Module 19: Cloud Computing

Lab 1: Perform Reconnaissance on Azure

Lab Scenario

As an ethical hacker, you need to know how to utilize PowerShell command-based scripting tools for conducting reconnaissance and gathering information. This information can then be used to assess the security posture of other systems within the network.

Lab Objectives

- Azure Reconnaissance with AADInternals

Overview of Reconnaissance Tools

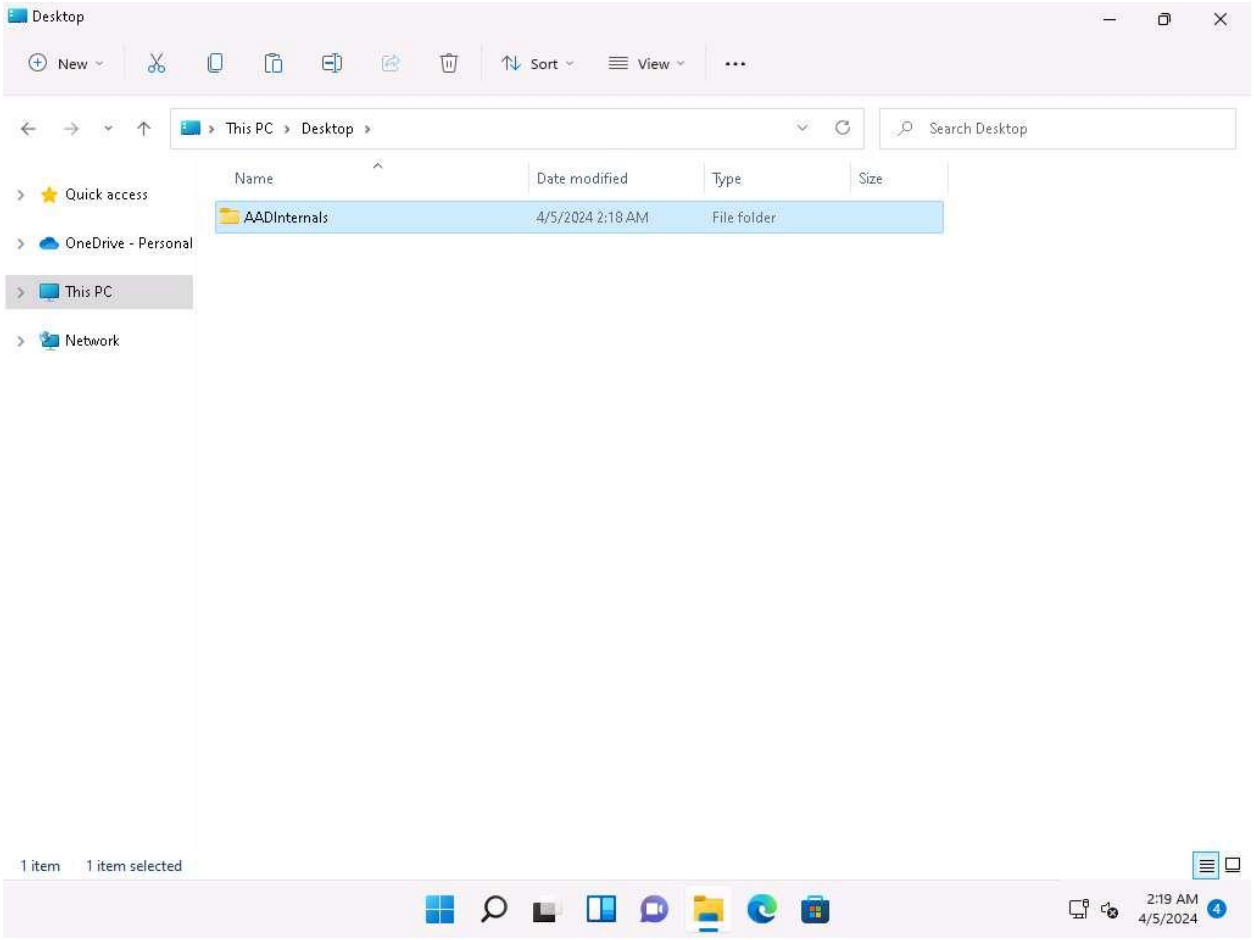
Reconnaissance tools serve as indispensable assets for attackers in cloud hacking, providing them with the essential information and insights needed to orchestrate successful attacks against cloud environments.

Task 1: Azure Reconnaissance with AADInternals

AADInternals is primarily focused on auditing and attacking Azure Active Directory (AAD) environments, it can still be utilized as part of a broader cloud reconnaissance effort. This tool has several features such as user enumeration, credential extraction, token extraction and manipulation, privilege escalation, etc.

In this lab we will perform Azure Active Directory reconnaissance as an outsider.

1. Click Windows 11 to switch to the **Windows 11** machine. Click Ctrl+Alt+Delete to activate the machine and login with **Admin/Pa$$w0rd**.
2. Navigate to **E:\CEH-Tools\CEHv13 Module 19 Cloud Computing\GitHub Tools** and copy **AADInternals** folder and paste it on **Desktop**.



