

# IT 236 Project Report Form

|                     |                              |
|---------------------|------------------------------|
| Report Prepared By: | Vivian John Goshashy         |
| Date:               | 11/26/2025                   |
| Project Phase       | NewVue Hybrid Implementation |

## Section 1: Executive Summary (15 Points)

This phase of the NewVue Health Infrastructure Modernization Project focused on preparing the on-premises Active Directory environment for hybrid identity and enabling directory synchronization with Microsoft Entra ID. A restore checkpoint was created prior to configuration, the cloud tenant domain was identified, directory objects were validated and remediated using IdFix, on-prem user UPNs were aligned with the cloud domain, and Microsoft Entra Connect was installed and configured to perform Password Hash Synchronization. Synchronization was validated using both the Synchronization Service Manager and the Entra Admin Center before testing cloud authentication using a synchronized user account.

Tenant Domain: leegiseungprotonmail.onmicrosoft.com

The screenshot displays the Microsoft Entra admin center interface. The left-hand navigation pane includes links for Home, Directory, Security, Users, Groups, Devices, App registrations, and various authentication and identity management tools. The main content area is titled "Default Directory" and provides an overview of the directory's configuration. It includes a search bar, a table of basic information, a warning about the password policy, and a "My feed" section with links to various management tasks.

**Basic Information**

| Property       | Value                                | Category     |
|----------------|--------------------------------------|--------------|
| Name           | Default Directory                    | Directory    |
| Tenant ID      | leegiseungprotonmail.onmicrosoft.com | Directory    |
| Primary domain | leegiseungprotonmail.onmicrosoft.com | Applications |
| Country        | Microsoft Entra ID                   | Directory    |

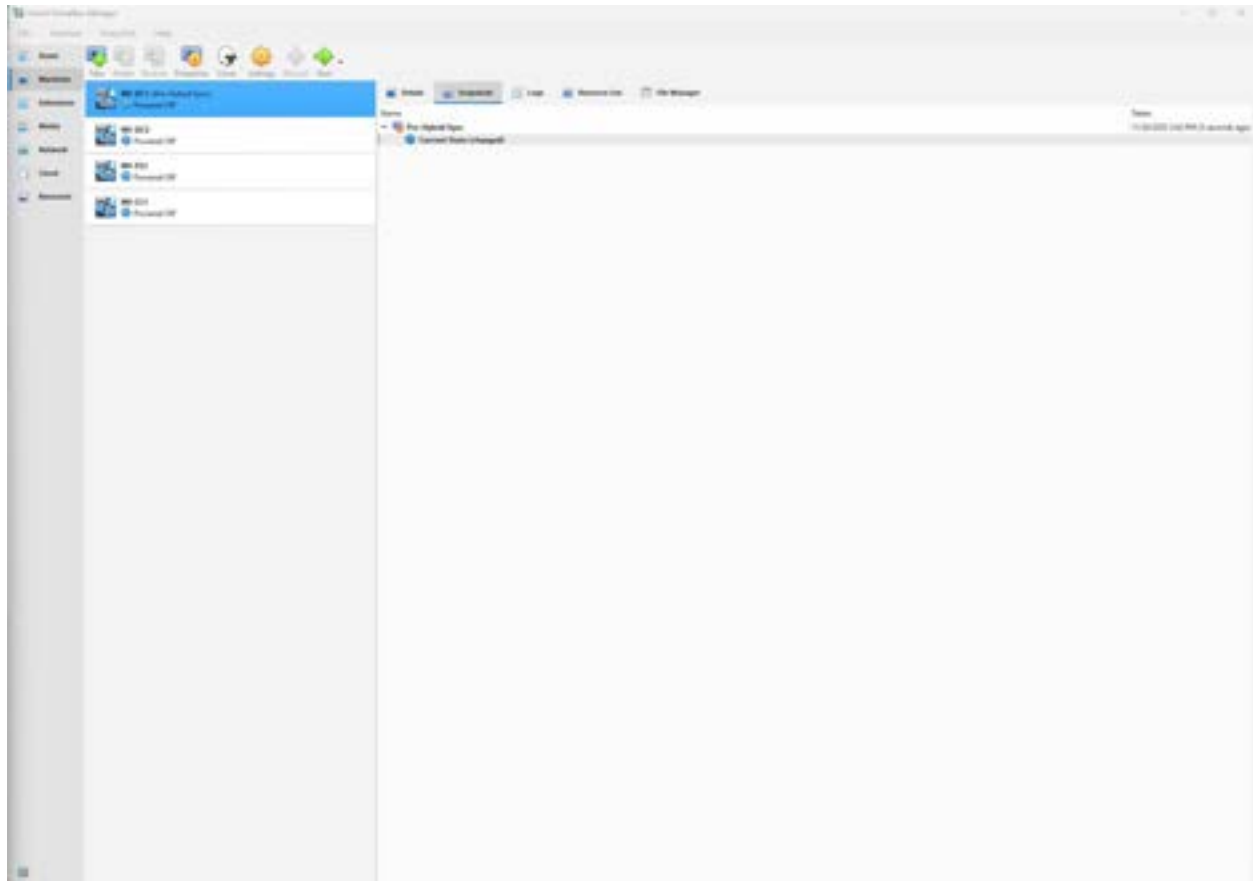
**My feed**

- Verify Directory**: Verify your directory's configuration and status.
- Microsoft Entra Connect**: Sync your on-premises directory with Microsoft Entra ID.

**Feature highlights**

- Identity Protection**: Monitor and manage user risk based on sign-in data.
- Build a custom app**: Create custom apps and integrate with Microsoft Entra ID.
- Access review**: Review user access to resources and ensure it's appropriate.
- Authentication methods**: Configure your users to use multiple authentication methods.
- Microsoft Entra Domain Services**: Provide a managed Windows domain in the cloud.
- Secure authentication**: Implement secure authentication methods for your applications.
- Privileged Identity Management**: Manage, control, and monitor access to Microsoft resources in your organization.
- Conditional Access**: Control user access based on Conditional Access policy to help manage risk, enforce security, and enforce organizational policies.

