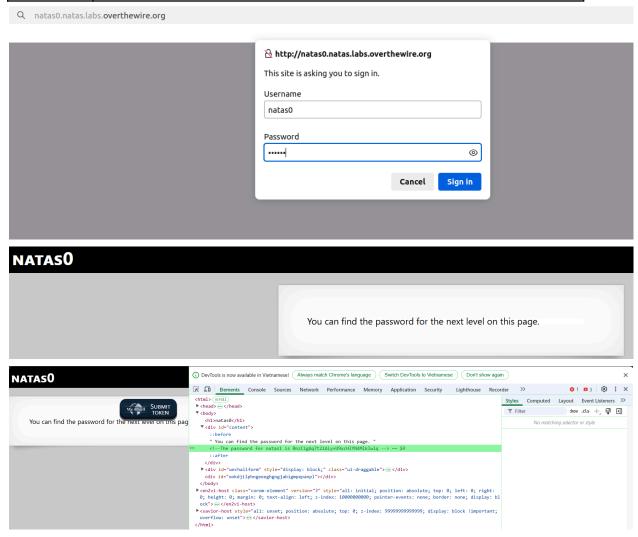
#### 1. Level 0

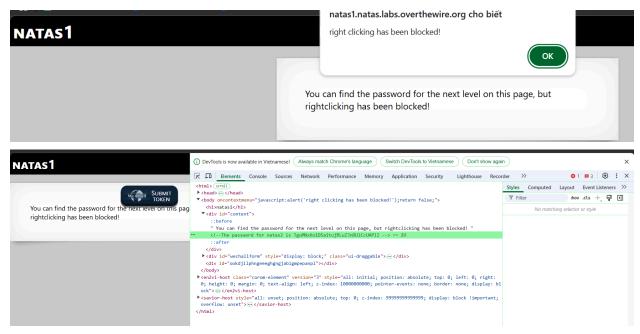
Username	natas0
Password	natas0
URL	http://natas0.natas.labs.overthewire.org



Password of natas1 is hidden in the html comments.

#### 2. Level 0 → Level 1

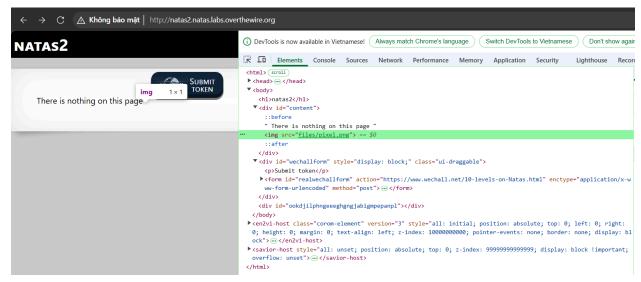
Username	natas1
Password	OnzCigAq7t2iALyvU9xcHlYN4MlkIwlq
URL	http://natas1.natas.labs.overthewire.org



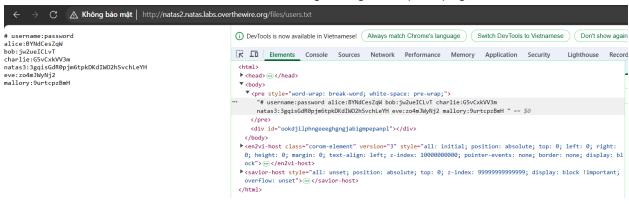
Ctrl + shift + i keyboard shortcut to appear The, Password of natas2 is hidden in the html comments.

#### 3. Level $1 \rightarrow \text{Level } 2$

Username	natas2
Password	TguMNxKo1DSa1tujBLuZJnDUlCcUAP1I
URL	http://natas2.natas.labs.overthewire.org

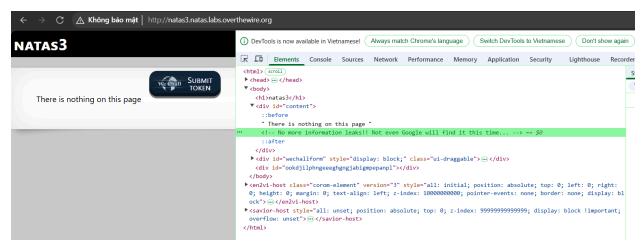


#### Check network in devtools to /file/users.txt through image files/pixel.png



#### 4. Level 2 → Level 3

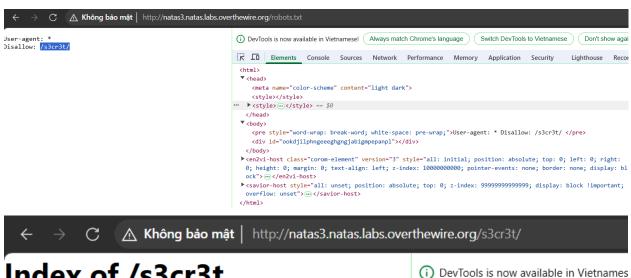
Username	natas3
Password	3gqisGdR0pjm6tpkDKdIWO2hSvchLeYH
URL	http://natas3.natas.labs.overthewire.org



Appearing 1 text command "...Not even Google will find it this time...". If you see the message "Not even Google will find it this time...", it might appear in the robots.txt file.

Access robots.txt in path file.

You can see that /s3cr3t is a hidden directory. This means the website owner has tried to hide /s3cr3t/ from search engines, but it might still be accessible directly.



