CTF入门篇writeup——D0g3 Games

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今天在网上找到一个CTF的小游戏，题目我做了几道感觉挺简单，很适合入门，之前了解CTF，参加各种杯或者是看各种比赛题的writeup，感觉太难了，想到这我还是决定从点滴做起，记录一下学习过程，同时也想做一套CTF从入门到精通的教程。

网址：http://ctf.d0g3.cn/

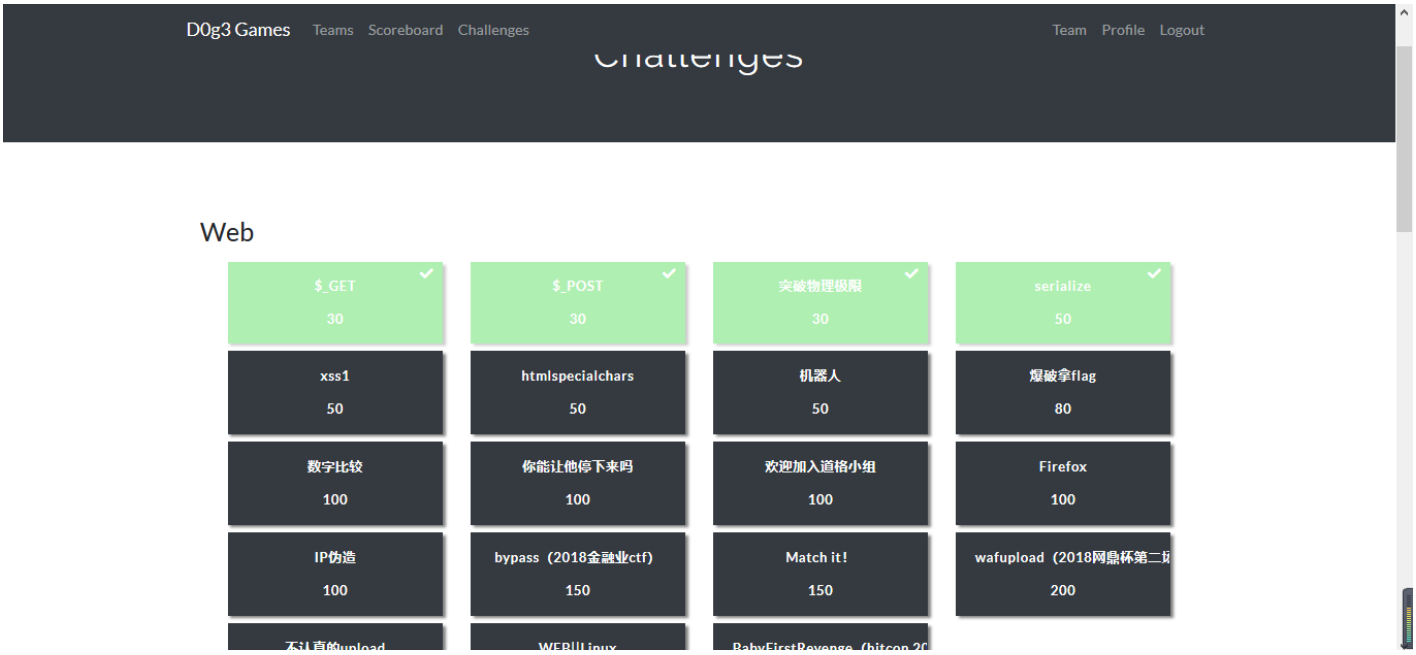

image.png

下面就简单记录下每道题的解题过程，希望能一点一点积累知识点

WEB

1. _GET

- 题目地址：http://106.12.21.77:8080/get/get.php

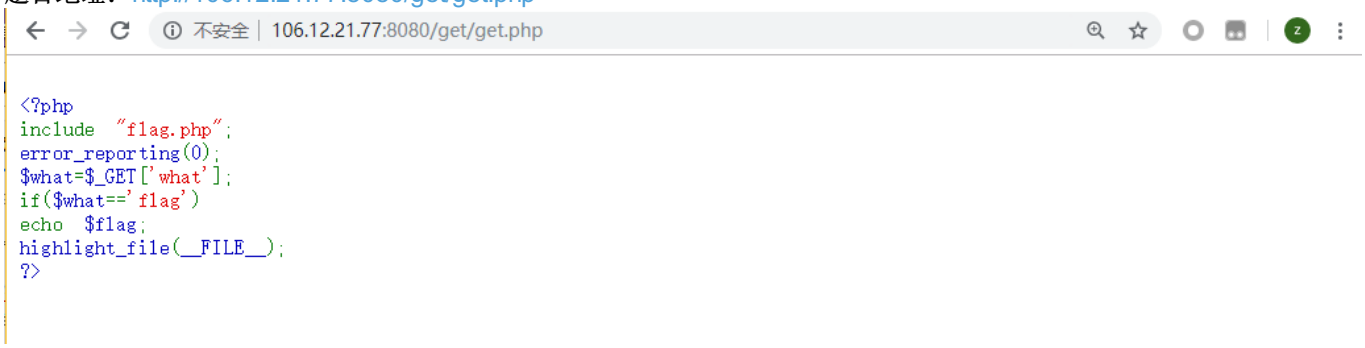

image.png

- 题目分析：很简单了，通过get接受一个变量`what`，其值等于字符串`flag`.
- 解题方法：

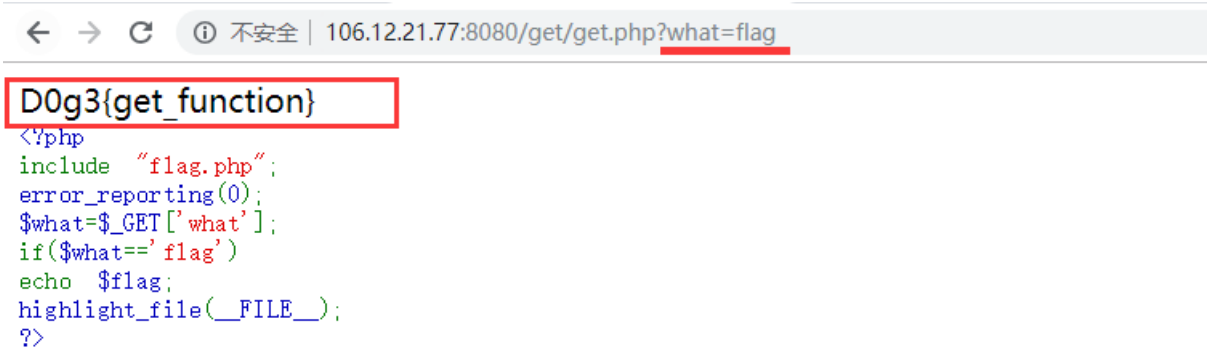

image.png

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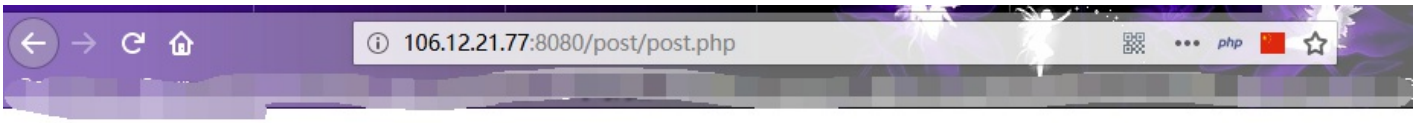
2. _POST

- 题目地址：http://106.12.21.77:8080/post/post.php




```
<?php
include "flag.php";
error_reporting(0);
$what=$_POST['what'];
if($what=='flag')
echo $flag;
highlight_file(__FILE__);
?>
```