Snapshot Name: Pre-Hybrid Sync



## Section 2: Implementation & Verification Evidence

### Task 1- Directory Validation and Remediation (IdFix) (20 pts)

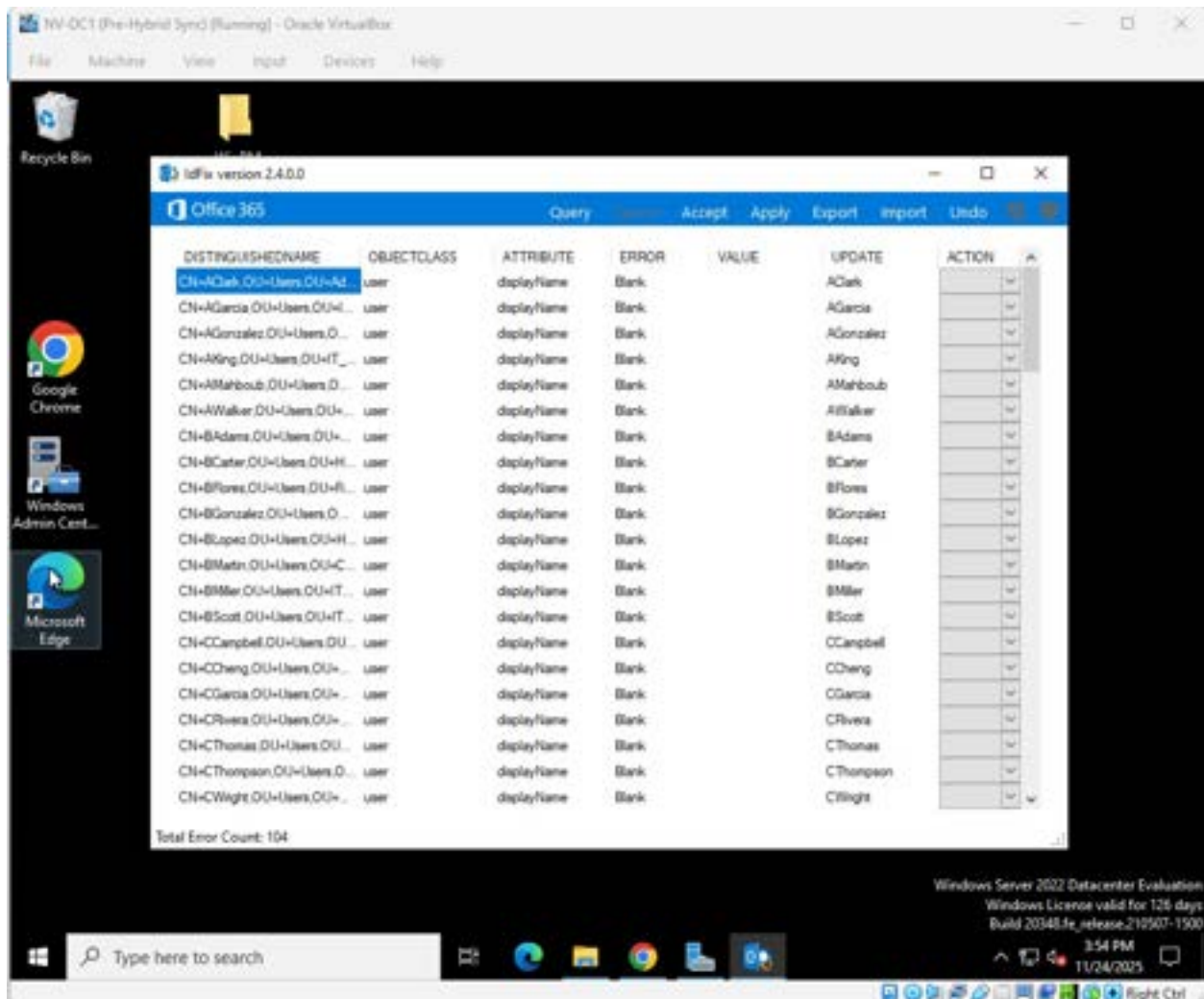
IdFix was installed and used to scan the NewVue organizational units for directory objects that contained attributes incompatible with Microsoft Entra synchronization. All detected issues—including illegal characters, formatting problems, and attribute inconsistencies—were reviewed, and the recommended corrections were applied using the Accept and Apply workflow.

#### Summary of Issues Identified and Remediation Applied:

IdFix was deployed to scan NewVue's organizational units, identifying multiple user objects with incomplete directory attributes. The primary issue detected was **blank displayName attributes** across numerous users in various departments including Administration, Clinical Services, Human Resources, IT Operations, and Finance. The tool recommended completing these blank fields with the users' SamAccountName values as the correction. All identified errors were systematically reviewed within the IdFix interface, and the tool's recommended corrections were applied using the Accept and Apply workflow. This comprehensive remediation ensured all directory objects met Microsoft's synchronization standards by providing complete attribute information, eliminating potential synchronization blockers for hybrid identity integration with Microsoft Entra ID.

