How to Create an Active Directory Domain and Add Workstations

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Reference Video:

Joining a HOME LAB Domain (Active Directory #01)

https://www.youtube.com/watch?v=19pNfFnBfI8&list=PL1H1sBF1VAKVoU6Q2u7BBGPsnkn-rajlp&index=2

Requirements:

Virtual Machines and Notes from Video # 00

Get Started:

1. Create a Domain Controller VM
    a. In VMware Workstation Pro → Right click the Base Windows Server (created as template) → Clone it to create a new server
        i. Manage → Clone → An existing snapshot (powered off only) → select the snapshot "Fresh Install" → Create a linked clone → Select a name "[insert name here]"
        ii. Name = XYZ DC 1
    b. Click next through the setup steps until complete
        i. Leave defaults or make changes as needed
    c. Power on new server
    d. Login with the Administrator account created during the template setup
    e. Install VMware Tools on server
        i. Reason:
            a. Allows for copying and pasting between host and VM
        ii. Right Click VMWare Host Menu → Install VMWare Tools
        iii. From the command line
            a. Change to D drive → cd d:
            b. Check drive location for setup64 installer → dir
            c. Run installer → ./setup64.exe
            d. Note: The install prompt may appear behind the command window
        iv. Once installed, the system will ask for confirmation to reboot
        v. Login to the server again with the administrator account
        vi. Check that copy and paste works:
            a. From VM to Host
            b. From Host to VM

f. Create a Snapshot
    i. Snapshot → Take Snapshot
    ii. Name → Fresh Install (VMWare Tools)
    iii. Note: A clone does not automatically have a snapshot created

2. Create a Management Client VM

a. In VMware Workstation Pro → Right click the Base Workstation 11 (created as template) → Clone it to create a new workstation
    i. Manage → Clone → An existing snapshot (powered off only) → select the snapshot "Fresh Install" → Create a linked clone → Select a name "[insert name here]"
    ii. Name = XYZ Management Client
b. Click next through the setup steps until complete
    i. Leave defaults or make changes as needed
c. Power on new workstation
d. Login with the pre-existing "local_admin" account (part of the snapshot / clone)

3. Configure PowerShell Remoting

a. On XYZ DC 1:
    i. Check IP Address
        a. Terminal Command → ipconfig
        b. Note the IP address for later use
b. On the Management Client Workstation
    i. Start the WinRM Service:
        a. Terminal Command → Start-Service WinRM
    ii. Add XYZ DC 1 to trusted hosts so the management client can access it with PowerShell
        a. Terminal Command → Set-Item WSMan:\localhost\Client\TrustedHosts -Value [insert IP of XYZ DC 1]
        b. When prompted, type "Y" for Yes to confirm changes
    iii. Create a new PSSession
        a. Terminal Command → New-PSSession –ComputerName [Insert IP of XYZ DC 1] –credential (get-credential)
        b. When prompted, enter credentials for the administrator account of XYZ DC 1
    iv. Enter the newly created session
        a. Terminal Command → Enter-PSSession [insert session id]
            i. Note: ID likely equal to 1
        b. Confirm successful entry into the session:
            i. IP address of DC 1 will show in the command prompt
            ii. Terminal Command → "whomai"
                1. Should show the hostname of DC 1

4. Configure Active Directory

Reference link from video:

https://xpertstec.com/how-to-install-active-directory-windows-server-core-2022/

a. On XYZ DC 1
    i. Change Hostname
        a. Terminal Command → Sconfig
        b. Select option 2 for computer name → rename to "DC1"
        c. The system will require a reboot
    ii. Check Default Gateway
        a. Terminal Command → ipconfig /all
        b. Note the IP address of the default gateway
    iii. Change IP Address
        a. Terminal Command → Sconfig
        b. Select option "2" for Network Settings
        c. Select option "1" for Network adapter Address
        d. Type "S" for Static IP Address creation
        e. Enter the static IP
            i. Any Class C address available on your network
            ii. Video uses – 192.168.111.155
        f. Leave the subnet mask blank to keep default
        g. Enter Default Gateway gathered from above
        h. Click enter to save change
b. On the XYZ Management Client
    i. Add the new static IP address to the trusted hosts list
        a. Terminal Command → Set-Item WSMan:\localhost\Client\TrustedHosts -Value [insert IP of XYZ DC 1]
    ii. Renter a PSSession to DC1
        a. Terminal Command → Enter-PSSession [Insert IP of XYZ DC 1] –credential (get-credential)
        b. When prompted, enter credentials for the administrator account of DC 1
c. On XYZ DC 1
    i. Change DNS Server Configuration
        a. Terminal Command → Sconfig
        b. Select option "2" for Network Setting
        c. Select option "2" for Set DNS Server
        d. Change DNS IP to the IP of the Server itself (192.168.111.155)
            i. Because domain controllers also act as DNS servers
    ii. Install Active Directory Domain Services
        a. Terminal Command → Install-WindowsFeature AD-Domain-Services –IncludeManagmentTools

