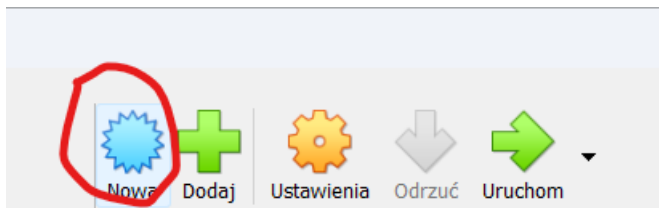


1 Install a **Windows Server 2016** operating system or import an OVA.



Name and Operating System

Nazwa: ✓

Folder: ▼

ISO Image: ▼

Edition: ▼

Typ: ▼

Wersja: ▼

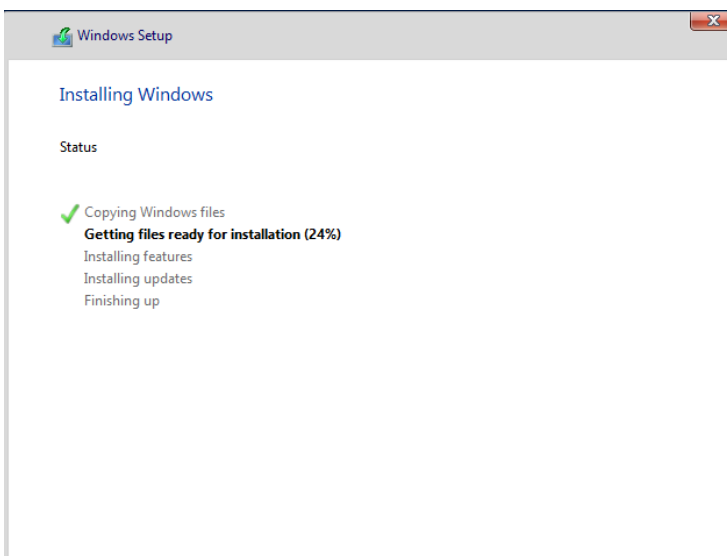
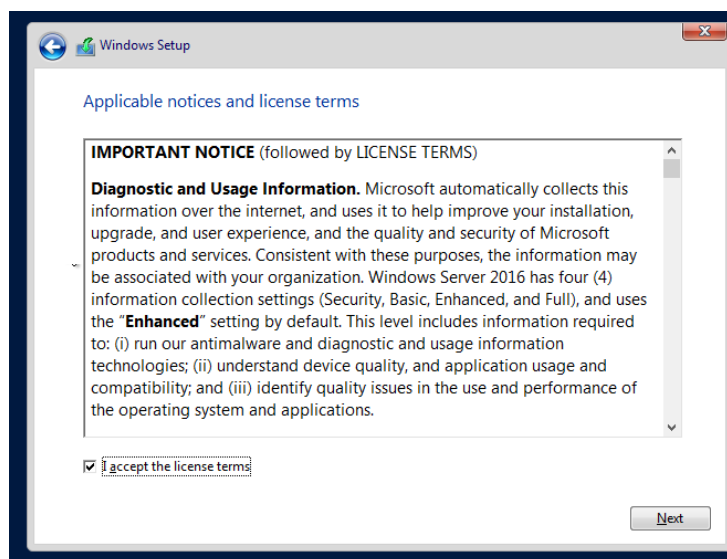
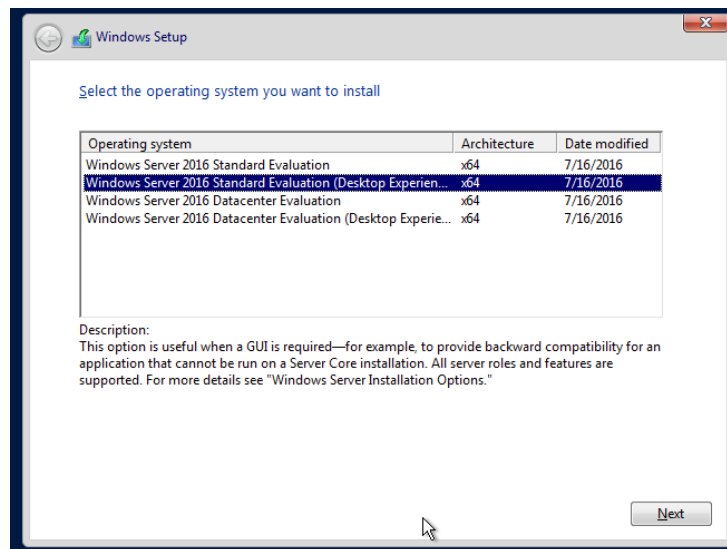
☐ Skip Unattended Installation