image.png

- 题目分析：同理同上，只不过通过POST方式传参。
- 解题方法：

image.png

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3. 突破物理极限

- 题目地址：http://106.12.21.77:8080/length/length.html

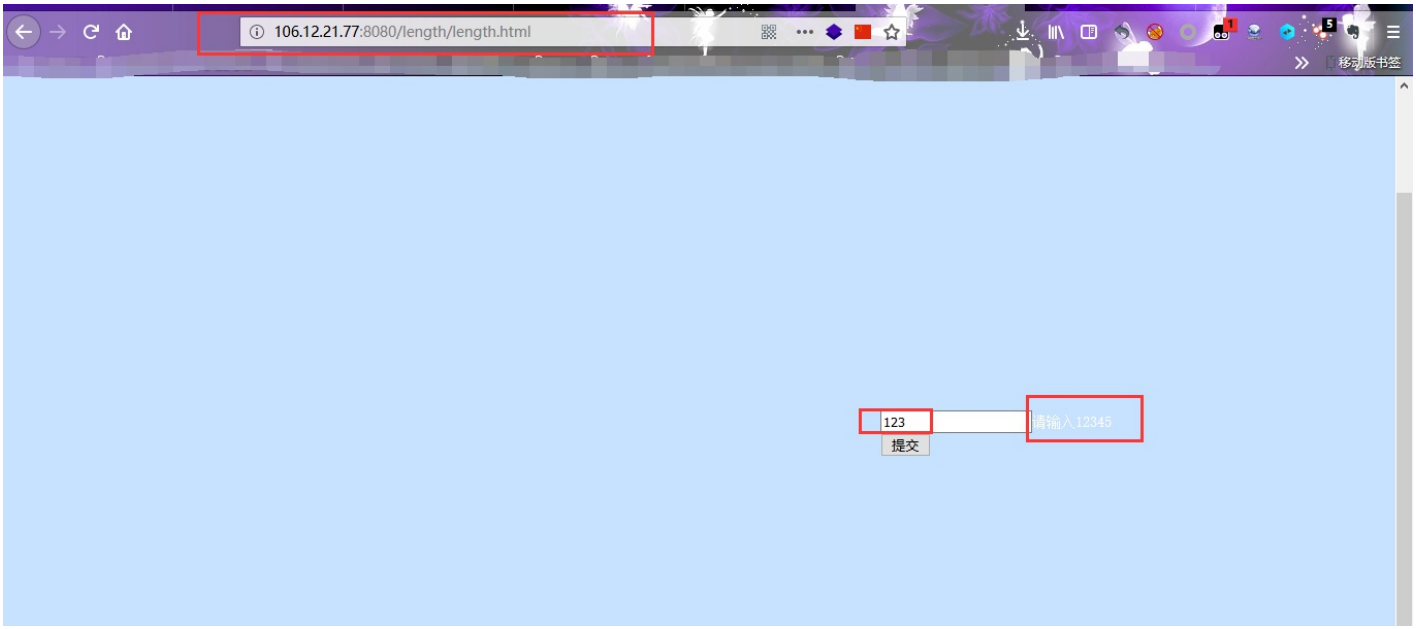


image.png

- 题目分析：根据提示输入12345提交，但是由于限制只能输入123，因此一看就知道要绕过限制
- 解题方法：方法不唯一可以抓包修改，也可以F12修改前端代码。

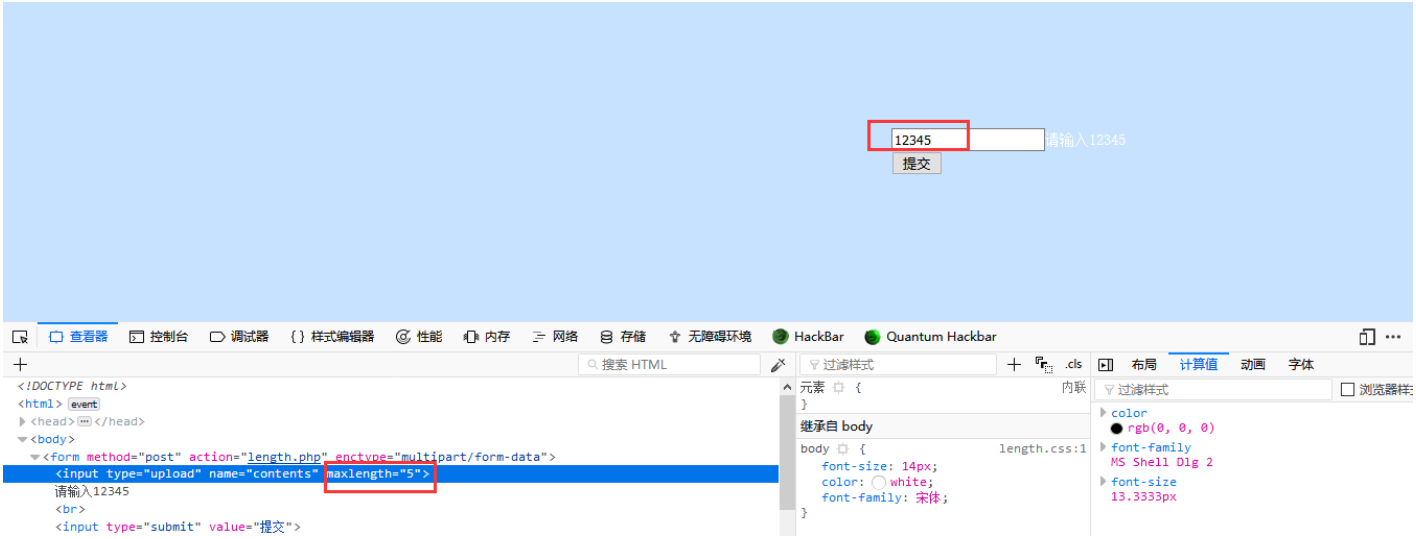
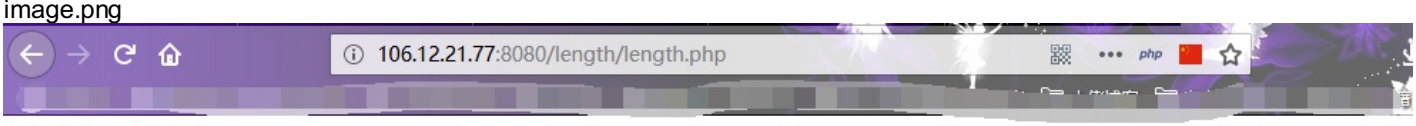


image.png



D0g3{max_lenth}

image.png

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4. serialize

- 题目地址：http://120.79.33.253:9001/


```php
<?php
error_reporting(0);
include "flag.php";
$KEY = "D0g3!!!";
$str = $_GET['str'];
if (unserialize($str) === "$KEY")
{
        echo "$flag";
}
show_source(__FILE__);
```

image.png

- 题目分析：题目还是很简单的，通过GET传参字符串`str`，将其传入的字符串通过`unserialize()`反序列化，使其反序列化结果值等于`$KEY`，于是解题方法就是传入事先通过`serialize()`函数序列化后的字符串。
- 解题过程：
  先写个简单序列化字符串的脚本

```php
<?php
$key = $_GET['key'];
$str = serialize($key);
echo "$str";
?>
```

然后运行脚本，可以得到反序列化字符串脚本

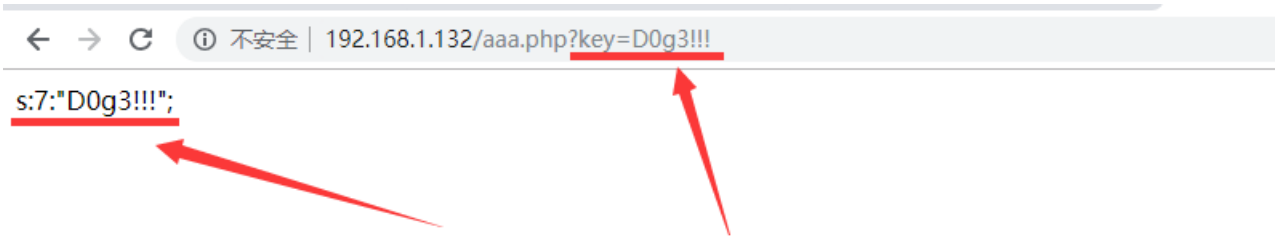

image.png
最后我们解题

image.png

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5. xss1

- 题目地址：http://206.189.214.99:4080/xss/

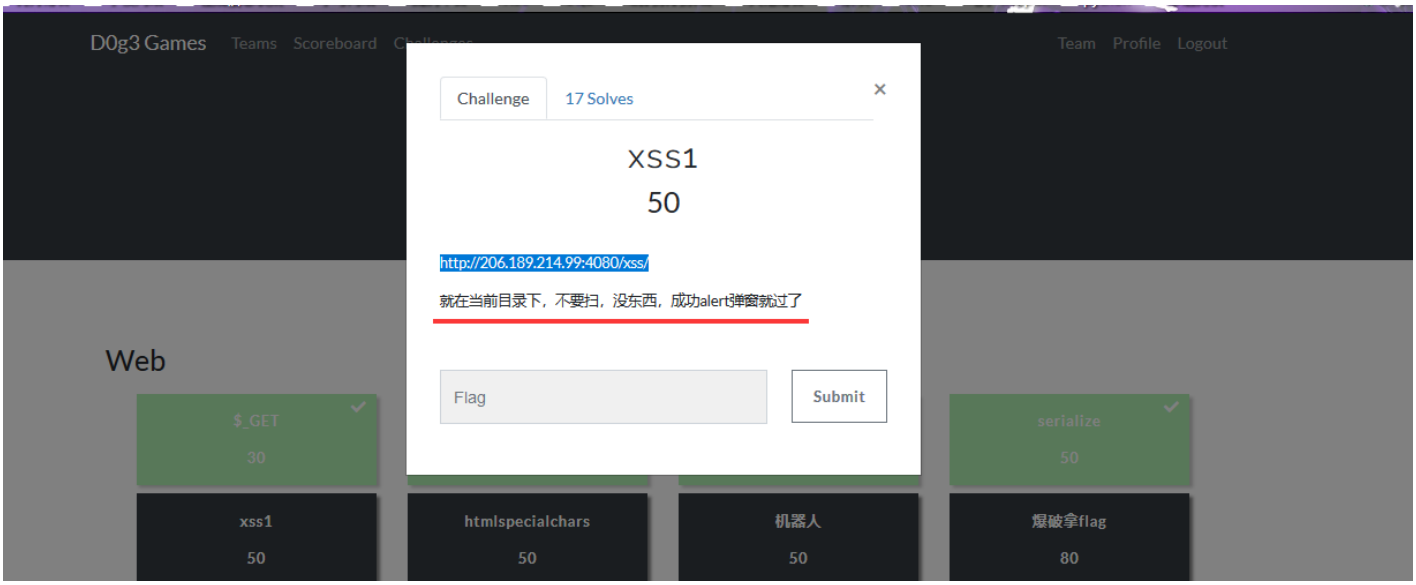


image.png

image.png

- 题目分析：这道题是考察xss漏洞的，根据提示弹窗即可，想必也是讲xsspayload作为参数值传入，那就随便输入值提交后先查看看页面源代码吧。

image.png

- 解题方法：根据题目分析，构造payload传入到参数，很简单了。通过测试发现两个输出点，，第一个输出点实体编码了，因此根据第二个输出点构造payload。

```
payload: "><script>alert(1)</script>
```

