

Active Directory management using PowerShell

Checking PS version:

```
Administrator: Windows PowerShell
PS C:\Users\Administrator> $psversiontable

Name                           Value
----                           -
PSVersion                      5.1.14393.693
PSEdition                     Desktop
PSCompatibleVersions           {1.0, 2.0, 3.0, 4.0...}
BuildVersion                   10.0.14393.693
CLRVersion                     4.0.30319.42000
WSManStackVersion              3.0
PSRemotingProtocolVersion      2.3
SerializationVersion           1.1.0.1

PS C:\Users\Administrator> $host.Version

Major Minor Build Revision
-----
5      1      14393 693

PS C:\Users\Administrator>
```

Get all modules:

```
PS C:\Users\Administrator> Get-Module

ModuleType Version      Name                               ExportedCommands
-----
Manifest   3.1.0.0      Microsoft.PowerShell.Management    {Add-Computer, Add-Content, Check
Manifest   3.1.0.0      Microsoft.PowerShell.Utility       {Add-Member, Add-Type, Clear-Vari
Script     1.2          PSReadline                         {Get-PSReadlineKeyHandler, Get-PS

PS C:\Users\Administrator>
```

Count all commands in PS:

```
Administrator: Windows PowerShell
PS C:\Users\Administrator> Get-Command | measure

Count      : 2004
Average    :
Sum         :
Maximum    :
Minimum    :
Property   :
```

Get all installed modules:

```
PS C:\Users\Administrator> Get-Module -ListAvailable

Directory: C:\Program Files\WindowsPowerShell\Modules

ModuleType Version      Name                               ExportedCommands
-----
Script      1.0.1        Microsoft.PowerShell.Operation.V... {Get-OperationValidation, Invoke-Opera...
Binary      1.0.0.1      PackageManagement                 {Find-Package, Get-Package, Get-Packag...
Script      3.4.0        Pester                            {Describe, Context, It, Should...}
Script      1.0.0.1      PowerShellGet                     {Install-Module, Find-Module, Save-Mod...
Script      1.2          PSReadline                       {Get-PSReadlineKeyHandler, Set-PSReadl...

Directory: C:\Windows\system32\WindowsPowerShell\v1.0\Modules

ModuleType Version      Name                               ExportedCommands
-----
Manifest    1.0.0.0      ActiveDirectory                   {Add-ADCentralAccessPolicyMember, Add-...
Manifest    1.0.0.0      ADDSDeployment                   {Add-ADDSReadOnlyDomainControllerAccou...
Manifest    1.0.0.0      AppBackgroundTask                {Disable-AppBackgroundTaskDiagnosticLo...
Manifest    2.0.0.0      AppLocker                        {Get-AppLockerFileInformation, Get-App...
Manifest    1.0.0.0      AppvClient                       {Add-AppvClientConnectionGroup, Add-App...
Manifest    2.0.0.0      Appx                             {Add-AppxPackage, Get-AppxPackage, Get...
Script      1.0.0.0      AssignedAccess                   {Clear-AssignedAccess, Get-AssignedAcc...
Manifest    1.0          BestPractices                    {Get-BpaModel, Get-BpaResult, Invoke-B...
Manifest    2.0.0.0      BitsTransfer                     {Add-BitsFile, Complete-BitsTransfer, ...
Manifest    1.0.0.0      BranchCache                     {Add-BCCDataCacheExtension, Clear-BCCac...
Manifest    1.0.0.0      CimCmdlets                      {Get-CimAssociatedInstance, Get-CimCla...
Manifest    1.0          ConfigCI                        {Get-SystemDriver, New-CIPolicyRule, N...
Manifest    1.0          Defender                        {Get-MpPreference, Set-MpPreference, A...
Manifest    1.0          DFSN                             {Get-DfsnRoot, Remove-DfsnRoot, Set-Df...
Manifest    1.0.0.0      DirectAccessClientComponents    {Disable-DAManualEntryPointSelection, ...
Script      3.0          Dism                             {Add-AppxProvisionedPackage, Add-Windo...
Manifest    1.0.0.0      DnsClient                       {Resolve-DnsName, Clear-DnsClientCache...
Manifest    2.0.0.0      DnsServer                       {Add-DnsServerConditionalForwarderZone...
```