Hardware

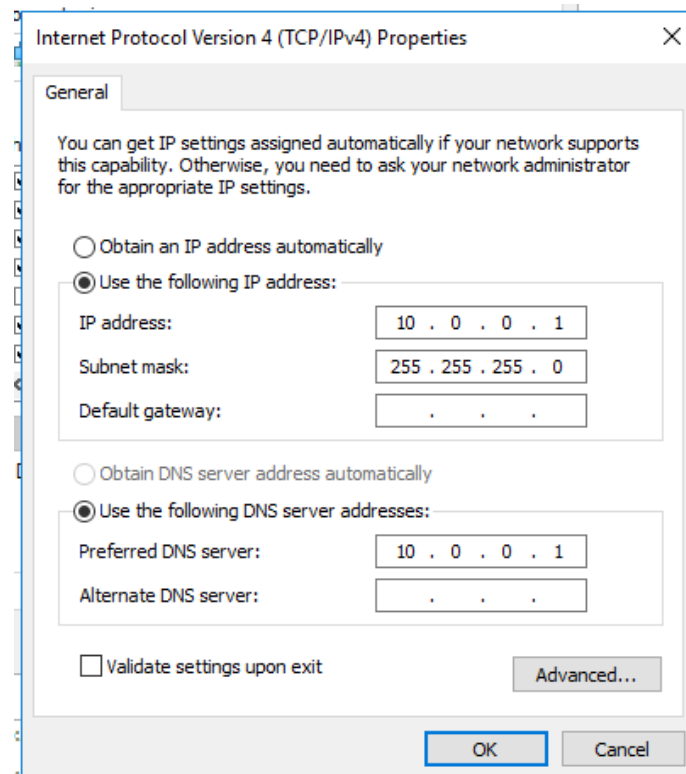
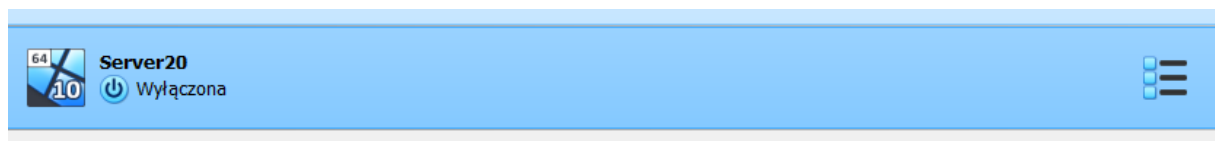
RAM: MB

Processors: CPU





2 Set the name of the Windows server as "Server20".



Computer name	Server20
Workgroup	WORKGROUP
Windows Firewall	Public: On
Remote management	Enabled
Remote Desktop	Disabled
NIC Teaming	Disabled
Ethernet	10.0.0.1, IPv6 enabled
Operating system version	Microsoft Windows Server 2016 Standard Evaluation
Hardware information	innotek GmbH VirtualBox

3 Install Active Directory services on the machine.

Add Roles and Features Wizard

Select installation type

DESTINATION SERVER
Server20

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

Select the installation type. You can install roles and features on a running physical computer or virtual machine, or on an offline virtual hard disk (VHD).

