

# Installing Active Directory

## Learning Targets

1. Understand the purpose of Active Directory
2. Install Active Directory on a virtual machine
3. Understand the purpose of two directory controllers in a domain
4. Understand and demonstrate replication in a domain

## Success Criteria; Check these off and show me when you have hit them all

Tory Check	You Check	
		Setup ADDC2
		Added AD Role
		Created a new domain in a new forest
		Joined ADDC3 to domain
		Installed AD Role on ADDC3
		Show both DCs in ADDC2
		Take Active Directory Quiz

## Before you start:

1. If you don't have your Server DVD, be sure to have the ISO available on your server.
2. Check your computer name on both of your ADDC servers. If they are some funky name, change them so it's something easy to spell. NO LEET SPEAK.
3. You're going to install Active Directory on your server. That will turn the server into a Domain Controller, or an Active Directory Domain Controller (which is why we named the virtual servers ADDC1 and ADDC2).
4. Read on about Active Directory so you know what you're doing.

Active directory is a directory that contains information about all of the objects in your network. Objects can be users, computers, shared folders, shared printers, organizational units\*, etc. It also contains information about programs, what services are available and where to find them, security access, permissions, etc. In other words, it knows EVERYTHING about the stuff in your domain and controls access to those things.

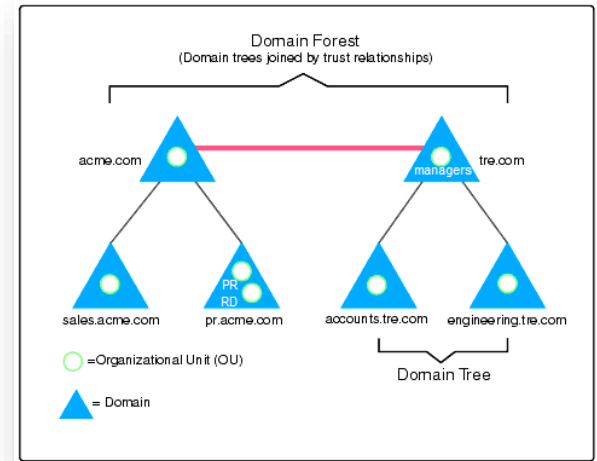
You should always have a MINIMUM of 2 domain controllers in your network. The most obvious reason is because you need a backup in case one goes down or needs to restart. Another reason is for load balancing; if one gets really busy, the other one can take on part of the load. Still another reason is geographical reasons. You may decide to have a very large domain that spans many cities, so having more than one domain controller allows you to have one controller than handles the users in Marysville, another for users in Everett. Now if the controller in Everett goes down, Marysville can take over but if there is a slow link it's going to take longer for them to get logged on.

AD is REALLY powerful. We're going to do the main Active Directory stuff in this class, but we'll only scratch the surface. You can do some super cool stuff with AD! You can actually have a job specializing in Active Directory Services.

The basic building blocks of Active Directory are Domains, Domain Controllers, Trusts, Users, Groups, Forests, Organizational Units, Sites, Replication, and the Global Catalog.

Take a look at the picture labeled Domain Forest. Here we have two forests. A forest is a collection of domains. A domain is a collection of users, organizational units, computers, servers, shares, etc. The difference between a forest and a domain is that a domain shares the same namespace. Notices that on one side all the computers share the domain name acme.com on the other side it's tre.com. A forest does not all have the same namespace but yet with a trust in place, users from acme.com can use things in tre.com and users from tre.com can use things in acme.com. That's called a transitive trust; it goes in both directions. You can also have one way trusts. Users in acme.com can use things in tre.com but users in tre.com can't use things in acme.com.

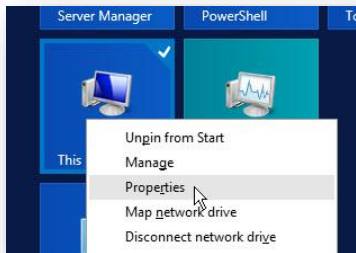
Inside domains you also set up things called organizational units (OUs). They're kind of like folders you use to organize things within a domain. You have lots of ways to organize things, so you might have an OU for Research and Development called RD. The RD department will have users, computers in their department, and probably one or two printers. So you make an RD OU. You might also make a USERS OU and a Computers or maybe Hardware OU (you can do a PRINTERS OU too, but with only one, I wouldn't). You can put users into the Users OU and computers into the computers one or all the hardware into the hardware one, or you can just put everything into one OU, but it's harder to find things that way.



We'll learn more as we go along.

## Directions

1. Log into your server as an administrator.
2. Hyper V Manager.
3. Start your ADDC1 server and log it in. **Check the computer name.** If it is a funky name, rename it a single, easy to spell word.
  - a. Go to the Metro interface
  - b. Right click on this computer and select properties.