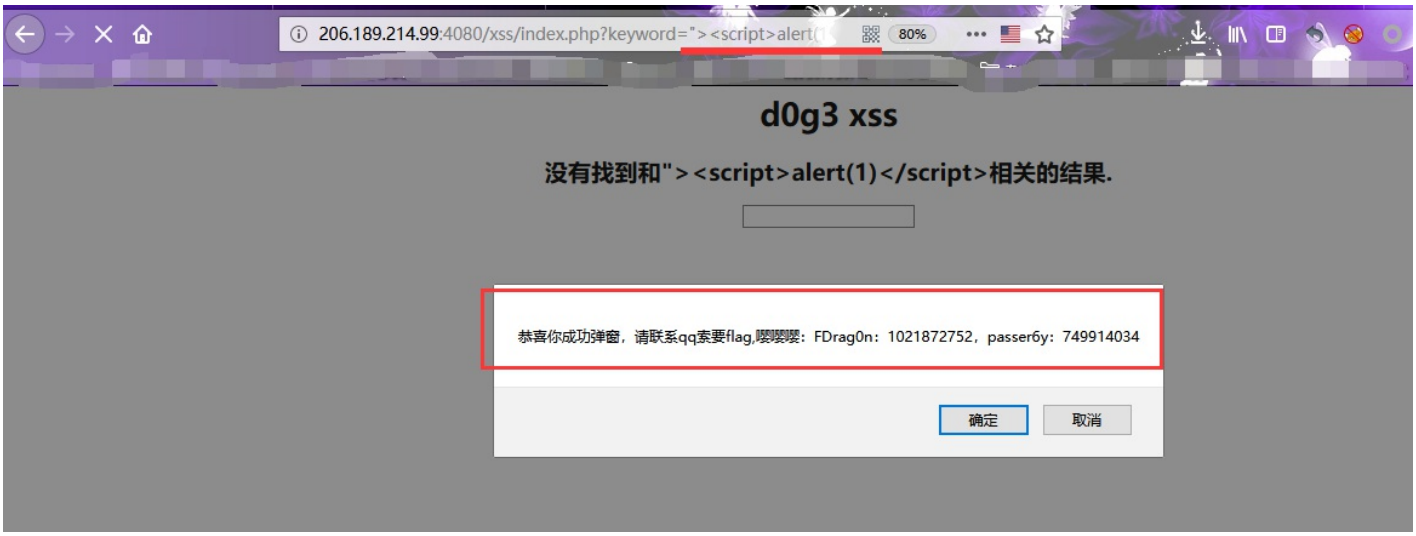
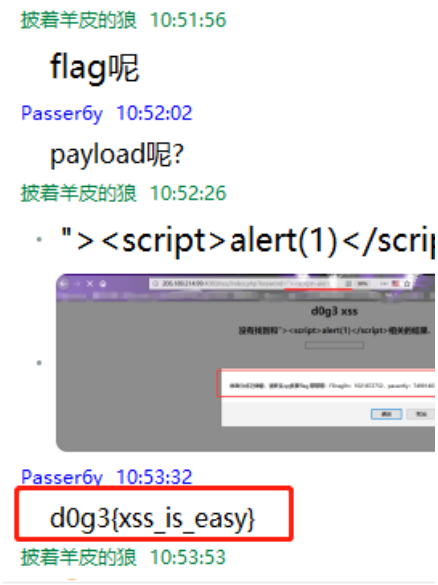


image.png

> 哇，弹出俩QQ，加好友索要flag，666，怎么不弄个公众号自动获取呢？

有趣的聊天截图，哈哈



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6. htmlspecialchars

- 题目地址：http://120.79.33.253:9004/?id=111

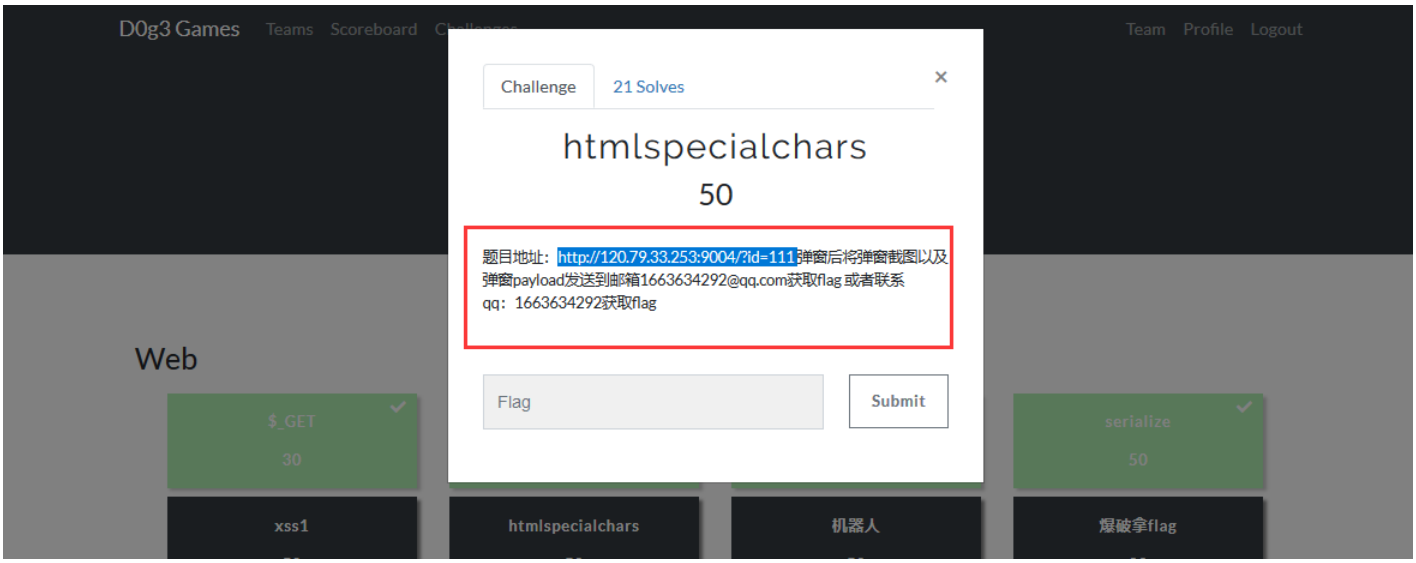


image.png

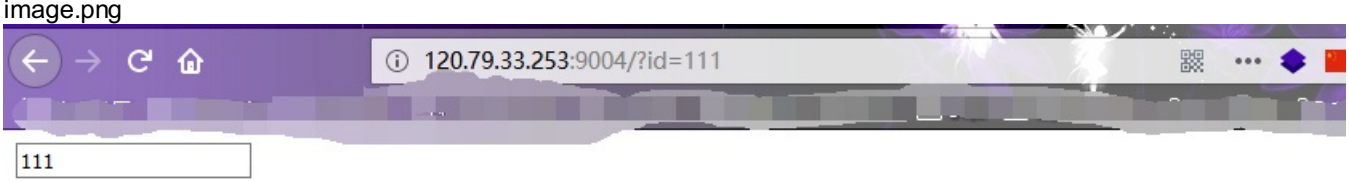


image.png

- 题目分析：哎，真麻烦，目标弹窗加qq，通过测试发现，后台使用`htmlspecialchars`对<>进行了HTML实体编码
- 解题方法：标签内构造XSSpayload

```
payload: ' onmouseover=alert(1)//
```