List all with proper visibility (without ... in the end of the lines)

```
PS C:\Users\Administrator> Get-Module -ListAvailable | ft -AutoSize -Wrap

Directory: C:\Windows\system32\WindowsPowerShell\v1.0\Modules

ModuleType Version      Name                               ExportedCommands
-----
Manifest    1.0.0.0      ActiveDirectory                   {Add-ADCentralAccessPolicyMember, Add-ADComputerServiceAccount,
Add-ADDomainControllerPasswordReplicationPolicy,
Add-ADFineGrainedPasswordPolicySubject...}
Manifest    1.0.0.0      ADDSDeployment                   {Add-ADDSReadOnlyDomainControllerAccount, Install-ADDSForest, Install-ADDSDomain,
Install-ADDSDomainController...}
Manifest    1.0.0.0      AppBackgroundTask                {Disable-AppBackgroundTaskDiagnosticLog, Enable-AppBackgroundTaskDiagnosticLog,
Set-AppBackgroundTaskResourcePolicy, Unregister-AppBackgroundTask...}
Manifest    2.0.0.0      AppLocker                        {Get-AppLockerFileInformation, Get-AppLockerPolicy, New-AppLockerPolicy,
Set-AppLockerPolicy...}
Manifest    1.0.0.0      AppvClient                       {Add-AppvClientConnectionGroup, Add-AppvClientPackage, Add-AppvPublishingServer,
Disable-Appv...}
```

To load active directory:

```
Administrator: Windows PowerShell

PS C:\Users\Administrator> Import-Module ActiveDirectory
PS C:\Users\Administrator>
```

List all the commands based on Active Directory:

```
PS C:\Users\Administrator> Get-Command -Module ActiveDirectory
```

CommandType	Name	Version	Source
Cmdlet	Add-ADCentralAccessPolicyMember	1.0.0.0	ActiveDirectory
Cmdlet	Add-ADComputerServiceAccount	1.0.0.0	ActiveDirectory
Cmdlet	Add-ADDomainControllerPasswordReplicationPolicy	1.0.0.0	ActiveDirectory
Cmdlet	Add-ADFineGrainedPasswordPolicySubject	1.0.0.0	ActiveDirectory
Cmdlet	Add-ADGroupMember	1.0.0.0	ActiveDirectory
Cmdlet	Add-ADPrincipalGroupMembership	1.0.0.0	ActiveDirectory
Cmdlet	Add-ADResourcePropertyListMember	1.0.0.0	ActiveDirectory
Cmdlet	Clear-ADAccountExpiration	1.0.0.0	ActiveDirectory
Cmdlet	Clear-ADClaimTransformLink	1.0.0.0	ActiveDirectory
Cmdlet	Disable-ADAccount	1.0.0.0	ActiveDirectory
Cmdlet	Disable-ADOptionalFeature	1.0.0.0	ActiveDirectory
Cmdlet	Enable-ADAccount	1.0.0.0	ActiveDirectory
Cmdlet	Enable-ADOptionalFeature	1.0.0.0	ActiveDirectory
Cmdlet	Get-ADAccountAuthorizationGroup	1.0.0.0	ActiveDirectory
Cmdlet	Get-ADAccountResultantPasswordReplicationPolicy	1.0.0.0	ActiveDirectory

Count all the commands based on AD module:

```
PS C:\Users\Administrator> Get-Command -Module ActiveDirectory | measure
```

Count	: 147
Average	:
Sum	:
Maximum	:
Minimum	:
Property	:

Searching for the commands with keyword "ad" in it.

```
Administrator: Windows PowerShell
PS C:\Users\Administrator> Get-Command *ad*
```

CommandType	Name	Version	Source
Alias	Add-ProvisionedAppxPackage	3.0	Dism
Alias	Add-WindowsFeature	2.0.0.0	ServerManager
Function	Add-BCDataCacheExtension	1.0.0.0	BranchCache
Function	Add-DnsClientNrptRule	1.0.0.0	DnsClient
Function	Add-DnsServerClientSubnet	2.0.0.0	DnsServer
Function	Add-DnsServerConditionalForwarderZone	2.0.0.0	DnsServer
Function	Add-DnsServerDirectoryPartition	2.0.0.0	DnsServer
Function	Add-DnsServerForwarder	2.0.0.0	DnsServer
Function	Add-DnsServerPrimaryZone	2.0.0.0	DnsServer

