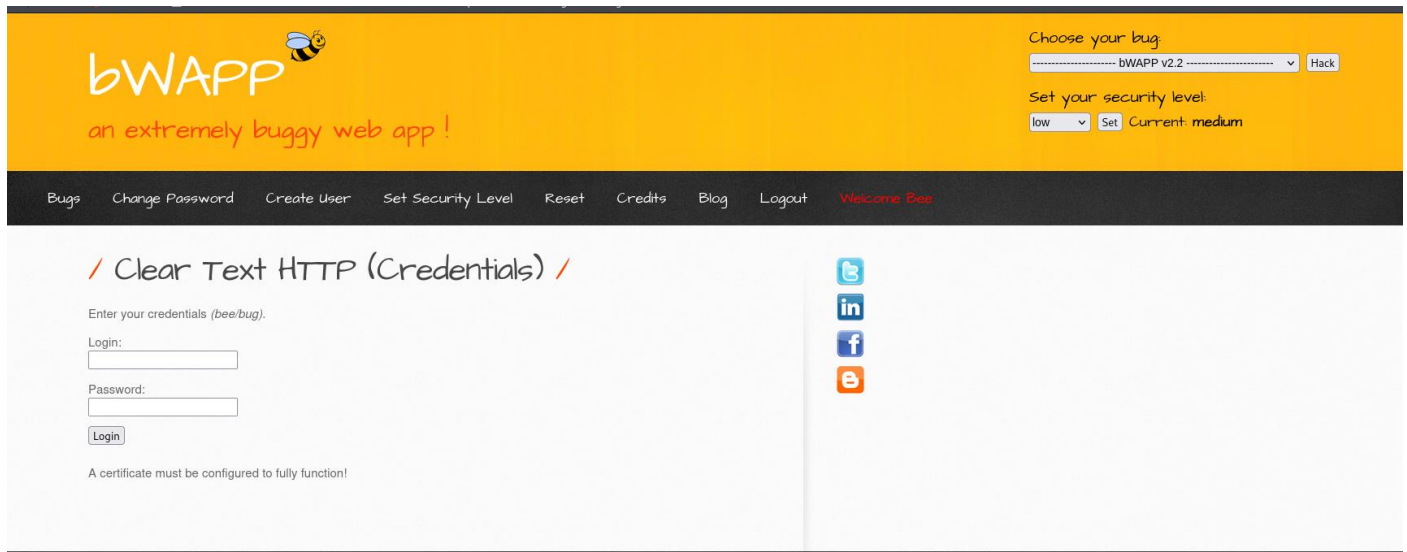
3.4: From the intercept page copy encoded secret and search for decode and find the secret

(<https://hashes.com/en/decrypt/hash>)



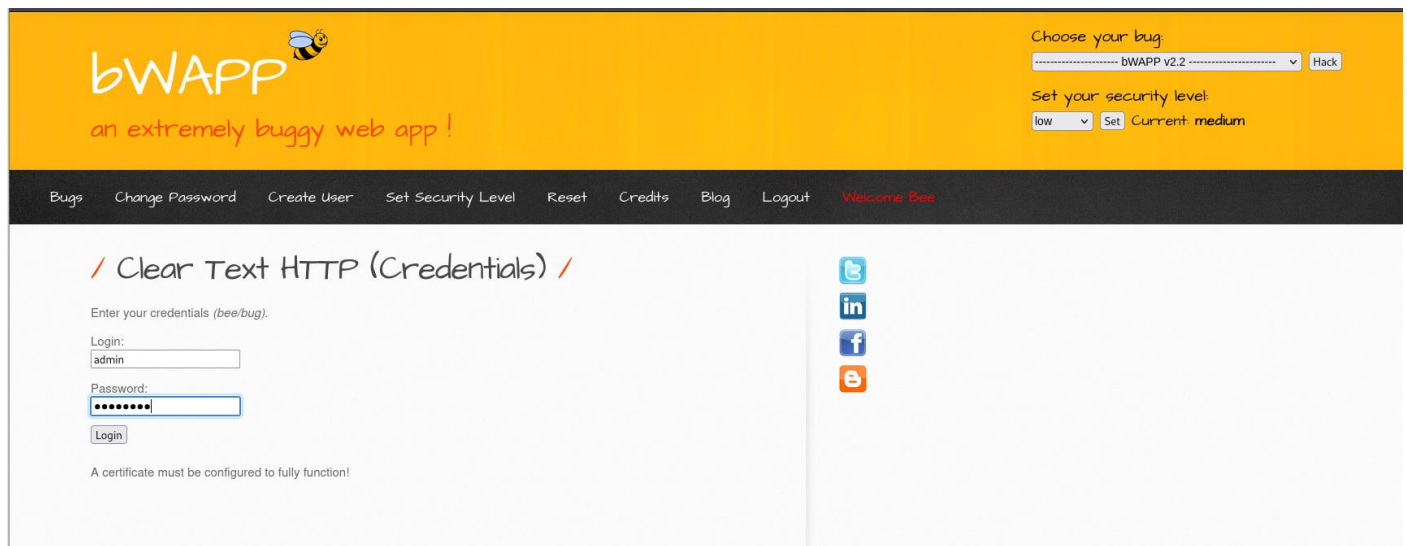
4: Clear Text HTTP (Credentials)