### Evidence to Upload

- **Evidence 1:** IdFix results before remediation



- **Evidence 2:** IdFix results after remediation

IdFix version 2.4.0.0

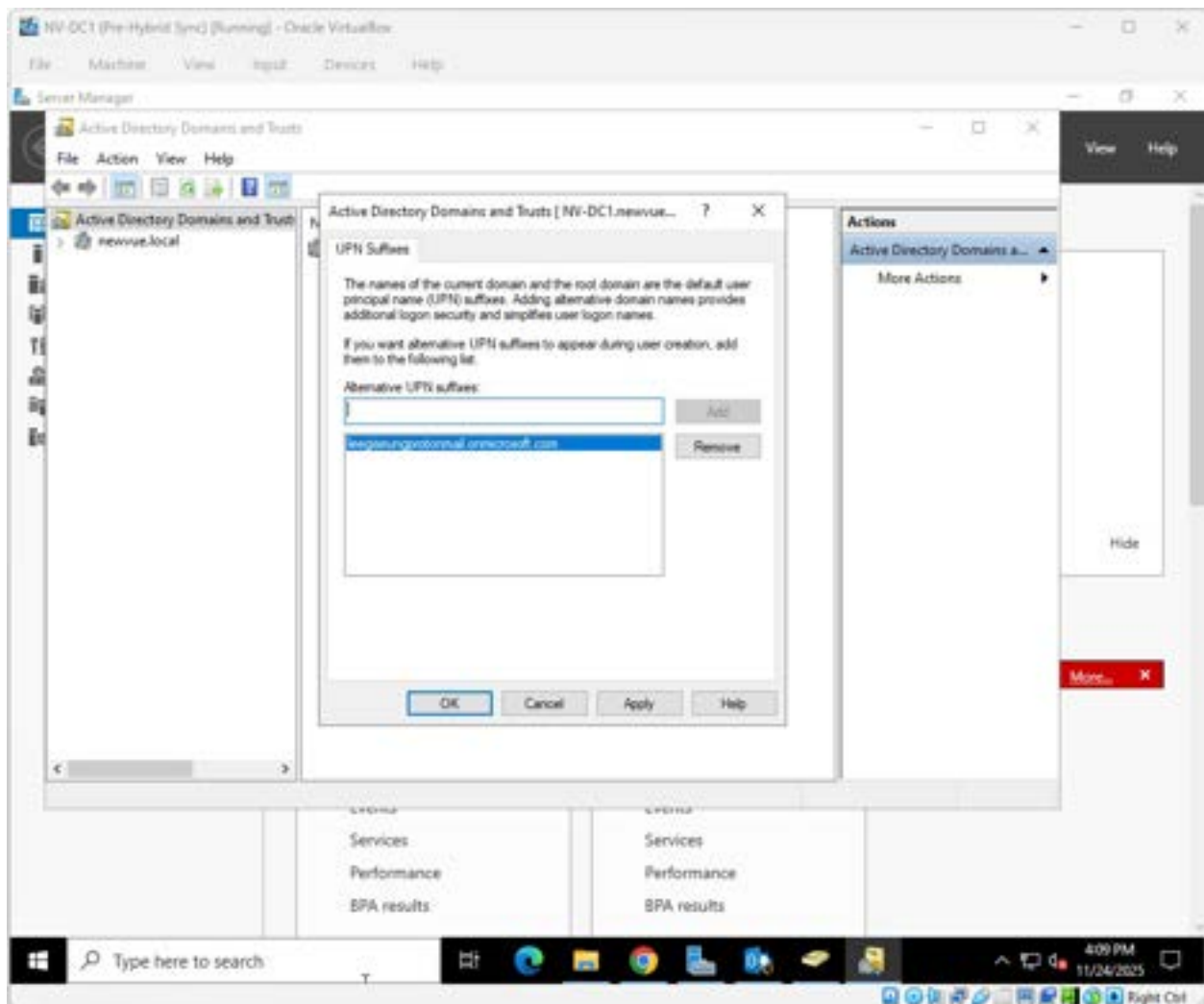
| DISTINGUISHEDNAME            | OBJECTCLASS | ATTRIBUTE   | ERROR | VALUE | UPDATE    | ACTION |
|------------------------------|-------------|-------------|-------|-------|-----------|--------|
| CN=AClark.OU=Users.OU=Ad...  | user        | displayName | Blank |       | AClark    | COMP   |
| CN=AGarcia.OU=Users.OU=H...  | user        | displayName | Blank |       | AGarcia   | COMP   |
| CN=AGonzalez.OU=Users.O...   | user        | displayName | Blank |       | AGonzalez | COMP   |
| CN=AKing.OU=Users.OU=IT...   | user        | displayName | Blank |       | AKing     | COMP   |
| CN=AMahboub.OU=Users.O...    | user        | displayName | Blank |       | AMahboub  | COMP   |
| CN=AWalker.OU=Users.OU=...   | user        | displayName | Blank |       | AWalker   | COMP   |
| CN=BADams.OU=Users.OU=...    | user        | displayName | Blank |       | BADams    | COMP   |
| CN=BCater.OU=Users.OU=H...   | user        | displayName | Blank |       | BCater    | COMP   |
| CN=BFores.OU=Users.OU=R...   | user        | displayName | Blank |       | BFores    | COMP   |
| CN=BGonzalez.OU=Users.O...   | user        | displayName | Blank |       | BGonzalez | COMP   |
| CN=BLopez.OU=Users.OU=H...   | user        | displayName | Blank |       | BLopez    | COMP   |
| CN=BMartin.OU=Users.OU=C...  | user        | displayName | Blank |       | BMartin   | COMP   |
| CN=BMiller.OU=Users.OU=IT... | user        | displayName | Blank |       | BMiller   | COMP   |
| CN=BScott.OU=Users.OU=IT...  | user        | displayName | Blank |       | BScott    | COMP   |
| CN=CCampbell.OU=Users.OU...  | user        | displayName | Blank |       | CCampbell | COMP   |
| CN=COheng.OU=Users.OU=...    | user        | displayName | Blank |       | COheng    | COMP   |
| CN=CGarcia.OU=Users.OU=...   | user        | displayName | Blank |       | CGarcia   | COMP   |
| CN=CRivers.OU=Users.OU=...   | user        | displayName | Blank |       | CRivers   | COMP   |
| CN=CThomas.OU=Users.OU=...   | user        | displayName | Blank |       | CThomas   | COMP   |
| CN=CThompson.OU=Users.O...   | user        | displayName | Blank |       | CThompson | COMP   |
| CN=CWright.OU=Users.OU=...   | user        | displayName | Blank |       | CWright   | COMP   |

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- **Evidence 3:** AD Domains & Trusts showing the cloud UPN suffix



## **Task 2— UPN Alignment (PowerShell Automation) (20 pts)**

After adding the cloud UPN suffix to Active Directory, PowerShell was used to automate the update of all user UPNs stored within the departmental Users OUs (Administration, Clinical\_Services, Human\_Resources, IT\_Operations, Finance). A verification command was executed to confirm the updated UPNs in one of the OUs.

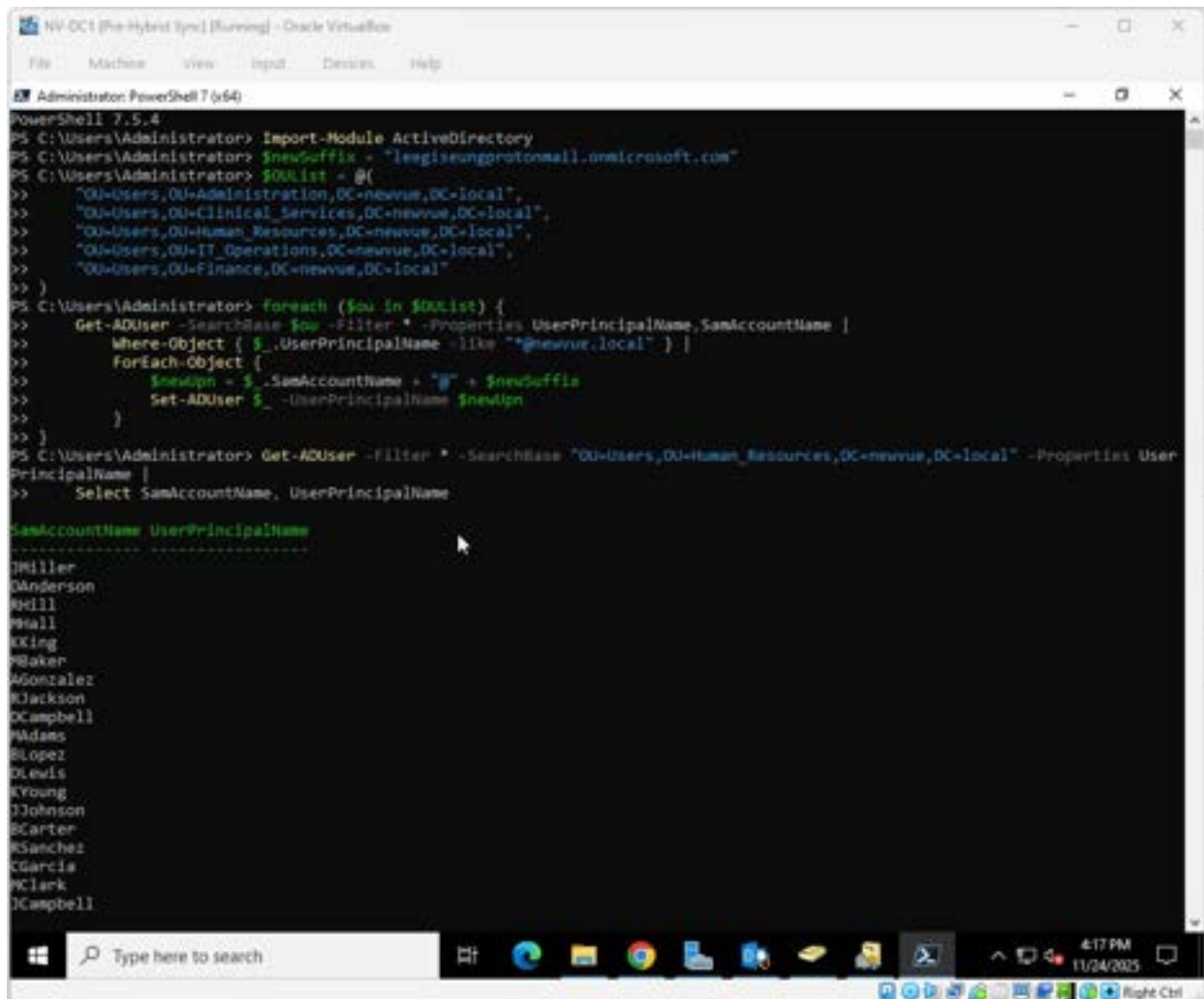
### **Summary of UPN Updates Completed:**