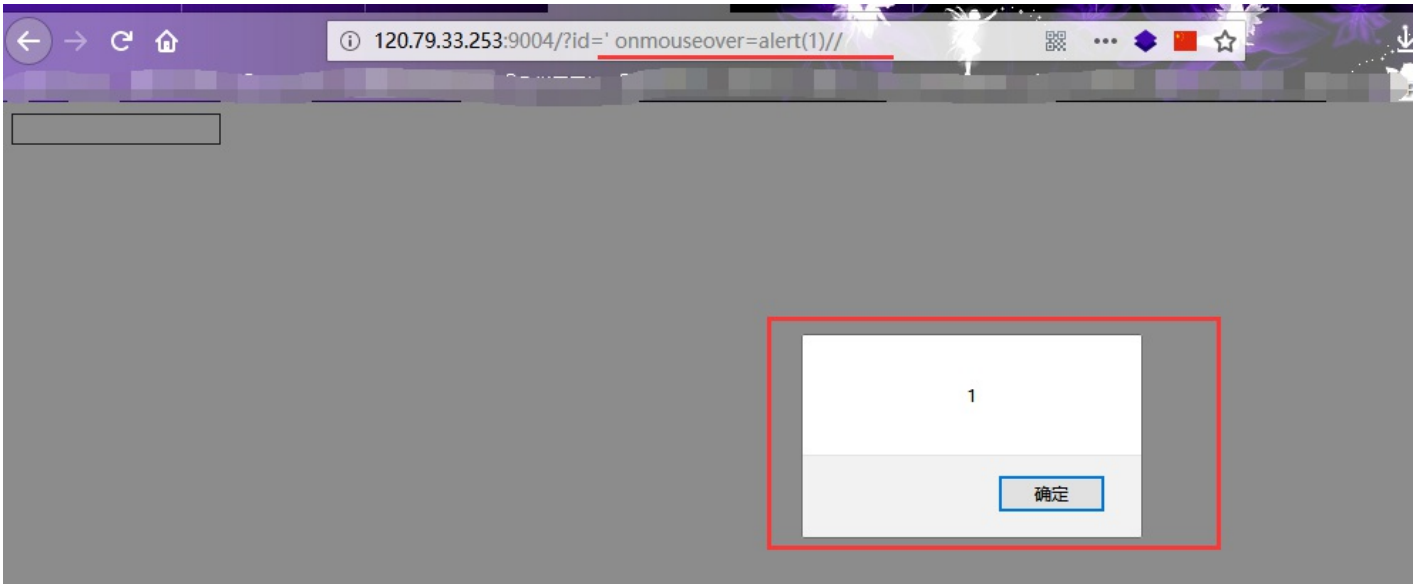


image.png

image.png

7. 机器人

- 题目地址： http://106.12.21.77:8080/robots/robots.html

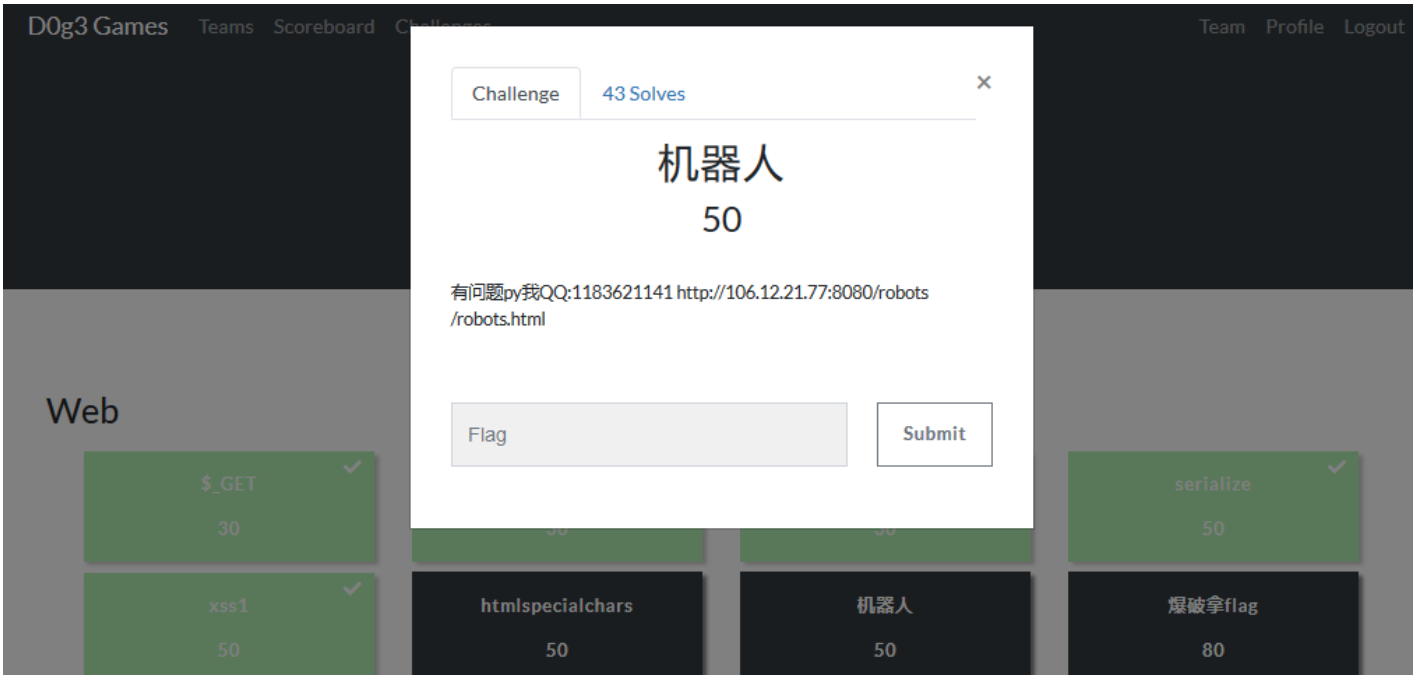


image.png

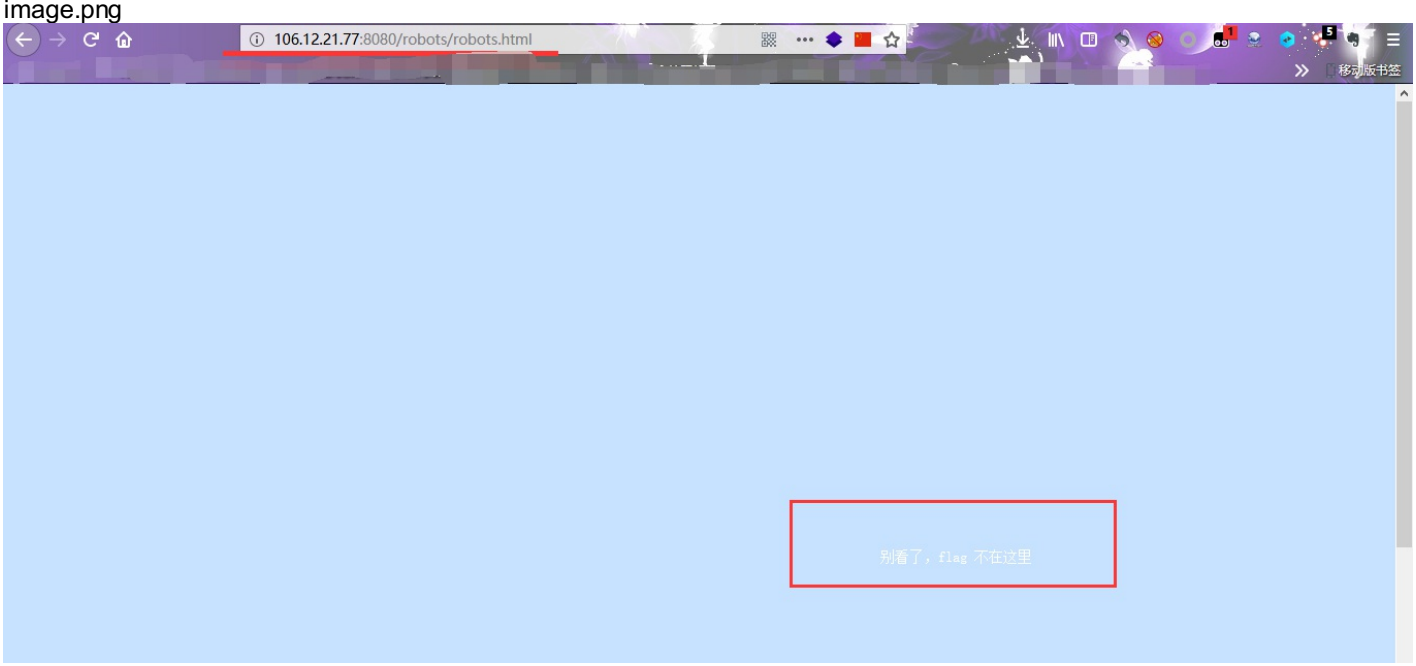


image.png

- 题目分析：这道题凭直觉考察的是`robots.txt`，简单解释一下就是，为了防止搜索引擎的爬虫，通常在网站目录下会有一个`robots.txt`文件，来告诉搜索引擎哪些目录允许爬虫。那就试试呗。
- 解题方法：访问`robots.txt`文件。果然有收获，发现一个flag.txt的文件，然后顺利访问拿到flag。

