ScriptDotS

We are all in a void. A pointer to something that doesn't exist…

ACTIVE DIRECTORY PENTESTING | BLOGS | WINDOWS PENTESTING

Winsaaf Man

August 26, 2018 · 10 *Comments*

Active Directory Penetration Dojo- Setup of AD Penetration Lab : Part 2

The Prologue

Hi everyone, Welcome to the second part of the setup series on Pentest lab in AD environment. I hope your basic concepts about AD and Domain Controller are cleared at this point. If you still haven't read the Part-1 of this series, **please read it at this URL.**

Recap to the Part 1:

- In the first post, I gave an introduction to the Active Directory including AD Domain, AD Forest, AD Domain Controller, AD Database, DNS, Group Policies etc.
- Then I created a VM with Server 2012 R2 in Oracle Virtual Box and installed ADDS Role and promoted it to the Domain Controller.
- I created a new AD Forest with root domain name "scriptdotsh.local"
- This was done via GUI as well as CLI (Powershell)

Now that we have a Domain Controller, we'll add client machines and users into the domain. So let's move on and grow the AD environment.

Add a computer into your Active Directory Domain!

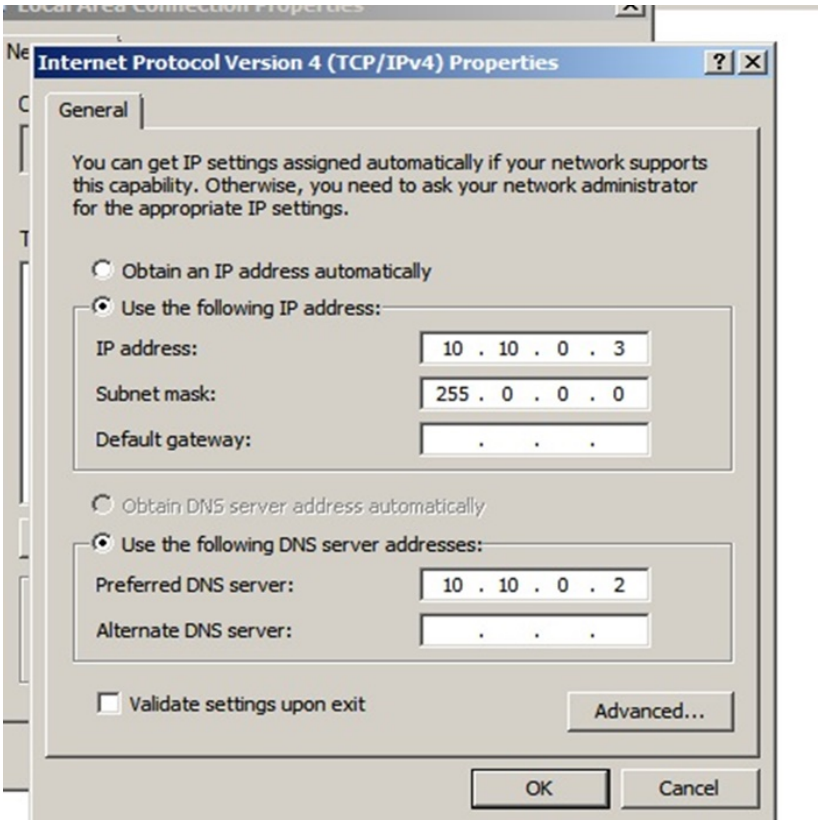
First of all, we should know how to add a machine into the domain.

After you create a new VM, go to its settings, select Host Only Network (Same adapter as DC).

Go to network and sharing Center. Assign a static IP to the system.

IP Address: 10.10.0.3

DNS Address: 10.10.0.2 (DC & DNS server)



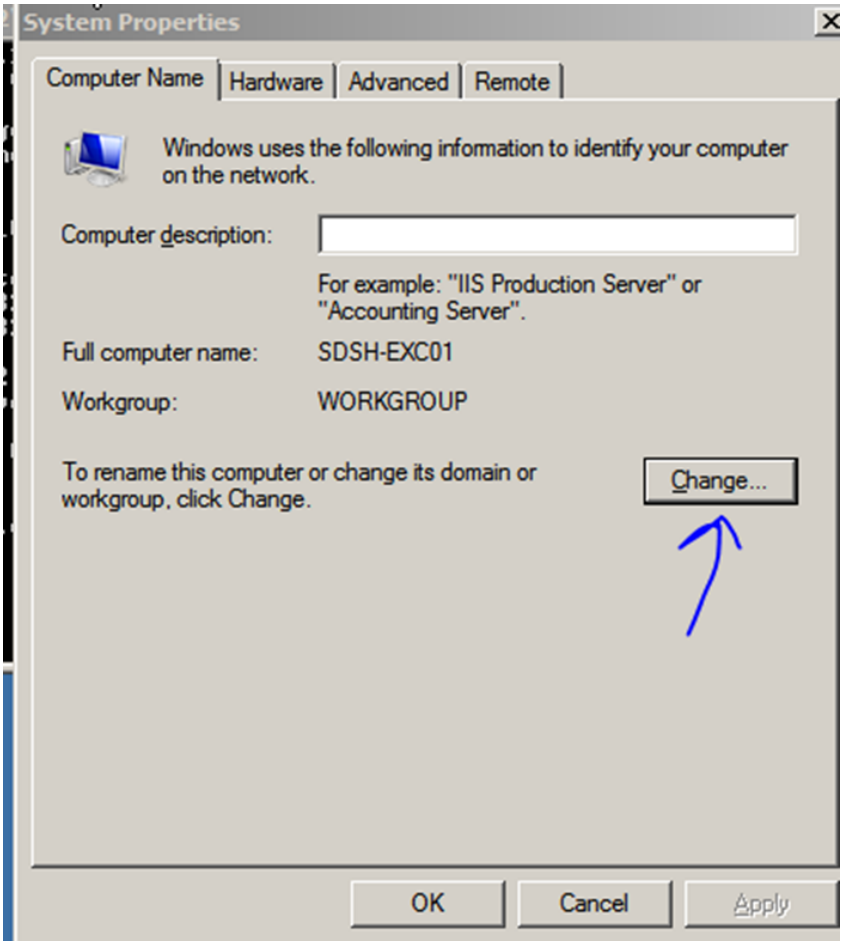
Now, change the computer name:

Set a name that helps you to identify the server or computer and which server is DC, File Server, DHCP server etc.

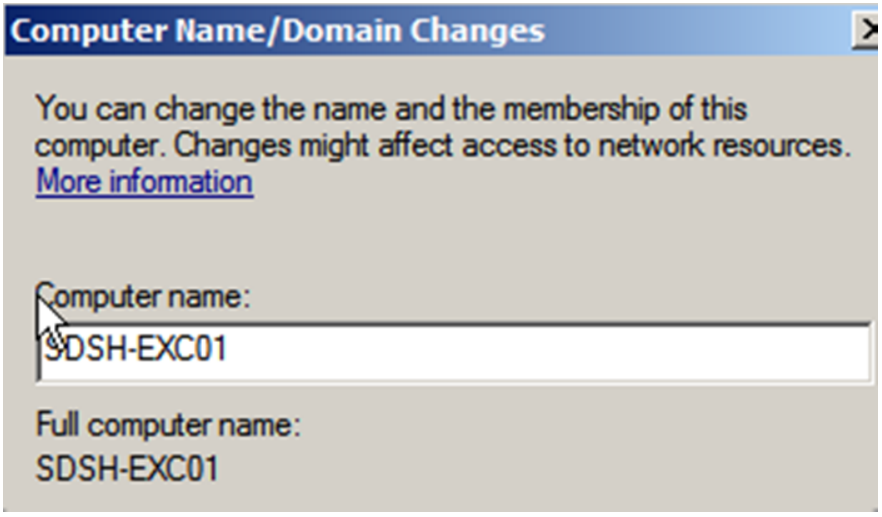
Go to system properties and change the computer name.

Type **sysdm.cpl** in RUN to open system properties

Click on “change”.

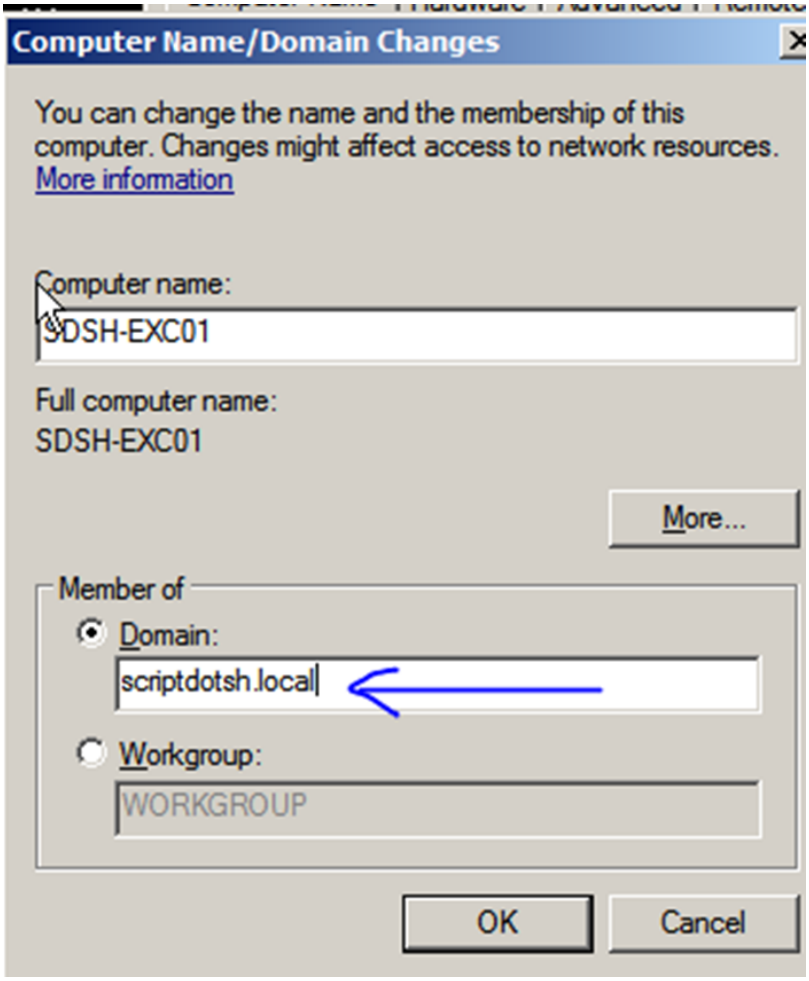


Enter a computer name and click OK to save.