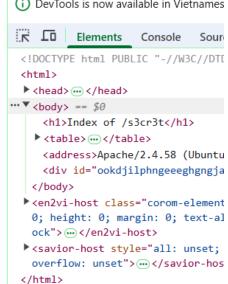
# Index of /s3cr3t

<u>Last modified</u> <u>Size Description</u> <u>Name</u>



2024-09-19 07:03 40

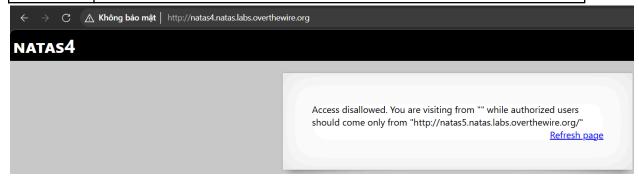
Apache/2.4.58 (Ubuntu) Server at natas3.natas.labs.overthewire.org Port 80



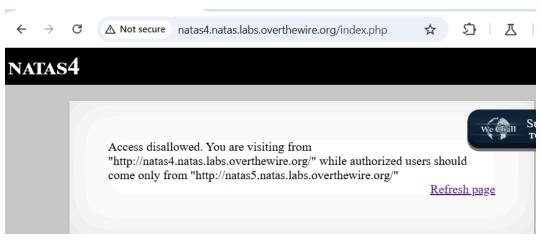


#### 5. Level 3 → Level 4

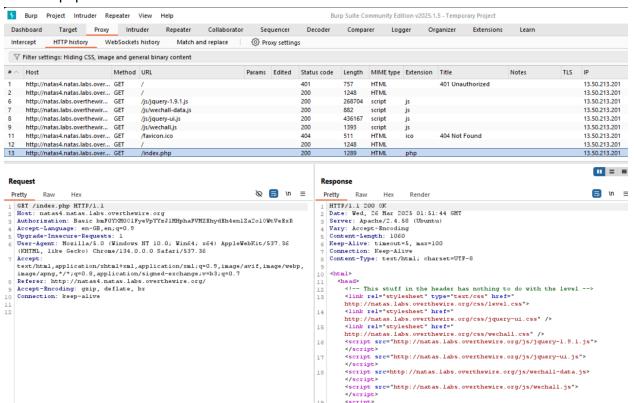
Username	natas4
Password	QryZXc2e0zahULdHrtHxzyYkj59kUxLQ
URL	http://natas4.natas.labs.overthewire.org

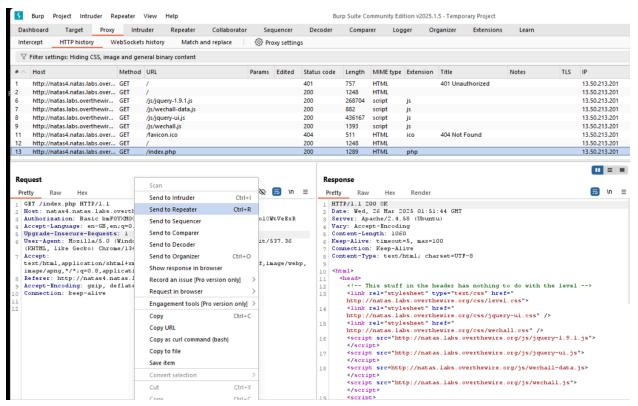


Open Burp suite. Choose Proxy button. Turn on Intercept. Next, open browser. Run Refresh page again