Searching for all commands having "-ad" in it, as all Ad cmdlets have "-ad"

```
PS C:\Users\Administrator> Get-Command *-ad*

CommandType      Name                                           Version      Source
-----
Cmdlet           Add-ADCentralAccessPolicyMember              1.0.0.0      ActiveDirectory
Cmdlet           Add-ADComputerServiceAccount                 1.0.0.0      ActiveDirectory
Cmdlet           Add-ADDomainControllerPasswordReplicationPolicy 1.0.0.0      ActiveDirectory
Cmdlet           Add-ADDSReadOnlyDomainControllerAccount       1.0.0.0      ADDSDeployment
Cmdlet           Add-ADFineGrainedPasswordPolicySubject       1.0.0.0      ActiveDirectory
Cmdlet           Add-ADGroupMember                           1.0.0.0      ActiveDirectory
Cmdlet           Add-ADPrincipalGroupMembership               1.0.0.0      ActiveDirectory
Cmdlet           Add-ADResourcePropertyListMember             1.0.0.0      ActiveDirectory
Cmdlet           Clear-ADAccountExpiration                    1.0.0.0      ActiveDirectory
Cmdlet           Clear-ADClaimTransformLink                   1.0.0.0      ActiveDirectory
Cmdlet           Disable-ADAccount                           1.0.0.0      ActiveDirectory
Cmdlet           Disable-ADOptionalFeature                    1.0.0.0      ActiveDirectory
Cmdlet           Enable-ADAccount                            1.0.0.0      ActiveDirectory
```

Count all "-ad" keyword containing cmdlets:

```
Administrator: Windows PowerShell
PS C:\Users\Administrator> Get-Command *-ad* | measure

Count      : 157
Average    :
Sum        :
Maximum    :
Minimum    :
Property   :
```

History:

```
PS C:\Users\Administrator> history

Id CommandLine
--
1 cls
2 $psversiontable
3 $host.Version
4 cls
5 Get-Module
6 Get-Module -ListAvailable
7 cls
8 Get-Module
9 cls
10 Get-Module -ListAvailable
11 cls
12 Get-Module -ListAvailable | ft -AutoSize -wrap
13 cls
14 Import-Module ActiveDirectory
15 Import-Module ActiveDirectory
16 gcm *module
17 Import-Module ActiveDirectory
18 Get-Command -Module ActiveDirectory
19 cls
20 Get-Command -Module ActiveDirectory | measure
21 cls
22 Get-Command | measure
23 cls
24 Get-Command *-ad*
25 Get-Command *-ad*
26 Get-Command *-ad* | measure
27 cls
28 Get-Command *-ad*
29 cls
30 Get-Command *-ad* | measure
31 cls
```

Searching cmdlets to create a new user in AD:

```
Administrator: Windows PowerShell
PS C:\Users\Administrator> Get-Command *ad*user*

CommandType      Name                                           Version      Source
-----
Cmdlet            Get-ADUser                                    1.0.0.0      ActiveDirectory
Cmdlet            Get-ADUserResultantPasswordPolicy            1.0.0.0      ActiveDirectory
Cmdlet            New-ADUser                                    1.0.0.0      ActiveDirectory
Cmdlet            Remove-ADUser                                1.0.0.0      ActiveDirectory
Cmdlet            Set-ADUser                                    1.0.0.0      ActiveDirectory

PS C:\Users\Administrator>
```

Connect to internet to update the cmdlets:

```
Administrator: Windows PowerShell
PS C:\Users\Administrator> update-help -Force

Updating Help for module ActiveDirectory
Locating Help Content...
[
```

Fetching help online:

```
C:\Users\Administrator> get-help New-ADUser -Online
C:\Users\Administrator>
```

Version: Windows Server 2012 PowerShell

Search: []

Remove-ADFineGrainedPasswordPolicySubject
Remove-ADGroup
Remove-ADGroupMember
Remove-ADObject
Remove-ADOrganizationalUnit
Remove-ADPrincipalGroupMembership
Remove-ADReplicationSite
Remove-ADReplicationSiteLink

examples

----- EXAMPLE 1 -----

PowerShell [Copy]

```
C:\PS>New-ADUser GlenJohn -Certificate (new-object System.Security.Cryptography.X509Certificates.X509Certificate2 "export.cer")
```

Description

Create a new user named 'GlenJohn' with a certificate imported from the file "export.cer".