1. What is the minimum number of Domain Controllers you should have in one network? \_\_\_\_\_
2. Why?
3. AD DS will require \_\_\_\_\_ to be installed.
4. What do you do if you don't have that?

- c. Click next to computer name and select Change Settings
- d. We'll be using UNC pathnames so you don't want to have to type [\\win-22390ea24](#) when it would be a lot easier to remember [\\minnie](#) and [\\slappy](#) (that's what I named mine). Restart after naming.
- e. Now, ping the other computer (server) by name PING *nameofcomputer* to make sure that you're connected.

5. After you install the role, what do you have to do to make the server a fully functional domain controller?

6. What are three other things AD will install?

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_

7. What is a trust?

8. What is the name of a trust where both domains trust each other? \_\_\_\_\_

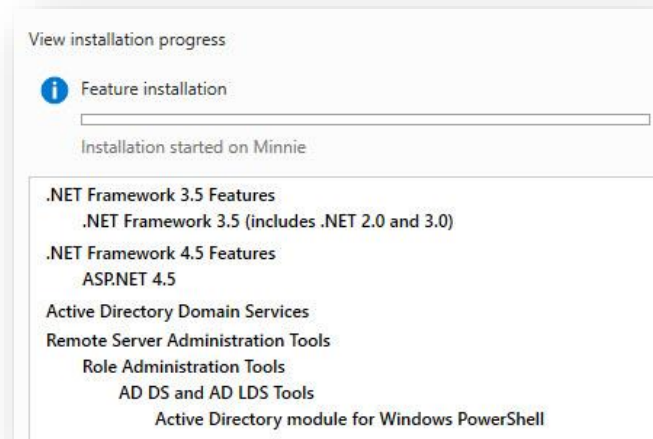
9. What is the name of a trust where one domain allows access, but the other domain doesn't?  
\_\_\_\_\_

10. What is an Organizational Unit? \_\_\_\_\_

11. What four things can go into an OU?

- a. \_\_\_\_\_
- b. \_\_\_\_\_
- c. \_\_\_\_\_
- d. \_\_\_\_\_

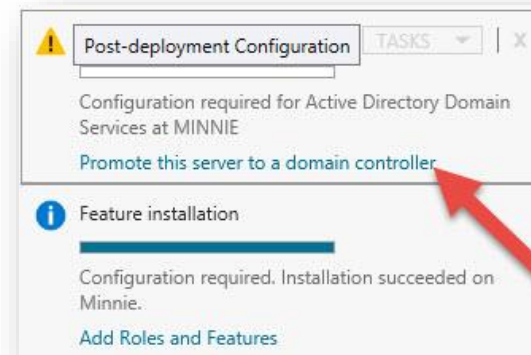
4. **BEFORE YOU CONTINUE, MAKE SURE YOU ARE NOT DOING THIS ON YOUR ORIGINAL SERVER. IT SHOULD BE ON ADDC-1, the first child server you created last unit. If you did NOT do that lab go back and do it.**
5. Let's start with ADDC-1.
6. First, go to the properties of your NIC and make sure you have set a static IP address.
7. Go to your Server Manager and where it says "Configure this local server" click number 2 **Add roles and features**
8. The "Before you begin" window will come up. Click next.
9. Select **Role-based...**
10. We're going to install on the server we're using. Note that you can install on a virtual hard disk. Kinda cool! Selected your server. Click next. It'll pause for a bit.
11. Select **Active Directory Domain Services** (second one down). A window will pop up saying you also have to add some other things. No worries. Add them. (It doesn't really give any other options.) Select Add Features.
12. It will tell you that you have to add the .NET framework, so say **go ahead and add them**.
13. Read the Introduction to Active Directory Domain Services and answer the questions to the right.
14. Select install. It can take awhile to install. If you didn't answer the questions to the right, you can look up the answers online.
15. Click close when it's finished. Make sure it says "successful" under both items you installed.



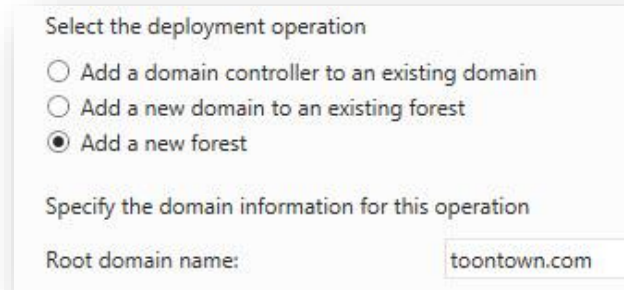
16. When you restart after about 60 seconds of it looking like nothing happened a little yellow triangle with an exclamation point will show up by the tasks flag up top. Click on that and you'll see you have a task. You need to now promote your server to a Directory Controller.