Following the addition of the cloud UPN suffix (leegiseungprotonmail.onmicrosoft.com) to Active Directory Domains and Trusts, a PowerShell script was executed to systematically update User Principal Names across all departmental Users OUs. The bulk update targeted user accounts in the Administration, Clinical\_Services, Human\_Resources, IT\_Operations, and Finance organizational units. The script logic constructed new UPNs by combining each user's SamAccountName with the cloud domain suffix, effectively transforming legacy UPNs to the new cloud-aligned format (e.g., jsmith@leegiseungprotonmail.onmicrosoft.com). Verification performed on the Human\_Resources OU confirmed that all users now display both their SamAccountName and updated UserPrincipalName, successfully preparing these identities for hybrid synchronization with Microsoft Entra ID.



## Evidence to Upload

- **Evidence 4:** Screenshot of PowerShell running the bulk UPN update



The screenshot shows a PowerShell console window titled "Administrator: PowerShell 7 (x64)" running within a "NV-DC1 [Pro-Hybrid Type] [Running] - Oracle VM VirtualBox" environment. The script performs the following actions:

- Imports the ActiveDirectory module.
- Defines a new suffix: `$newSuffix = "leegiseungprotonmail.onmicrosoft.com"`.
- Defines a list of OUs: `$OUList = @( "OU=Users,OU=Administration,DC=newvue,DC=local", "OU=Users,OU=Clinical_Services,DC=newvue,DC=local", "OU=Users,OU=Human_Resources,DC=newvue,DC=local", "OU=Users,OU=IT_Operations,DC=newvue,DC=local", "OU=Users,OU=Finance,DC=newvue,DC=local" )`.
- Iterates through each OU and updates user principal names (UPNs) for users whose email domain is "@newvue.local".
- Displays the updated list of users and their new UPNs.

```
PS C:\Users\Administrator> Import-Module ActiveDirectory
PS C:\Users\Administrator> $newSuffix = "leegiseungprotonmail.onmicrosoft.com"
PS C:\Users\Administrator> $OUList = @(
    "OU=Users,OU=Administration,DC=newvue,DC=local",
    "OU=Users,OU=Clinical_Services,DC=newvue,DC=local",
    "OU=Users,OU=Human_Resources,DC=newvue,DC=local",
    "OU=Users,OU=IT_Operations,DC=newvue,DC=local",
    "OU=Users,OU=Finance,DC=newvue,DC=local"
)
PS C:\Users\Administrator> foreach ($ou in $OUList) {
    Get-ADUser -SearchBase $ou -Filter * -Properties UserPrincipalName,SamAccountName |
    Where-Object { $_.UserPrincipalName -like "*@newvue.local" } |
    ForEach-Object {
        $newUpn = $_.SamAccountName + "@" + $newSuffix
        Set-ADUser $_ -UserPrincipalName $newUpn
    }
}
PS C:\Users\Administrator> Get-ADUser -Filter * -SearchBase "OU=Users,OU=Human_Resources,DC=newvue,DC=local" -Properties UserPrincipalName |
Select SamAccountName, UserPrincipalName
```

| SamAccountName | UserPrincipalName                              |
|----------------|--|
| JMiller        | JMiller@leegiseungprotonmail.onmicrosoft.com   |
| DAnderson      | DAnderson@leegiseungprotonmail.onmicrosoft.com |
| MWill          | MWill@leegiseungprotonmail.onmicrosoft.com     |
| MHall          | MHall@leegiseungprotonmail.onmicrosoft.com     |
| KKing          | KKing@leegiseungprotonmail.onmicrosoft.com     |
| Maker          | Maker@leegiseungprotonmail.onmicrosoft.com     |
| AGonzalez      | AGonzalez@leegiseungprotonmail.onmicrosoft.com |
| RJackson       | RJackson@leegiseungprotonmail.onmicrosoft.com  |
| OCampbell      | OCampbell@leegiseungprotonmail.onmicrosoft.com |
| ADams          | ADams@leegiseungprotonmail.onmicrosoft.com     |
| Blopez         | Blopez@leegiseungprotonmail.onmicrosoft.com    |
| DLewis         | DLewis@leegiseungprotonmail.onmicrosoft.com    |
| KYoung         | KYoung@leegiseungprotonmail.onmicrosoft.com    |
| JJohnson       | JJohnson@leegiseungprotonmail.onmicrosoft.com  |
| BCarter        | BCarter@leegiseungprotonmail.onmicrosoft.com   |
| MSanchez       | MSanchez@leegiseungprotonmail.onmicrosoft.com  |
| CGarcia        | CGarcia@leegiseungprotonmail.onmicrosoft.com   |
| PClark         | PClark@leegiseungprotonmail.onmicrosoft.com    |
| OCampbell      | OCampbell@leegiseungprotonmail.onmicrosoft.com |