----- EXAMPLE 2 -----

PowerShell [Copy]

```
C:\PS>New-ADUser GlenJohn -OtherAttributes @{title="director";mail="glenjohn@fabrikam.com"}
```

List example to create a new user in AD:

```
PS C:\Users\Administrator> get-help New-ADUser -Examples

NAME
    New-ADUser

SYNOPSIS
    Creates a new Active Directory user.

----- EXAMPLE 1 -----

C:\PS>New-ADUser GlenJohn -Certificate (new-object System.Security.Cryptography.X509Certificate
"export.cer")

Description
-----

Create a new user named 'GlenJohn' with a certicate imported from the file "export.cer".
----- EXAMPLE 2 -----

C:\PS>New-ADUser GlenJohn -OtherAttributes @{title="director";mail="glenjohn@fabrikam.com"}
```

List all AD organizational unit (OU):

```
PS C:\Users\Administrator> help Get-ADOrganizationalUnit -Examples

NAME
    Get-ADOrganizationalUnit

SYNOPSIS
    Gets one or more Active Directory organizational units.

----- EXAMPLE 1 -----

C:\PS>Get-ADOrganizationalUnit -Filter 'Name -like "*" | FT Name, DistinguishedName -A

Name                                DistinguishedName
----                                -
Domain Controllers                 OU=Domain Controllers,DC=FABRIKAM,DC=COM
UserAccounts                      OU=UserAccounts,DC=FABRIKAM,DC=COM
Sales                             OU=Sales,OU=UserAccounts,DC=FABRIKAM,DC=COM
Marketing                         OU=Marketing,OU=UserAccounts,DC=FABRIKAM,DC=COM
Production                       OU=Production,OU=UserAccounts,DC=FABRIKAM,DC=COM
HumanResources                   OU=HumanResources,OU=UserAccounts,DC=FABRIKAM,DC=COM
NorthAmerica                     OU=NorthAmerica,OU=Sales,OU=UserAccounts,DC=FABRIKAM,DC=COM
SouthAmerica                     OU=SouthAmerica,OU=Sales,OU=UserAccounts,DC=FABRIKAM,DC=COM
Europe                           OU=Europe,OU=Sales,OU=UserAccounts,DC=FABRIKAM,DC=COM
AsiaPacific                      OU=AsiaPacific,OU=Sales,OU=UserAccounts,DC=FABRIKAM,DC=COM
Finance                          OU=Finance,OU=UserAccounts,DC=FABRIKAM,DC=COM
Corporate                        OU=Corporate,OU=UserAccounts,DC=FABRIKAM,DC=COM
ApplicationServers               OU=ApplicationServers,DC=FABRIKAM,DC=COM
```

```
Select Administrator: Windows PowerShell

PS C:\Users\Administrator> Get-ADOrganizationalUnit -Filter 'Name -like "*" | FT Name, DistinguishedName

Name                                DistinguishedName
----                                -
Domain Controllers                 OU=Domain Controllers,DC=training,DC=com
test                              OU=test,DC=training,DC=com

PS C:\Users\Administrator> _
```

Create a new OU:

New-ADOrganizationalUnit -Name test -path "DC=training,DC=com"

```
PS C:\Users\Administrator> New-ADOrganizationalUnit -Name test -path "DC=training,DC=com" -ProtectedFromAccidentalDeletion $false
PS C:\Users\Administrator> Get-ADOrganizationalUnit -Filter 'Name -like "test"'

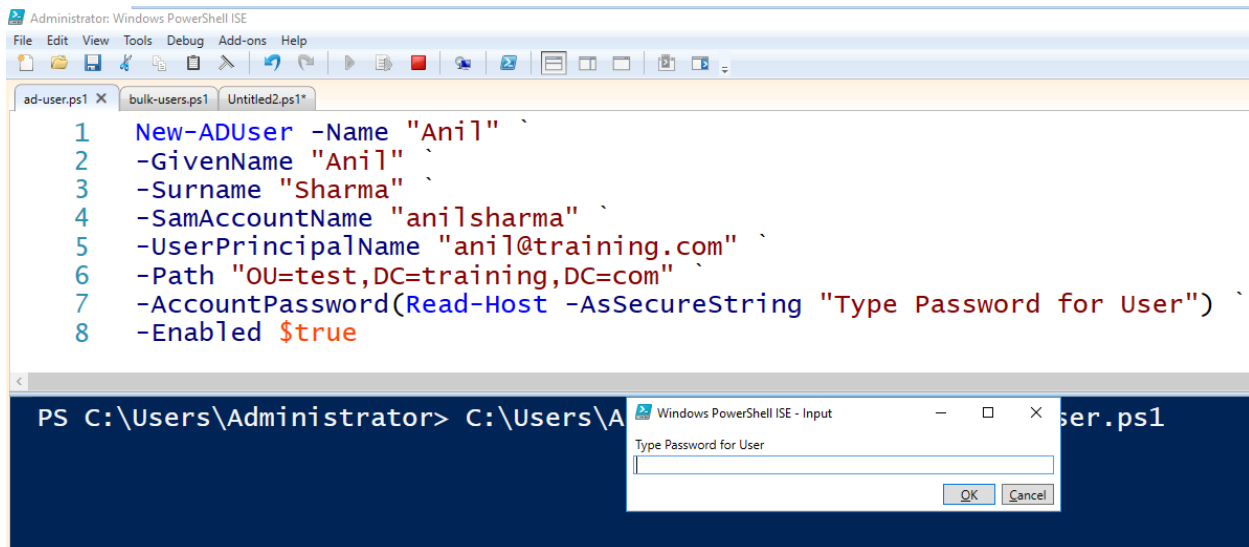
City          :
Country       :
DistinguishedName : OU=test,DC=training,DC=com
LinkedGroupPolicyObjects : {}
ManagedBy    :
Name          : test
ObjectClass   : organizationalUnit
ObjectGUID    : 58c860c1-98cd-476c-8b7a-4c92ffac80b4
PostalCode    :
State         :
StreetAddress  :
```

- New-ADOrganizationalUnit -Name test -path "DC=training,DC=com" - ProtectedFromAccidentalDeletion \$false
- Get-ADOrganizationalUnit -Filter 'Name -like "test"'

Removing OU from the AD:

```
PS C:\Users\Administrator> Get-ADOrganizationalUnit -Filter 'Name -like "test"' | Remove-ADOrganizationalUnit
Confirm
Are you sure you want to perform this action?
Performing the operation "Remove" on target "OU=test,DC=training,DC=com".
[Y] Yes [A] Yes to All [N] No [L] No to All [S] Suspend [?] Help (default is "Y"): a
PS C:\Users\Administrator>
```

Create a new user:



```
New-ADUser -Name "Anil" -GivenName "Anil" -Surname "Sharma" -SamAccountName "anilsharma" -  
UserPrincipalName "anil@training.com" -Path "OU=test,DC=training,DC=com" -AccountPassword(Read-  
Host -AsSecureString "Type Password for User") -Enabled $true
```

Create a user with visible password:

```
New-ADUser -Name "Anil1" -  
-GivenName "Anil1" -  
-Surname "Sharma" -  
-SamAccountName "anil1sharma" -  
-UserPrincipalName "anil1@training.com" -  
-Path "OU=test,DC=training,DC=com" -  
-AccountPassword(ConvertTo-SecureString -AsPlainText "pass@word1" -Force) -  
-Enabled $true
```

```
New-ADUser -Name "Anil1" -GivenName "Anil1" -Surname "Sharma" -SamAccountName "anil1sharma" -  
UserPrincipalName "anil1@training.com" -Path "OU=test,DC=training,DC=com" -  
AccountPassword(ConvertTo-SecureString -AsPlainText "pass@word1" -Force) -Enabled $true
```


Cmd:

```
Get-ADUser -Filter * -searchbase "OU=test,DC=training,DC=com"  
#fetch user from specific OU  
Get-ADUser -Filter * -searchbase "OU=test,DC=training,DC=com"
```

```
DistinguishedName : CN=Anil,OU=test,DC=training,DC=com  
Enabled           : True  
GivenName        : Anil  
Name             : Anil  
ObjectClass      : user  
ObjectGUID       : 2328c1ee-0e0d-4e7a-ac3f-ae723cfe5f5c  
SamAccountName   : anilsharma  
SID              : S-1-5-21-2024417718-2662966806-28050230-1104  
Surname          : Sharma  
UserPrincipalName : anil@training.com
```

Get list of disabled users:

```
get-aduser -Filter {Enabled -eq $false} | ft name, samaccountname
```

```
PS C:\Users\Administrator> get-aduser -Filter {Enabled -eq $false} | ft name, samaccountname  
  
name          samaccountname  
----          -  
Guest         Guest  
DefaultAccount DefaultAccount  
krbtgt        krbtgt  
Anil1         anilsharma
```