☒ **Role-based or feature-based installation**
Configure a single server by adding roles, role services, and features.

☐ **Remote Desktop Services installation**
Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.

< Previous

Next >

Install

Cancel

Add Roles and Features Wizard

Before you begin

DESTINATION SERVER
Server20

Before You Begin

Installation Type

Server Selection

Server Roles

Features

Confirmation

Results

This wizard helps you install roles, role services, or features. You determine which roles, role services, or features to install based on the computing needs of your organization, such as sharing documents, or hosting a website.

To remove roles, role services, or features:
[Start the Remove Roles and Features Wizard](#)

Before you continue, verify that the following tasks have been completed:

- The Administrator account has a strong password
- Network settings, such as static IP addresses, are configured
- The most current security updates from Windows Update are installed

If you must verify that any of the preceding prerequisites have been completed, close the wizard, complete the steps, and then run the wizard again.

To continue, click Next.

☒ Skip this page by default

< Previous

Next >

Install

Cancel

Add Roles and Features Wizard

Select destination server

DESTINATION SERVER
Server20

Before You Begin

Installation Type

Server Selection

Server Roles

Features

AD DS

Confirmation

Results

Select a server or a virtual hard disk on which to install roles and features.

☒ Select a server from the server pool

☐ Select a virtual hard disk

Server Pool

Filter:

Name	IP Address	Operating System
Server20	10.0.0.1	Microsoft Windows Server 2016 Standard Evaluation

1 Computer(s) found

This page shows servers that are running Windows Server 2012 or a newer release of Windows Server, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.

< Previous

Next >

Install

Cancel

Add Roles and Features Wizard

Select server roles

DESTINATION SERVER
Server20

Before You Begin
Installation Type
Server Selection
Server Roles
Features
AD DS
Confirmation
Results

Select one or more roles to install on the selected server.

Roles

☐ Active Directory Certificate Services

☒ Active Directory Domain Services

☐ Active Directory Federation Services

☐ Active Directory Lightweight Directory Services

☐ Active Directory Rights Management Services

☐ Device Health Attestation

☐ DHCP Server

☐ DNS Server

☐ Fax Server

☒ File and Storage Services (1 of 12 installed)

☐ Host Guardian Service

☐ Hyper-V

☐ MultiPoint Services

☐ Network Policy and Access Services

☐ Print and Document Services

☐ Remote Access

☐ Remote Desktop Services

☐ Volume Activation Services

☐ Web Server (IIS)

☐ Windows Deployment Services

Description

Active Directory Domain Services (AD DS) stores information about objects on the network and makes this information available to users and network administrators. AD DS uses domain controllers to give network users access to permitted resources anywhere on the network through a single logon process.

< Previous

Next >

Install

Cancel

Add Roles and Features Wizard

Select features

DESTINATION SERVER
Server20

Before You Begin
Installation Type
Server Selection
Server Roles
Features
AD DS
Confirmation
Results

Select one or more features to install on the selected server.

Features

☐ .NET Framework 3.5 Features

☒ .NET Framework 4.6 Features (2 of 7 installed)

☐ Background Intelligent Transfer Service (BITS)

☐ BitLocker Drive Encryption

☐ BitLocker Network Unlock

☐ BranchCache

☐ Client for NFS

☐ Containers

☐ Data Center Bridging

☐ Direct Play

☐ Enhanced Storage

☐ Failover Clustering

☒ Group Policy Management

☐ I/O Quality of Service

☐ IIS Hostable Web Core

☐ Internet Printing Client

☐ IP Address Management (IPAM) Server

☐ iSNS Server service

☐ LPR Port Monitor

Description

.NET Framework 3.5 combines the power of the .NET Framework 2.0 APIs with new technologies for building applications that offer appealing user interfaces, protect your customers' personal identity information, enable seamless and secure communication, and provide the ability to model a range of business processes.

