IoT CTF Competition

Team: [redacted]

Members: [redacted]

Rank: 5

Score: 6400

Challenges Solved: 10

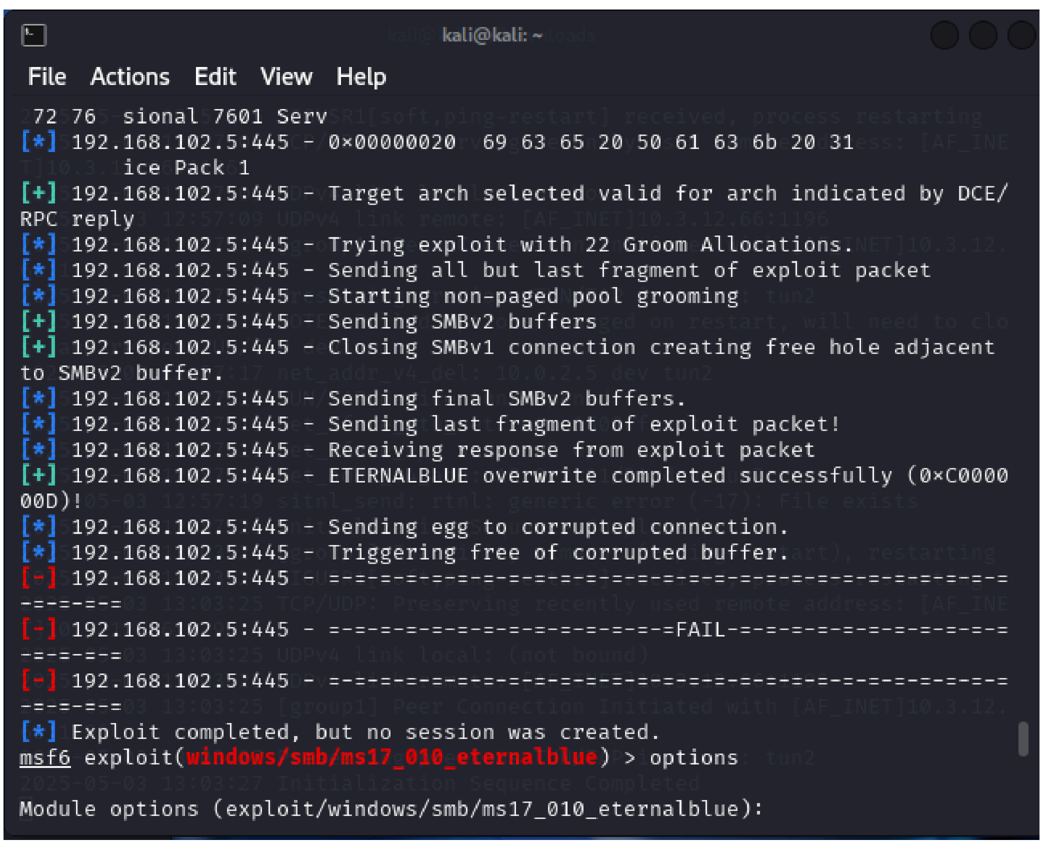
Environment Setup:

Applications Used: zenmap, terminal, cyberchef
Windows laptops with Kali Linux Virtual Machines

Challenge Categories:

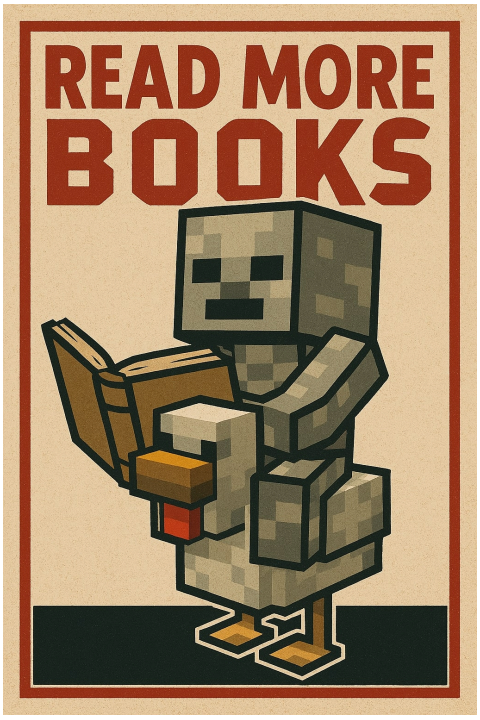
Windows:

- We followed the suggestion from the “SMB enum” resources. We executed the commands: netexec smb <target-ip> and smbclient -L //target-ip -m NT1 -N. Once the commands were executed, we could see the flag file and cat it to display what needed to be turned in.
- The intern’s workstation was vulnerable to an EternalBlue exploitation. We ran the command msfconsole and then searched for ms17. Once there, we utilized the exploit by running “use 0”. Within the exploit, we ran the “options” command and noticed that the RHOSTS field needed to be input. We then input the Intern’s workstation IP address with the set command. Lastly, we ran the exploit with the “run” command. Although there were issues, we then input the exploit completion into Discord, and the moderators gave us the flag.