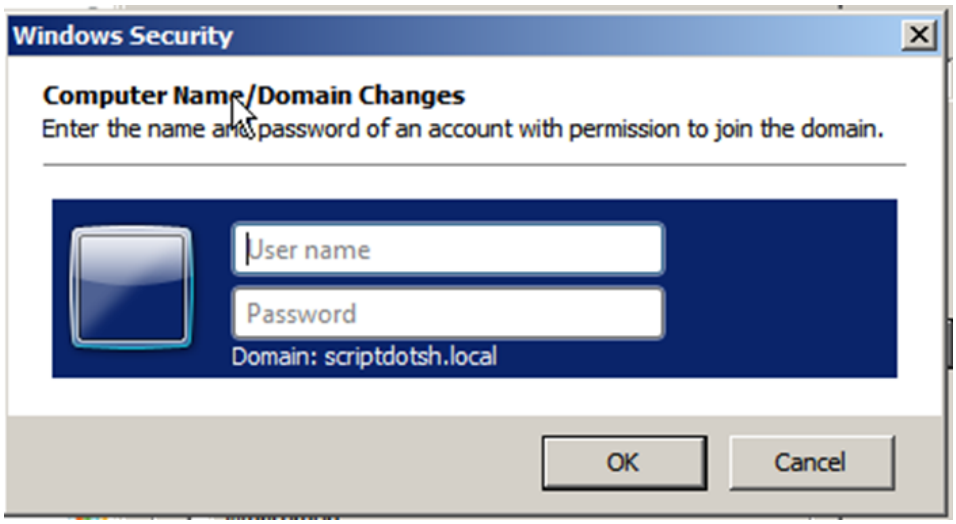


Reboot the system to apply the changes. Once rebooted, add the system into domain following below steps:

Go to Computer properties, click change:



In domain under “Member of”, add domain name (eg/- in our case it is **scriptdotsh.local**).



Then press ok and enter an authenticated user’s credentials to add the system into domain.

After reboot, your system is added into the domain.

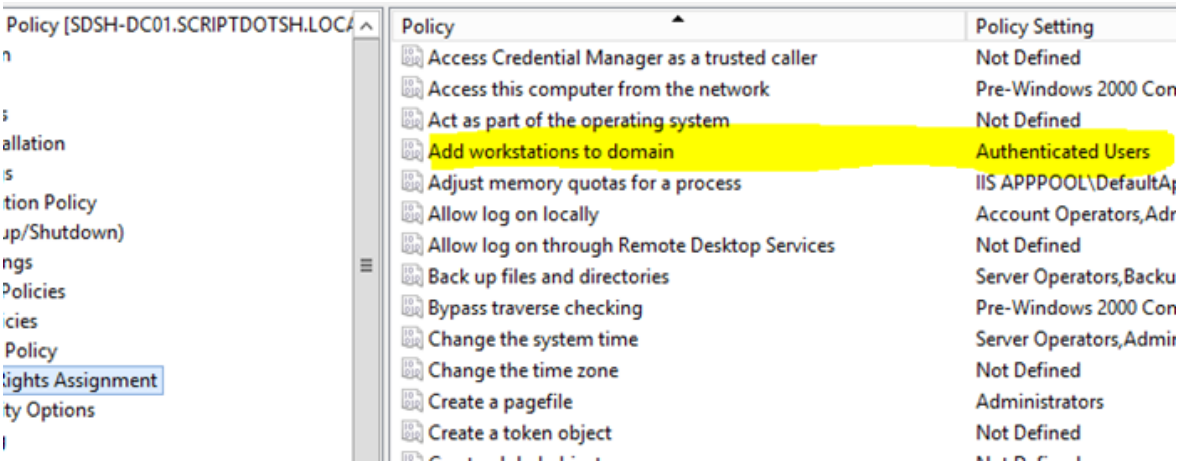
DIY: – Create one or two client machines and add into the domain.

Who can add computers into domain: – People enter Domain Administrator's credentials while adding computer into domain because they generally don't really know who exactly can add the system into domain. It is not required to enter administrator user's credentials to add a computer into the domain. You can add any authenticated domain user's credentials to add the computer into domain.

Default Setting:

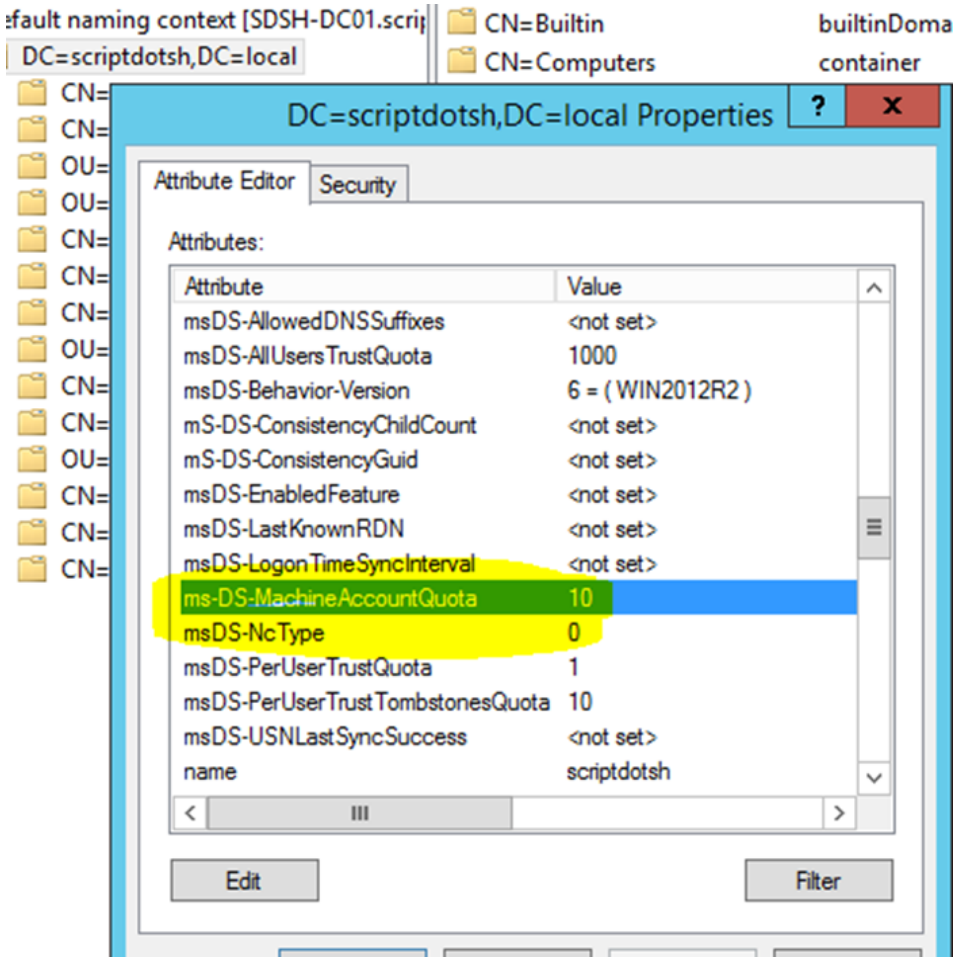
As per Microsoft, by default, you can use any domain user's credentials to add the system into domain. Because there is a default setting which defines that "Authenticated Users" can join computers into domain.

In the default policy, "Add workstation to the Domain" User Right is assigned to "Authenticated Users". See below screenshot-



A domain user can add upto 10 systems in the domain.

This is because of an attribute called **ms-DS-MachineAccountQuota**. By default, it is set to 10. If we change it to 0, that will disable this limit. We can also adjust the value based on the requirements.



Who should be able to add computers into domain?

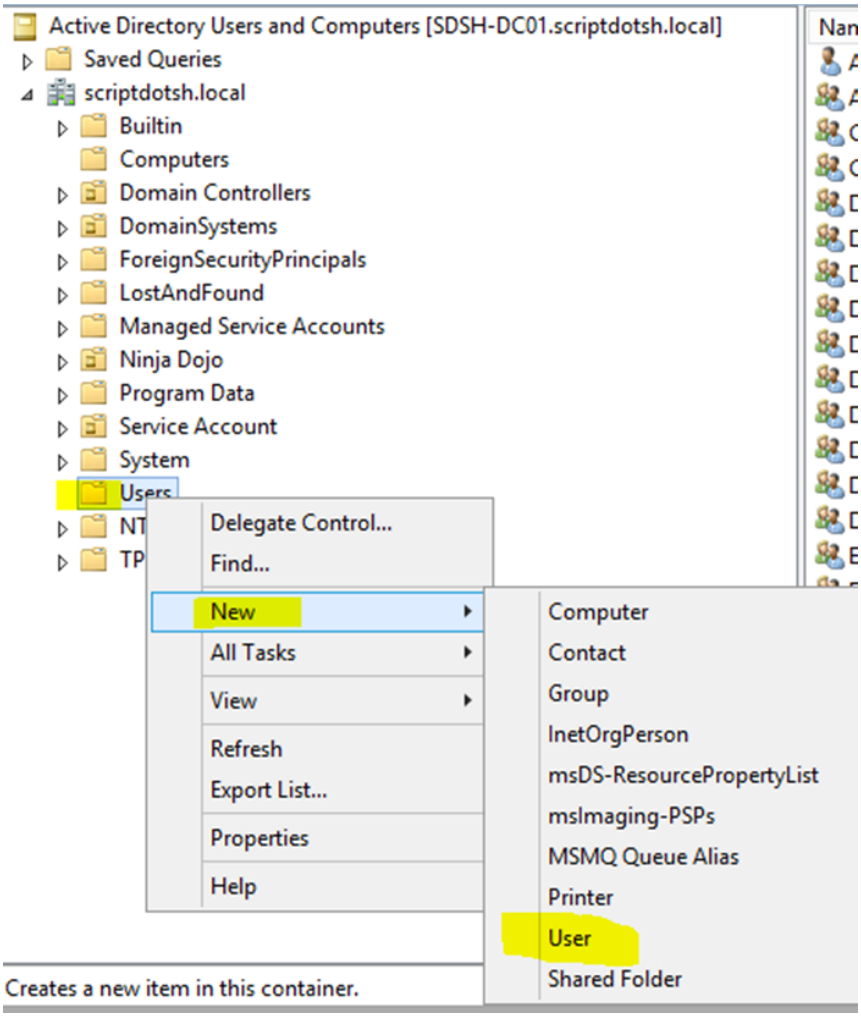
This setting should be changed. If you don't change this, any standard domain user would be able to join their machines to the domain. And If they do, they become Owner of the computer objects in AD (from ACL point of view) and additionally have ACCESS_CONTROL flag which means they can read confidential attributes for that object (for example LAPS passwords etc.). Delegation should be used instead of default setting.