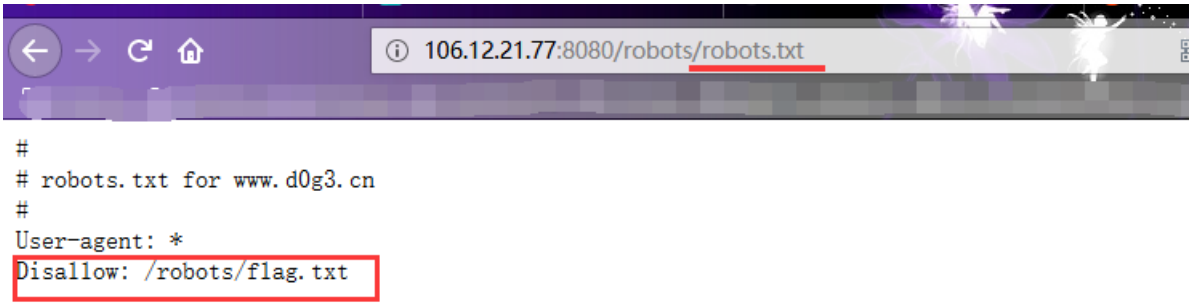


image.png

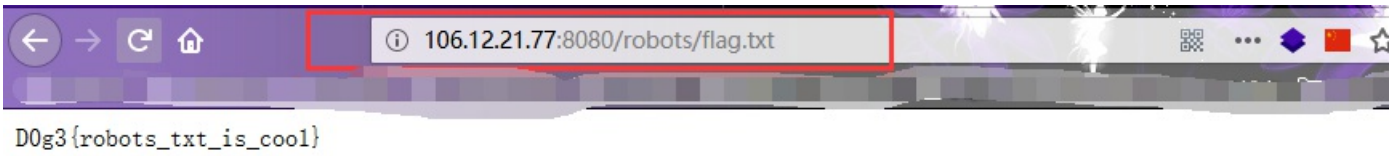


image.png

---

8. 爆破拿flag

- 题目地址：http://106.12.21.77:8080/burp/burp.html

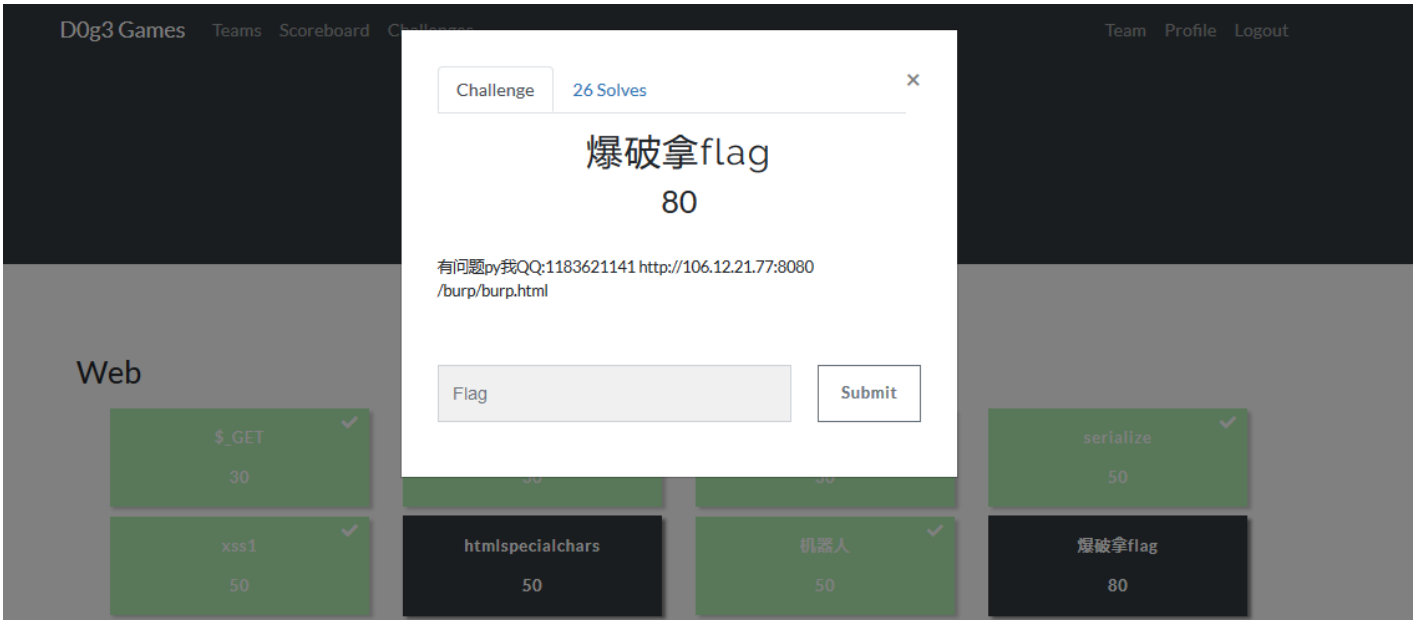


image.png

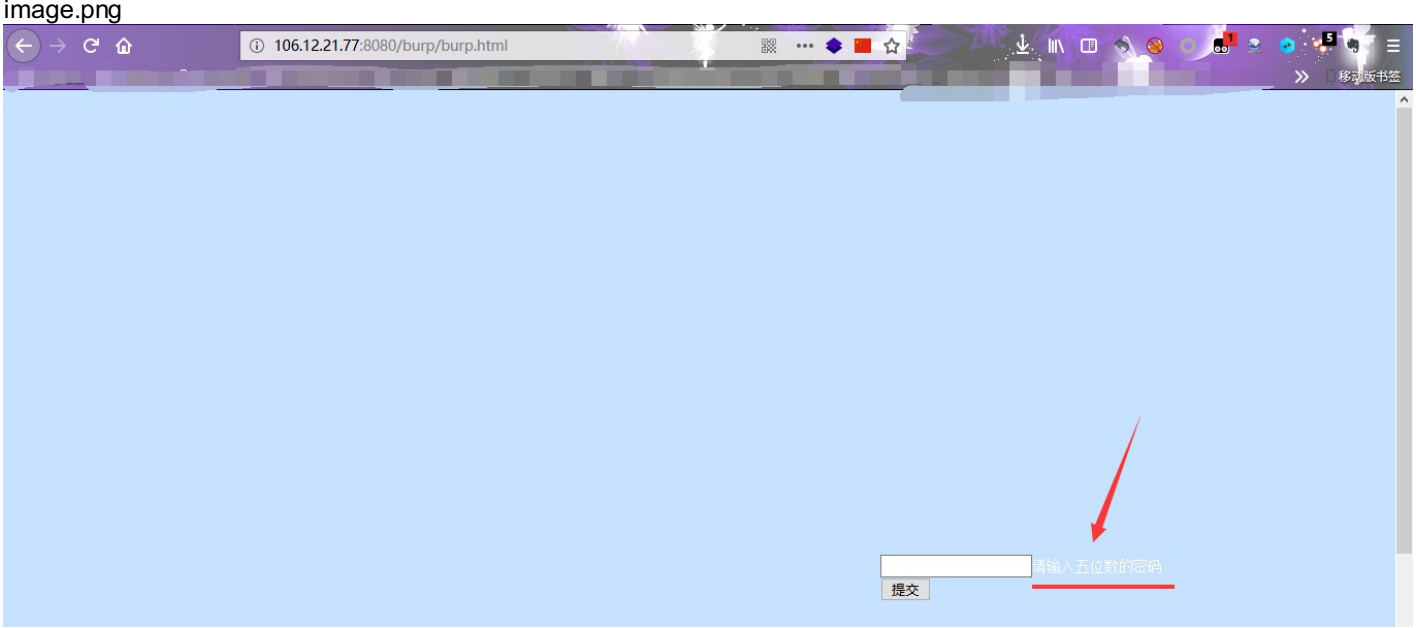


image.png

- 题目分析：也是很简单的一道题，5位数的密码，废话不多说，抓包爆破即可
- 解题方法：

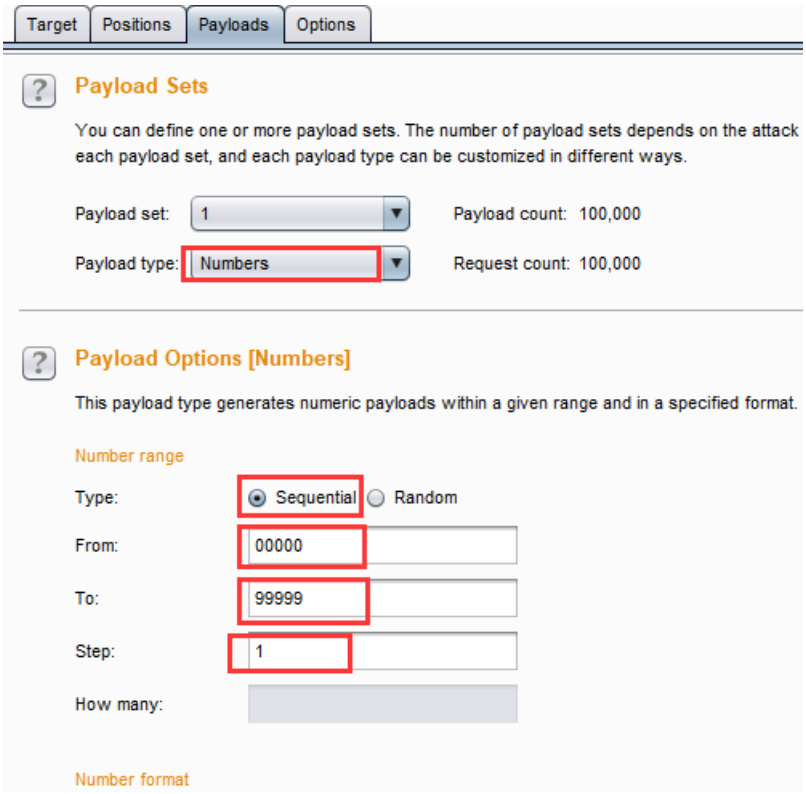


image.png

耐心等待.....