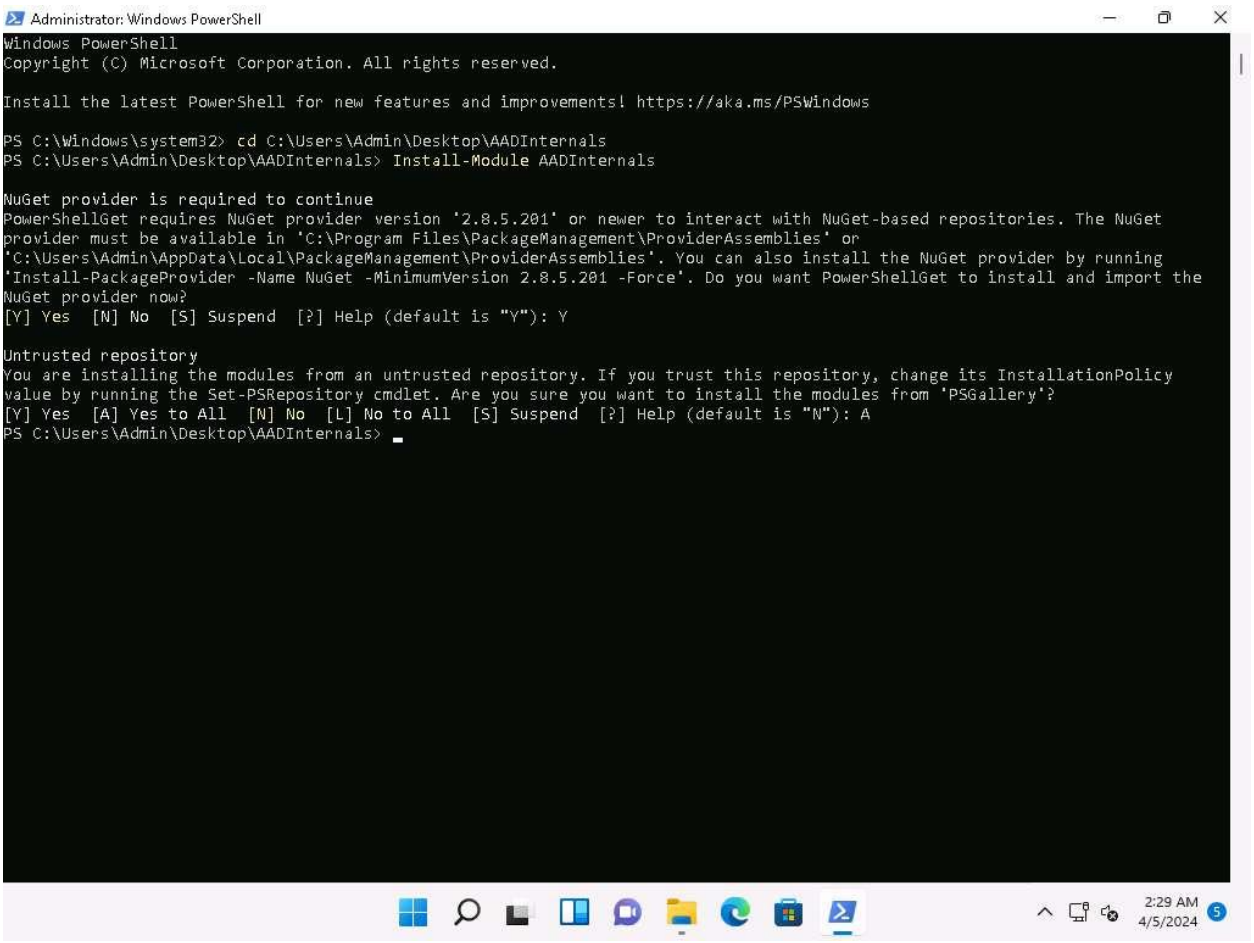
3. In the Windows search type **powershell** and under **PowerShell** click on **Run as Administrator** to open an administrator PowerShell window.

If a **User Account Control** window appears, click **Yes**.

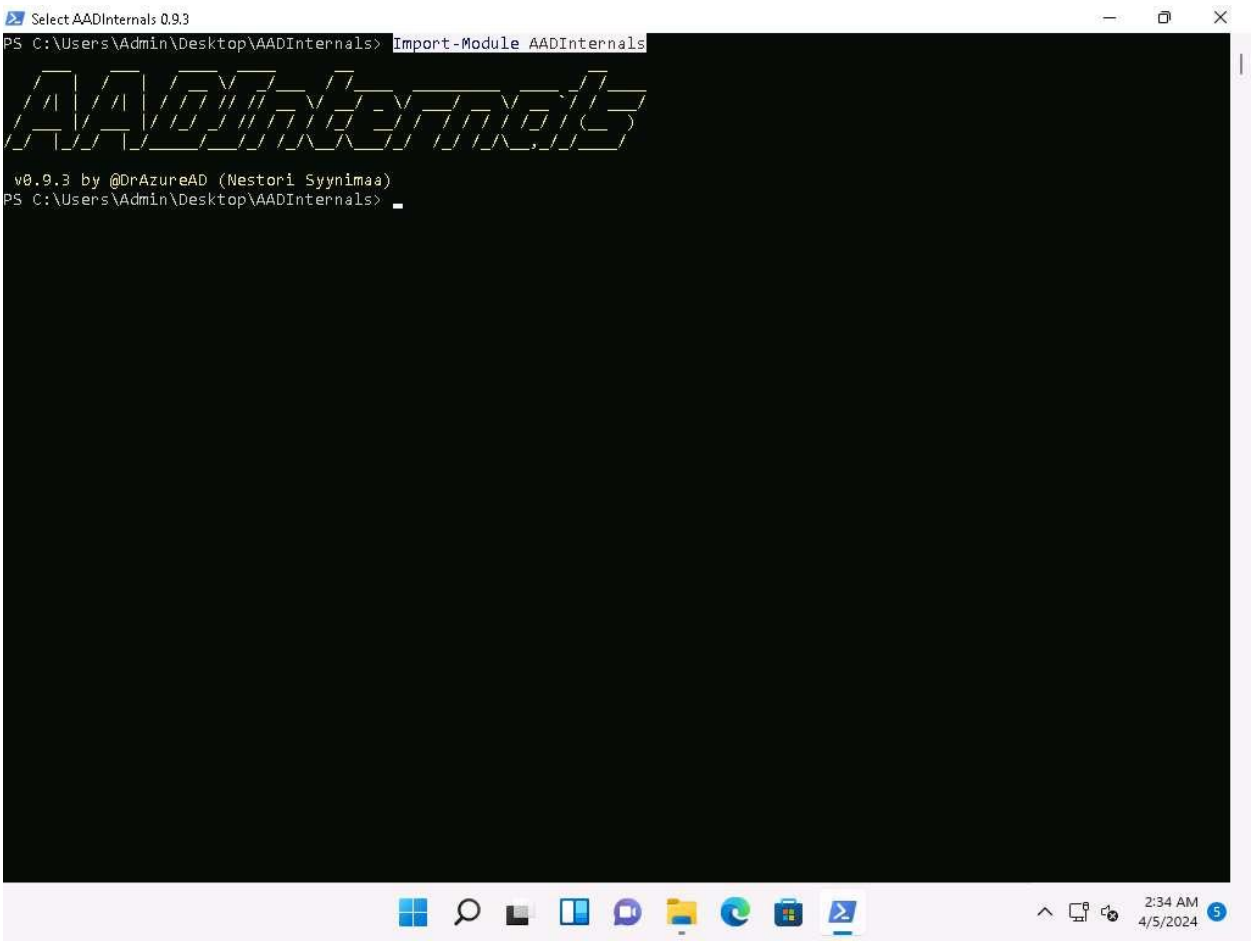
4. In the PowerShell window run **cd C:\Users\Admin\Desktop\AADInternals** command to navigate to **AADInternals** folder.