4.1: Set Challenge and set medium level



The screenshot shows the bWAPP web application interface. The header is orange with the bWAPP logo and a bee icon. Below the logo is the text "an extremely buggy web app!". On the right side of the header, there are two sections: "Choose your bug:" with a dropdown menu showing "bWAPP v2.2" and a "Hack" button, and "Set your security level:" with a dropdown menu showing "low", a "Set" button, and the text "Current: medium". Below the header is a dark navigation bar with links: Bugs, Change Password, Create User, Set Security Level, Reset, Credits, Blog, Logout, and Welcome Bee. The main content area is white and titled "/ Clear Text HTTP (Credentials) /". It contains a form with the text "Enter your credentials (bee/bug).", a "Login:" label, a text input field, a "Password:" label, a text input field, and a "Login" button. Below the form is a message: "A certificate must be configured to fully function!". On the right side of the main content area, there are four social media icons: Twitter, LinkedIn, Facebook, and Blogger.

4.2: Try to log in a page



This screenshot is identical to the one above, showing the bWAPP web application interface. The header, navigation bar, and main content area are the same. The form in the main content area now has the text "admin" entered in the "Login:" field and "....." entered in the "Password:" field. The "Login" button is still present, and the message "A certificate must be configured to fully function!" is still displayed. The social media icons on the right are also the same.

4.3: Capture the request

The screenshot shows the Burp Suite interface with the 'Intercept' tab selected. A request to `https://192.168.0.192:443` is displayed. The 'Forward' button is highlighted, and the 'Intercept is on' status is shown. The request details are visible in the 'Pretty' tab, showing a POST request to `/bWAPP/insuff_transp_layer_protect_1.php` with a body containing `login=admin&password=admin123&form=submit`. The 'Inspector' panel on the right shows the request attributes, query parameters, body parameters, cookies, and headers.

```
1 POST /bWAPP/insuff_transp_layer_protect_1.php HTTP/1.1
2 Host: 192.168.0.192
3 Cookie: PHPSESSID=0c2a6560751e8bb9e13f7e97b61e92ab; security_level=1; top_security=maybe; secret=83785efbfb1b4cdf9260c5e6505f7d2261f738d
4 User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/115.0
5 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
6 Accept-Language: en-US,en;q=0.5
7 Accept-Encoding: gzip, deflate, br
8 Referer: http://192.168.0.192/
9 Content-Type: application/x-www-form-urlencoded
10 Content-Length: 41
11 Origin: http://192.168.0.192
12 Upgrade-Insecure-Requests: 1
13 Sec-Fetch-Dest: document
14 Sec-Fetch-Mode: navigate
15 Sec-Fetch-Site: cross-site
16 Sec-Fetch-User: ?1
17 Te: trailers
18 Connection: close
19
20 login=admin&password=admin123&form=submit
```

