Exercise 2: Launching a Spear Phishing Campaign

In this exercise, you will execute a spear phishing campaign against an employee of ACME Corp., using the information that you gathered in the previous exercise.

Execute the Spear Phishing Attack

You will execute an SMTP user enumeration attack using third-party tools.

To emulate the attack

1. On the bastion host, on the desktop, double-click the **Kali Linux** RDP shortcut.
2. Log in with the following credentials:

- Username: root
- Password: Passw0rd

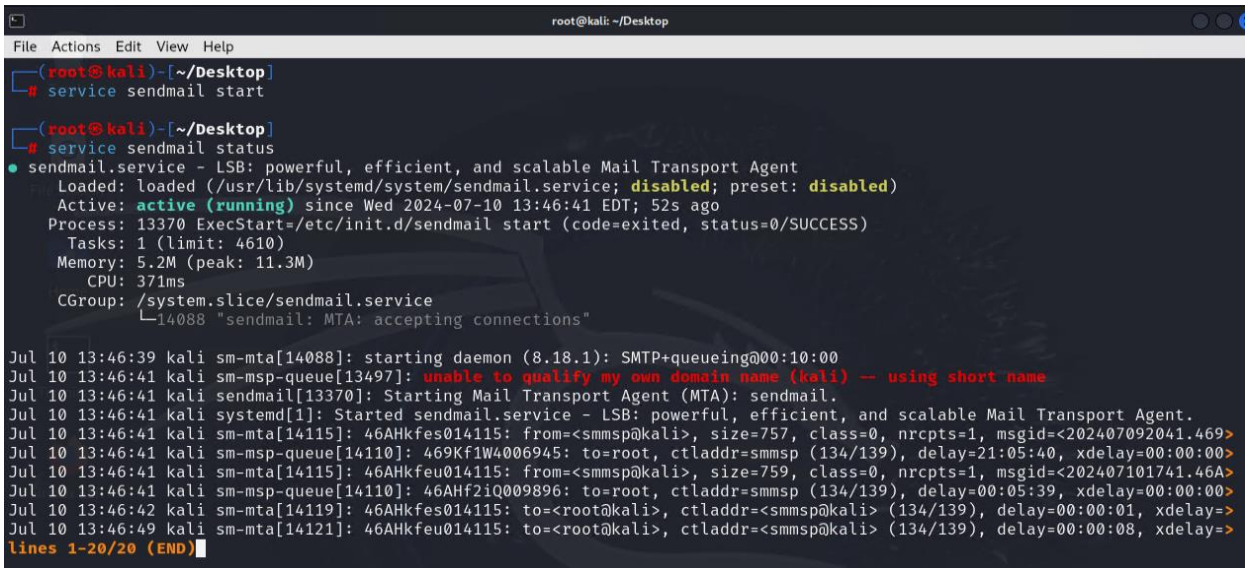
3. On the Kali Linux VM, on the desktop, double-click the **Terminal** shortcut to open two terminal windows.
4. In the first terminal window, enter the following command to start your local sendmail server:

service sendmail start

You will use this SMTP server later in this exercise as your relay to send the spear phishing email. It may take a while for the sendmail server to start.

5. When the shell prompt reappears, enter the following command to verify that the sendmail server is running correctly:

service sendmail status



6. Type q to exit the status command.
7. In the second terminal window, enter the following commands to change the directory and list the files:

cd /root/CyberSecurity/phishing

ls

```
root@kali: ~/CyberSecurity/phishing
File  Actions  Edit  View  Help
┌──(root㉿kali)-[/]
└─# cd /root/CyberSecurity/phishing

┌──(root㉿kali)-[~/CyberSecurity/phishing]
└─# ls
email-users.txt

┌──(root㉿kali)-[~/CyberSecurity/phishing]
└─#
```

8. Enter the following command to list the contents of the email-users.txt file in that directory:

cat email-users.txt

```
root@kali: ~/CyberSecurity/phishing
File  Actions  Edit  View  Help
yaco
yang
yellowstone
yolanda
yosemite
zap
zimmerman
zipfiles
zips
zmodem

┌──(root㉿kali)-[~/CyberSecurity/phishing]
└─#
```

The email-users.txt file contains a list of common usernames. You will use this file with SMTP enumeration to find valid email accounts on the acmecorp.net email server.

In the previous exercise, you noted some employee names of the target. An attacker would typically add names gathered from reconnaissance to an enumeration file to increase their chances of finding a match.