5. In the PowerShell window run **Install-Module AADInternals** command to install AADInternals module.

In the **Do you want PowerShellGet to install and import the NuGet provider now?** Question type **Y** and press **Enter**. In the Are you sure you want to install the modules from "PSGallery"? question type **A** and press **Enter**.

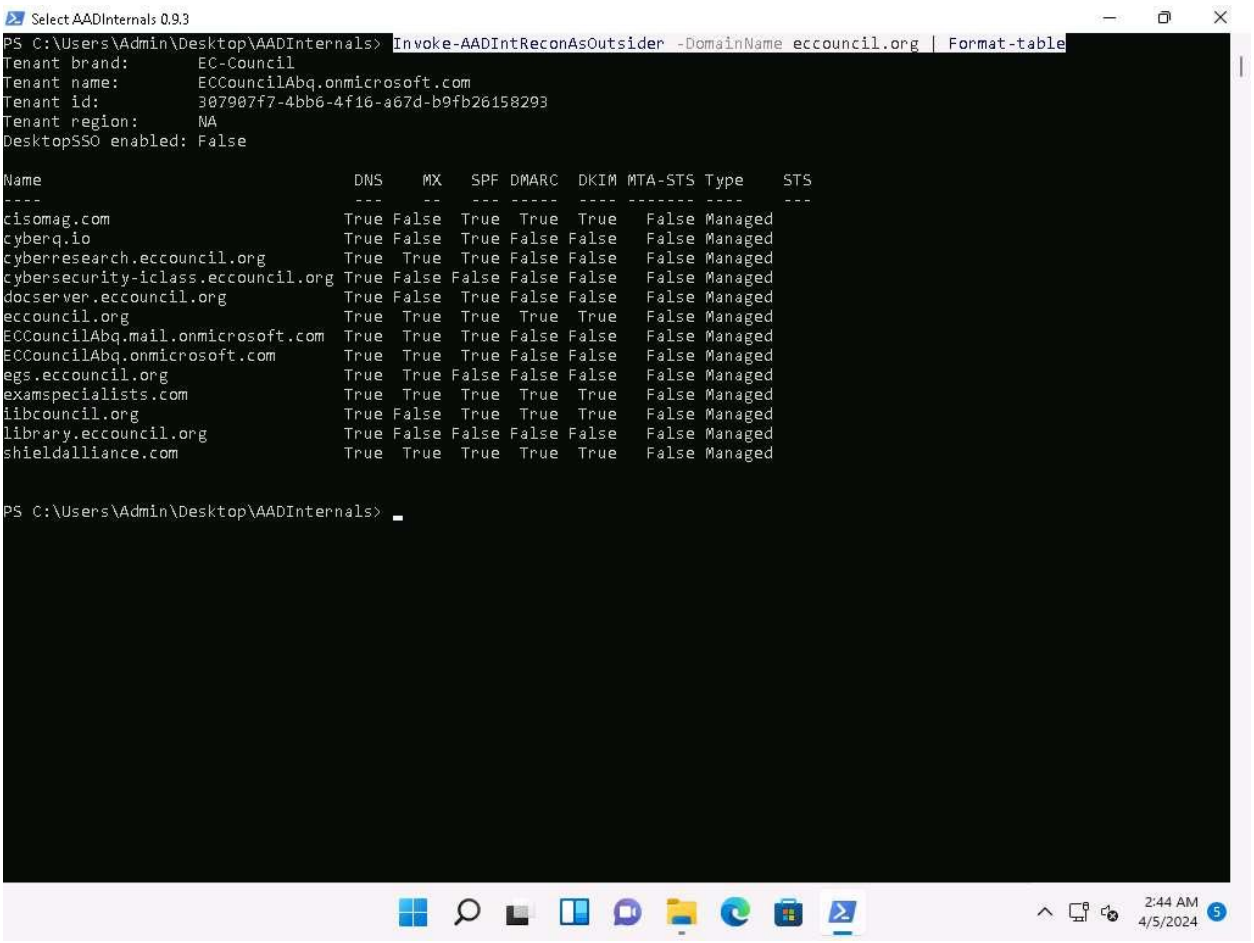


6. Now, run **Import-Module AADInternals** command, to import **AADInternals** module.



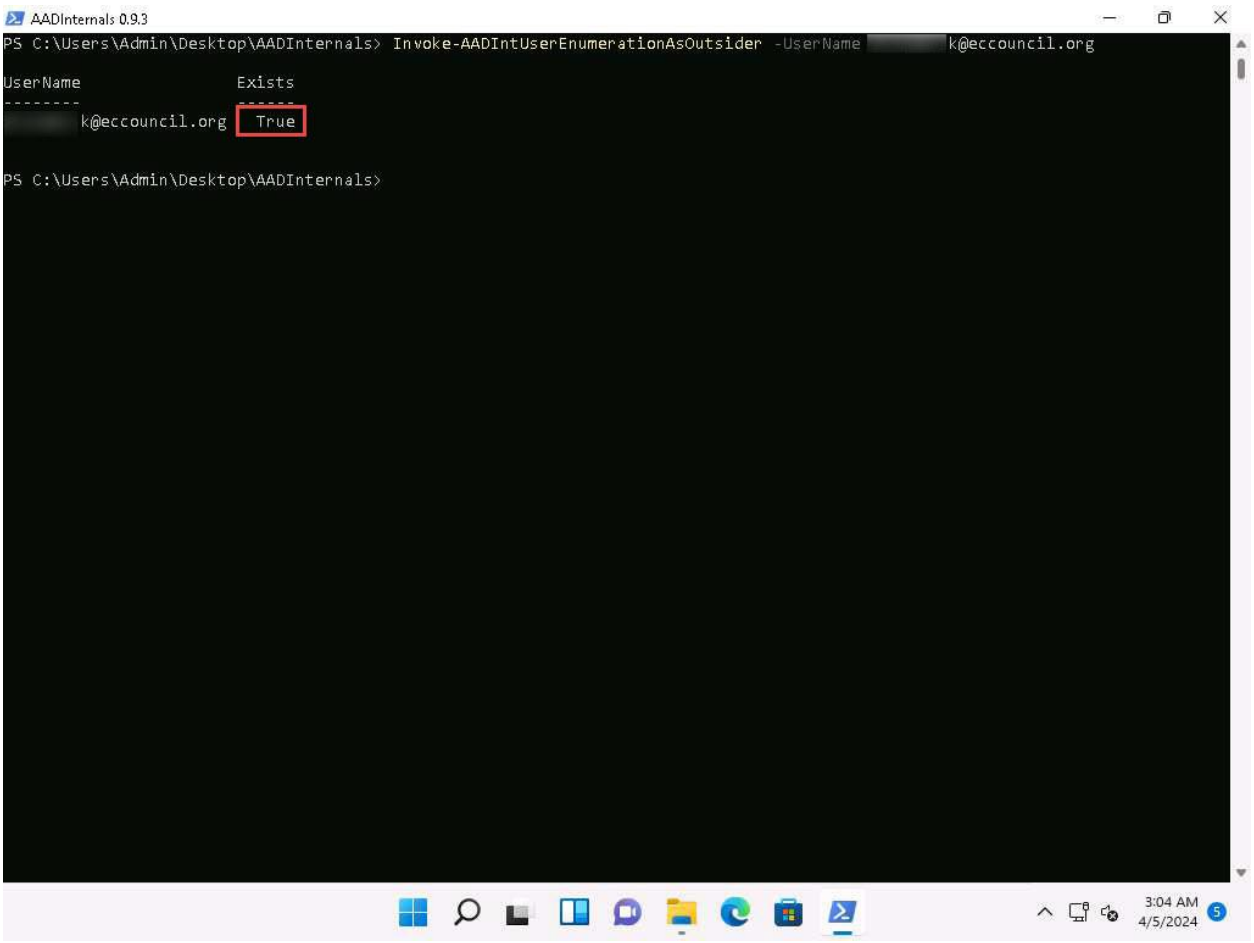
7. Now, we will gather the publicly available information of a target Azure AD such as Tenant brand, Tenant name, Tenant ID along with the names of the verified domains.