Get list of disabled users from a specific OU:

```
get-aduser -Filter {Enabled -eq $false} -SearchBase "OU=test,DC=training,DC=com" | ft name,  
samaccountname
```

```
PS C:\Users\Administrator> get-aduser -Filter {Enabled -eq $false} -SearchBase "OU=test,DC=training,DC=com" | ft name, samaccountname  
  
name samaccountname  
---- -  
Anil1 anilsharma
```

```
PS C:\Users\Administrator> get-aduser -Filter {Enabled -eq $false} -SearchBase "OU=test,DC=training,DC=com" | ft name, samaccountname  
  
name samaccountname  
---- -  
Anil1 anilsharma  
  
PS C:\Users\Administrator>
```

List user with *keyword*:

```
PS C:\Users\Administrator> Get-ADUser -Filter 'Name -like "*anil*"'

DistinguishedName : CN=Anil,OU=test,DC=training,DC=com
Enabled           : True
GivenName         : Anil
Name              : Anil
ObjectClass       : user
ObjectGUID        : 2328c1ee-0e0d-4e7a-ac3f-ae723cfe5f5c
SamAccountName    : anilsharma
SID               : S-1-5-21-2024417718-2662966806-28050230-1104
Surname           : Sharma
UserPrincipalName : anil@training.com
```

Create users in bulk: (Requires: a script, a CSV with users in bulk)

```
Import-Csv C:\user1.csv | `
New-ADUser -Enabled $true `
-AccountPassword (ConvertTo-SecureString pass@word1 -AsPlainText -Force) `
-Path "OU=test,DC=training,DC=com"
```

CSV looks:

```
Name,samAccountName,ParentOU
ieshant.koul,wiprousr1001
amit.maurya,wiprousr1002
debashish.das13,wiprousr1003
Ramalakshmi.kavikondala,wiprousr1004
lipsa.pradhan,wiprousr1005
```

Part – 2: bulk user creation

CSV file:

```
name,samaccountname,OU
u1,u1,"OU=test,DC=training,DC=com"
u2,u2,"OU=test1,DC=training,DC=com"
u3,u3,"OU=test,DC=training,DC=com"
u4,u4,"OU=test1,DC=training,DC=com"
u5,u5,"OU=test,DC=training,DC=com"
u6,u6,"OU=test1,DC=training,DC=com"
u7,u7,"OU=test,DC=training,DC=com"
```

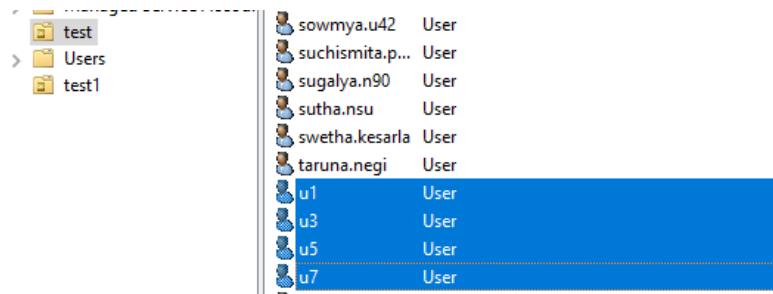
```
Import-Module ActiveDirectory
```

```
Import-Csv "C:\myUserList.csv" | ForEach-Object {  
    $UserPrincipal = $_.samAccountName + "@training.com"  
    New-ADUser -Name $_.Name  
        -Path $_.OU  
        -SamAccountName $_.samaccountname  
        -UserPrincipalName $UserPrincipal  
        -AccountPassword (ConvertTo-SecureString "pass@word1" -AsPlainText -Force)  
        -ChangePasswordAtLogon $false  
        -PasswordNeverExpires $true  
        -Enabled $true  
}
```

CMD: `Import-Module ActiveDirectory`

```
Import-Csv "C:\myUserList.csv" | ForEach-Object {  
    $UserPrincipal = $_.samAccountName + "@training.com"  
    New-ADUser -Name $_.Name  
        -Path $_.OU  
        -SamAccountName $_.samaccountname  
        -UserPrincipalName $UserPrincipal  
        -AccountPassword (ConvertTo-SecureString "pass@word1" -AsPlainText -Force)  
        -ChangePasswordAtLogon $false  
        -PasswordNeverExpires $true  
        -Enabled $true  
}
```