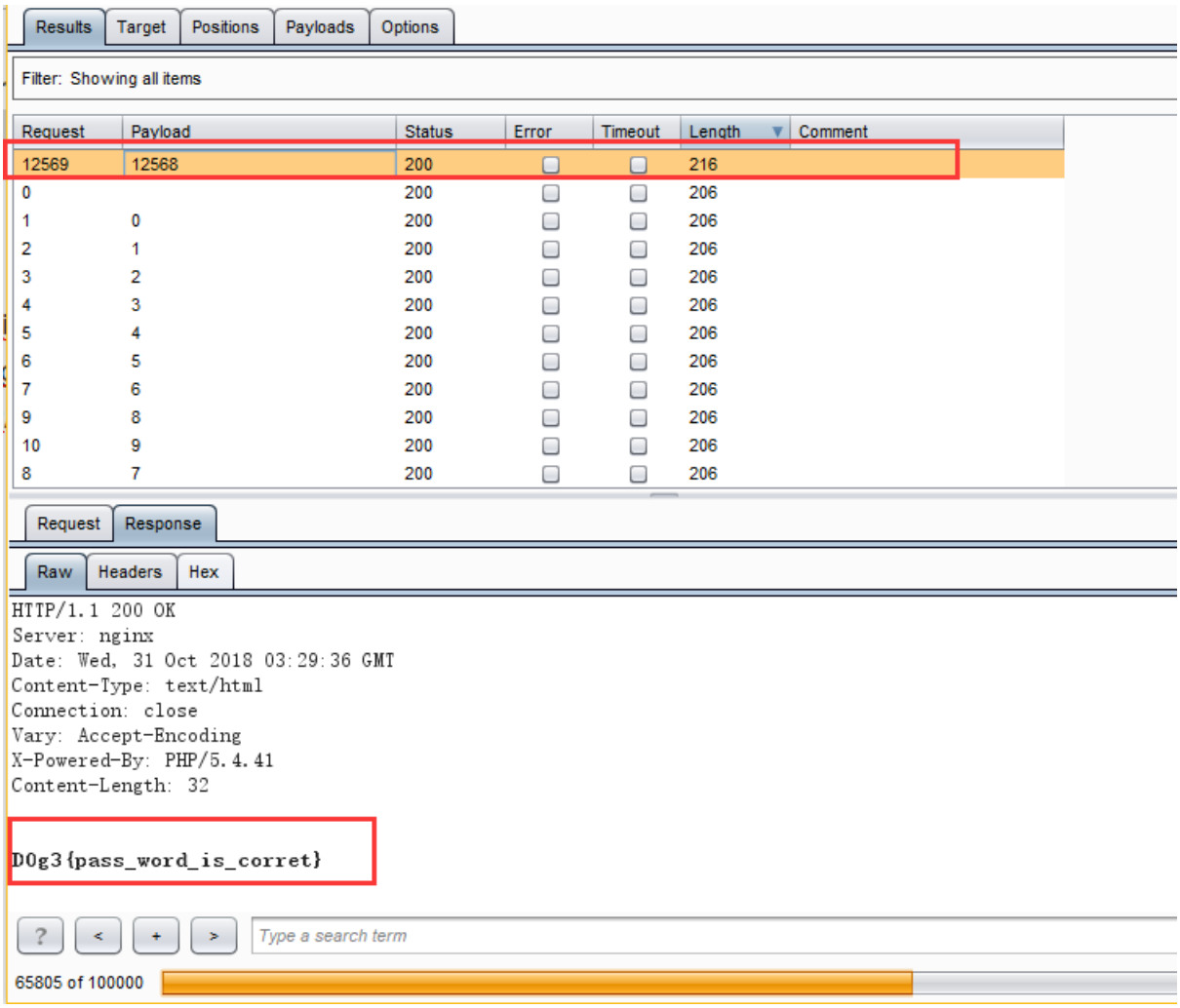


image.png

密码：12568

9. 数字比较

- 题目地址：题目给的地址不能用，但是给了php文件，只能在自己环境里搭建咯。

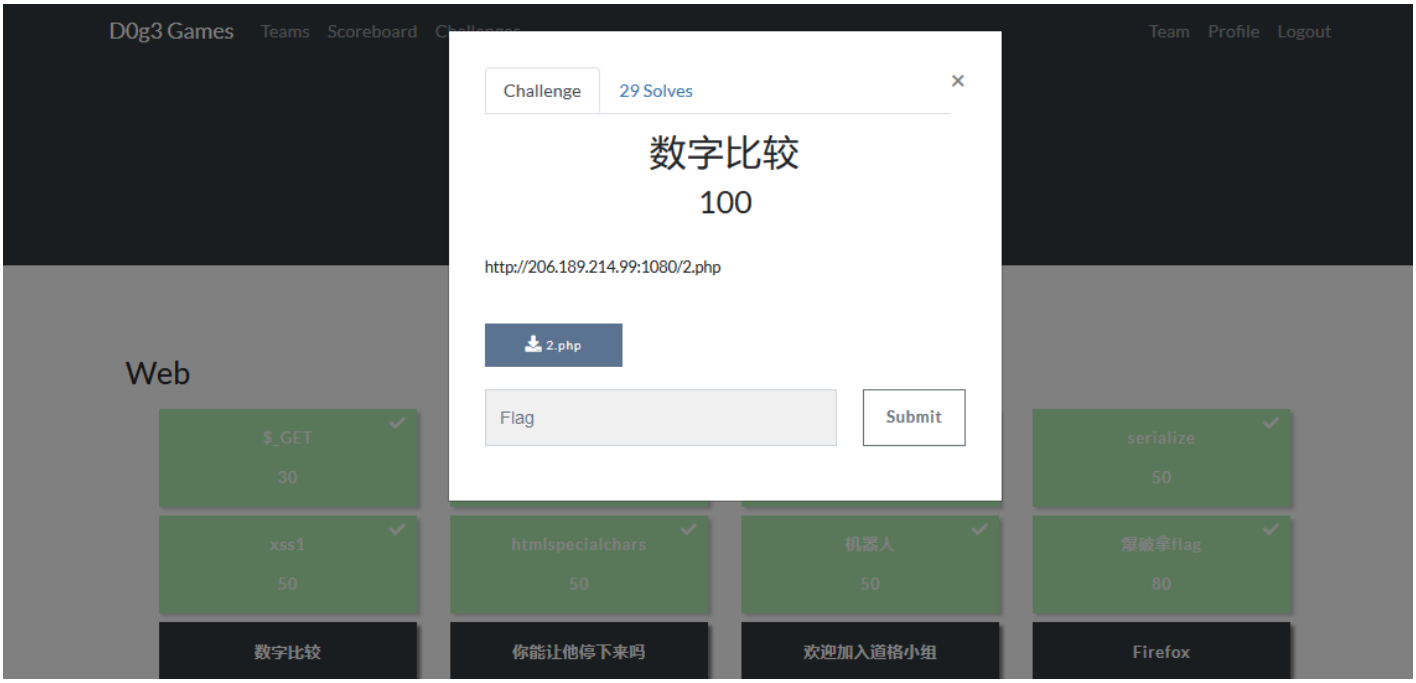


image.png

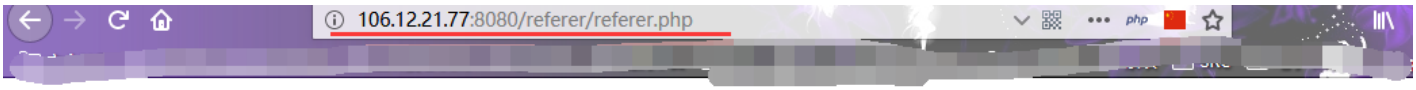
```
<?php
error_reporting(0);
function noother_says_correct($temp)
{
$flag = "xxxxx";
$one = ord('1'); //ord — 返回字符的 ASCII 码值
$nine = ord('9'); //ord — 返回字符的 ASCII 码值
$number = '3735929050';
// Check all the input characters!
for ($i = 0; $i < strlen($number); $i++)
{
// Disallow all the digits!
$digit = ord($temp{$i});
if ( ($digit >= $one) && ($digit <= $nine) )
{
// Aha, digit not allowed!
return "flase";
}
}
if($number == $temp)
return $flag;
}
$temp = $_GET['password'];
echo noother_says_correct($temp);
?>
```

- 题目分析：这道题是数字比较，但是又不允许输入1到9数字，因此可以使用16进制来进行比较，即传入的参数值为`3735929050`的16六进制`deadc0da`，传入时候记得前面加`0x`。
- 解题方法：
  `payload: ?password=0xdeadc0da`