Linux:

- We began by accessing the ftp server of the library. Utilized the anonymous login and listed the files and directories, and found a bonus flag. We then ran the get command and ran the cat file to display the flag.
- Within the library terminal, we utilized SQL injection in order to navigate through the directories, found the admin directories, and within that directory, we ran the cat command on the notes.txt file to display the notes.
- We logged into the catalog email account and reviewed the different emails that were sent/received. Found an email with a photo attached, with the description that a message was hidden. We understood that it used steganography, so we searched online for a website that could decode the image. Upon inputting the image and decoding it, we were presented with the flag.

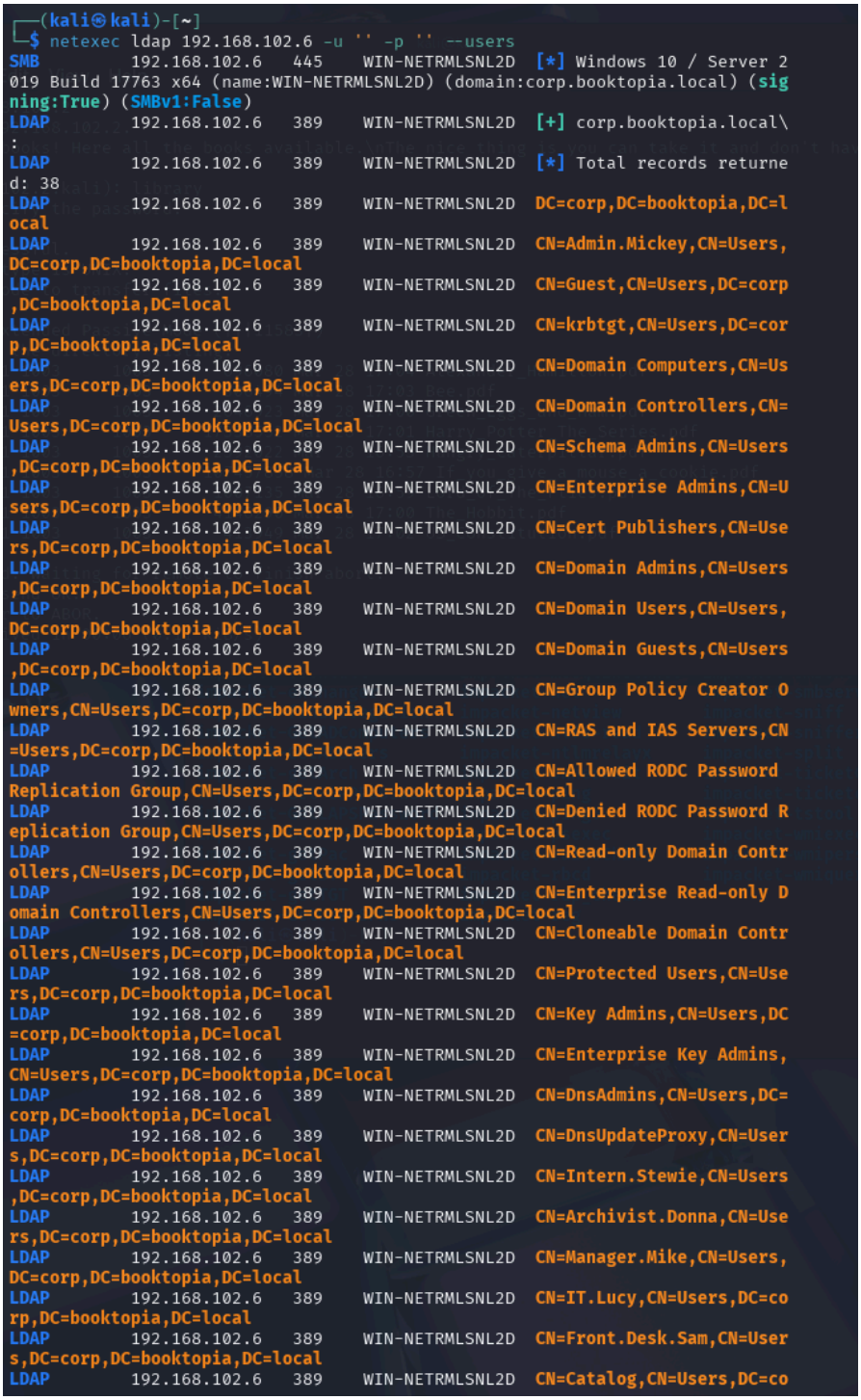


- Within a different email to Mickey, we utilized AI to determine that it used ROT13 encryption. We then used a decryption website and decrypted it to solve the flag.
    - SYNT{GuvfOhgFrafvgvirVasbezngvbaLrnu?}
- We used SQL injection to access the “head.librarian” email account and used the tokenization documentation to detokenize the token that was identified in the email.
    - Detokenize: http://192.168.102.3:25565/detokenize/5kn6gMB3BWFeDWuR3pBM7jT86g8mePWq


```
{
  "original_value": "FLAG{If_You_Give_A_Moose_A_Muffin_>_If_You_Give_A_Mouse_A_Cookie}",
  "token": "5kn6gMB3BWFeDWuR3pBM7jT86g8mePWq"
}
```

Challenges not solved:

- Management Server



```
┌──(kali㉿kali)-[~]
└─$ netexec ldap 192.168.102.6 -u '' -p '' --users
SMB         192.168.102.6   445    WIN-NETRMLSNL2D  [*] Windows 10 / Server 2
019 Build 17763 x64 (name:WIN-NETRMLSNL2D) (domain:corp.booktopia.local) (sig
ning:True) (SMBv1:False)
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  [+] corp.booktopia.local\
:
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  [*] Total records returne
d: 38
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  DC=corp,DC=booktopia,DC=l
ocal
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Admin.Mickey,CN=Users,
DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Guest,CN=Users,DC=corp
,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=krbtgt,CN=Users,DC=cor
p,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Domain Computers,CN=Us
ers,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Domain Controllers,CN=
Users,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Schema Admins,CN=Users