9. Enter the following command to see how many users are in the list:

wc -l email-users.txt

```
root@kali: ~/CyberSecurity/phishing
File  Actions  Edit  View  Help
yellowstone
yolanda
yosemite
zap
zimmerman
zipfiles
zips
zmodem

┌──(root㉿kali)-[~/CyberSecurity/phishing]
└─# wc -l email-users.txt
1659 email-users.txt
```

The file contains 1659 usernames, so the output in the image above is truncated.

10. Enter the following commands to identify the MX record for the acmecorp.net email server:

nslookup

set q=mx

acmecorp.net

```
root@kali: ~/CyberSecurity/phishing
File  Actions  Edit  View  Help
┌──(root㉿kali)-[~/CyberSecurity/phishing]
└─# nslookup
> set q=mx
> acmecorp.net
Server:         10.200.200.12
Address:        10.200.200.12#53

acmecorp.net    mail exchanger = 50 mail.acmecorp.net.
>
```

According to the DNS server response, the mail server for acmecorp.net resolves to mail.acmecorp.net.

11. Continuing at the nslookup prompt, enter the following commands to identify the IP address of the FQDN mail.acmecorp.net:

set q=a

mail.acmecorp.net

```
root@
File  Actions  Edit  View  Help
> set q=a
> mail.acmecorp.net
Server:         10.200.200.12
Address:        10.200.200.12#53

Name:   mail.acmecorp.net
Address: 10.200.200.100
>
```

According to the DNS server response, the mail.acmecorp.net FQDN resolves to 10.200.200.100.

12. Enter exit to exit the nslookup prompt.
13. Enter the following command to enumerate valid SMTP users on the target mail server, based on the list of common usernames you have:

smtp-user-enum -M RCPT -D acmecorp.net -U email-users.txt -t 10.200.200.100 -f email@mail.com

```
┌──(root㉿kali)-[~/CyberSecurity/phishing]
└─# smtp-user-enum -M RCPT -D acmecorp.net -U email-users.txt -t 10.200.200.100 -f email@mail.com
Starting smtp-user-enum v1.2 ( http://pentestmonkey.net/tools/smtp-user-enum )

 ----------------------------------------------------------
|                   Scan Information                       |
 ----------------------------------------------------------

Mode ..................... RCPT
Worker Processes ......... 5
Usernames file ........... email-users.txt
Target count ............. 1
Username count ........... 1659
Target TCP port .......... 25
Query timeout ............ 5 secs
Target domain ............ acmecorp.net

######## Scan started at Wed Jul 10 14:31:27 2024 #########
10.200.200.100: admin@acmecorp.net exists
10.200.200.100: alice@acmecorp.net exists
10.200.200.100: bob@acmecorp.net exists
10.200.200.100: student@acmecorp.net exists
######## Scan completed at Wed Jul 10 14:31:56 2024 #########
4 results.

1659 queries in 29 seconds (57.2 queries / sec)
```

The results of this command should show four email accounts, including two previously seen addresses from the website, and two usernames that match the employee profiles.

FortiMail can block this enumeration based on the volume and rate of requests from the same client in a short amount of time. In your lab, these limits have been removed to emulate a mail server without any restrictions to this operation. This is also because you are using FortiMail as the email server itself. In most real-world organization scenarios, there would be dedicated email servers, with FortiMail working only as a gateway. For this type of proof-of-concept scenarios, this setup will work, but you should take notice that the FortiMail configurations have been purposely *weakened* to allow the enumeration to work seamlessly and quickly.

Verify Incidents

You will verify, on FortiAnalyzer, that the event handler rule matched and generated the correct incident.

To verify that the custom event handler matched and generated the correct event

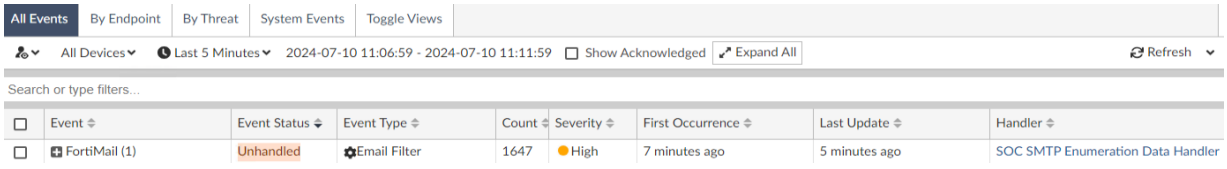
1. On the bastion host, in Chrome, log in to the FAZ-SiteB GUI (10.200.4.238) with the following credentials:

- Username: admin
- Password: Fortinet1!