---

11. 欢迎加入道格小组(伪造数据包来源来源)

- 题目地址： http://106.12.21.77:8080/referer/referer.php



****

管理系统只能从道格内部访问

本系统外部禁止访问

****

不是从d0g3.cn来的你还想要flag?

image.png
抓取数据包

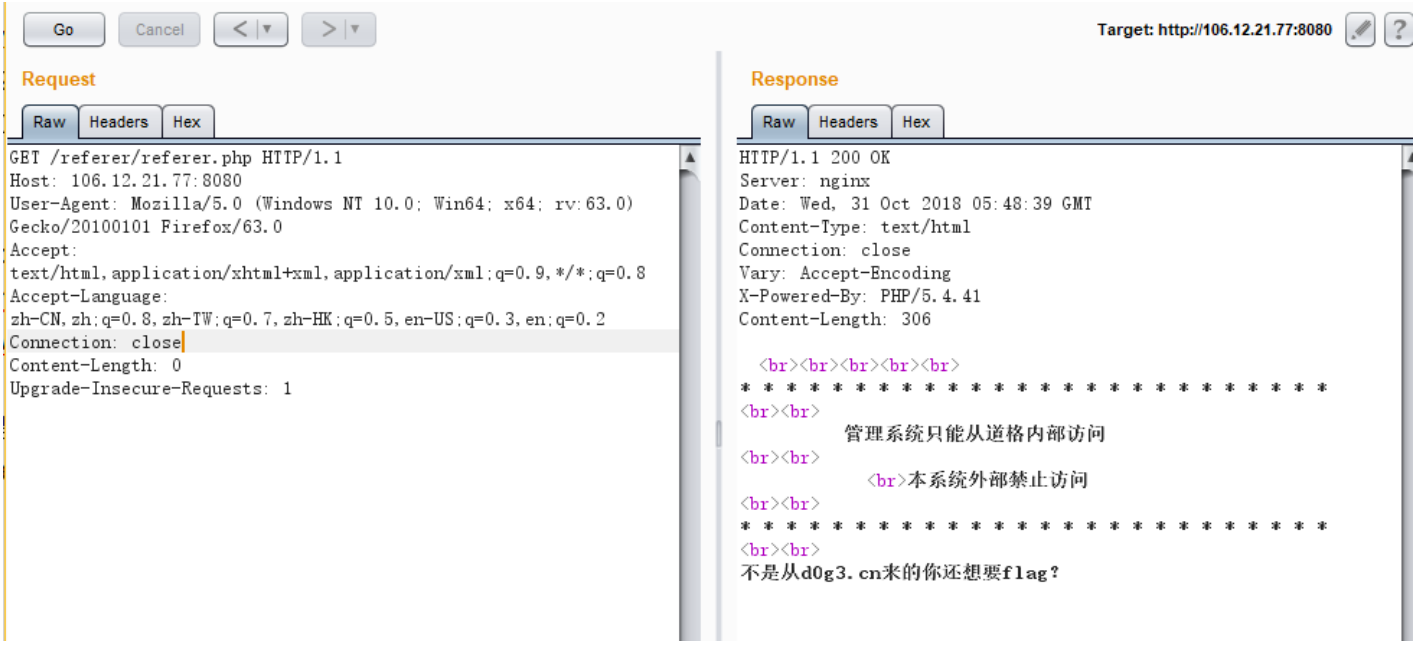


image.png

- 题目分析：这么明显的提示，就是伪造IP头部了，又加之提示信息不是从`d0g3.cn`来的你还想要`flag`?，很容易拿到flag。
- 解题方法：伪造数据包头

```
Referer: d0g3.cn
```

Go Cancel < > Target: http://106.12.21.77:8080

Request

Raw Headers Hex

```
GET /referer/referer.php HTTP/1.1
Host: 106.12.21.77:8080
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:63.0)
Gecko/20100101 Firefox/63.0
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language:
zh-CN,zh;q=0.8,zh-TW;q=0.7,zh-HK;q=0.5,en-US;q=0.3,en;q=0.2
Connection: close
Content-Length: 0
Referer: d0g3.cn
Upgrade-Insecure-Requests: 1
```

Response

Raw Headers Hex

```
HTTP/1.1 200 OK
Server: nginx
Date: Wed, 31 Oct 2018 05:49:26 GMT
Content-Type: text/html
Connection: close
Vary: Accept-Encoding
X-Powered-By: PHP/5.4.41
Content-Length: 30

D0g3{welcome_to_join_d0g3!}
```

image.png

---

12. Firefox

- 题目地址：http://106.12.21.77:8080/firefox.php

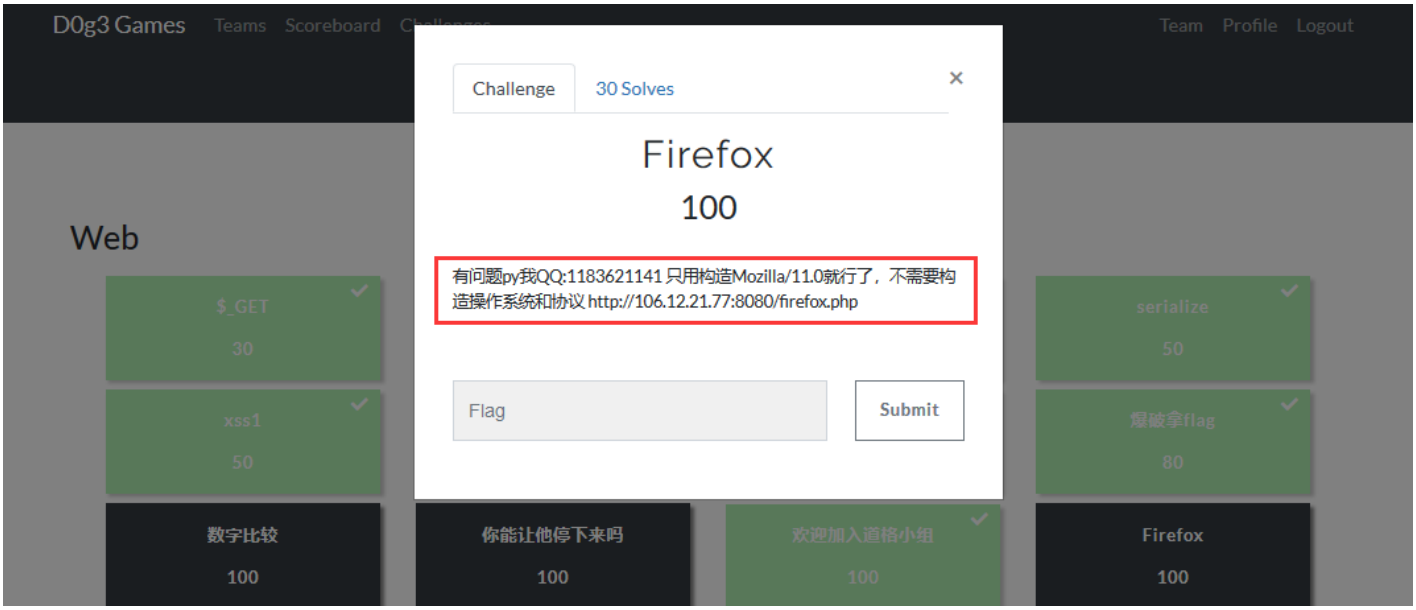
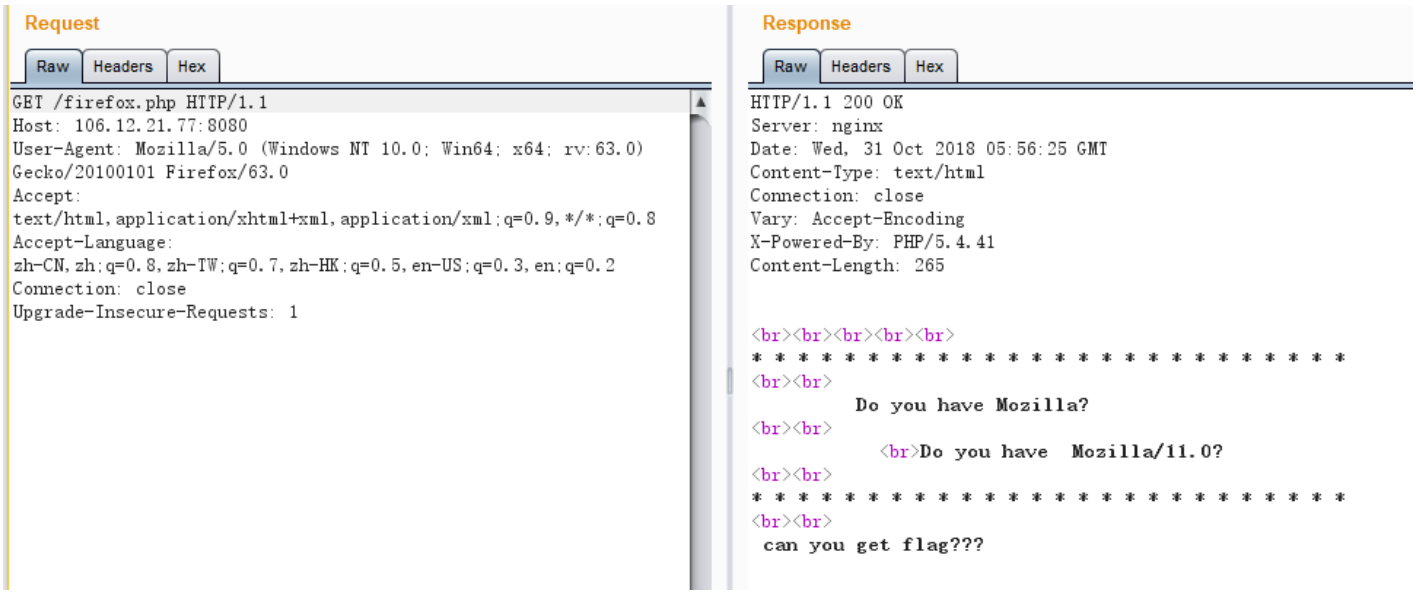