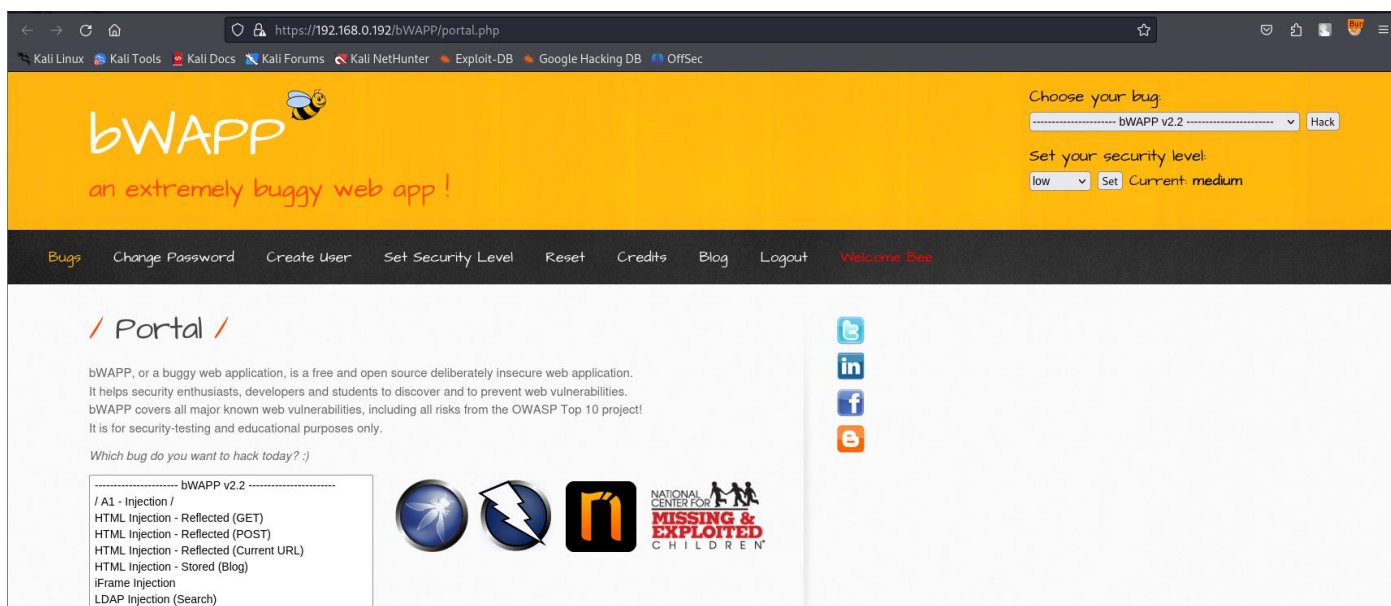
4.4: From the capturing request we can see the secret code or passcode

The screenshot shows the Burp Suite interface with the 'Repeater' tab selected. A request is being repeated, and the 'Response' tab is active. The response details are visible in the 'Pretty' tab, showing a 200 OK status with a body containing `login=admin&password=admin123&form=submit`. The 'Inspector' panel on the right shows the response attributes, query parameters, body parameters, cookies, and headers.