Add users into Active Directory Domain:

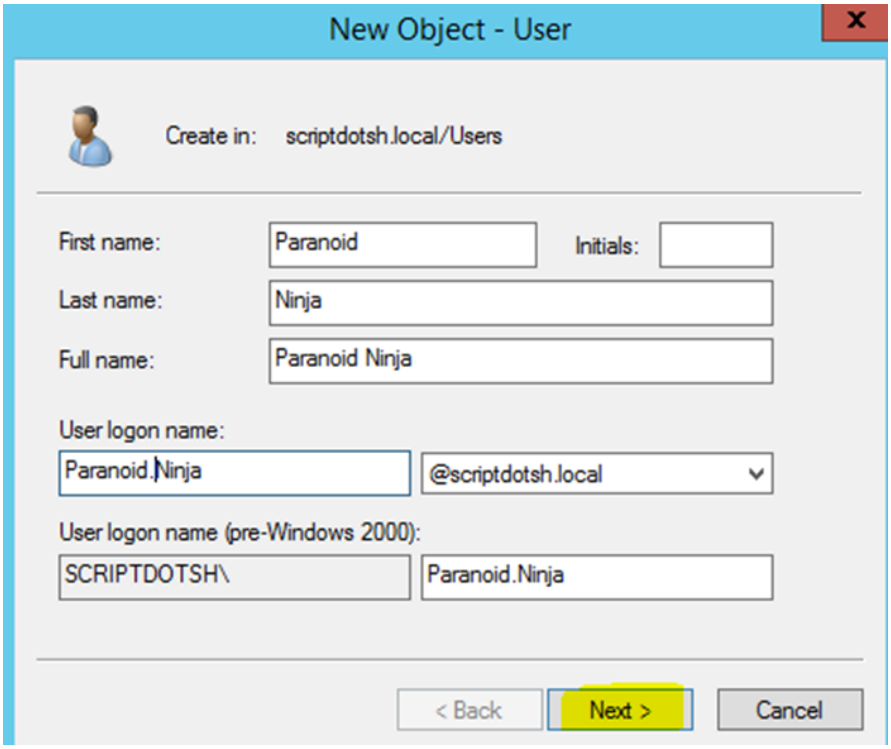
In this section, we will learn how to add users in the domain.

GUI Way : – To create a user in the active directory, open Active Directory Users and Computers. (Type **dsa.msc** in RUN to open ADUC)

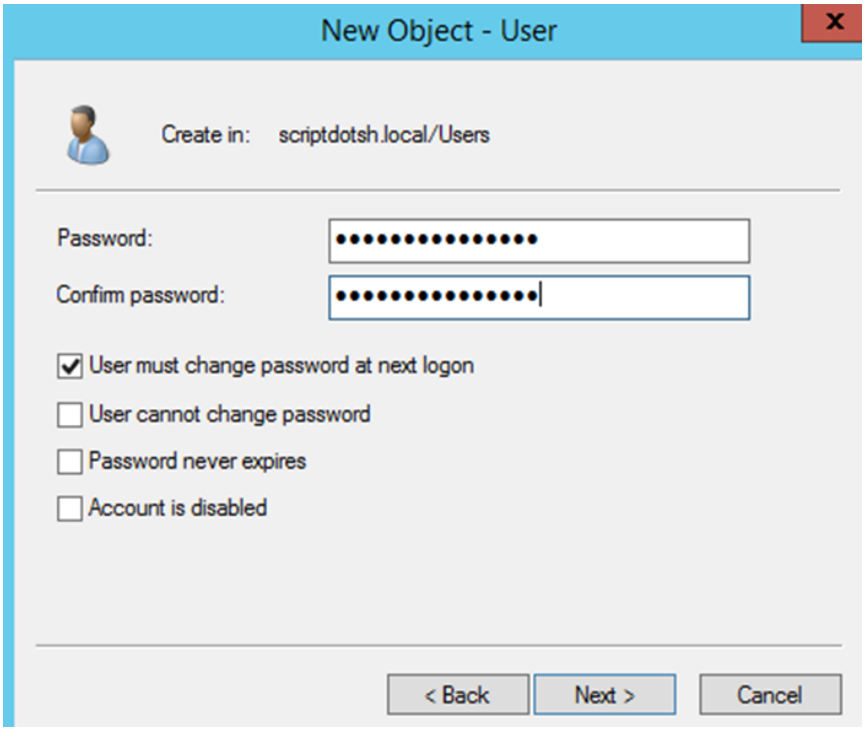
Right click on the Users container and Click New>User.