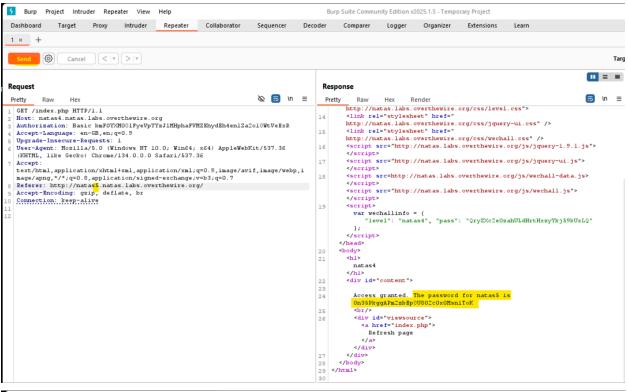


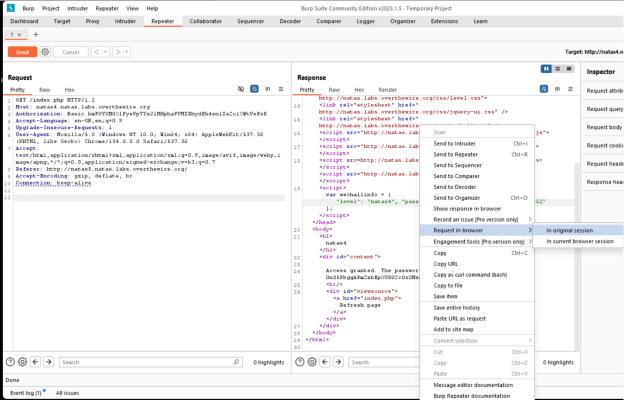
#### At index.php

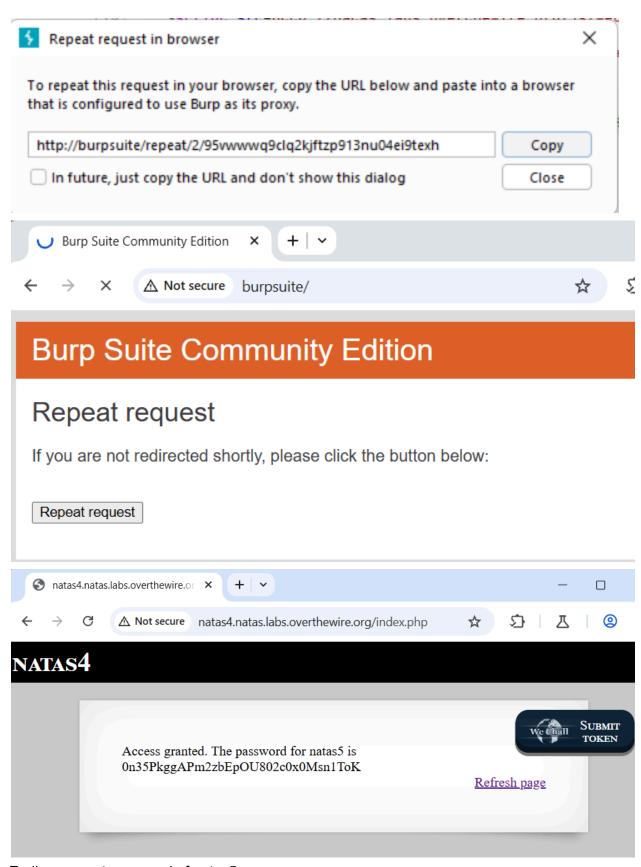




Modify "natas4" into "natas5". After that, click send button.



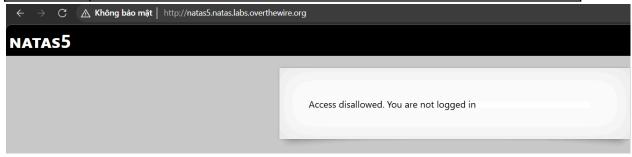




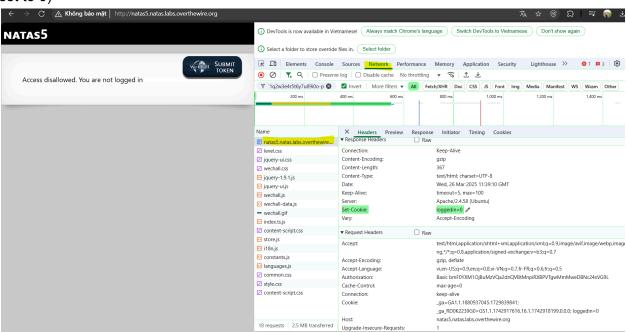
Ending, we get password of natas5.

#### 6. Level 4 → Level 5

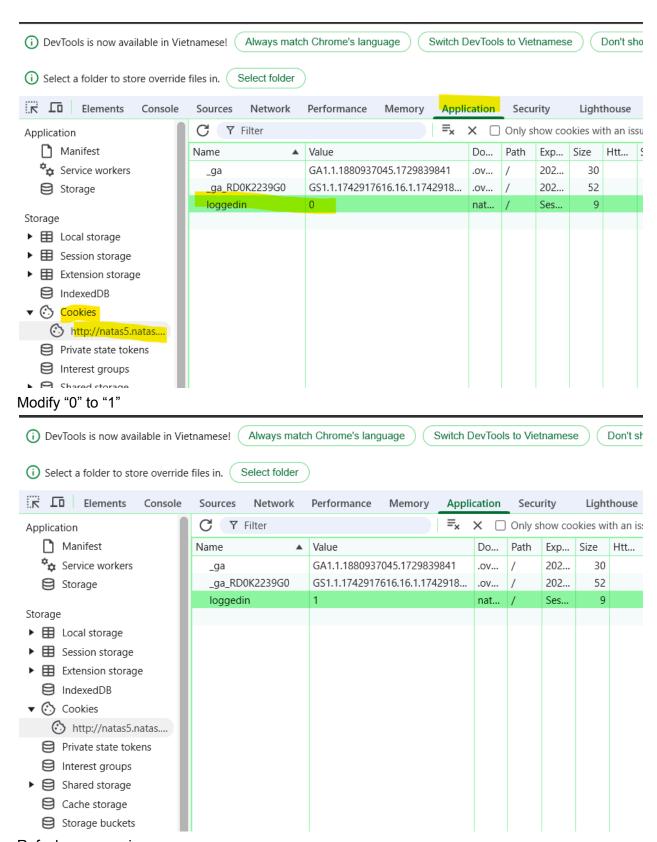
Username	natas5
Password	0n35PkggAPm2zbEp0U802c0x0Msn1ToK
URL	http://natas5.natas.labs.overthewire.org



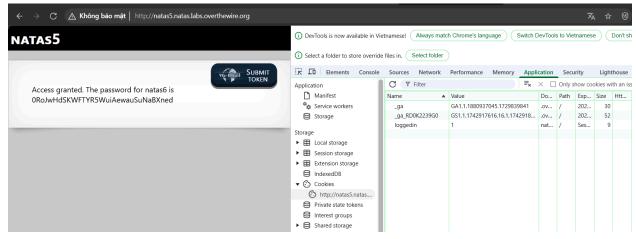
Refesh page web. We see that Set-Cookie is "**loggedin=0**" - not logged in. (logged in set to 0)



Choose Application button. Find Cookies at link web page.

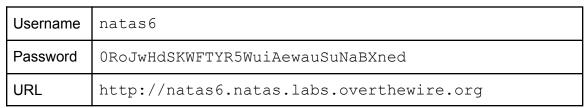


Refesh page again



Ending, we get password of natas6.