2. Click **Incidents & Events** > **Event Monitor**.

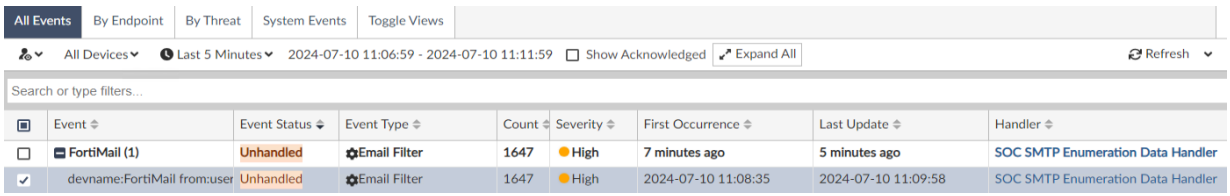
It may take some time for the event to appear. You can also filter the results to **Last 5 Minutes** to reduce the number of events.

3. On the **All Events** tab, beside **FortiMail**, click **+**.

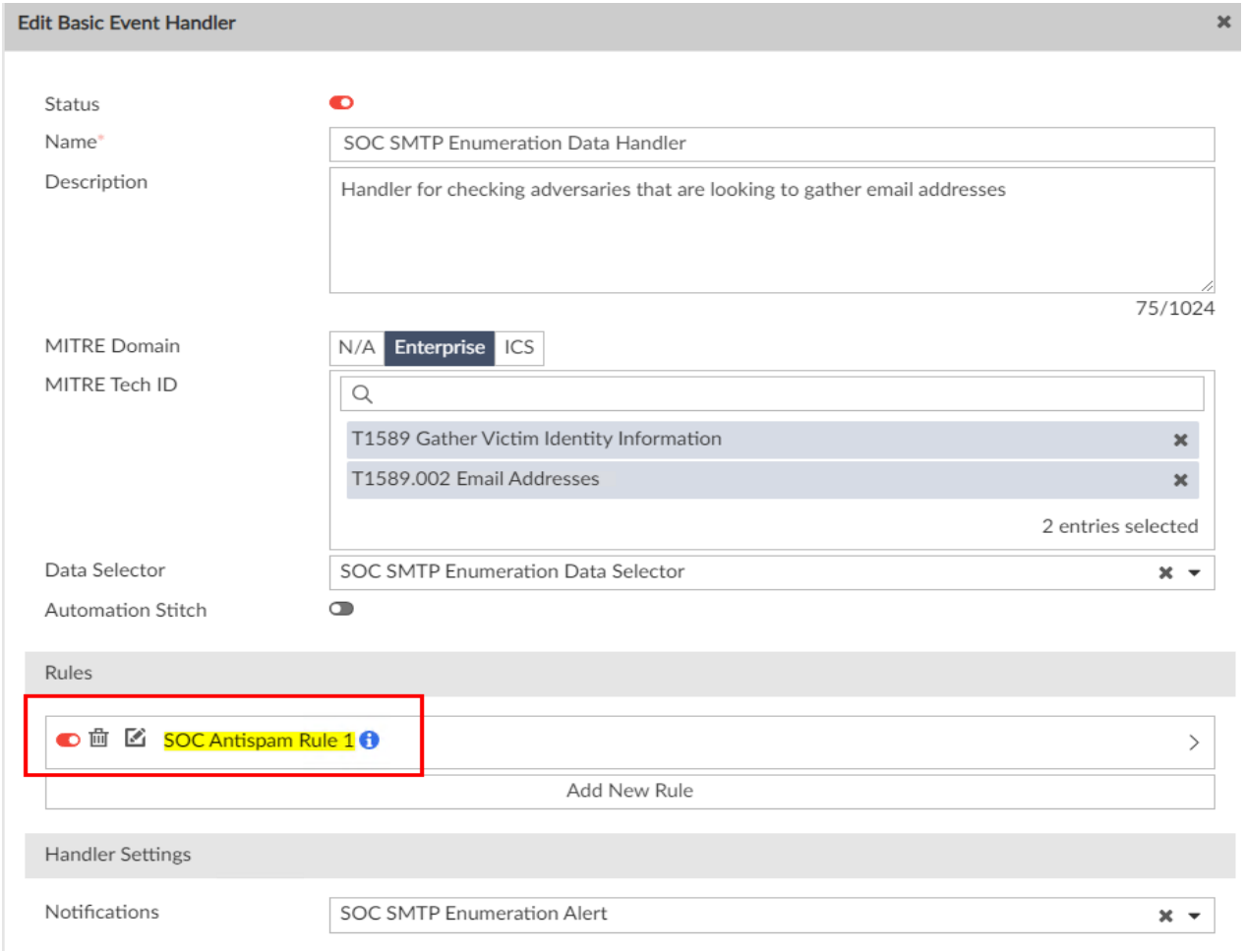


Do not proceed if FortiAnalyzer does not generate the correct event. Ask your instructor to help you troubleshoot your environment. The cause of FortiAnalyzer not generating the event is most likely a misconfiguration of the FortiAnalyzer basic event handler or an error when executing the attacker behavior.

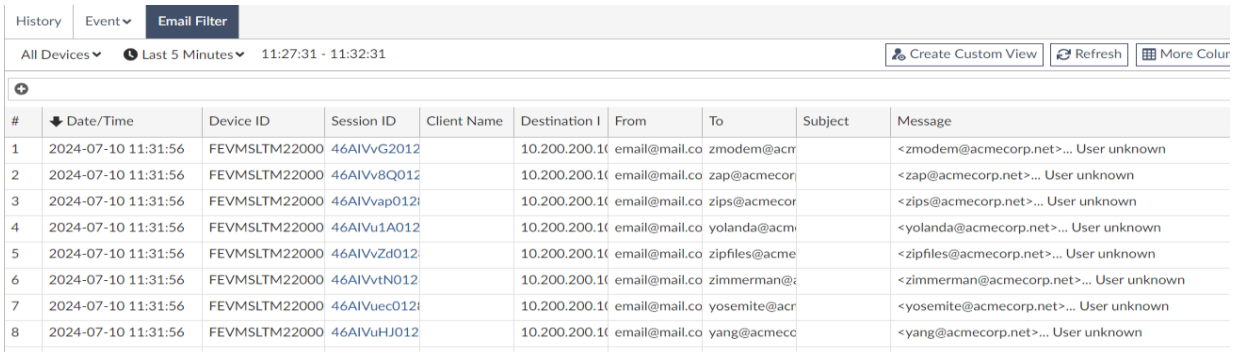
4. Click **SOC SMTP Enumeration Data Handler**.



The **Edit Basic Event Handler** page opens. The event handler rule that was triggered is highlighted.



5. Close the **Edit Basic Event Handler** page.
6. Click **Log View** > **FortiMail** > **Email Filter**.
7. View the FortiMail enumeration logs that generated this event.



8. In Chrome, open a new tab, and then log in to the FortiMail (webmail) GUI with the following credentials:

- Username: admin
- Password: Fortinet1!

9. Open the notification email.

Close Reply Reply All Forward Move More