Fill in the details and click on Next.



Set a password for the user and click Next to finish.



Using CMD: –

Open command prompt as domain admin or a user who has permissions to create users and type the below command:

```
net user username password /add /domain
```

Using Powershell: –

Use the `New-ADUser` cmdlet, specify the required parameters, and set any additional property values like email, department etc.

```
1 New-ADUser -Name "Winsaaf Man" -DisplayName "Winsaaf Man" -SamAccountName “win
```

You can also set more additional property values like below:

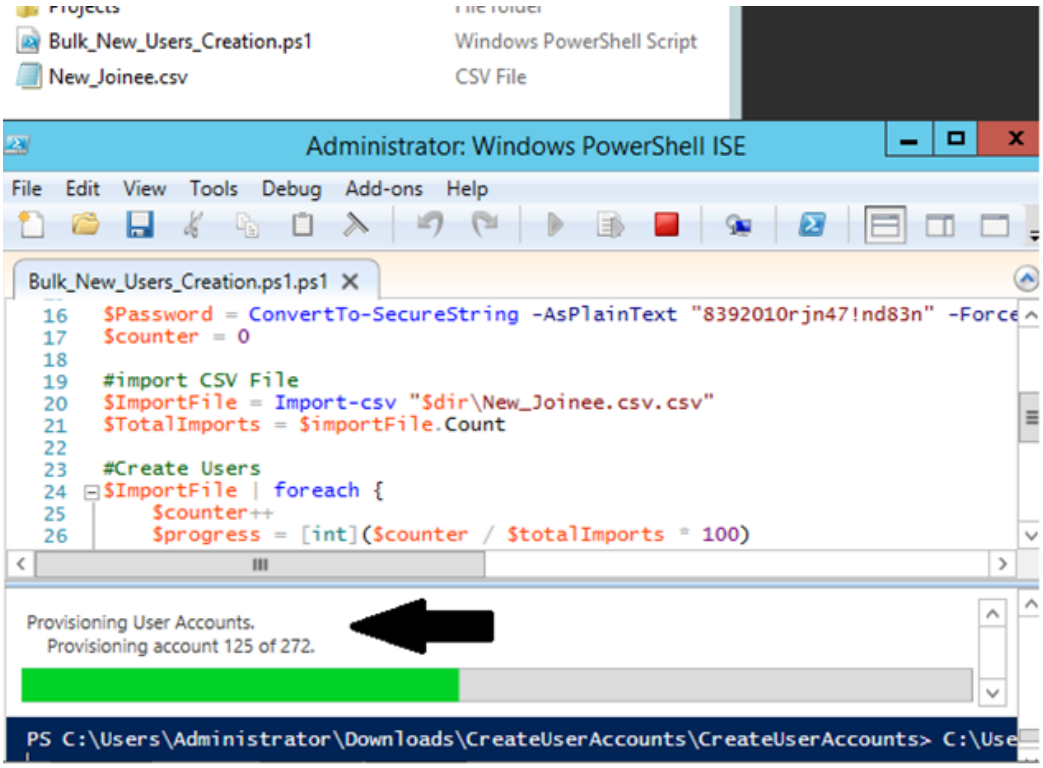
```
-ChangePasswordAtLogon $false
```

```
-PasswordNeverExpires $true
```

Learn about more flags in the Get-Help section of this cmdlet New-ADUser.