#### 7. Level $5 \rightarrow \text{Level } 6$

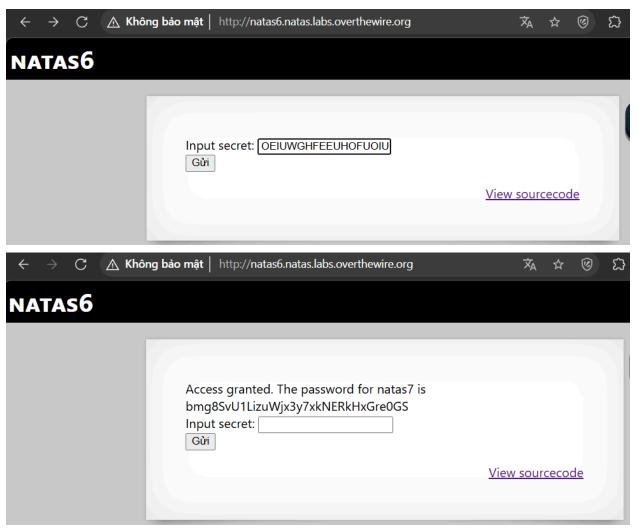




Click "View sourcecode". Appearing sourcecode page index-source.html. Noted that Source code had "includes/secret.inc" path that may be contained "input secret".

```
Không bảo mật | http://natas6.natas.labs.overthewire.org/index-source.html
                                                                           ☆
                                                                               (
                                                                                    \stackrel{\frown}{\Box}
<html>
<head>
<!-- This stuff in the header has nothing to do with the level -->
<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": "natas6", "pass": "<censored>" };</script></head>
<body>
<h1>natas6</h1>
<div id="content">
<?
include "includes/secret.inc";
   if(array_key_exists("submit", $_POST)) {
       if($secret == $_POST['secret']) {
       print "Access granted. The password for natas7 is <censored>";
   } else {
       print "Wrong secret";
   }
?>
<form method=post>
Input secret: <input name=secret><br>
<input type=submit name=submit>
</form>
<div id="viewsource"><a href="index-source.html">View sourcecode</a></div>
</div>
</body>
</html>
                 ★ Không bảo mật http://natas6.natas.labs.overthewire.org/includes/secret.inc
            C
$secret = "FOEIUWGHFEEUHOFUOIU";
?>
```

This is real input secret. Enter secret text into input secret field.



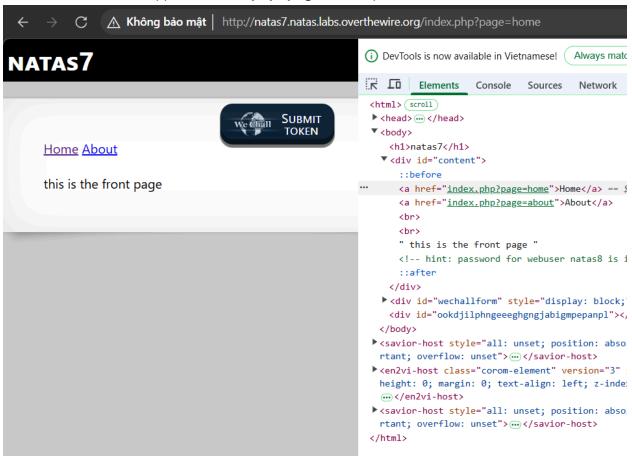
Ending, we get password of natas7.

## 8. Level $6 \rightarrow \text{Level } 7$

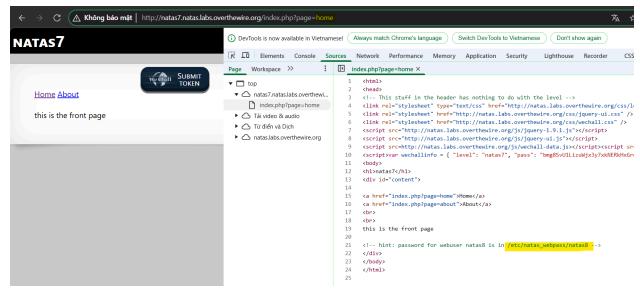
Username	natas7
Password	bmg8SvU1LizuWjx3y7xkNERkHxGre0GS
URL	http://natas7.natas.labs.overthewire.org



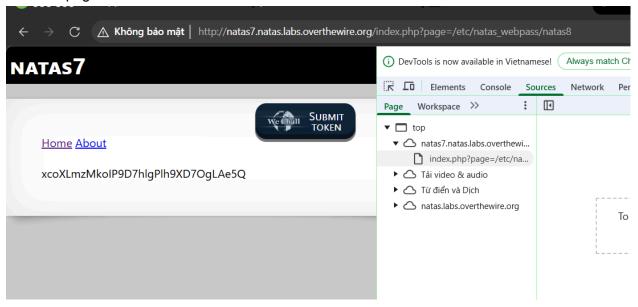
Click Home link which appears /index.php?page=home path.



Copy /etc/natas\_webpass/natas8 path. After that alter home value into /etc/natas\_webpass/natas8 from keypage.



### Run web page



Ending, we get password of natas8.