Subject: Adversaries are scanning for email accounts (high spam alert devname:FortiMail from:email@mail.com device_id:FEVMSLTM22000111 FortiMail)
From: admin@acmecorp.net
To: admin@acmecorp.net
Date: Jul 10, 2024 2:31:46 PM

Device	FortiMail
Severity	high
From	FAZ-SiteB(FAZ-VMTM24000908)
Trigger	SOC SMTP Enumeration Data Handler
Tag	
Alertid	202407101000000740

Log Details:

Device ID	FEVMSLTM22000111	Virtual Domain	root
Time Stamp	2024-07-10 11:31:27	idseq	164156720619192368
Date	2024-07-10	Time	14:31:28.384
Device ID	FEVMSLTM22000111	ID	0300009570
Type	spam	Sub Type	default
Level	information	Session ID	46AIVSKo009567-46AIVSKp009567
Client Name		client_ip	100.64.1.21
Destination IP	10.200.200.100	From	email@mail.com
To	20@acmecorp.net	Subject	
Message	<20@acmecorp.net>... User unknown		

FortiAnalyzer generated this alert email when it detected attempts to gather victim identity information.

To verify that the playbook ran and generated the correct incident

1. Return to the FAZ-SiteB GUI, and then click **Fabric View** > **Automation**.
2. Click the **Playbook Monitor** tab.
3. Notice the **SOC_SMTP_Enumeration_Playbook** that ran successfully.

Summary | Connectors | Playbook | Playbook Monitor

Refresh | Delete | Search...