- **Evidence 5:** Screenshot of verification output for the Human\_Resources OU

The screenshot shows a PowerShell terminal window with the following commands and output:

```

PS C:\Users\Administrator> $NewSuffix = "leegiseungprotonmail.onmicrosoft.com"
PS C:\Users\Administrator> $OUList = @(
    "OU=Users,OU=Administration,DC=newvue,DC=local",
    "OU=Users,OU=Clinical_Services,DC=newvue,DC=local",
    "OU=Users,OU=Human_Resources,DC=newvue,DC=local",
    "OU=Users,OU=IT_Operations,DC=newvue,DC=local",
    "OU=Users,OU=Finance,DC=newvue,DC=local"
)
PS C:\Users\Administrator> Foreach ($ou in $OUList) {
    Get-ADUser -SearchBase $ou -Filter * -Properties UserPrincipalName, SamAccountName |
    Where-Object { $_.UserPrincipalName -like "" } |
    ForEach-Object {
        $NewUpn = $_.SamAccountName + "@" + $NewSuffix
        Set-ADUser $_ -UserPrincipalName $NewUpn
    }
}
PS C:\Users\Administrator> Get-ADUser -Filter * -SearchBase "OU=Users,OU=Human_Resources,DC=newvue,DC=local" -Properties UserPrincipalName |
Select SamAccountName, UserPrincipalName

```

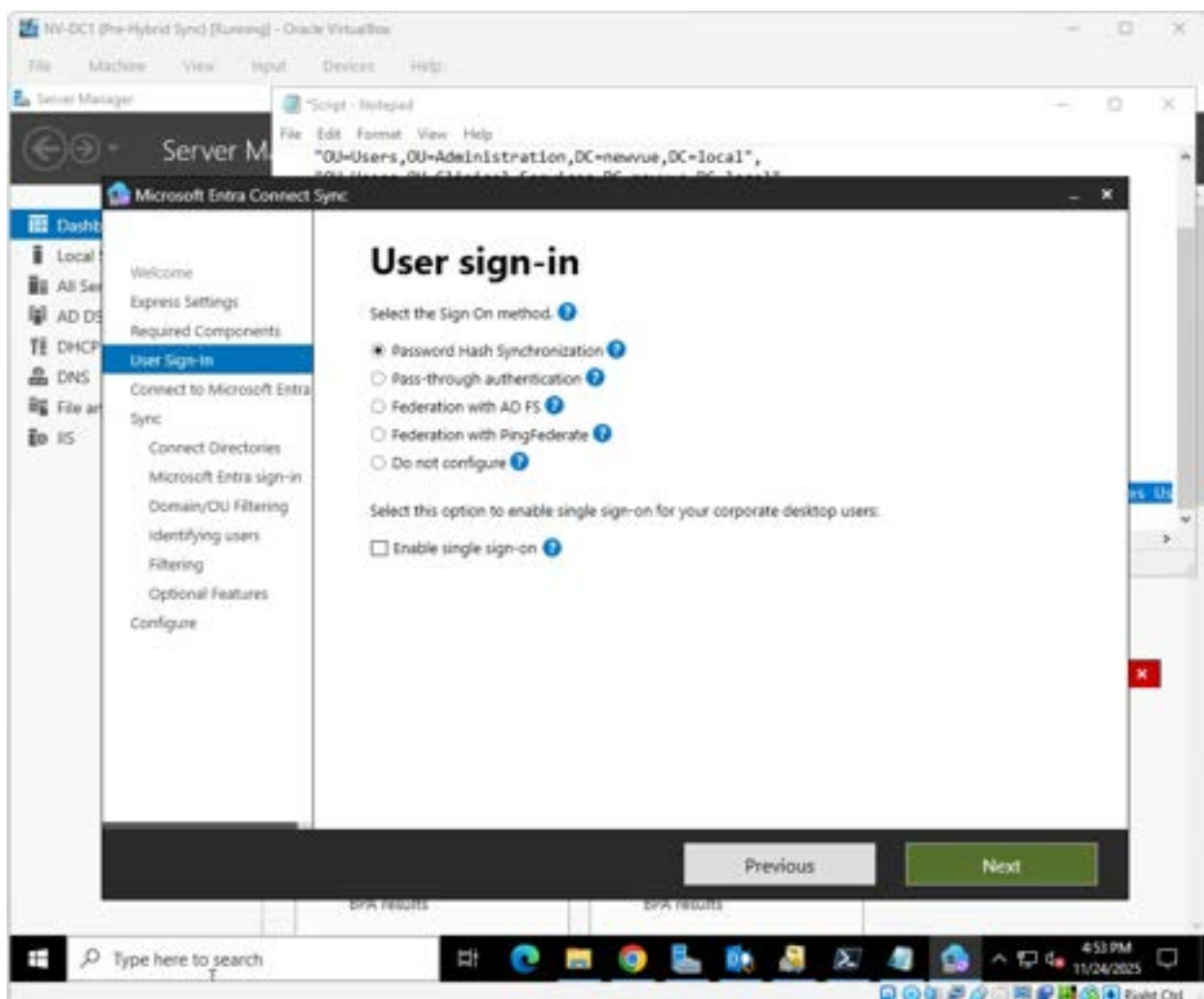
| SamAccountName | UserPrincipalName                              |
|----------------|--|
| JMiller        | JMiller@leegiseungprotonmail.onmicrosoft.com   |
| DAnderson      | DAnderson@leegiseungprotonmail.onmicrosoft.com |
| RHill          | RHill@leegiseungprotonmail.onmicrosoft.com     |
| MHall          | MHall@leegiseungprotonmail.onmicrosoft.com     |
| KKing          | KKing@leegiseungprotonmail.onmicrosoft.com     |
| MBaker         | MBaker@leegiseungprotonmail.onmicrosoft.com    |
| AGonzalez      | AGonzalez@leegiseungprotonmail.onmicrosoft.com |
| KJackson       | KJackson@leegiseungprotonmail.onmicrosoft.com  |
| DCampbell      | DCampbell@leegiseungprotonmail.onmicrosoft.com |
| MAdams         | MAdams@leegiseungprotonmail.onmicrosoft.com    |
| BLopez         | BLopez@leegiseungprotonmail.onmicrosoft.com    |
| DLewis         | DLewis@leegiseungprotonmail.onmicrosoft.com    |
| KYoung         | KYoung@leegiseungprotonmail.onmicrosoft.com    |
| JJohnson       | JJohnson@leegiseungprotonmail.onmicrosoft.com  |
| BCarter        | BCarter@leegiseungprotonmail.onmicrosoft.com   |
| RSanchez       | RSanchez@leegiseungprotonmail.onmicrosoft.com  |
| CGarcia        | CGarcia@leegiseungprotonmail.onmicrosoft.com   |
| MClark         | MClark@leegiseungprotonmail.onmicrosoft.com    |
| DCampbell      | DCampbell@leegiseungprotonmail.onmicrosoft.com |