8. In the PowerShell window run **Invoke-AADIntReconAsOutsider -DomainName company.com | Format-table** command.

In the above command replace the company.com with the target company's domain (here, we are using eccouncil.org).



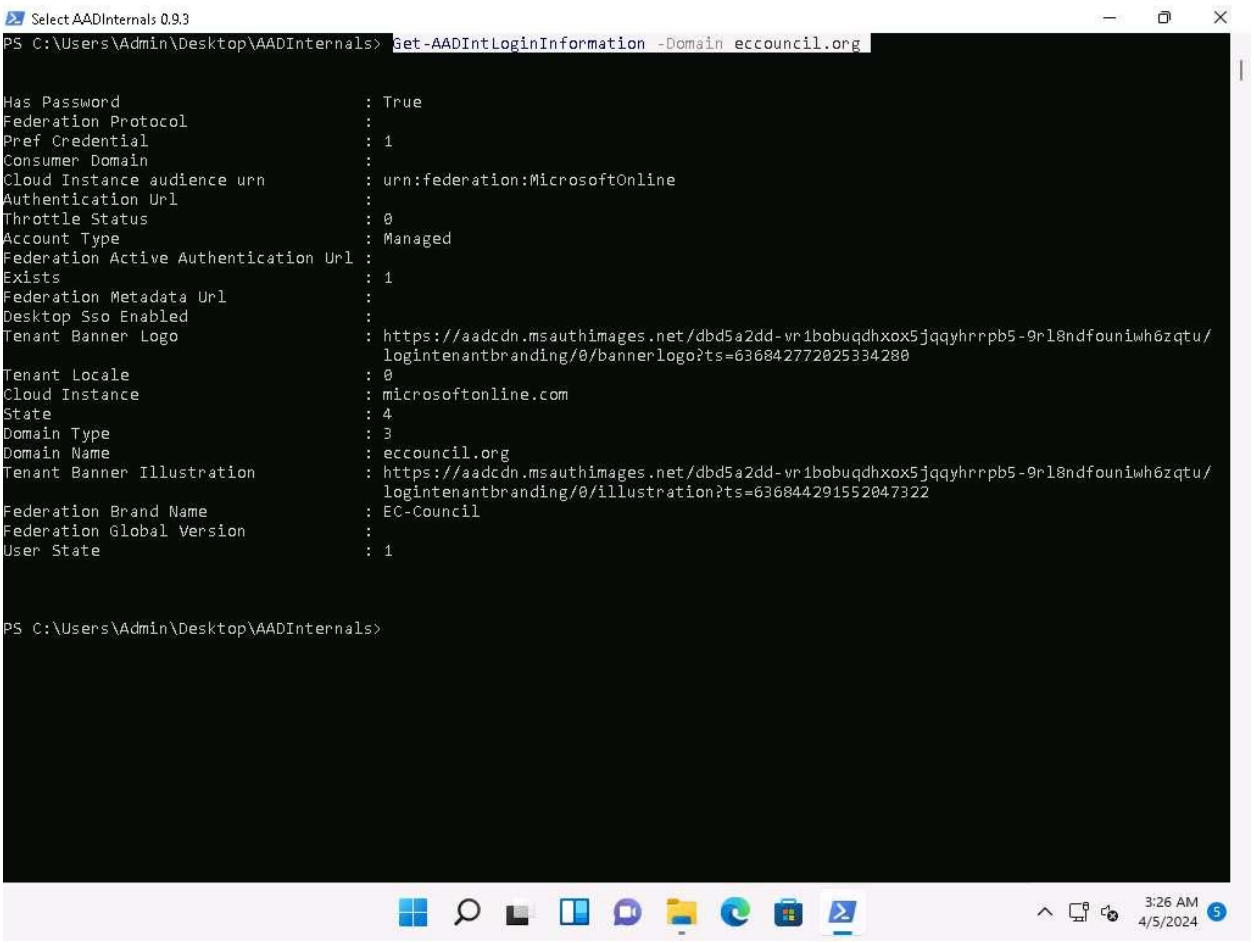
9. From the above screenshot we can gather information such as **DNS**, **MX**, **SPF**, **DMARC**, **DKIM** etc.
10. Now, we will perform user enumeration in Azure AD, in the PowerShell window type **Invoke-AADIntUserEnumerationAsOutsider -UserName user@company.com** and press **Enter**.