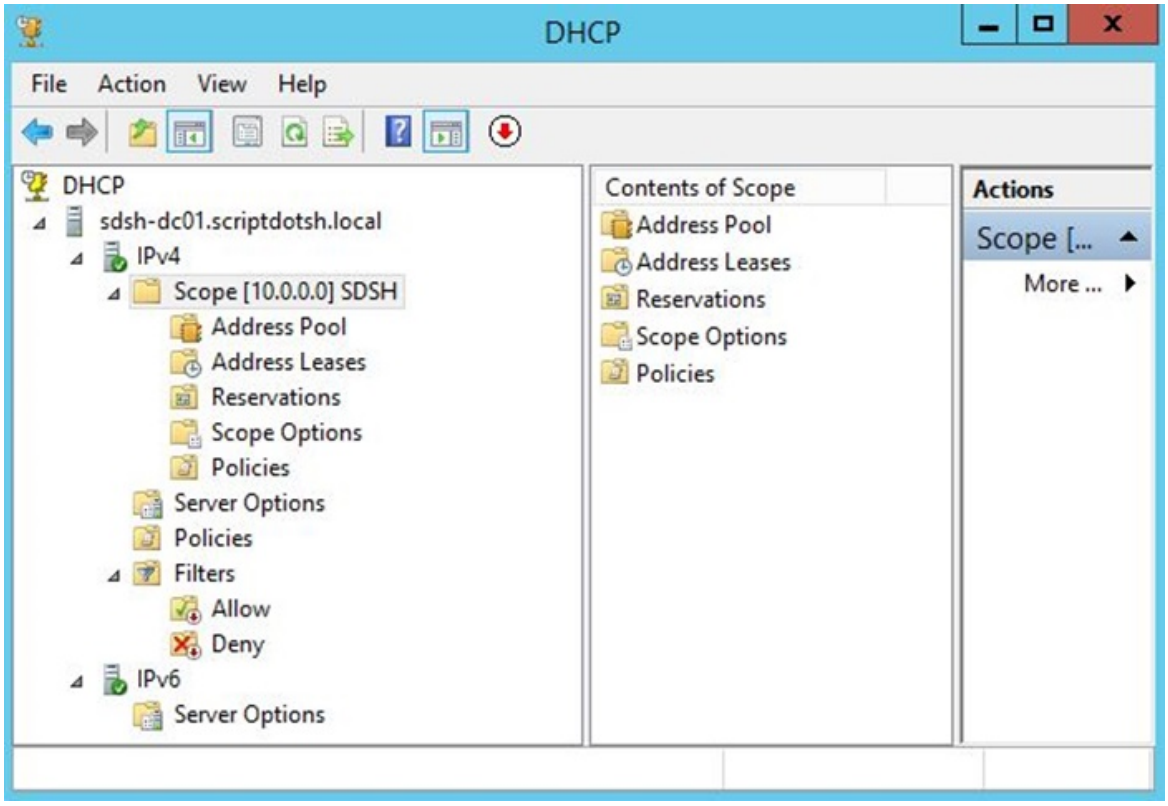
Add users in bulk-

Import details of users from a CSV file using powershell script. When you run this script, it creates your multiple user accounts in the domain. Download the script and csv file from Microsoft's repo by visiting **this link**. See below:



DHCP Server: –

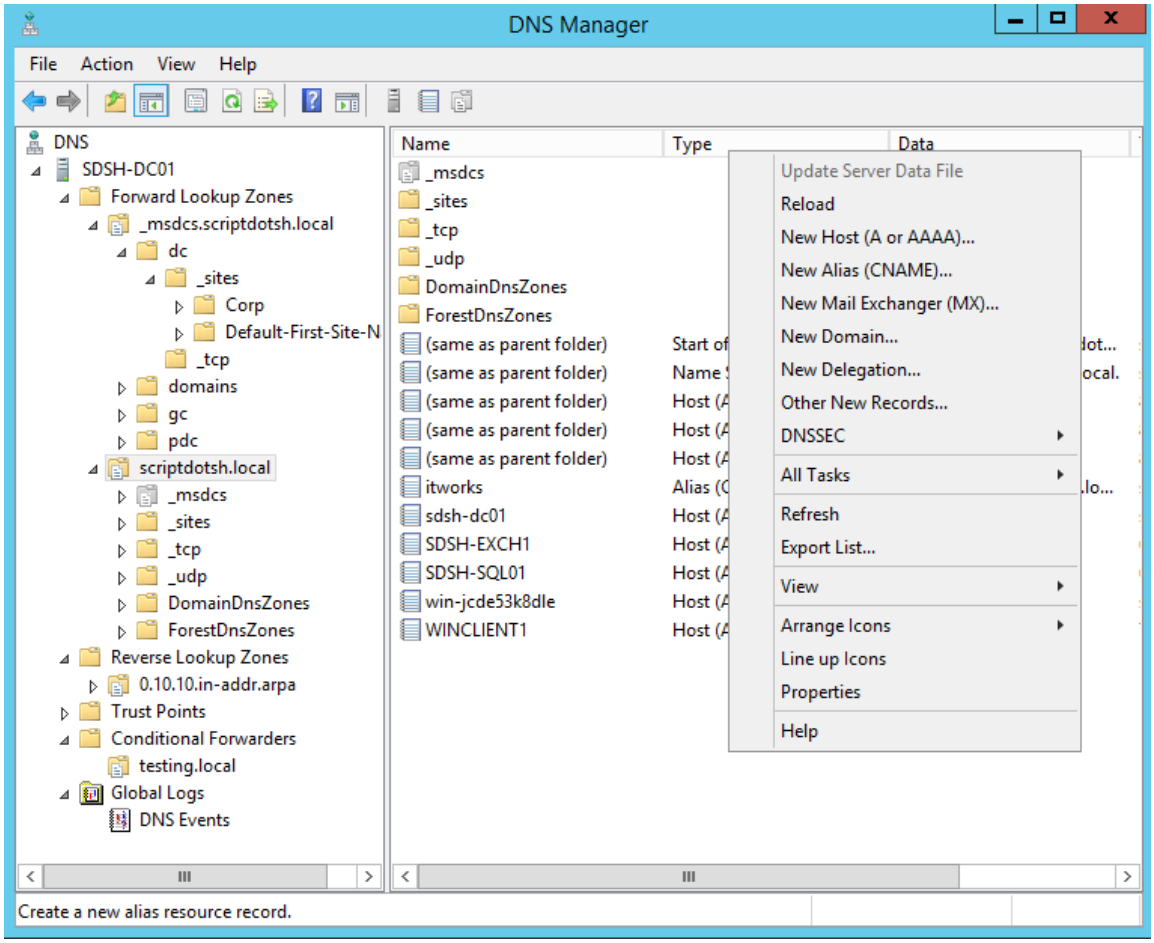
Dynamic Host Configuration Protocol server is required in AD environment to avoid the manual efforts of configuring each computer by entering a static IP and join into domain. If there is a DHCP server in the domain, all client machines get IP Address as well as DNS server information automatically. To install it, just install "DHCP Server" role from server manager. You also get a centralized management console to manage the DHCP clients. To open the console, Type **dhcpmgmt.msc** in RUN.