### Task 3— Microsoft Entra Connect Installation & Configuration (20 points)

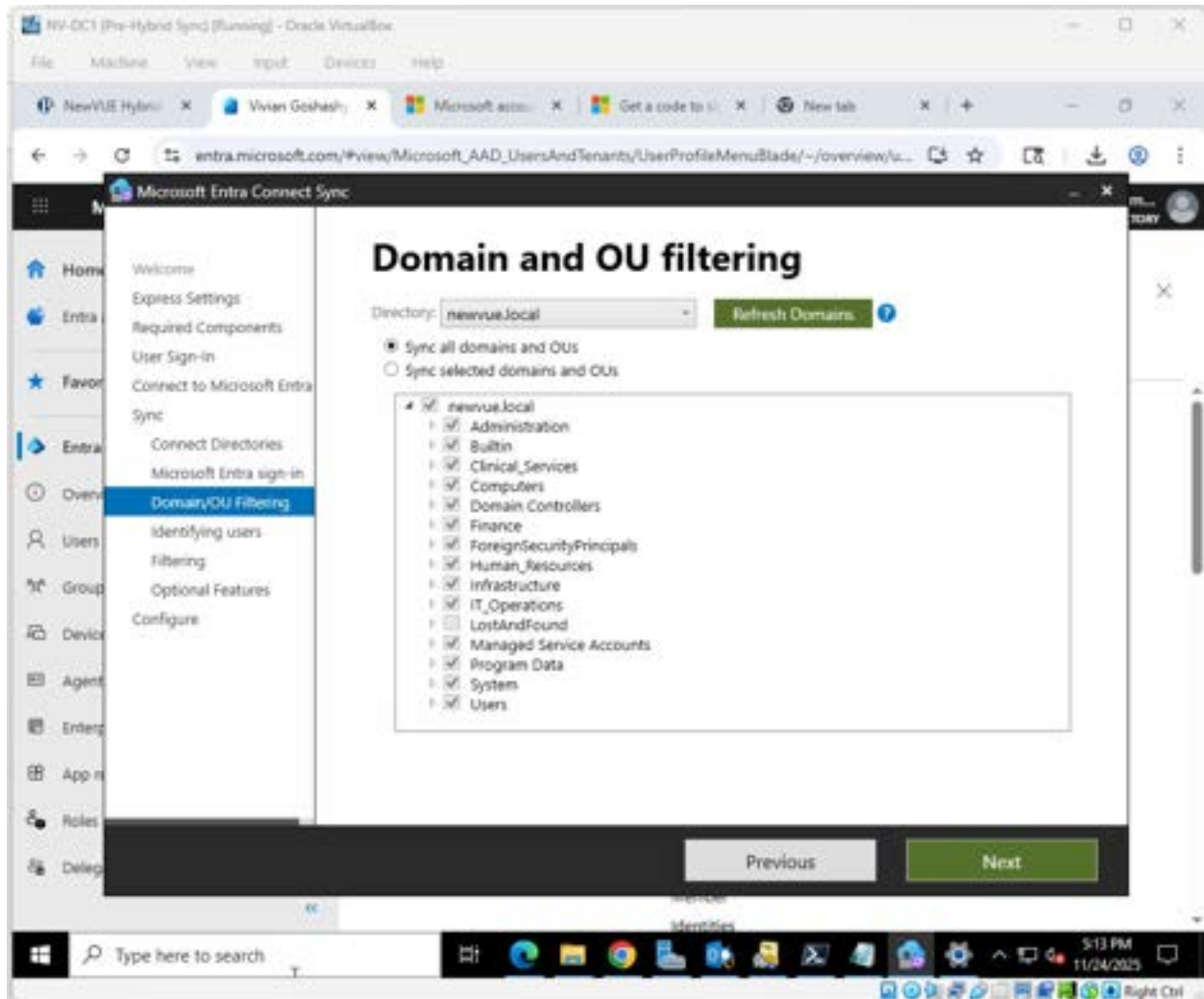
Microsoft Entra Connect was installed on NV-DC1 using a custom installation. Password Hash Synchronization was selected, the Azure tenant was connected using a Global Administrator account, a new AD DS connector account was created, and the departmental OUs were selected for synchronization filtering. Optional features were reviewed, and synchronization was started at the end of configuration.

#### Evidence to Upload

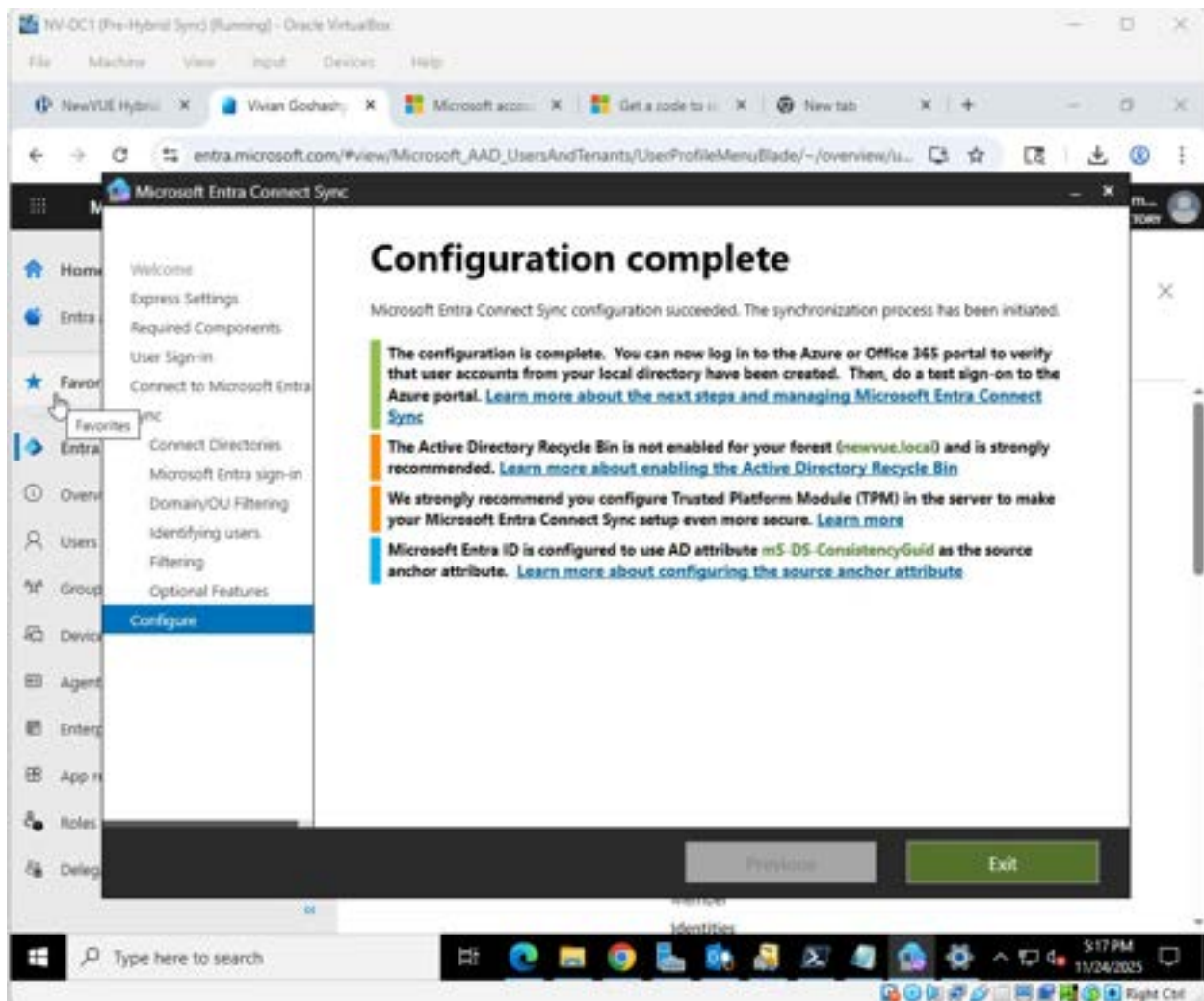
- **Evidence 6:** Screenshot of Password Hash Synchronization selection