image.png


```
**************************

Do you have Mozilla?

Do you have Mozilla/11.0?

**************************

can you get flag???
```

image.png



12

- 题目分析：看起来也很简单，就是伪造浏览器版本信息吧。
- 解题方法：修改浏览器版本信息为`Mozilla/11.0`，开始简单改个数字11，结果不行，后来仔细看提示，说只用构造为`Mozilla/11.0`，不用构造操作系统和协议。

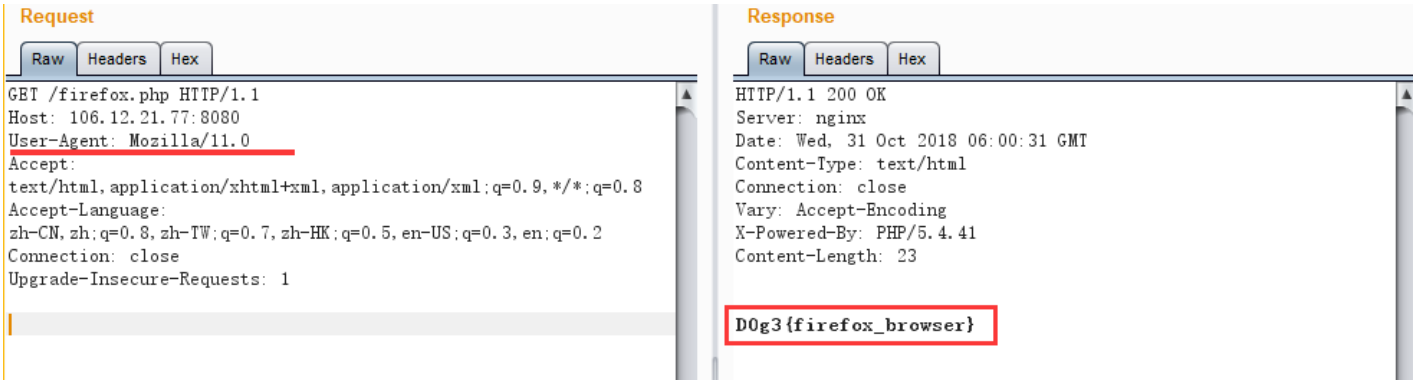


image.png

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13. IP伪造

- 题目地址：http://106.12.21.77:8080/x-forwarded-for.php

image.png

Request

Raw Headers Hex

```
GET /x-forwarded-for.php HTTP/1.1
Host: 106.12.21.77:8080
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:63.0)
Gecko/20100101 Firefox/63.0
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language:
zh-CN,zh;q=0.8,zh-TW;q=0.7,zh-HK;q=0.5,en-US;q=0.3,en;q=0.2
Connection: close
Upgrade-Insecure-Requests: 1
```

Response

Raw Headers Hex

```
HTTP/1.1 200 OK
Server: nginx
Date: Wed, 31 Oct 2018 06:07:11 GMT
Content-Type: text/html
Connection: close
Vary: Accept-Encoding
X-Powered-By: PHP/5.4.41
Content-Length: 32

Your ip address is 222.66.55.241
```

image.png

- 题目分析：很简单了，伪造IP

```
Client-Ip: 127.0.0.1
X-Forwarded-For: 127.0.0.1
Host: 127.0.0.1
```

- 解题方法：抓取数据包修改数据包IP地址

Request

Raw Headers Hex

```
GET /x-forwarded-for.php HTTP/1.1
Host: 106.12.21.77:8080
User-Agent: Mozilla/5.0 (Windows NT 10.0; Win64; x64; rv:63.0)
Gecko/20100101 Firefox/63.0
Accept:
text/html,application/xhtml+xml,application/xml;q=0.9,*/*;q=0.8
Accept-Language:
zh-CN,zh;q=0.8,zh-TW;q=0.7,zh-HK;q=0.5,en-US;q=0.3,en;q=0.2
Connection: close
X-Forwarded-For: 127.0.0.1
Upgrade-Insecure-Requests: 1
```

Response

Raw Headers Hex

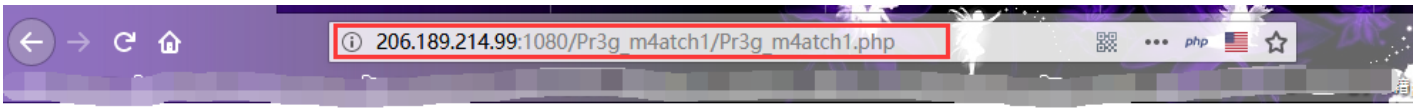
```
HTTP/1.1 200 OK
Server: nginx
Date: Wed, 31 Oct 2018 06:08:05 GMT
Content-Type: text/html
Connection: close
Vary: Accept-Encoding
X-Powered-By: PHP/5.4.41
Content-Length: 65

Your ip address is 127.0.0.1<br><br>flag is :
D0g3{x_forward_for}
```

image.png

---

15. Match it！(匹配它)

- 题目地址：http://206.189.214.99:1080/Pr3g_m4atch1/Pr3g_m4atch1.php




```php
<?php
include 'flagi3hEre.php';
if ("POST" == $_SERVER['REQUEST_METHOD'])
{
        $password = $_POST['password'];
        if (0 >= preg_match('/^[[:graph:]]{12,}$/', $password))
        {
                echo 'Wrong Format';
                exit;
        }
        while (TRUE)
        {
                $reg = '/([[:punct:]]+|[[:digit:]]+|[[:upper:]]+|[[:lower:]]+)/';
                if (6 > preg_match_all($reg, $password, $arr))
                        break;
                $c = 0;
                $ps = array('punct', 'digit', 'upper', 'lower');
                foreach ($ps as $pt)
                {
                        if (preg_match("/[[:$pt:]]+/", $password))
                        $c += 1;
                }
                if ($c < 3) break;
                if ("42" == $password) echo $flag;
                else echo 'Wrong password';
                exit;
        }
}
highlight_file(__FILE__);
?>
```

image.png

```php
<?php
include 'f1agi3hEre.php';
if ("POST" == $_SERVER['REQUEST_METHOD'])
{
    $password = $_POST['password'];
    if (0 >= preg_match('/^[[:graph:]]{12,}$/', $password))
    {
        echo 'Wrong Format';
        exit;
    }
    while (TRUE)
    {
        $reg = '/([[:punct:]]+|[[:digit:]]+|[[:upper:]]+|[[:lower:]]+)/';
        if (6 > preg_match_all($reg, $password, $arr))
            break;
        $c = 0;
        $ps = array('punct', 'digit', 'upper', 'lower');
        foreach ($ps as $pt)
        {
            if (preg_match("/[[:$pt:]]+/", $password))
            $c += 1;
        }
        if ($c < 3) break;
        if ("42" == $password) echo $flag;
        else echo 'Wrong password';
        exit;
    }
}
highlight_file(__FILE__);
?>
```

- 题目分析：一步一步代码审计吧。

```
0 >= preg_match('/^[[:graph:]]{12,}$/', $password)
//输入的内容必须为12个以上包括12，不包括空格和tab键

 $reg = '/([[:punct:]]+|[[:digit:]]+|[[:upper:]]+|[[:lower:]]+)/';
//[[:punct:]] 任何标点符号， [[:digit:]] 任何数字， [[:upper:]] 任何大写字母 ， [[:lower:]] 任何小写字母

 if (6 > preg_match_all($reg, $password, $arr))
//匹配到的次数要大于6次才能绕过。连续的大写或小写字母都只能算是一次。

 $ps = array('punct', 'digit', 'upper', 'lower');
        foreach ($ps as $pt)
        {
            if (preg_match("/[[:$pt:]]+/", $password))
            $c += 1;
        }
        if ($c < 3) break;
//这个好理解，必须要有大小写字母，数字，字符内容三种与三种以上

if ("42" == $password) echo $flag;
//最后输入的值还要和42相等。
```

- 解题方法：根据以上匹配规则构造出满足需求的payload
  可以构造420.000000e-1 //0可以随意添加不影响数值，但是要超过12个字符

D0g3{Pr3g_m4atch1_c4nt_st0p_y0u!!!!}

image.png

太菜了，其他的有点思路但暂时没搞定。