#### 9. Level 7 → Level 8

Username	natas8
Password	xcoXLmzMkoIP9D7hlgPlh9XD7OgLAe5Q
URL	http://natas8.natas.labs.overthewire.org



Click "View sourcecode". Appearing sourcecode page index-source.html. Noted that php code encodedSecret variable is

"3d3d516343746d4d6d6c315669563362".

bin2hex(strrev(base64\_encode(\$secret))) is a series of functions that occurs simultaneously:

- + base64()
- + strrev() function: string reverse
- + bin2hex()

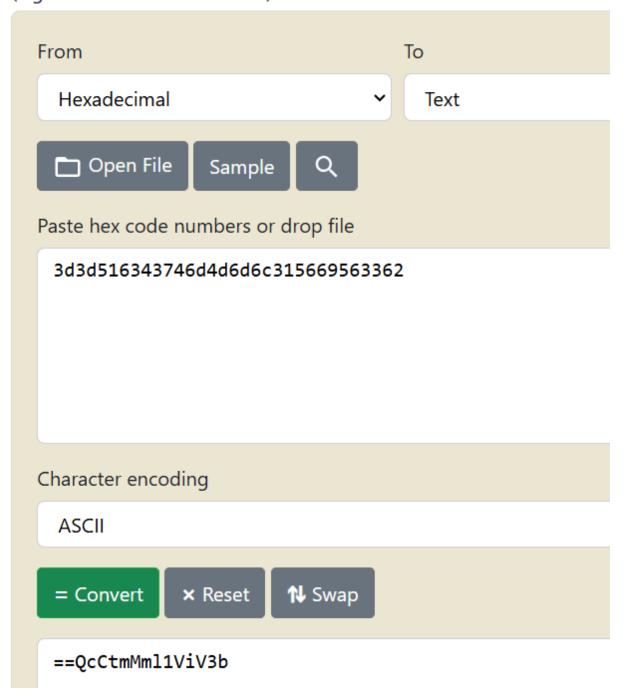
```
★ Không bảo mật http://natas8.natas.labs.overthewire.org/index-source.html
<html>
<head>
<!-- This stuff in the header has nothing to do with the level -->
<link rel="stylesheet" type="text/css" href="http://natas.labs.overthewire.org/css/level.css">
<link rel="stylesheet" href="http://natas.labs.overthewire.org/css/jquery-ui.css" />
<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": "natas8", "pass": "<censored>" };</script></head>
<body>
<h1>natas8</h1>
<div id="content">
$encodedSecret = "3d3d516343746d4d6d6c315669563362";
function encodeSecret($secret) {
    return bin2hex(strrev(base64_encode($secret)));
if(array_key_exists("submit", $_POST)) {
    if(encodeSecret($_POST['secret']) == $encodedSecret) {
    print "Access granted. The password for natas9 is <censored>";
    } else {
    print "Wrong secret";
?>
<form method=post>
Input secret: <input name=secret><br>
<input type=submit name=submit>
</form>
<div id="viewsource"><a href="index-source.html">View sourcecode</a></div>
</div>
</body>
```

First, convert bin2hex() into string. Returns an ASCII string containing the hexadecimal representation of string.

bin2hex()	ASCII string
3d3d516343746d4d6d6c315669563362	==QcCtmMml1ViV3b

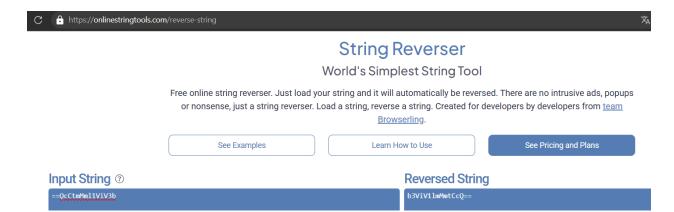
# Hex to String Converter

Enter hex code bytes with any prefix / postfix / delimiter and press the (e.g. 45 78 61 6d 70 6C 65 21):



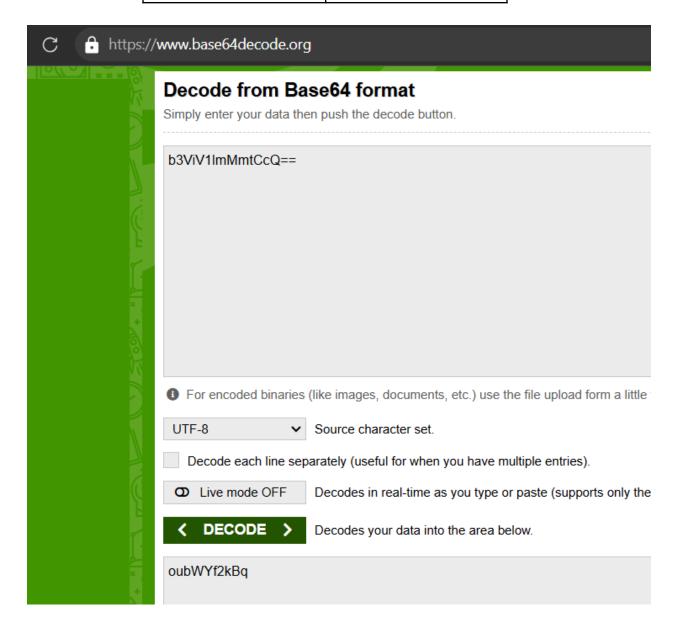
# Second, reverse this string.

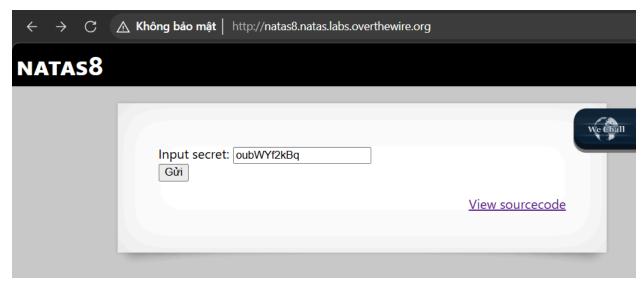
ASCII string	string reversed
==QcCtmMml1ViV3b	b3ViV1ImMmtCcQ==