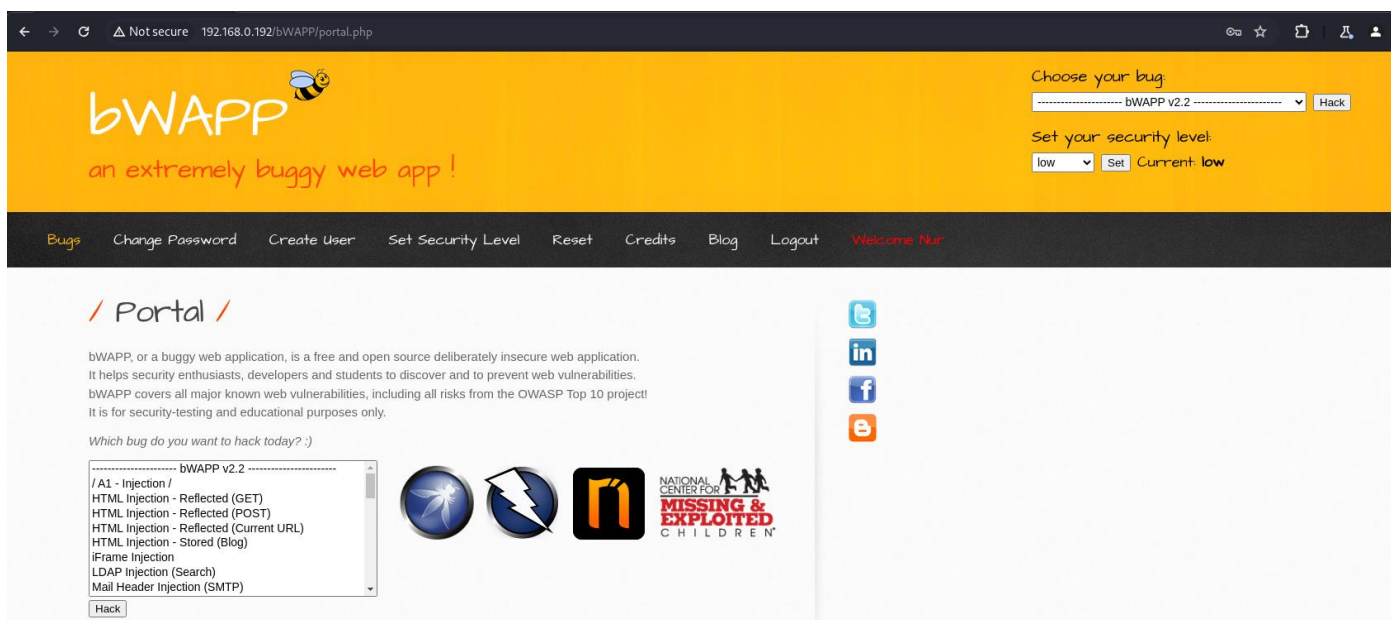
```
1 POST /bWAPP/insuff_transp_layer_protect_1.php HTTP/1.1
2 Host: 192.168.0.192
3 Cookie: PHPSESSID=0c2a6560751e8bb9e13f7e97b61e92ab; security_level=1; top_security=maybe; secret=83785efbfb1b4cdf9260c5e6505f7d2261f738d
4 User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/115.0
5 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8
6 Accept-Language: en-US,en;q=0.5
7 Accept-Encoding: gzip, deflate, br
8 Referer: http://192.168.0.192/
9 Content-Type: application/x-www-form-urlencoded
10 Content-Length: 41
11 Origin: http://192.168.0.192
12 Upgrade-Insecure-Requests: 1
13 Sec-Fetch-Dest: document
14 Sec-Fetch-Mode: navigate
15 Sec-Fetch-Site: cross-site
16 Sec-Fetch-User: ?1
17 Te: trailers
18 Connection: close
19
20 login=admin&password=admin123&form=submit
```

5: Session Management - Strong Session

5.1: Set the challenge and set medium level



5.2: Log into user nur with another browser



5.3: Cookies of user bee

The screenshot shows the bWAPP web application interface. The header is orange with the bWAPP logo and the tagline "an extremely buggy web app!". On the right, there's a "Choose your bug" dropdown set to "bWAPP v2.2" and a "Hack" button. Below it, a "Set your security level" section shows "low" selected, "Set" button, and "Current: medium". The navigation bar is dark grey with links: Bugs, Change Password, Create User, Set Security Level, Reset, Credits, Blog, Logout, and "Welcome Bee".

The main content area is titled "Session Mgmt. - Strong Sessions". It includes a link to "Click the button to see your current cookies:" and a "Cookies" button. Below this is a table showing the current cookies:

Name	Value
PHPSESSID	0c2a6560751e8bb9e13f7e97b61e92ab
security_level	1
secret	83785efbbef1b4cdf3260c5e6505f7d2261f738d
top_security_nossl	8d011187654d3d7e7b9fa5906ebdc92befa9889ff28dae22d124efd4b88a93e9

On the right side of the main content area, there are social media icons for Twitter, LinkedIn, Facebook, and Email.