- **Evidence 7:** Screenshot of OU filtering selections



- **Evidence 8:** Screenshot of the configuration completed screen



## Task 4 - Synchronization Validation (15 pts)

Synchronization was validated using both the Synchronization Service Manager and the Microsoft Entra Admin Center. Import, synchronization, and export stages were reviewed for errors. The Connect Sync dashboard was used to confirm that the synchronization status was healthy and that users from the on-premises OUs appeared in the cloud with the correct source attribute.

### Summary of Synchronization Validation:

Synchronization validation revealed a mixed status across the monitoring tools. The Synchronization Service Manager (miisclient.exe) showed technically successful operations, with complete import, synchronization, and export runs displaying "success" statuses and no errors in the synchronization statistics. This indicates that the sync engine itself processed directory data without errors. However, the Microsoft Entra Admin Center reported an **unhealthy** status for the Entra Connect Sync service. This discrepancy suggests a potential service communication issue, credential problem, or a health alert that isn't reflected in the immediate operation logs. Despite the unhealthy service status, the core directory object synchronization was confirmed functional, as evidenced by users from the selected on-premises OUs successfully appearing in the Entra ID user list with their source correctly identified as "Windows Server AD."

## Evidence to Upload

- Evidence 9: Synchronization Service Manager showing successful import/sync/export

The screenshot displays the Synchronization Service Manager (SSM) interface on a Windows Server 2022 virtual machine. The main window shows a list of connector operations with columns for Name, Profile Name, Status, Start Time, and End Time. The operations listed include various export, delta synchronization, and full synchronization tasks, all of which have a status of 'success'.

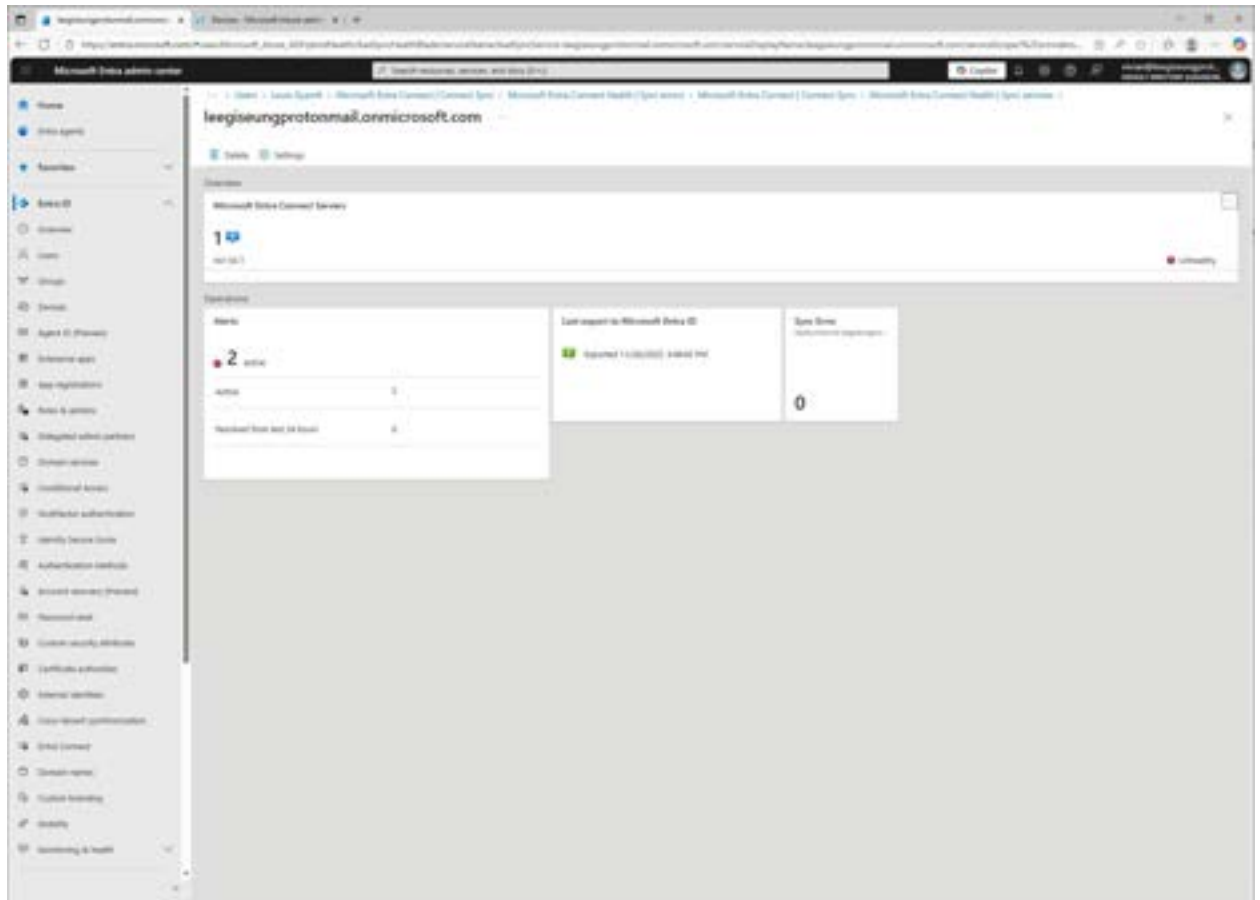
| Name                           | Profile Name          | Status               | Start Time            | End Time              |
|--------------------------------|-----------------------|----------------------|-----------------------|-----------------------|
| newvue.local                   | Export                | success              | 11/26/2025 3:19:31 PM | 11/26/2025 3:19:33 PM |
| leegseungrotational.amsirosoft | Export                | success              | 11/26/2025 3:19:23 PM | 11/26/2025 3:19:31 PM |
| leegseungrotational.amsirosoft | Delta Synchronization | success              | 11/26/2025 3:19:21 PM | 11/26/2025 3:19:23 PM |
| newvue.local                   | Delta Synchronization | success              | 11/26/2025 3:19:20 PM | 11/26/2025 3:19:21 PM |
| leegseungrotational.amsirosoft | Delta Import          | success              | 11/26/2025 3:19:13 PM | 11/26/2025 3:19:19 PM |
| newvue.local                   | Delta Import          | success              | 11/26/2025 3:19:13 PM | 11/26/2025 3:19:13 PM |
| newvue.local                   | Export                | success              | 11/24/2025 5:18:07 PM | 11/24/2025 5:18:07 PM |
| leegseungrotational.amsirosoft | Export                | success              | 11/24/2025 5:17:51 PM | 11/24/2025 5:18:06 PM |
| leegseungrotational.amsirosoft | Full Synchronization  | success              | 11/24/2025 5:17:48 PM | 11/24/2025 5:17:51 PM |
| newvue.local                   | Full Synchronization  | success              | 11/24/2025 5:17:44 PM | 11/24/2025 5:17:48 PM |
| leegseungrotational.amsirosoft | Full Import           | completed-no-objects | 11/24/2025 5:17:39 PM | 11/24/2025 5:17:44 PM |
| newvue.local                   | Full Import           | success              | 11/24/2025 5:17:36 PM | 11/24/2025 5:17:39 PM |