,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Enterprise Admins,CN=U
sers,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Cert Publishers,CN=Use
rs,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Domain Admins,CN=Users
,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Domain Users,CN=Users,
DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Domain Guests,CN=Users
,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Group Policy Creator O
wners,CN=Users,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=RAS and IAS Servers,CN
=Users,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Allowed RODC Password
Replication Group,CN=Users,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Denied RODC Password R
eplication Group,CN=Users,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Read-only Domain Contr
ollers,CN=Users,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Enterprise Read-only D
omain Controllers,CN=Users,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Cloneable Domain Contr
ollers,CN=Users,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Protected Users,CN=Use
rs,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Key Admins,CN=Users,DC
=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Enterprise Key Admins,
CN=Users,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=DnsAdmins,CN=Users,DC=
corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=DnsUpdateProxy,CN=User
s,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Intern.Stewie,CN=Users
,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Archivist.Donna,CN=Use
rs,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Manager.Mike,CN=Users,
DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=IT.Lucy,CN=Users,DC=co
rp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Front.Desk.Sam,CN=User
s,DC=corp,DC=booktopia,DC=local
LDAP        192.168.102.6   389    WIN-NETRMLSNL2D  CN=Catalog,CN=Users,DC=co
```

- Vault Server
- Certificate Server
- Bonus: It’s Secure

- Bonus: Interns will in fact pull an Intern
- Bonus: Lucy has no Luck
    - We found the user IT.Lucy when we ran netexec, but we did not figure out where to use the login before the time ran out.
- Bonus: Descriptions can be revealing

Extra Notes:

ACTIVE EMAILS (@nonprofit.library):
- mickey@nonprofit.library (Me)
- stewie@nonprofit.library (The intern)
- catalog@nonprofit.library (Spam?)
- mike@nonprofit.library (The Manager)
- head.librarian@nonprofit.library (Boss)