Job ID	Playbook	Trigger	Start Time	End Time	Status
2024-07-10 11:32:28.234644-07	SOC_SMTP_Enumeration_Playbook	event(202407101000	2024-07-10 11:32:29-0700	2024-07-10 11:32:33-0700	success(Scheduled:0/Running
2024-07-10 11:09:27.770054-07	SOC_SMTP_Enumeration_Playbook	event(202407101000	2024-07-10 11:09:28-0700	2024-07-10 11:09:32-0700	success(Scheduled:0/Running:

4. Click **SOC_SMTP_Enumeration_Playbook**.

The following three tasks ran successfully:

- Attach the data to the incident
- Create an incident for SMTP enumeration
- Get events from the SMTP logs

Playbook Tasks

Refresh | View Raw Log | Search...

Task ID	Task	Start Time	End Time	Status
placeholder_62ba2832_adf2_4be3_a9a1_e2	Attach_Data_To_Incident	2024-07-10 11:32:31-0700	2024-07-10 11:32:32-0700	success
placeholder_1ff2289f_7353_4b1a_9e4f_7c6	Create_SMTP_Enumeration_Incident	2024-07-10 11:32:30-0700	2024-07-10 11:32:31-0700	success
placeholder_ddd198b7_a596_4b5f_b5b6_95	Get_Events	2024-07-10 11:32:30-0700	2024-07-10 11:32:31-0700	success

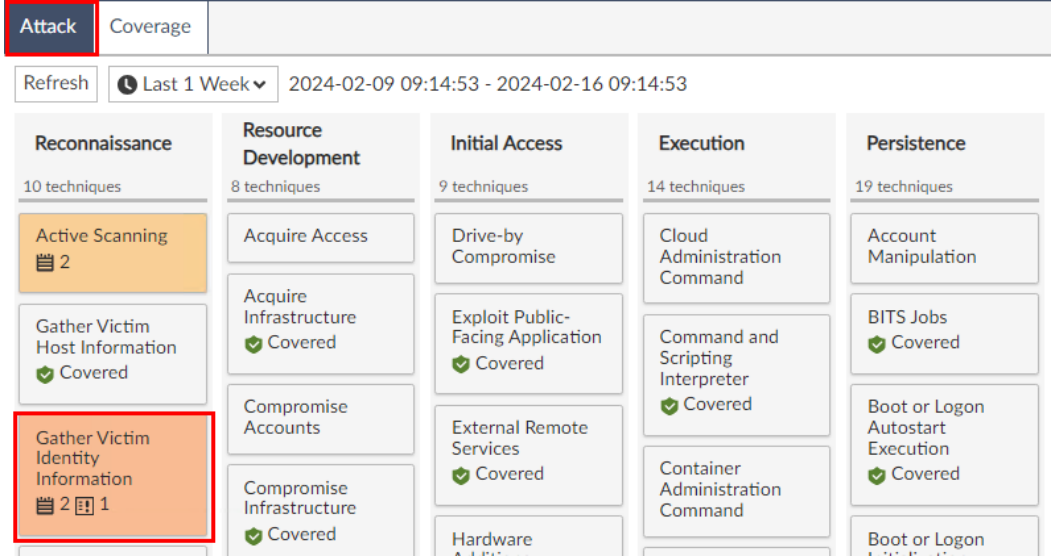
5. Close the **Playbook Tasks** window.

Verify the Attack

You will view the MITRE ATT&CK dashboard to determine if the attack is true or a false positive.

To verify the attack

1. Continuing on the FAZ-SiteB GUI, click **Incidents & Events**.
2. Click the **MITRE ATT&CK** tab, and then select **Attack**.
3. In the **Reconnaissance** column, verify that the **Gather Victim Identity Information** tactic is covered by an event handler.



4. Click the **Gather Victim Identity Information** block.
5. View the generated events that matched this tactic.

Execute a Spear Phishing Attack

One behavior of Group ABC is that, after they enumerate valid accounts, they analyze the results and try to establish hierarchical and/or power relationships between users, in order to leverage this in the social engineering aspects of their **Spearphishing Attachment** execution. This is a clear example of an adversary procedure—Group ABC executes a subtechnique in this way to try to lure the target user to open the malicious attachment.

You will now emulate this social engineering aspect by using admin@acmecorp.net as the sender. You will create a message that looks like it was sent by the office administrator, and that includes a plausible reason for opening the attachment.