In the above command replace the user@company.com with the target users email address.



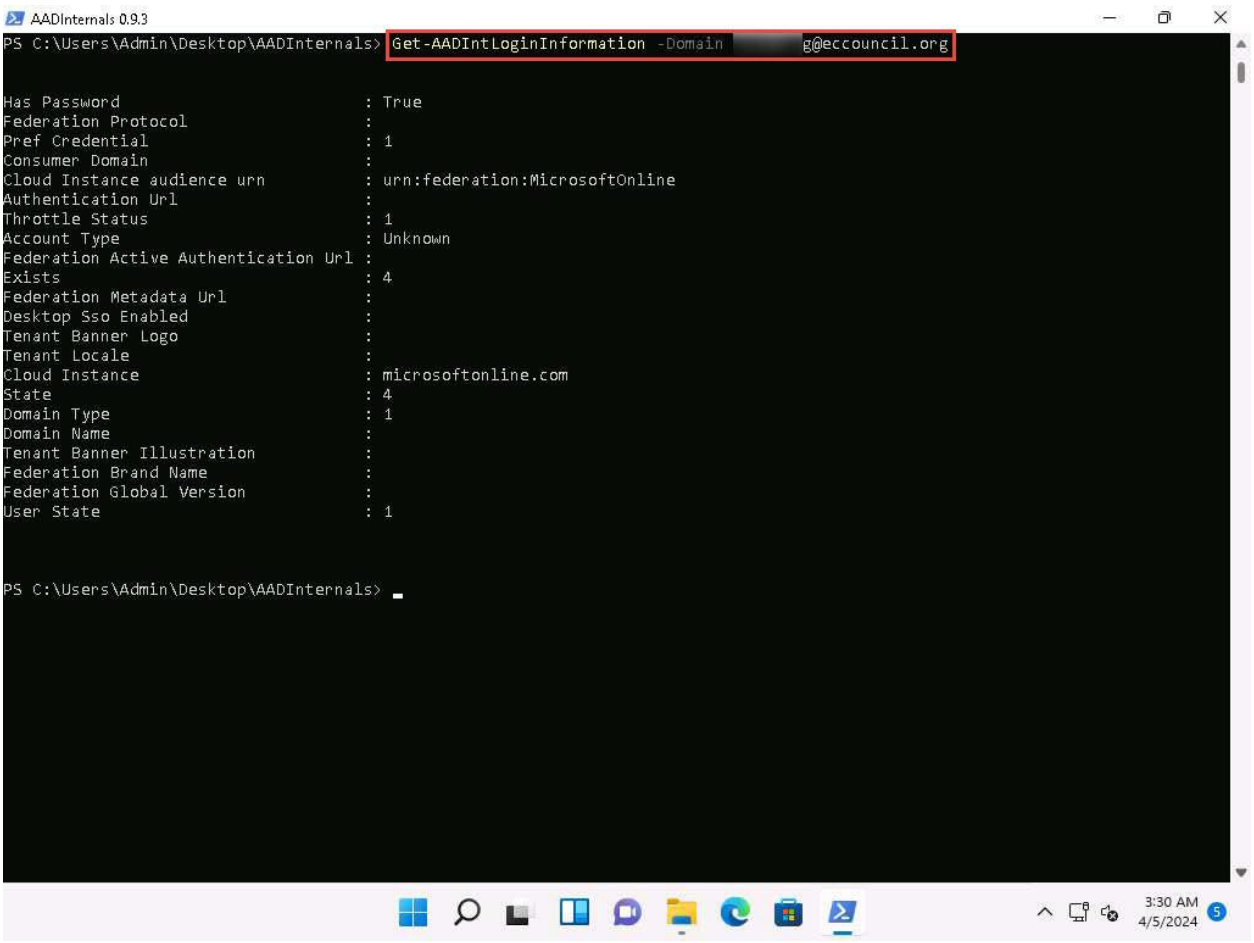
11. We can see that the result appears, **True** under **Exists** field which implies that the Azure account with the given username exists and the attacker can perform further attacks.
12. We can also perform the user enumeration by placing the usernames in a text file, by running **Get-Content .\users.txt | Invoke-AADIntUserEnumerationAsOutsider -Method Normal**. Where the users.txt file contains the target email addresses.
13. Now, to get login information for a domain type **Get-AADIntLoginInformation -Domain company.com** and press **Enter**.