< Previous

Next >

Install

Cancel

Add Roles and Features Wizard

DESTINATION SERVER
Server20

Confirm installation selections

Before You Begin

Installation Type

Server Selection

Server Roles

Features

AD DS

Confirmation

Results

To install the following roles, role services, or features on selected server, click Install.

☐ Restart the destination server automatically if required

Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.

Active Directory Domain Services

Group Policy Management

Remote Server Administration Tools

Role Administration Tools

AD DS and AD LDS Tools

Active Directory module for Windows PowerShell

AD DS Tools

Active Directory Administrative Center

AD DS Snap-Ins and Command-Line Tools

[Export configuration settings](#)
[Specify an alternate source path](#)

< Previous

Next >

Install

Cancel

Add Roles and Features Wizard

DESTINATION SERVER
Server20

Installation progress

Before You Begin

Installation Type

Server Selection

Server Roles

Features

AD DS

Confirmation

Results

View installation progress

1 Feature installation

Installation started on Server20

Active Directory Domain Services

Group Policy Management

Remote Server Administration Tools

Role Administration Tools


AD DS and AD LDS Tools

Active Directory module for Windows PowerShell

AD DS Tools

Active Directory Administrative Center

AD DS Snap-Ins and Command-Line Tools

 You can close this wizard without interrupting running tasks. View task progress or open this page again by clicking Notifications in the command bar, and then Task Details.

[Export configuration settings](#)

< Previous

Next >

Close

Cancel

4 Promote the server to a domain controller.

Active Directory Domain Services Configuration Wizard

Deployment Configuration

TARGET SERVER
Server20

Deployment Configuration

Domain Controller Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

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:

[More about deployment configurations](#)

< Previous Next > Install Cancel

Active Directory Domain Services Configuration Wizard

Additional Options

TARGET SERVER
Server20

Deployment Configuration

Domain Controller Options

DNS Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

Verify the NetBIOS name assigned to the domain and change it if necessary

The NetBIOS domain name:

[More about additional options](#)

< Previous Next > Install Cancel

Paths

TARGET SERVER
Server20

- Deployment Configuration
- Domain Controller Options
 - DNS Options
- Additional Options
- Paths**
- Review Options
- Prerequisites Check
- Installation
- Results

Specify the location of the AD DS database, log files, and SYSVOL

Database folder:	C:\Windows\NTDS	...
Log files folder:	C:\Windows\NTDS	...
SYSVOL folder:	C:\Windows\SYSVOL	...

[More about Active Directory paths](#)

< Previous

Next >

Install

Cancel

Prerequisites Check

TARGET SERVER
Server20

✓ All prerequisite checks passed successfully. Click 'Install' to begin installation.

[Show more](#)

- Deployment Configuration
- Domain Controller Options
 - DNS Options
- Additional Options
- Paths
- Review Options
- Prerequisites Check**
- Installation
- Results

Prerequisites need to be validated before Active Directory Domain Services is installed on this computer

[Rerun prerequisites check](#)

View results

⚠ Windows Server 2016 domain controllers have a default for the security setting named "Allow cryptography algorithms compatible with Windows NT 4.0" that prevents weaker cryptography algorithms when establishing security channel sessions.

For more information about this setting, see Knowledge Base article 942564 (<http://go.microsoft.com/fwlink/?LinkId=104751>).

⚠ A delegation for this DNS server cannot be created because the authoritative parent zone cannot be found or it does not run Windows DNS server. If you are integrating with an existing DNS infrastructure, you should manually create a delegation to this DNS server in the parent zone to ensure reliable name resolution from outside the domain "hacker.local". Otherwise, no action is required.

⚠ If you click Install, the server automatically reboots at the end of the promotion operation.