Below the table, the 'Profile Name' is set to 'User'. The 'Step Type' is 'Synchronization Statistics', and the 'Partition' is 'Connection Status'. The 'Start Time' and 'End Time' fields are empty. The 'Status' field is also empty. The 'Synchronization Errors' section is empty.

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- Evidence 10: Entra Connect Sync status (Healthy)





- [illegible]

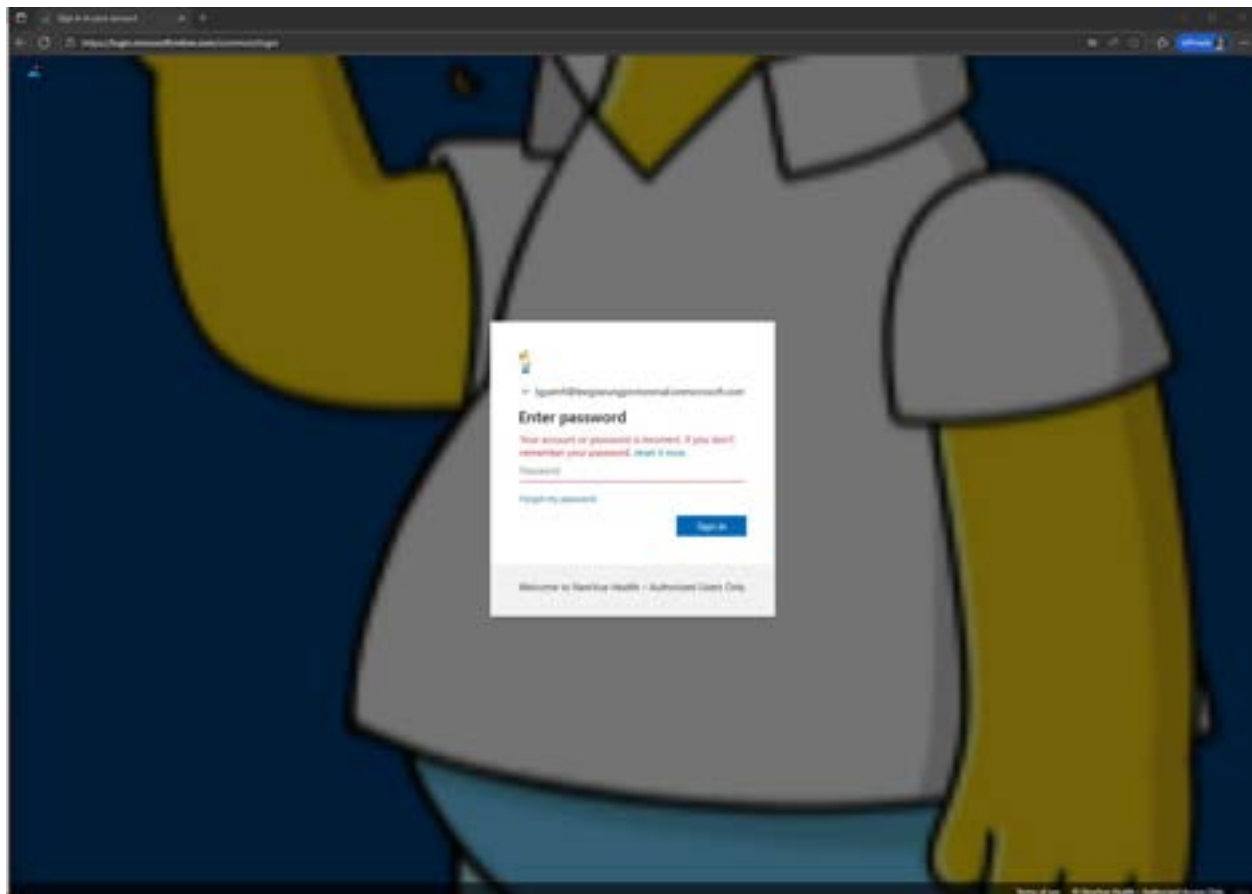
## Task 5 - Cloud Sign-In Verification (10 pts)

A synchronized user account was used to authenticate to Microsoft 365 services. The account successfully signed in, and access to Microsoft 365 applications was confirmed, demonstrating that hybrid identity integration is functioning as intended.

**Note:** A sign-in attempt to Microsoft 365 using a synchronized user account was unsuccessful, returning an "account or password is incorrect" error despite a recent on-premises password change. This result indicates that while directory object synchronization was successful, there is a specific issue with password hash synchronization for the test account. The root cause appears to be one of the following: either the user attempted to sign in using their legacy @newvue.local UPN rather than the cloud-aligned UPN (vivian@leegiseungprotonmail.onmicrosoft.com), or the password hash for this specific user failed to synchronize properly following the on-premises password change. The error message confirming that password writeback is not enabled is expected behavior for the configured Password Hash Synchronization setup.

## Evidence to Upload

- **Evidence 12:** Screenshot of successful Microsoft 365 sign-in



- **Evidence 13:** Screenshot showing available Microsoft 365 applications