5.4: Cookies of user nur

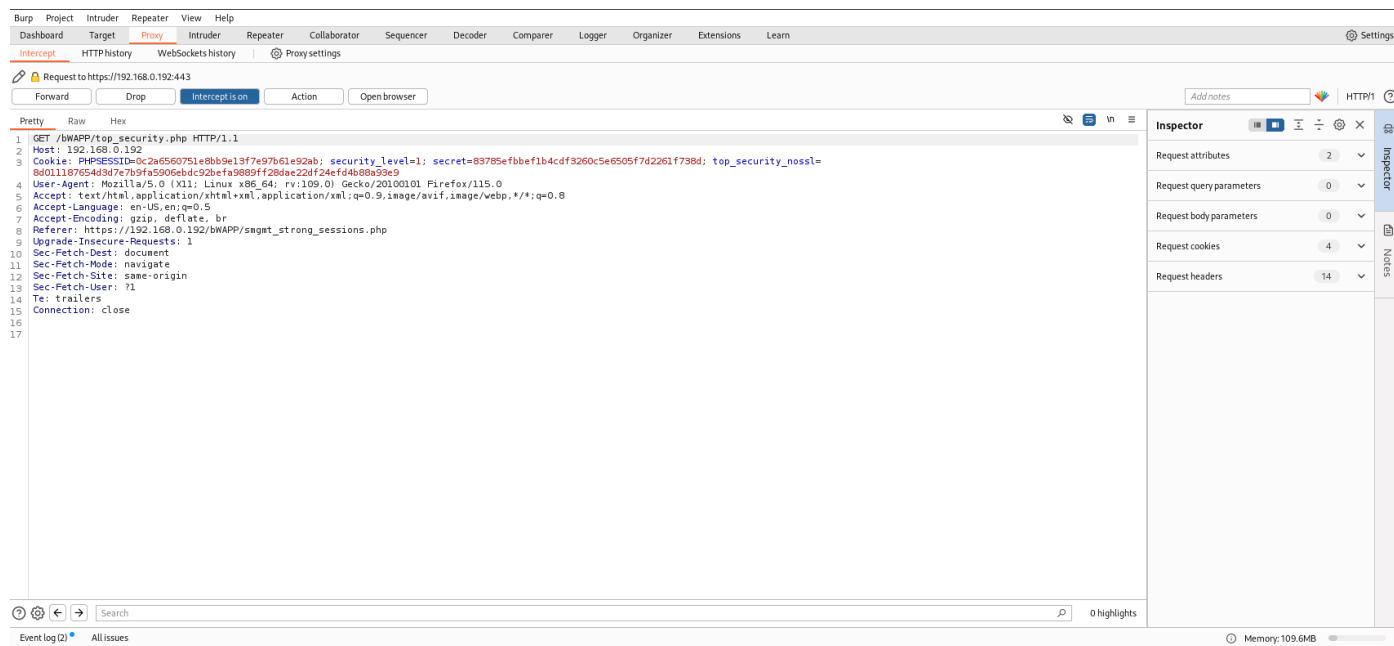
The screenshot shows the bWAPP web application interface for user 'nur'. The layout is identical to the previous screenshot, but the navigation bar now says "Welcome Nur".

The main content area is titled "Session Mgmt. - Strong Sessions". It includes a link to "Click the button to see your current cookies:" and a "Cookies" button. Below this is a table showing the current cookies:

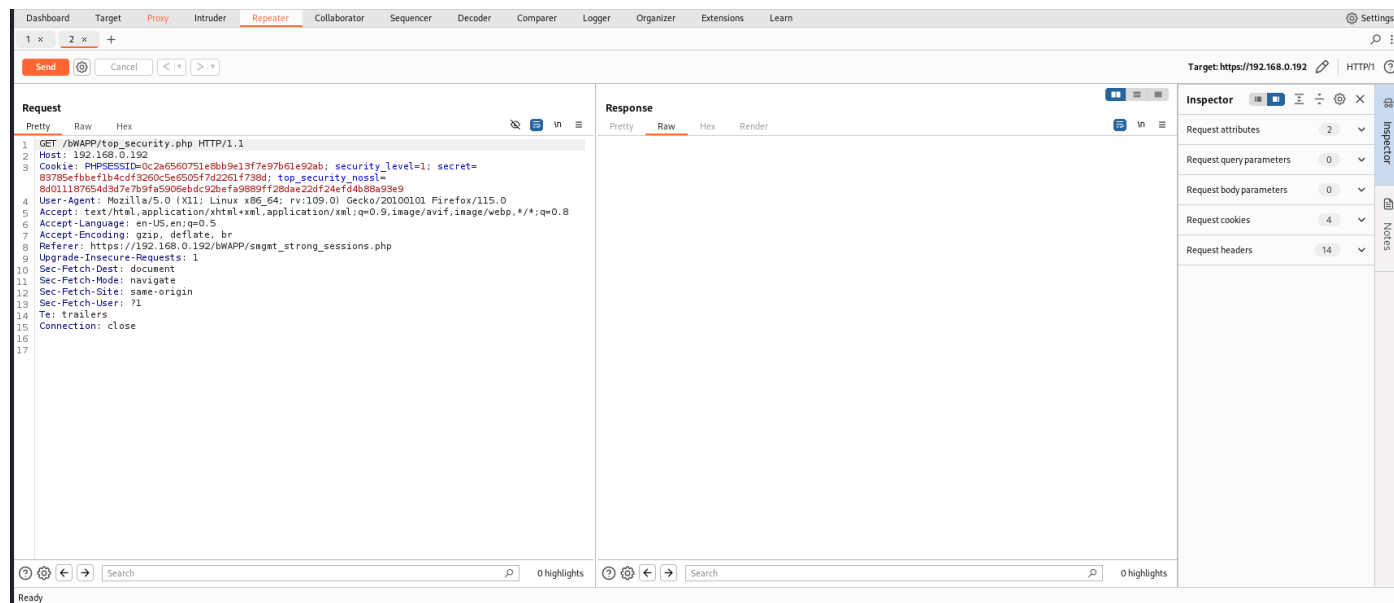
Name	Value
PHPSESSID	3e9f2d2c769ea9b9ef343a28f797423c
security_level	1
top_security_nossl	17bbb8d5fe20244c65f915197b82abb2a714f27e09532f0beb525a158a8aae62