Output:



Active Directory Users and Com			
	Name	Type	Descrip
test	u2	User	
test	u4	User	
test	u6	User	

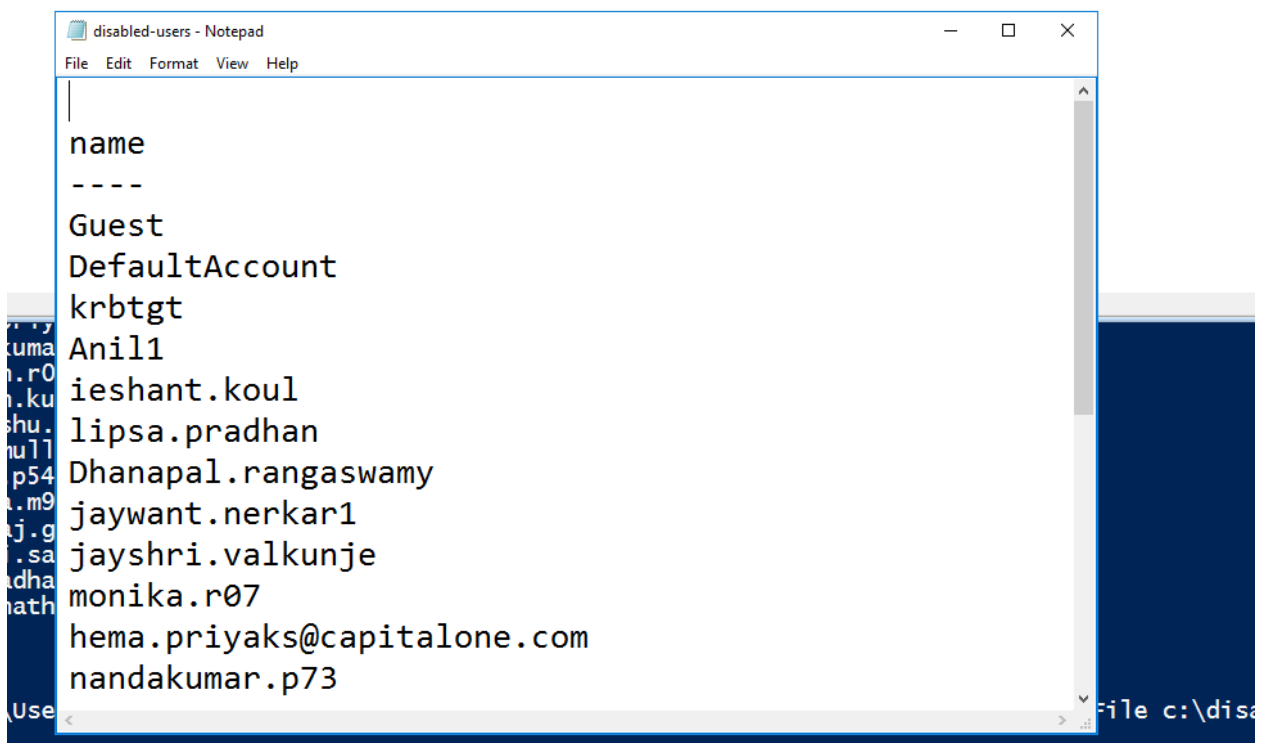
Search all disabled users:

```
-----  
Guest  
DefaultAccount  
krbtgt  
Anil1  
ieshant.koul  
lipsa.pradhan  
Dhanapal.rangaswamy  
jaywant.nerkar1  
jayshri.valkunje  
monika.r07  
hema.priyaks@capitalone.com  
nandakumar.p73  
Nandan.r05  
naveen.kumar60  
himanshu.shekhar5  
kareemulla.dharanikota2
```

```
1 #list all disabled users  
2 Search-ADAccount -AccountDisabled | select name
```

Sending all disabled users in a file:

```
#list all disabled users  
Search-ADAccount -AccountDisabled | select name | Out-File c:\disabled-users.txt
```



```
disabled-users - Notepad  
File Edit Format View Help  
name  
-----  
Guest  
DefaultAccount  
krbtgt  
Anil1  
ieshant.koul  
lipsa.pradhan  
Dhanapal.rangaswamy  
jaywant.nerkar1  
jayshri.valkunje  
monika.r07  
hema.priyaks@capitalone.com  
nandakumar.p73  
Use < File c:\disa
```