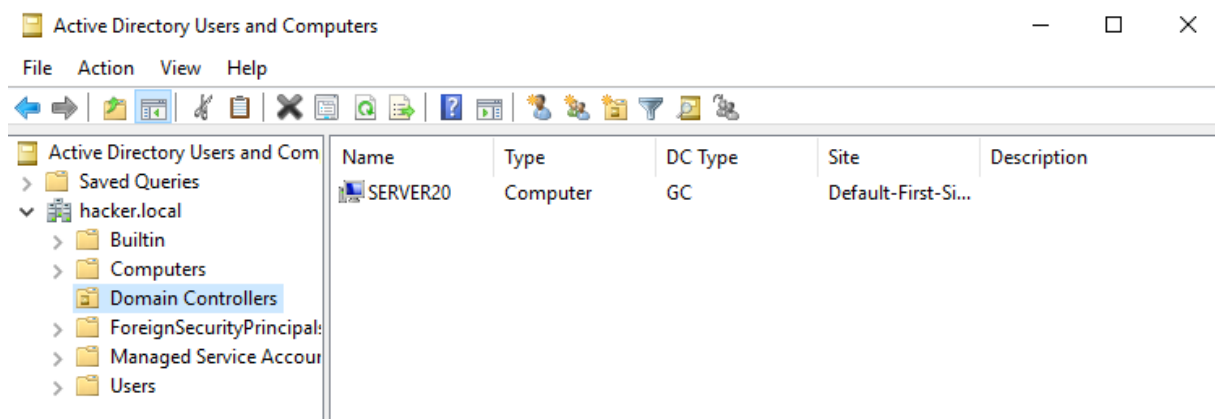
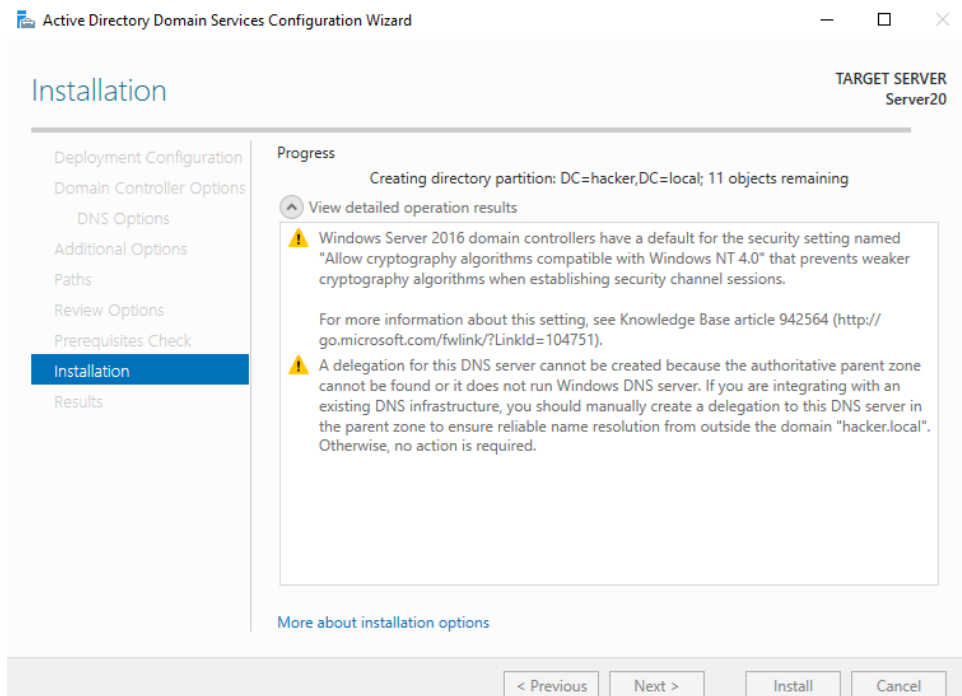
[More about prerequisites](#)