On the right side of the main content area, there are social media icons for Twitter, LinkedIn, Facebook, and Email.

5.5: Capture the request of user bee



5.6: Send to the repeater



5.7: Change the user bee’s PHPSESSID to user nur’s PHPSESSID

1 x 2 x +

Send Cancel < >

Request

1 GET /bwapp/top_security.php HTTP/1.1

2 Host: 192.168.0.192

3 Cookie: PHPSESSID=3e9f2d2c769ea9b9ef343a28f797423c; security_level=1; secret=83785efbbe1b4c4f93260c5e0505f742261f738d; top_security_nssl=8d011187654d3d7e7b9fa5906ebdc92befa9889ff28dae22df24efdf4b88a93e9

4 User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:109.0) Gecko/20100101 Firefox/115.0

5 Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,*/*;q=0.8

6 Accept-Language: en-US,en;q=0.5

7 Accept-Encoding: gzip, deflate, br

8 Referer: https://192.168.0.192/bwapp/sagmt_strong_sessions.php

9 Upgrade-Insecure-Requests: 1

10 Sec-Fetch-Dest: document

11 Sec-Fetch-Mode: navigate

12 Sec-Fetch-Site: same-origin

13 Sec-Fetch-User: ?1

14 Te: trailers

15 Connection: close

16

17

Response

1 HTTP/1.1 200 OK

2 Date: Mon, 12 Aug 2024 15:49:40 GMT

3 Server: Apache/2.2.8 (Ubuntu) DAV/2 mod_fastcgi/2.4.6 PHP/5.2.4-Zubuntu5 with Suhosin-Patch mod_ssl/2.2.8 OpenSSL/0.9.8g

4 X-Powered-By: PHP/5.2.4-Zubuntu5

5 Expires: Thu, 19 Nov 1981 08:52:00 GMT

6 Cache-Control: no-store, no-cache, must-revalidate, post-check=0, pre-check=0

7 Pragma: no-cache

8 Content-Length: 2214

9 Connection: close

10 Content-Type: text/html

11

12 <!DOCTYPE html>

13 <html>

14

15 <head>

16

17 <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">

18

19 <!--<link rel="stylesheet" type="text/css"

20 href="https://fonts.googleapis.com/css?family=Architects+Daughter"-->

21 <link rel="stylesheet" type="text/css" href="stylesheets/stylesheet.css" media="screen" />

22 <link rel="shortcut icon" href="images/favicon.ico" type="image/x-icon" />

23

24 <!--<script src="//html5shiv.googlecode.com/svn/trunk/html5.js"></script-->

25 <script src="js/html5.js">

26 </script>

27 <title>

28 bwapp - Session Management

29 </title>

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31 </head>

32 <body>

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34 <header>

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5.8: Welcome user nur

bwAPP

an extremely buggy web app !

Top Security

Blog

/ Session Mgmt. - Strong Sessions /

Welcome Nur,

You have a valid session but not a strong session!

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