17. Click the flag and select Promote this server to a domain controller.
18. A new box will pop up. This is going to be the first domain controller in our network, so select Add a new forest. A forest is a collection of domains, even if it is only one domain. So you're creating not only a new domain controller, but also a new domain, AND a new forest. Don't you feel all powerful? I know I do. I think my biceps just got a little larger.
19. Choose an awesome name for your domain, but remember, NO LEET SPEAK because if you leet speak it, I will murder you in your sleep. Type it in with .com at the end. Click next.
20. It'll take about a minute before you can type in the password. Use Sno12345 for now. Change the forest functional level to Windows Server 2008 R2. That means you can have a Server 2008 server in your network (which we will do later).



21. You don't have a DNS (Domain Name Server) on your computer so you have to install one. On the next screen it'll say a delegation for this DNS server cannot be created...blah blah. Just click next. You don't need one because you will BE the DNS for your network! Neato poteeto!
22. The next screen will show your Netbios name (in case there are old Windows 98 computers in your domain—very odd to still see that). You can change it to something else if you want to, or just click next.
23. Normally on the next screen you would want to store the database folder, the log files, and even the SYSVOL folder on another hard drive in case your server drive fails. Then all of your data is somewhere else and easier to restore. If you have another drive, click the ... and change it. If not, just click Next.
24. On the next screen it just tells you what you're about to do, just in case you forgot. Click next.
25. Last but not least, and really the most important part. It will usually find some warnings (yield signs) but usually they are not essential to the installation. Scroll down and look for the round check mark. If it says All prerequisite checks passed successfully then go for it! Install!
26. When it's all done, restart and log it in! Then go to ADDC-2. ACCD-1 MUST be open when you're doing this. When you restart it'll make you change your password after you log in (us Sno12345 as the password to log in, remember). Change it to P@ssw0rd.



Select the deployment operation

- Add a domain controller to an existing domain
- Add a new domain to an existing forest
- Add a new forest

Specify the domain information for this operation

Root domain name:



Notice when you restart you now have your domain showing when you log in.

27. Go into your Hyper-V Manager and open ADDC-2.
28. Check the name of your server. If it has the same name as ADDC-1 you must change it (remember we “cloned”, so to speak, the father drive so it might). Do that first and restart it.
29. Add the role of Active Directory using the instructions above.
30. After restart we’re going to promote to a domain controller but this is going to be a new domain controller in an existing domain.
31. Go under the task menu. Select Promote to a Domain Controller.
32. Add a domain controller to an existing domain. Where it says domain either select it or type it in. The name of my domain is **toontown.com**
33. Then for credentials you have to supply the credentials of the domain controller, NOT of your server you’re currently using.
  - a. Click change.
  - b. Type the name of your domain then a \ then administrator then put the password (which should be P@ssw0rd if you logged into ADDC-1 and changed your password like I told you to, otherwise it might be Sno12345).
34. Click Next.
35. If a domain controller cannot be conacted:
  - a. Make sure ADDC-1 is on and logged in.
  - b. Make sure ADDC-1 is set as the first DNS server in the properties of the NIC of your ADDC-2
  - c. Make sure you have the right domain name.
  - d. Make sure you have the right password.
  - e. Try removing .com from the domain name
36. It’s almost ALWAYS b.

### Credentials for deployment operation

Supply credentials for the deployment operation

37. On the next screen it will say “Specify the domain controller capabilities and site information.
38. Put in the password and ALSO check Domain Name System (DNS) server. Next.
39. On the next page, deselect DNS delegation. Next.
40. On the next page select Replicate from: your domain controller (in my case I selected Goofy.toontown.com which is the Fully Qualified Domain Name (FQDN) for my other server.
41. Once you get past this (it’s almost ALWAYS b above) the rest goes pretty easy by following the same directions as before.

## Questions

Go online and look up the following information:

1. What is "Active Directory"?	
2. What is the Forest Functional Level and why did you choose it? (Hint—the answer isn't "Because you told me to.")	
3. What does it mean when the pre-requisite check tells you that it can't find a delegation for the DNS server?	
4. What kind of "objects" can you add to Active Directory?	
5. What is a Domain?	
6. What is a Forest?	
7. Can you have a forest within a domain?	
8. Can you have multiple domains within a forest?	
9. What's a user?	
10. What is a group?	
11. What is an organizational unit?	

12. What is a computer in the context of Active Directory?	
13. How do you make a computer a part of a domain?	
14. What is a Domain Server in the context of Active Directory?	
15. Once AD is fully installed, (oh yay...mine is restarting) you will see three or four new programs under Administrative Programs. List them:	