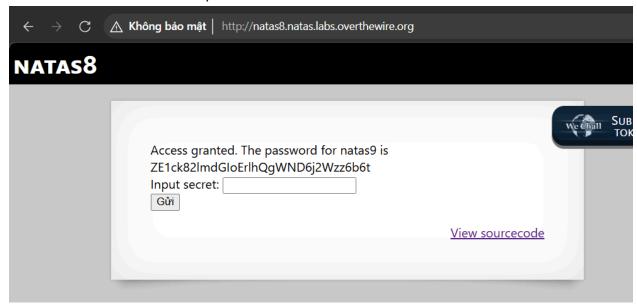
## Last, convert string reversed into base64

string reversed	base64
b3ViV1ImMmtCcQ==	oubWYf2kBq





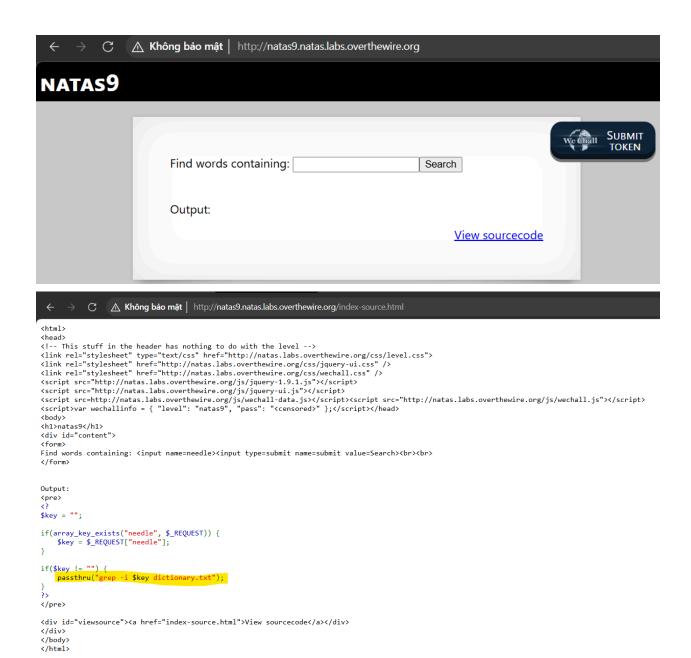
. Enter base64 decoded into input secret field.



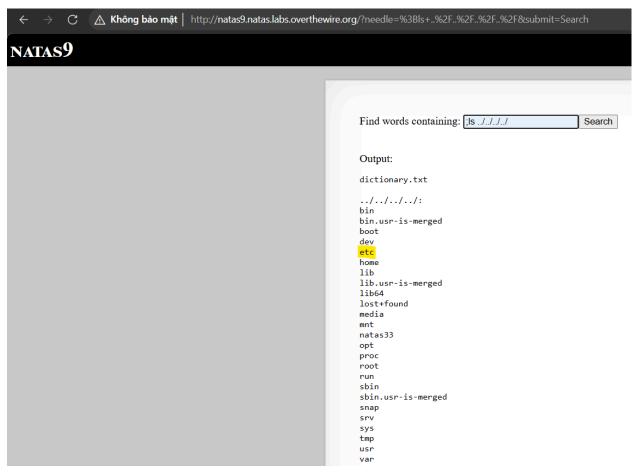
Ending, we get password of natas9.

## 10. Level $8 \rightarrow \text{Level } 9$

Username	natas9
Password	ZE1ck82lmdGIoErlhQgWND6j2Wzz6b6t
URL	http://natas9.natas.labs.overthewire.org



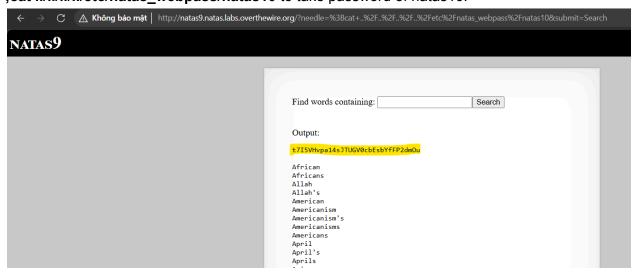
The **passthru()** function is similar to the <u>exec()</u> function in that it executes a command. ; **malicious\_command** executes funnytext, then executes malicious\_command. If **\$key** is set to ";**malicious\_command**", it could execute malicious commands.



## Copy /etc/natas\_webpass/natas10 path

And then enter command:

;cat ../../../etc/natas\_webpass/natas10 to take password of natas10.