< Previous

Next >

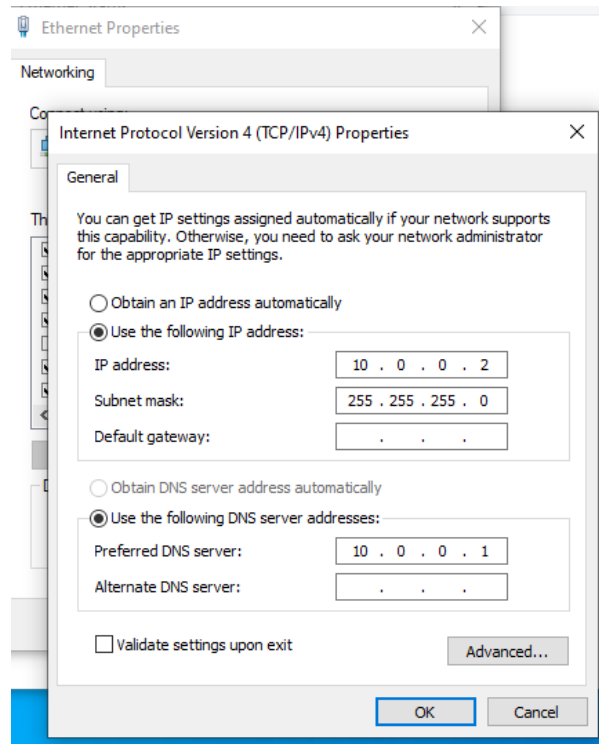
Install

Cancel



5 Rename the **Windows 10** client machine as “PC1” and assign the domain to it.

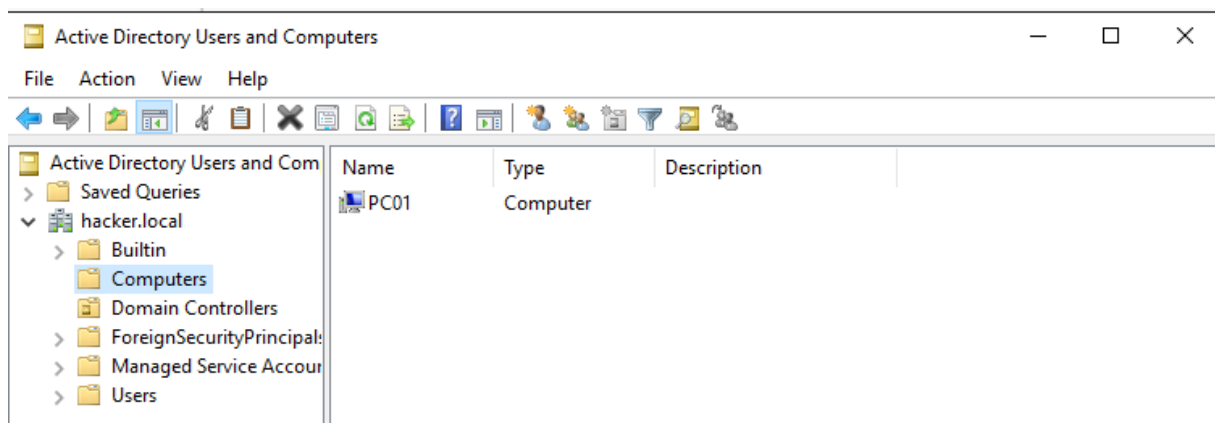
