

- 2. 6. Applications -

- INDEX -

- 2. 6. 1. DHCP Server
- 2. 6. 2. DNS Server
- 2. 6. 3. Web Server (IIS)
- 2. 6. 4. FTP Server (Web Server, IIS)
- 2. 6. 5. Windows Server Backup

- Exercises -

You are going to create a new Google Document inside the "2. Windows Server" folder of your Google Drive, named:

"2. 6. Applications - Apellidos, Nombre"

being "Apellidos, Nombre" your Last Name and Name.

Inside this Google Document you are going to copy and answer all the "Exercises" of this sub-unit.

- 2. 6. 1. DHCP Server -

1. Login to your Windows Server with the "Administrator" user.
2. Firstly, you need to install the "DHCP Server" role service in Windows Server.
3. Open the "Server Manager" and select "Dashboard" on the left column -> Welcome to server manager -> Quick start -> 1 Configure this local server -> 2 Add roles and features.

4. On the "Add Roles and Features Wizard" window -> Next -> Next -> Next -> "Server Roles" -> Select "DHCP Server" -> "Add Features" -> Next -> Next -> Next -> Install.
5. On the Server Manager, click on the "yellow warning" located in the flag icon: click on "Complete DHCP configuration" -> Next -> Commit -> Close.
6. At this point you can open the "DHCP Server" from "Server Manager" -> "Tools" -> "DHCP".
7. On the left panel -> Select "DHCP" -> Your Server -> Right click on "IPv4" -> "New scope..." -> Next -> Name: "LAN 1DAM" -> Next -> "Start IP Address": 192.168.0.200 -> "End IP Address": 192.168.0.209 -> Next -> Next -> "Lease Duration" -> "Days": 30 -> Next -> "Configure DHCP Options" -> "Yes, I want to configure these options now" -> Next -> "Router (Default Gateway)": 192.168.0.100 (or the IP of the router or default gateway in your company) -> Add -> Next -> Next -> Next -> "Yes, I want to activate this scope now" -> Next -> Finish.
8. Go to your Windows 10 (client) virtual machine.
9. Login into Windows 10 (into your domain) with the "Administrator" of the Domain.
10. Go to the TCP/IP settings and select "Obtain an IP address automatically" in order to use DHCP in this Windows 10 (client) virtual machine.
11. Sign out from Windows 10.
12. Login into Windows 10 (into your domain) with one user of the "HR" department.
13. Open "CMD" and write "ipconfig".
14. The IP address of the Windows 10 client should be one of the IPs that you have set up in the DHCP scope: from 192.168.0.200 to 192.168.0.209.
15. Sign out from Windows 10.
16. Login to your Windows Server with the "Administrator" user.
17. Open the "DHCP Server" from "Server Manager" -> "Tools" -> "DHCP".
18. On the left panel -> Select "DHCP" -> Your Server -> "IPv4" -> "Your Scope" -> Right click on "Deactivate".
19. This way your DHCP Server will no longer be activated.

NOTE: Be careful if there are more than 1 DHCP servers in your LAN. Maybe your Windows 10 client is not using your DHCP server, but another student's DHCP server.

- 2. 6. 2. DNS Server -

1. Login to your Windows Server with the "Administrator" user.
2. You have the "DNS Server" already installed, because it was needed when you installed "Active Directory Domain Services".
3. You can open the "DNS Server" from "Server Manager" -> "Tools" -> "DNS".

4. You can create a conditional forwarder so that this forwarder has the property to query other DNS servers outside your domain. In order to do this -> Left panel -> Right click on "Conditional Forwarders" -> "New Conditional Forwarder..." -> "DNS Domain:" -> Write "Google" -> Below, click on "<Click here to add an IP Address or DNS Name>" write: "8.8.8.8" -> "Enter" key -> "OK".
5. On the left panel -> Select "DNS" -> Your Server -> Expand -> Right click on "Forward lookup zones" -> "New zone..." -> Next -> Next -> Next -> "Zone name:" -> "**your-name.com**", being "**your-name**" your real first name -> Next -> Next ->
6. Again in the central panel of the "DNS", double click in the new DNS zone that you have created: "**your-name.com**".
7. On the central panel, right click -> "New Host (A or AAAA)..." -> "Name" (leave it blank) -> "IP address:" 192.168.0.XY (being that the IP of your Windows Server)-> "Add host" -> "Done".
8. To test this DNS zone that you have created, login into Windows 10 (into your domain) with one user of the "HR" department.
9. Open "CMD".
10. Write "ping **your-name.com**", being "**your-name**" your real first name.
11. The result of the ping should translate the domain name ("**your-name.com**") to your Windows Server's IP address.