In the above command replace the company.com with the target company's domain (here, we are using eccouncil.org).



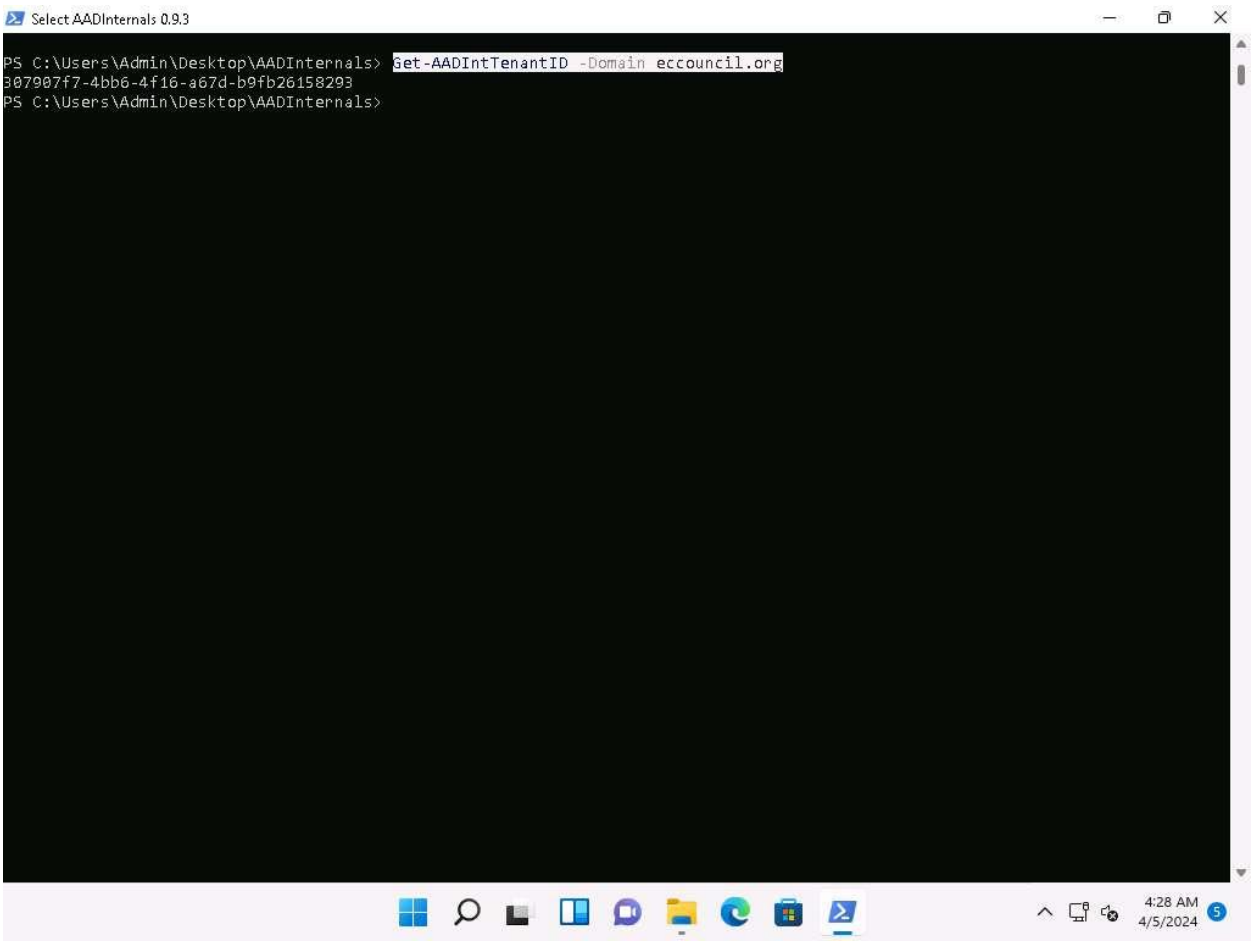
14. Now, to get login information for a user type **Get-AADIntLoginInformation -Domain user@company** and press **Enter**.

In the above command replace the user@company.com with the target users email address.