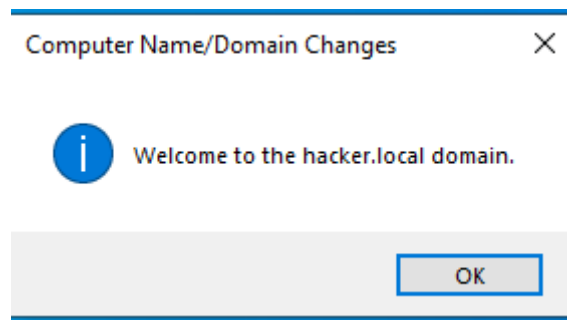
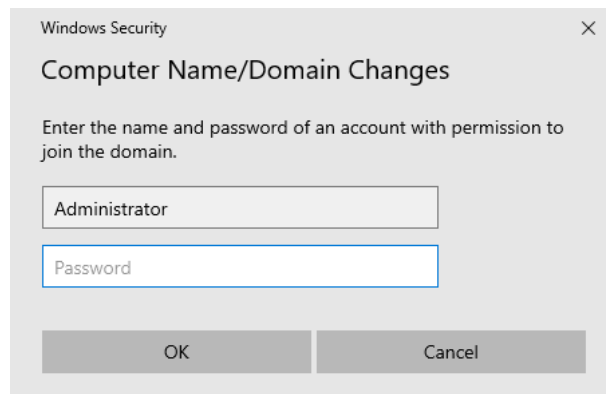
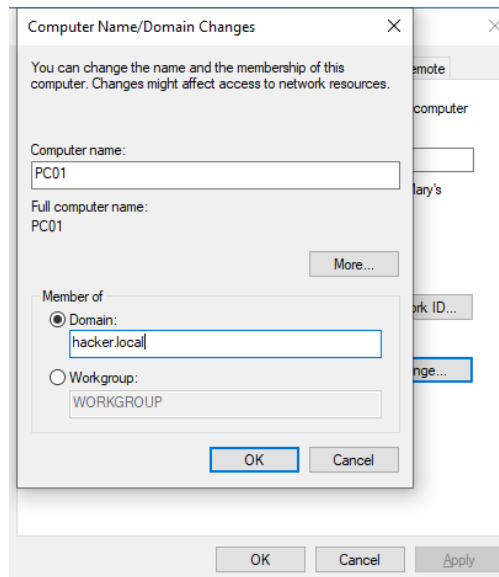
Change settings of Internet Protocol Version 4 (TCP/IPv4)