#### 11. Level 9 → Level 10

Username	natas10
Password	t7I5VHvpa14sJTUGV0cbEsbYfFP2dmOu
URL	http://natas10.natas.labs.overthewire.org



```
\leftarrow \quad \Rightarrow \quad \texttt{C} \quad \boxed{ \underline{ \land} \quad \texttt{Không bảo mật} } \quad \texttt{http://natas10.natas.labs.overthewire.org/index-source.html}
<html>
 <head>
chead>
<!-- This stuff in the header has nothing to do with the level -->
clink 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" />

cscript src="http://natas.labs.overthewire.org/js/jquery-19.1.js">

/**Cript src="http://natas.labs.overthewire.org/js/jquery-ui.js">

cscript src="http://natas.labs.overthewire.org/js/jquery-ui.js">

/**Cript src="http://natas.labs.overthewire.org/js/jquery-ui.js">

/**Cript src="http://natas.labs.overthewire.org/js/wechall-data.js>

/**Cript src="http://natas.labs.overthewire.org/js/wechall-data.js>

/**Cript src="http://natas.labs.overthewire.org/js/wechall-data.js>

/**Cript src="http://natas.labs.overthewire.org/js/wechall-data.js>

/**Cript src="http://natas.labs.overthewire.org/js/wechall-data.js>

/**Cript src="http://natas.labs.overthewire.org/js/wechall-data.js>

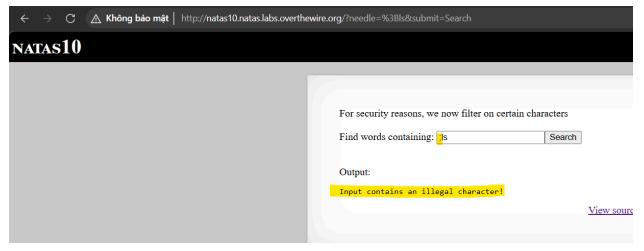
/**Cript src="http://natas.labs.overthewire.org/js/wechall.js">
/**Cript src="http://natas.labs.overthewire.org/js/wechall.js"

/**Cript src="http://natas.labs.overthewire.org/js/wechall.js">
/**Cript src="http://natas.labs.overthewire.org/js/wechall.js"

/**Cript s
 <body>
<h1>natas10</h1>
<div id="content">
For security reasons, we now filter on certain characters<br/>
Output:
 >
$key = "";
if(array_key_exists("needle", $_REQUEST)) {
    $key = $_REQUEST["needle"];
if($key != "") {
   if(preg_match('/[;|&]/',$key)) {
     print "Input contains an illegal character!";
   } else {
                           passthru("grep -i $key dictionary.txt");
 </div>
```

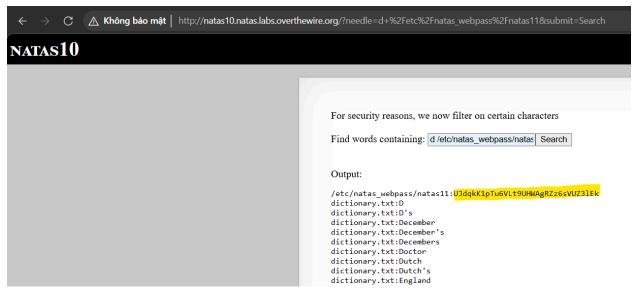
## preg\_match('/[;|&]/', \$key)

⇒ This checks if the **\$key** variable contains any of the characters ;, **|, or &.** 



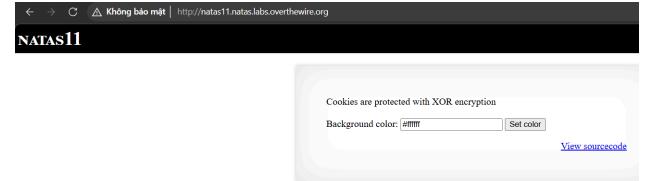
# Enter "d /etc/natas\_webpass/natas11" command line.

Password of natas11 contains "d" character.



## 12. Level 10 → Level 11

Username	natas11
Password	UJdqkK1pTu6VLt9UHWAgRZz6sVUZ31Ek
URL	http://natas11.natas.labs.overthewire.org



### \$defaultdata = array("showpassword" => "no", "bgcolor" => "#ffffff");

- set to "no", meaning the password is hidden → change "no" to "yes" of cookie
   → get the password
- Plaintext: {"showpassword"=>"no", "bgcolor"=>"#ffffff"}

```
https://www.writephponline.com

WritePHPOnline - Start write and run your php code online
```

```
<?php

echo json_encode(array( "showpassword"=>"no", "bgcolor"=>"#ffffff"));

Run Code

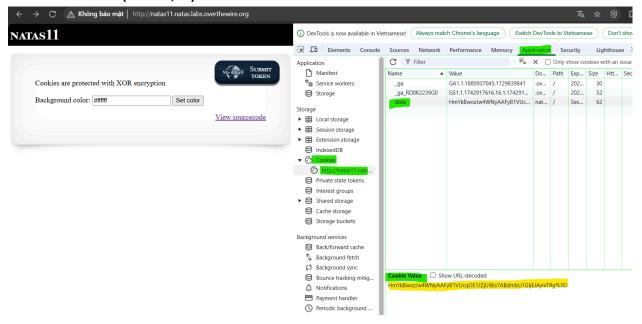
{"showpassword":"no","bgcolor":"#ffffff"}
```

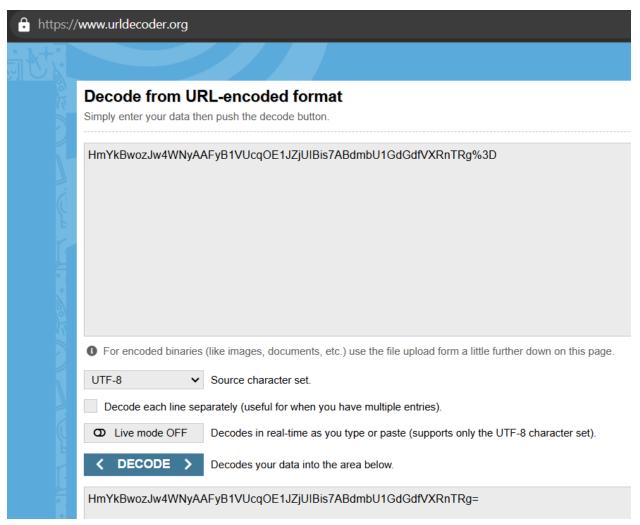
- **\$\_COOKIE["data"]** → Gets the stored cookie.
- base64\_decode(...) → Decodes Base64.
- xor\_encrypt(...) → Decrypts the data (XOR encryption is weak).

• **json\_decode(..., true)** → Converts JSON back into an associative array.