- 2. 6. 3. Web Server (IIS) -

1. Login to your Windows Server with the "Administrator" user.
2. Firstly, you need to install the "Web Server (IIS)" role service in Windows Server.
3. Open the "Server Manager" and select "Dashboard" on the left column -> Welcome to server manager -> Quick start -> 1 Configure this local server -> 2 Add roles and features.
4. On the "Add Roles and Features Wizard" window -> Next -> Next -> Next -> "Server Roles" -> Select "Web Server (IIS)" -> Click on the arrow and also select "FTP Server" -> "Add Features" -> Next -> Next -> Next -> Install.
5. At this point you can open the "Internet Information Services (IIS) Manager" from "Server Manager" -> "Tools" -> "Internet Information Services (IIS) Manager".
6. You can perform a simple test by opening up a web browser and browsing to the server that we have installed IIS (Internet Information Server) on. Open Internet Explorer and in the URL write: "localhost". You should see the default IIS page.
7. The "WWW Root" folder of your IIS Web Server is located in the following folder -> C:\inetpub\wwwroot
8. Open the folder C:\inetpub\wwwroot
9. Create a file named "index.htm".
10. Edit with Notepad the file "index.htm" and create a small web page.
11. Go to your Windows 10 (client) virtual machine.

12. Open Google Chrome and write the following URL -> `http://192.168.0.XY` , being that the IP of your Windows Server.
13. You should see the "index.htm" of the small web page that you have created.
14. Now you are going to copy one of your web projects (with more than one .HTMLfile) from your real Windows 10 client to your Windows Server.
15. Go to your Windows Server and copy that web project to the folder -> `C:\inetpub\wwwroot`
16. Modify the "index.htm" file so now it is the "homepage" of your web project.
17. Open Google Chrome and write the following URL -> `http://192.168.0.XY` , being that the IP of your Windows Server.
18. You should see the "index.htm" of the web project that you have copied.
19. Click on some links of the "index.htm" and check that the destination web pages are shown correctly in Google Chrome.
20. Now you are going to use the domain that you have created in the DNS Server in the previous exercise.
21. Go to your Windows 10 (client) virtual machine.
22. Go to: Settings -> Network & Internet -> Proxy -> Scroll down and check: "Don't use the proxy server for local (intranet) addresses".
23. In "Use the proxy server except for address that start with the following entries" write: "**your-name.com**", the domain that you have created in the DNS Server in the previous exercise.
24. Open Google Chrome and write the following URL -> `http://your-name.com`
25. You should see the "index.htm" of the web project that you have copied.
26. Click on some links of the "index.htm" and check that the destination web pages are shown correctly in Google Chrome.
27. Now you have a DNS Server and a IIS Web Server working on your Windows Server.

- 2. 6. 4. FTP Server (Web Server, IIS) -

1. Login to your Windows Server with the "Administrator" user.
2. Go to File Explorer and open the folder `C:\inetpub\ftproot`
3. Create a file name "ftproot.txt" inside this folder `C:\inetpub\ftproot`
4. Create a folder named "Downloads".
5. Go to File Explorer and right click on the folder `C:\inetpub\ftproot\Downloads` -> "Security" tab -> Check that in this folder the "Users" group has "Read" NTFS permissions.
6. Create a file name "downloads.txt" inside this folder `C:\inetpub\ftproot\Downloads`
7. Create another folder named "Uploads".
8. Create a file name "uploads.txt" inside this folder `C:\inetpub\ftproot\Uploads`