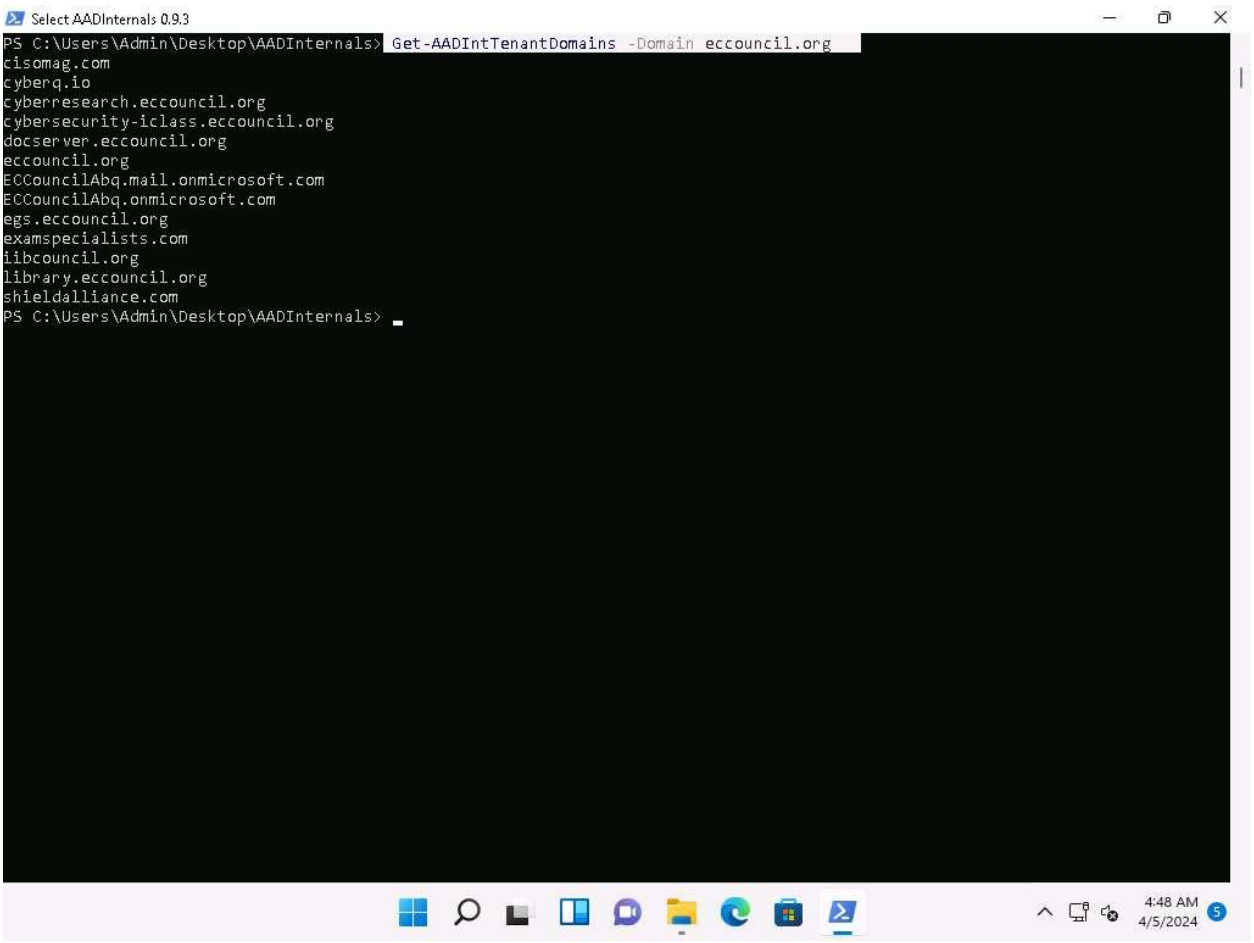
15. To get the tenant ID for the given user, domain, or Access Token, type **Get-AADIntTenantID -Domain company.com**.

In the above command replace the company.com with the target company's domain (here, we are using eccouncil.org).



16. To get registered domains from the tenant of the given domain **Get-AADIntTenantDomains -Domain company.com**

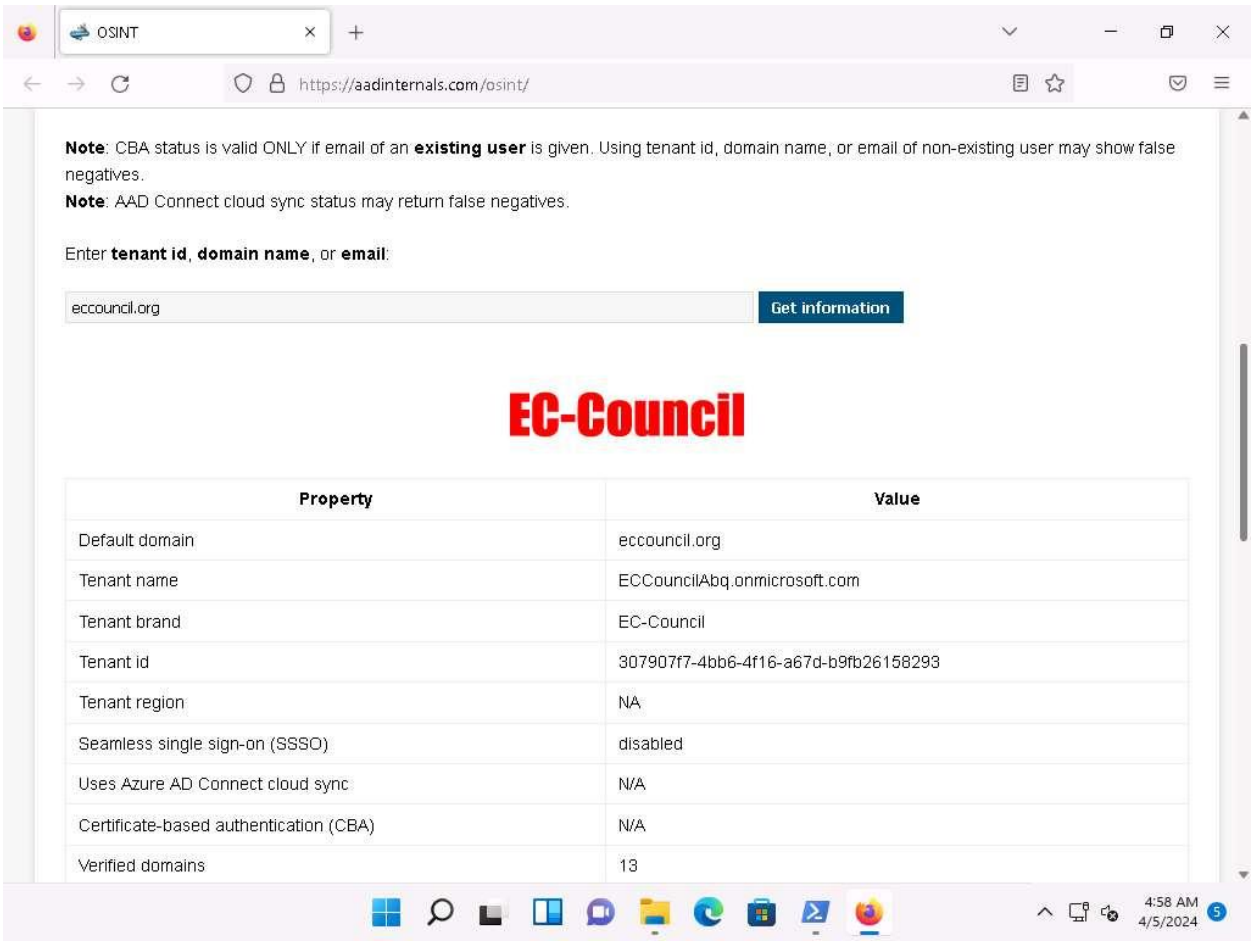
In the above command replace the company.com with the target company's domain (here, we are using eccouncil.org).