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Here at roughly 18:20 into the video, John recommends creating notes on this series.

John's notetaking process is omitted from these notes but the video explains:

- How to install Chocolatey – Package Manager
  - Get install command from website
  - Run command to install on XYZ DC 1
- Use Chocolatey to install Git
- Creating a new repository in GitHub
- Generate SSH Key for connecting to GitHub
- Use Chocolatey to install Visual Studio Code
- Taking Notes in VS Code
- Commit to GitHub from command line
- Check GitHub website to ensure commits worked

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d. On XYZ DC 1…(again)
   i. Configure Active Directory Windows Server 2022 Core
   ii. Enter the below PowerShell commands in Terminal:
      a. import-Module ADDSDeployment
      b. install-ADDSForest
      c. Select a domain name = "XYZ.com"
      d. Select and note a safe mode password
      e. Confirm changes with "Y" for yes or "A" for yes to all
      f. Confirm the reboot
   iii. When the computer powers on:
      a. Login to the XYZ/Administrator account
         i. Same password as prior for Administrator account on DC 1
   iv. Reconfigure DNS address
      a. Note: Installing AD may revert the previously configured DNS IP.
      b. Use the following PowerShell commands in Terminal:
         i. Get-DNSClientServerAddress
            1. To check the interface showing with a loopback address (127.0.0.1)
            2. Note the interface ID.
         ii. Set-DNSClientServerAddress –InterfaceIndex [insert index number] –ServerAddresses [Insert IP of DC 1]
            1. Since DC itself will also be the DNS server
         iii. Get-DNSClientServerAddress
            1. To check the interface now showing the correct / newly set IP
   v. SUCCESS!
      a. Active Directory is now configured
   vi. Shutdown the host
   vii. Create a snapshot:

a. Snapshot → Take Snapshot
b. Name → XYZ Domain Configured

viii. Important:
ix. When the snapshot is complete, Power on DC 1.
x. If not on, the next step will not work.
a. Reason: This is the only DC and DNS server in the domain so far.

5. Create a New Workstation and Join Domain:

a. In VMware Workstation Pro → Right click the Base Workstation 11 created as template → Clone it to create a new workstation
i. Manage → Clone → An existing snapshot (powered off only) → select the snapshot "Fresh Install" → Create a linked clone → Select a name "[insert name here]"
ii. Name = XYZ Workstation 01
b. Click next through the setup steps until complete
i. Leave defaults or make changes as needed
c. Power on new workstation
d. Login with the pre-existing local_admin account (part of the snapshot / clone)
e. The computer will load to the desktop screen
f. Change DNS Address
i. Use the following PowerShell commands in Terminal:
a. Get-DNSClientServerAddress
i. To check the interface for your network connection
b. Set-DNSClientServerAddress –InterfaceIndex [insert index number] –ServerAddresses [Insert IP of DC 1]
i. Since DC will be the DNS server
c. Get-DNSClientServerAddress
i. To check the interface now showing the correct / newly set IP
g. 2 Ways to add computer to domain
i. 1st way:
a. Window Search → Type "join a domain"
b. Select "access work or school"
c. Then Select "Add work or school account"
d. Enter the domain name in the join domain prompt
ii. 2nd way
a. Reference article from video: https://petri.com/add-computer-to-domain-powershell/
b. Open PowerShell
c. Run command: Add-Computer –DomainName xyz.com –Credential xyz\Adminstrator –Force –Restart
i. You will be prompted to add the password.

h. Success!

a. The first workstation has been added to the domain!

i. After the workstation reboots, power the machine off.

j. Take a snapshot of this system to preserve its state
    i. Create a snapshot:
        a. Snapshot → Take Snapshot
        b. Name → XYZ Workstation – Doman Joined