9. Go to File Explorer and right click on the folder C:\inetpub\ftproot\Uploads -> "Security" tab -> "Edit.." button -> Select "Users" -> In the "Allow" column check "Full control" -> "OK" -> "OK".
10. Firstly, you need to install the "FTP Server" role service in Windows Server.
11. Open the "Server Manager" and select "Dashboard" on the left column -> Welcome to server manager -> Quick start -> 1 Configure this local server -> 2 Add roles and features.
12. On the "Add Roles and Features Wizard" window -> Next -> Next -> Next -> On the left select "Web Server Role (IIS)" -> "Role Services" -> On the central pane select "FTP Server" and "FTP Service" -> Next -> "Add Features" -> Next -> Next -> Next -> Install.
13. At this point you can open the FTP Server (that is part of the IIS Web Server) from "Server Manager" -> "Tools" -> "Internet Information Services (IIS) Manager".
14. On the left panel, select your Windows Server.
15. On the central panel, you will see a "FTP" section where you can manage all the settings of the FTP Server.
16. On the left panel, select your Windows Server -> Right click on "Sites" -> "Add FTP Site" -> "FTP site name:" write "Your Name FTP Server", being "Your Name" your real first name -> "Content Directory – Physical path:" select the "..." button and choose the folder C:\inetpub\ftproot -> "Next" -> "SSL" choose "No SSL" -> "Next" -> Authentication: Check "Basic" -> Authorization: Allow acces to: "All users" -> Permissions: Check "Read" and check "Write" -> "Finish".
17. Go to your real Windows 10 client.
18. Open FileZilla client.
19. On "Servidor" write the IP of your Windows Server.
20. Try to connect with no user (with the "anonymous" user): you should not have permissions to access your FTP Server.
21. Try to connect with a user (and his/her password) of your Domain (Active Directory): you should have permissions to access your FTP Server.
22. In the "FTP root" folder (C:\inetpub\ftproot in your Windows Server) you should have READ permissions (not WRITE) in your FTP Server. Try to download the "ftproot.txt" file inside the "FTP root" folder: you should be able to do so. Try to upload a local file to the "FTP root" folder: you should not be able to do so.
23. In the "Downloads" folder (C:\inetpub\ftproot\Downloads in your Windows Server) you should have READ permissions (not WRITE) in your FTP Server. Try to download the "downloads.txt" file inside the "Downloads" folder: you should be able to do so. Try to upload a local file to the "Downloads" folder: you should not be able to do so.
24. In the "Uploads" folder (C:\inetpub\ftproot\Uploads in your Windows Server) you should have READ permissions and WRITE permissions in your FTP Server. Try to download the "uploads.txt" file inside the "Uploads" folder: you should be able to do so. Try to upload a local file to the Uploads" folder: you should be able to do so.

- 2. 6. 5. Windows Server Backup -

1. Login to your Windows Server with the "Administrator" user.
2. Firstly, you need to install the "Windows Server Backup" role service in Windows Server.
3. Open the "Server Manager" and select "Dashboard" on the left column -> Welcome to server manager -> Quick start -> 1 Configure this local server -> 2 Add roles and features.
4. On the "Add Roles and Features Wizard" window -> Next -> Next -> Next -> "Server Roles" -> On the left panel select "Features" -> On the central panel, select "Windows Server Backup" -> "Add Features" -> Next -> Next -> Next -> Install.
5. At this point you can open the "Windows Server Backup" from "Server Manager" -> "Tools" -> "Windows Server Backup".
6. Check the capacity of your Windows Server's hard drive.
7. Shut down your Windows Server.
8. Add a new virtual hard drive of the same capacity of your Windows Server's hard drive.
9. Start your Windows Server and login with the "Administrator" user.
10. Go to "Server Manager" -> "Tools" -> "Computer Management".
11. On the left panel -> Computer Management -> Storage -> Disk Management -> You will get a window saying "Initialize Disk" -> "MBR" -> "OK" -> Select the new new virtual hard drive (black color area) -> Right click -> New Simple Volume -> Next -> Next -> Next -> File system: "NTFS" -> Volume label: "BACKUP" -> Next -> Finish.
12. Open "File Explorer" and check that the new virtual hard drive is working properly.
13. Go to "Server Manager" -> "Tools" -> "Windows Server Backup".
14. On the left panel -> Windows Server Backup (Local) -> Right click on "Local Backup" -> "Backup Once..." -> Different Options -> Next -> Custom -> Next -> "Add Items" button -> Select everything except "BACKUP" (the new virtual hard drive): "Bare metal recovery", "System state", "System reserved", "C:" -> OK -> Next -> Local drives -> Backup destination: "BACKUP" (the new virtual hard drive) -> Next -> Backup.
15. Wait for the backup to be finished.
16. Go to "File Explorer" -> "This PC" -> "BACKUP" drive -> Check that the backup has been stored there inside a folder named "WindowsImageBackup".