As our purpose is to setup a small AD environment to perform pentesting, and there are not much client machines, we can also skip DHCP setup and assign IP addresses manually.

AD Integrated DNS Server Setup: –

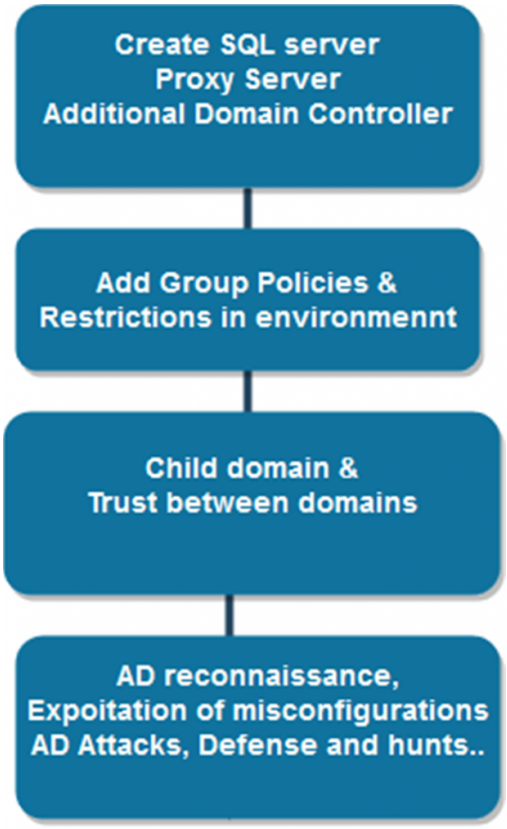
DNS is the primary name resolution service for Active Directory. In the first post, while installing ADDC role in the domain controller, we checked the DNS role also, that installs the DNS server as well on the DC. This role could be installed by visiting the server manager and clicking on “Add Roles and Features” section. Select “DNS”. This will install DNS server role on your Domain Controller and it serves as the DNS server for your domain environment and called as the AD integrated DNS server. A secondary DNS server for load balancing could be added as well. To open the DNS manager, Type **dnsmgmt.msc** in RUN and you’ll get a windows similar like below:



Module flow :

Our environment has grown as below:

In the next part, I'll add few more servers like SQL server, Proxy server with authentication. Create Child Domain and trust between the domains and implement group policies to restrict the environment.



Then next thing is AD recon, exploiting misconfigurations and DC based attacks and hunts using Powershell, WMIC, perform Kerberos attacks, abusing SQL server trust etc.

You're welcome to provide any suggestions. Stay tuned for coming blogs. 🙂

Winsaaf Man

Security Engineer | Security Analytics using #ELK | #Pentesting AD | #ActiveDirectory Attacks | Blogger | Twitter ID is @WinsaafMan

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Tags: Active Directory, Pentesting Active Directory, Windows AD

Written by

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10 COMMENTS

Alexey

November 20, 2018 at 7:33 pm

Hello!
Good tutorials, thank you!
But I think you missed a configuration step: what credentials to use when we join a computer to the domain?

Thanks!

Utkarsh

October 26, 2018 at 11:22 am

Hey, when we will get the 3rd part of this. Reply something.

Thanks.

Winsaaf Man

October 26, 2018 at 10:08 pm

Hi Utkarsh, Thanks for your comment. I'll post the 3rd part tonight. I was on vacation for some time. Sorry for the delay 🙂

Utkarsh Agrawal

November 23, 2018 at 4:47 pm

Glad that you replied. Can I get the Url becuase I am really very very excited to learn AD pentesting. And your blog posts are really helpful. . So send me the link.

Thanks.

Pravat

October 15, 2018 at 7:56 pm

Nice writeup. when can we expect the 3rd installment?

Winsaaf Man

October 26, 2018 at 10:09 pm

Hi Pravat, Thanks for the compliment. I'll post the 3rd part tonight. I was on vacation for some time. Sorry for the delay 🙂

Ali

October 14, 2018 at 3:17 am

Thank you so much. I really enjoyed reading it and the way you explain it very easy and nice! Learn many things and can't wait to see the part 3!

Winsaaf Man

October 26, 2018 at 10:10 pm

Thanks a lot Ali 🙂 Adding more interesting stuff.

rK

September 22, 2018 at 10:58 pm

This is very informative. Way to Go! Keep doing your stuff. Thank You.

Winsaaf Man

October 26, 2018 at 10:11 pm

Thanks rK 🙂

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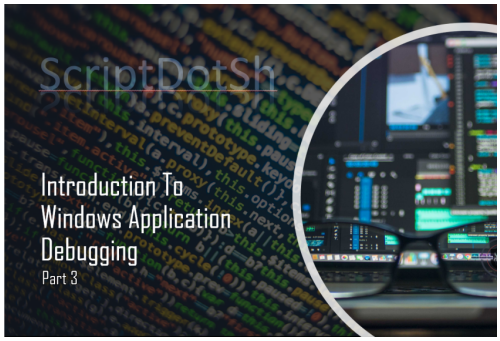

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