17. We can see that all the domains associated with the tenant will be listed.
18. Alternatively you can visit **https://aadinternals.com/osint/** site and type the tenant ID, domain name, or email to get the openly available information for the given tenant.
19. Launch Firefox browser and go to **https://aadinternals.com/osint/** and type the **domain name** in the search box and click on **Get information** button.

Here we are giving the domain name as eccouncil.org.

20. We will get the Domain information and the list of domains connected with the provided domain name.


OSINT
https://aadinternals.com/osint/
Note: CBA status is valid ONLY if email of an existing user is given. Using tenant id, domain name, or email of non-existing user may show false negatives.
Note: AAD Connect cloud sync status may return false negatives.
Enter tenant id, domain name, or email:
eccouncil.org
Get information
EC-Council
Property
Value
Default domain
eccouncil.org
Tenant name
ECCouncilAbq.onmicrosoft.com
Tenant brand
EC-Council
Tenant id
307907f7-4bb6-4f16-a67d-b9fb26158293
Tenant region
NA
Seamless single sign-on (SSSO)
disabled
Uses Azure AD Connect cloud sync
N/A
Certificate-based authentication (CBA)
N/A
Verified domains
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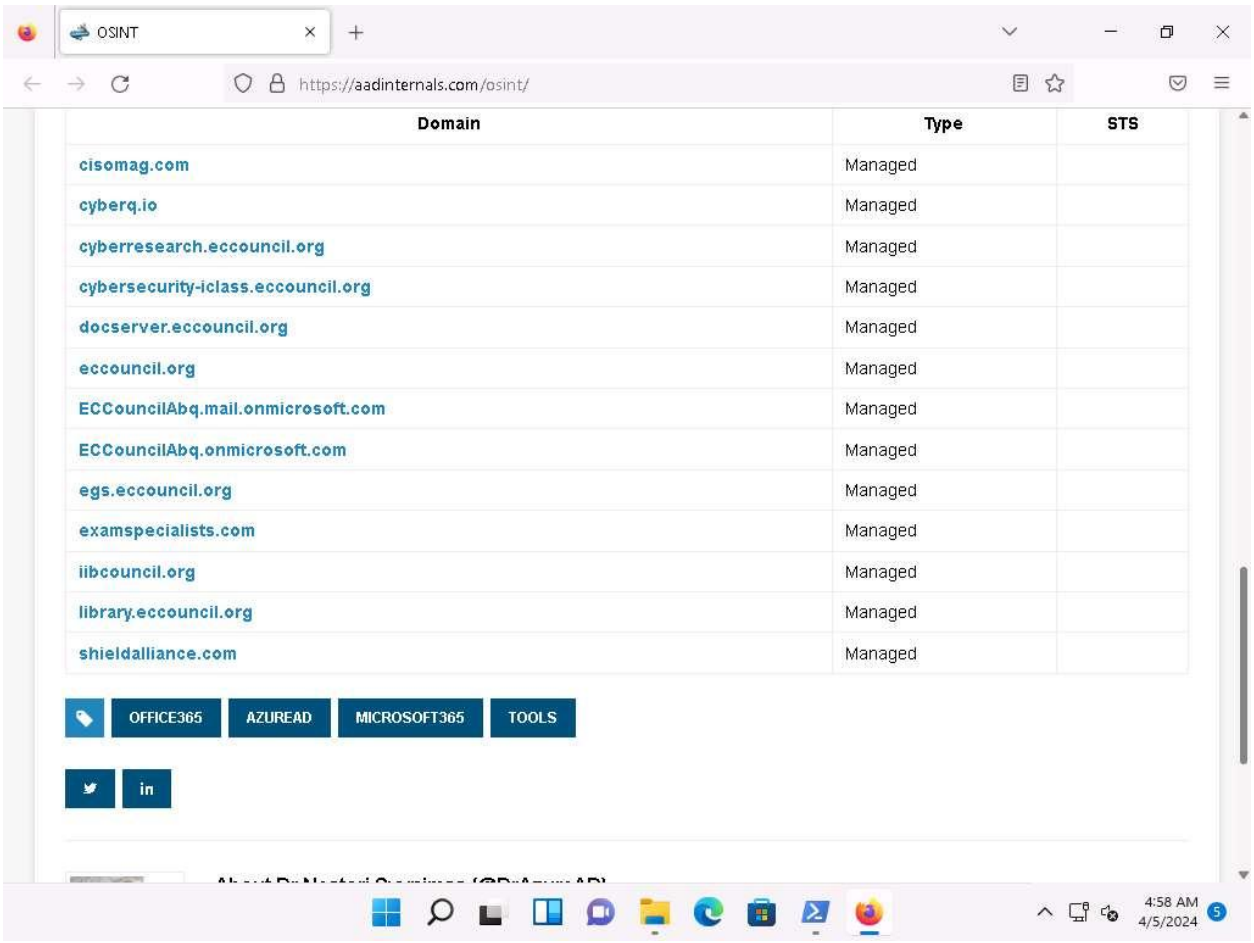

21. In similar way you can enter the tenant ID and email in the search field to view the information regarding the tenant and the user.
22. This concludes the demonstration of Azure reconnaissance with AADInternals.
23. Close all open windows and document all acquired information.

Question 19.1.1.1

On windows 11 machine use AADIntenals tool located at E:\CEH-Tools\CEHv13 Module 19 Cloud Computing\GitHub Tools\ to perform Reconnaissance on Azure AD.While performing user enumeration in Azure AD what does the Exists field display if the user exists.