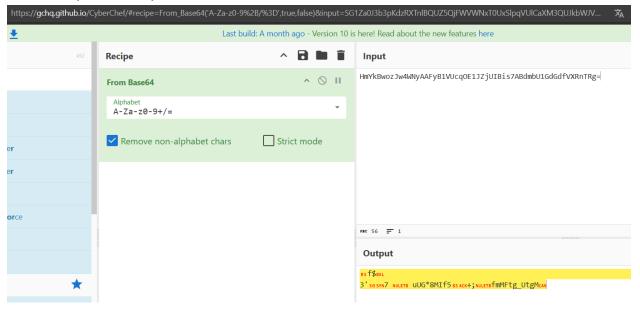
```
function saveData($d) {
    setcookie("data",
base64_encode(xor_encrypt(json_encode($d))));
}
```

- json\_encode(\$d) → Converts \$d (array/object) into a JSON string.
- xor\_encrypt(...) → Encrypts the JSON string (XOR encryption is weak).
- base64\_encode(...) → Encodes the encrypted data for safe storage.
- setcookie("data", ...) → Stores the encoded data in a cookie named "data".

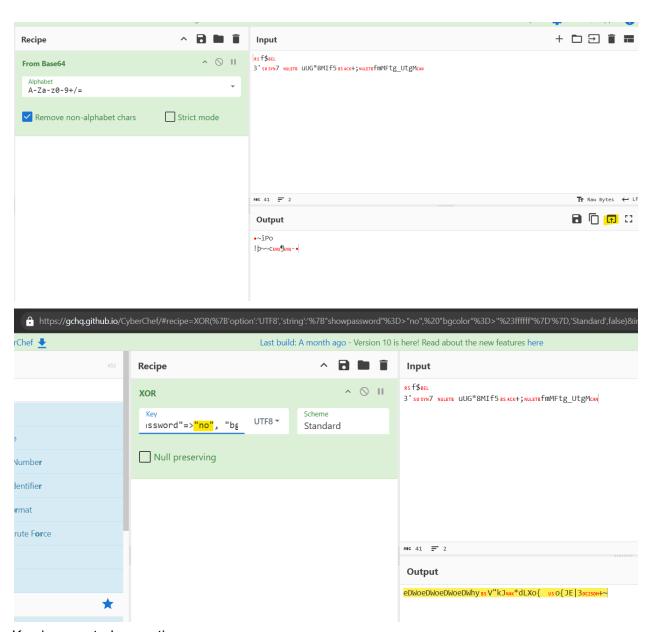




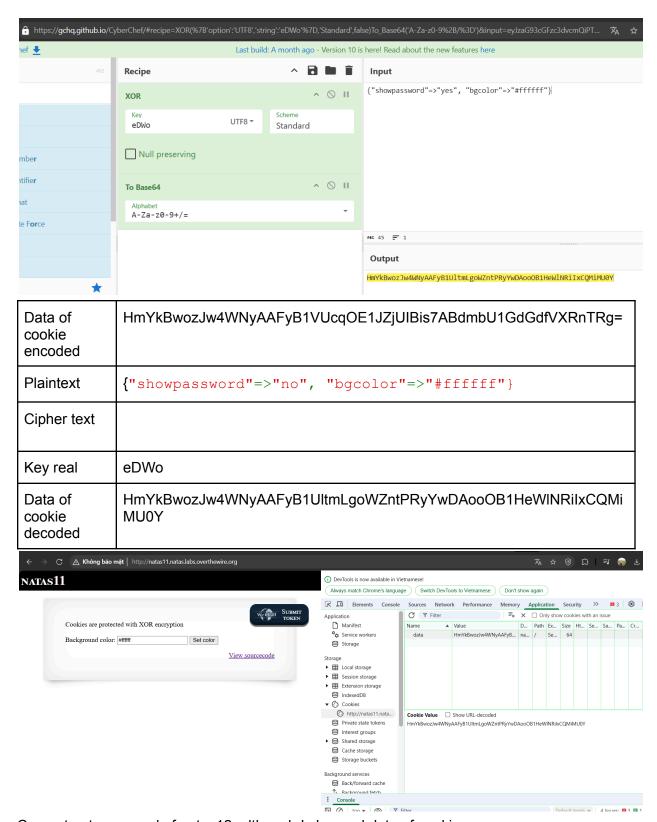
Output is the cipher text.



Replace input with output



Key is repeated many times



Can not get password of natas12, although I changed data of cookie.

- 14. Level  $12 \rightarrow \text{Level } 13$
- 15. Level 13 → Level 14
- 16. Level 14 → Level 15
- 17. Level 15 → Level 16
- 18. Level 16  $\rightarrow$  Level 17
- 19. Level 17  $\rightarrow$  Level 18
- 20. Level  $18 \rightarrow \text{Level } 19$
- 21. Level  $19 \rightarrow \text{Level } 20$
- 22. Level 20  $\rightarrow$  Level 21
- 23. Level 21  $\rightarrow$  Level 22
- 24. Level 22  $\rightarrow$  Level 23
- 25. Level 23  $\rightarrow$  Level 24
- 26. Level 24  $\rightarrow$  Level 25
- 27. Level 25  $\rightarrow$  Level 26
- 28. Level 26  $\rightarrow$  Level 27
- 29. Level 27  $\rightarrow$  Level 28
- 30. Level  $28 \rightarrow \text{Level } 29$
- 31. Level  $29 \rightarrow \text{Level } 30$
- 32. Level  $30 \rightarrow \text{Level } 31$
- 33. Level 31  $\rightarrow$  Level 32
- 34. Level 32  $\rightarrow$  Level 33
- 35. Level 33  $\rightarrow$  Level 34