192.168.102.6

Window Server : 192.168.102.5
Linux Boxes: 192.168.10X.2 - Library Terminal

- Web page is 192.168.10X.2:5000

192.168.10X.3 - Email Server

- Web page is 192.168.10X.3:8080

192.168.10X.4 - Vault Server

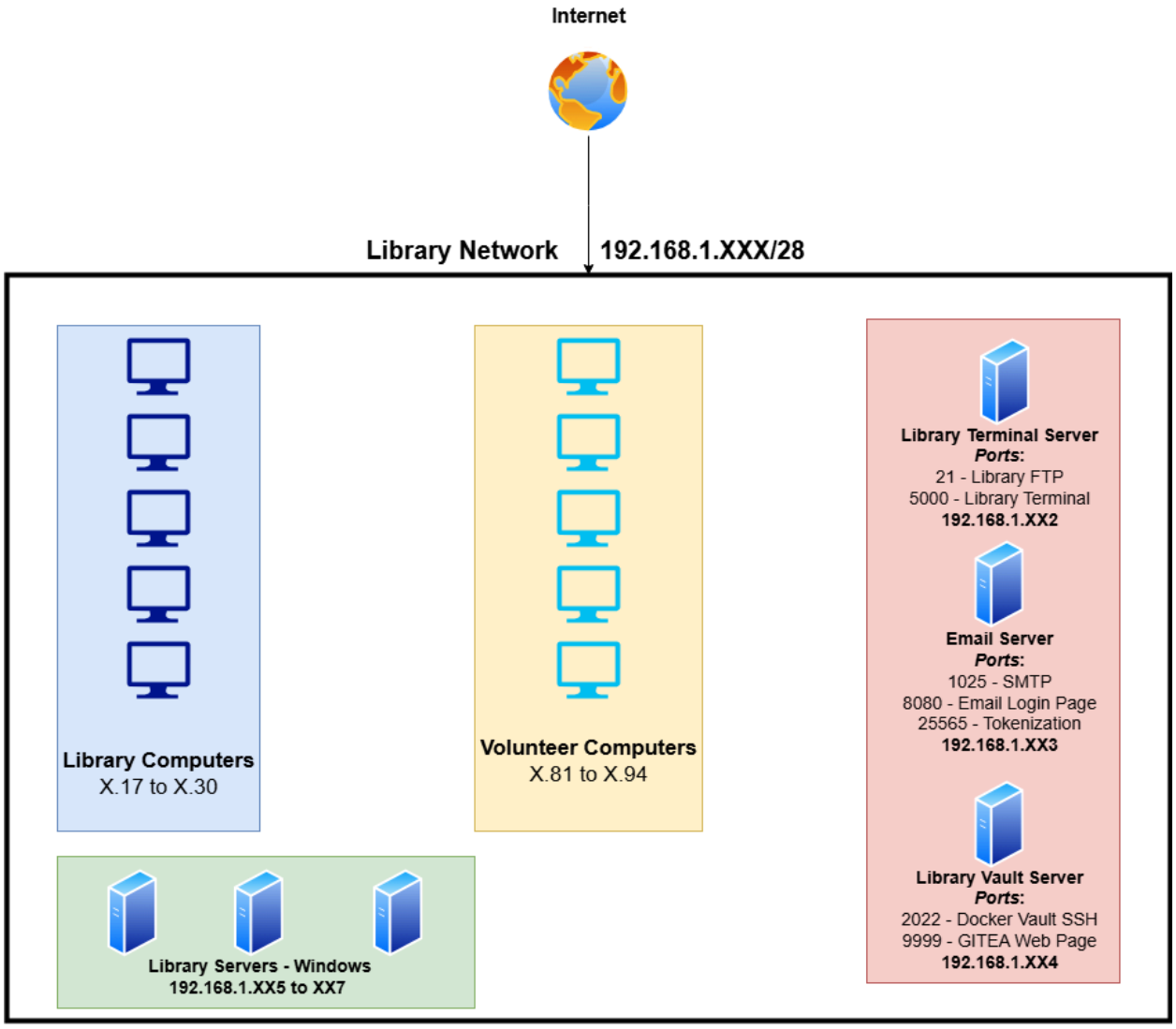
- Web page is 192.168.10X.4:9999

Windows Boxes: 192.168.10X.5 - Intern Server
192.168.10X.6 - Management Server
192.168.10X.7 - Certificate Server

SYNT{GuvfOhgFrafvgvirVasbezngvbaLrnu?}
`5kn6gMB3BWFeDWuR3pBM7jT86g8mePWq`

Boom Chicka Boom

GetNPUsers.py -request -format hashcat \ -usersfile users.txt -dc-ip 192.168.102.6 corp.booktopia.local/ \ > asreproast.hash



Accessing Important Services

Library Terminal: http://192.168.1.XX2:5000

Email Login Page: http://192.168.1.XX3:8080

Tokenization Server: http://192.168.1.XX3:25565

GITEA Server: http://192.168.1.XX4:9999