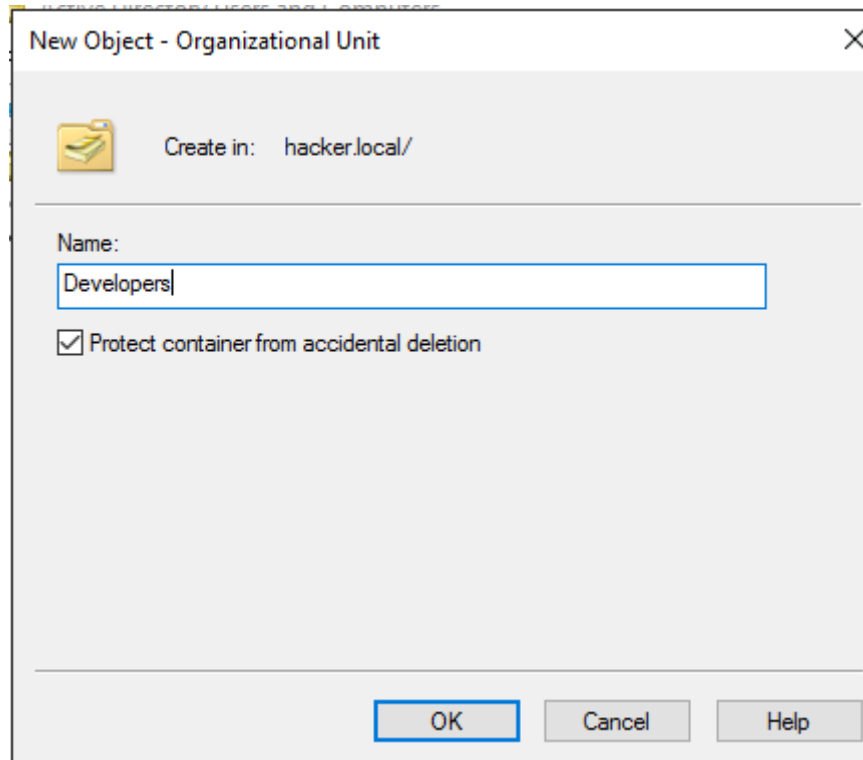
```
C:\Users\Piotr>ping 10.0.0.1

Pinging 10.0.0.1 with 32 bytes of data:
Reply from 10.0.0.1: bytes=32 time=1ms TTL=128
Reply from 10.0.0.1: bytes=32 time=1ms TTL=128
Reply from 10.0.0.1: bytes=32 time<1ms TTL=128
Reply from 10.0.0.1: bytes=32 time=1ms TTL=128

Ping statistics for 10.0.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```



- 6 Create the following OUs on the DC machine:
Developers, IT, QA, HR, and Designers. Add 5 users for each OU.
Create the appropriate groups and assign users to them.
Add one user from each department to the **Domain Admins** group.



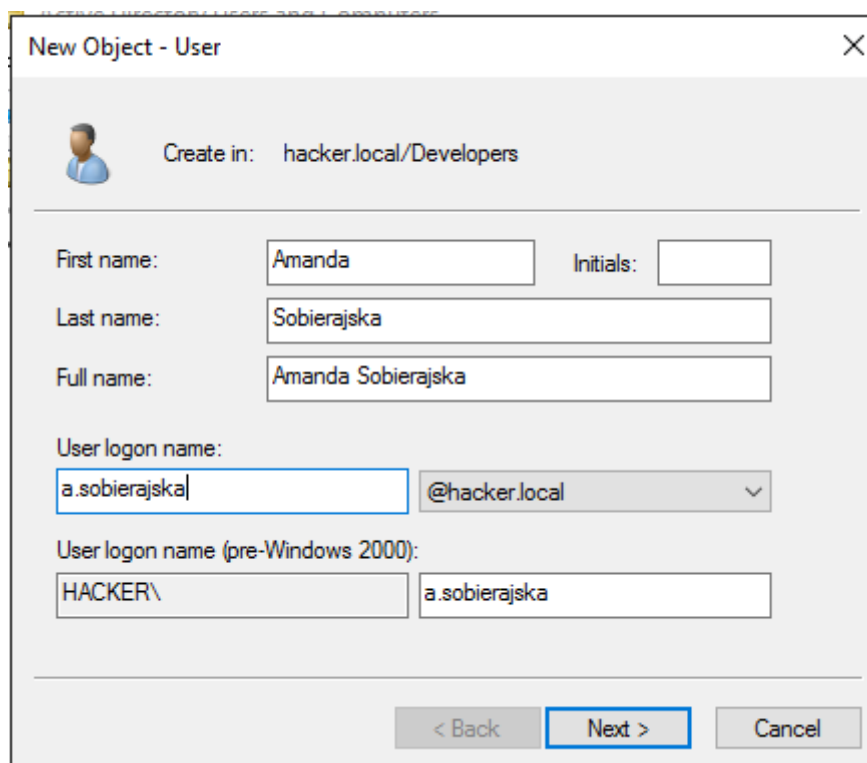
New Object - Organizational Unit

Create in: hacker.local/

Name: Developers

☒ Protect container from accidental deletion

OK Cancel Help



New Object - User

Create in: hacker.local/Developers

First name: Amanda Initials:

Last name: Sobierajska

Full name: Amanda Sobierajska

User logon name: a.sobierajska @hacker.local

User logon name (pre-Windows 2000): HACKER\'\'a.sobierajska

< Back Next > Cancel

New Object - Group



Create in: hacker.local/Developers

Group name:

Uprawnienia_Developerzy

Group name (pre-Windows 2000):

Uprawnienia_Developerzy

Group scope

- ☐ Domain local
☒ Global
☐ Universal

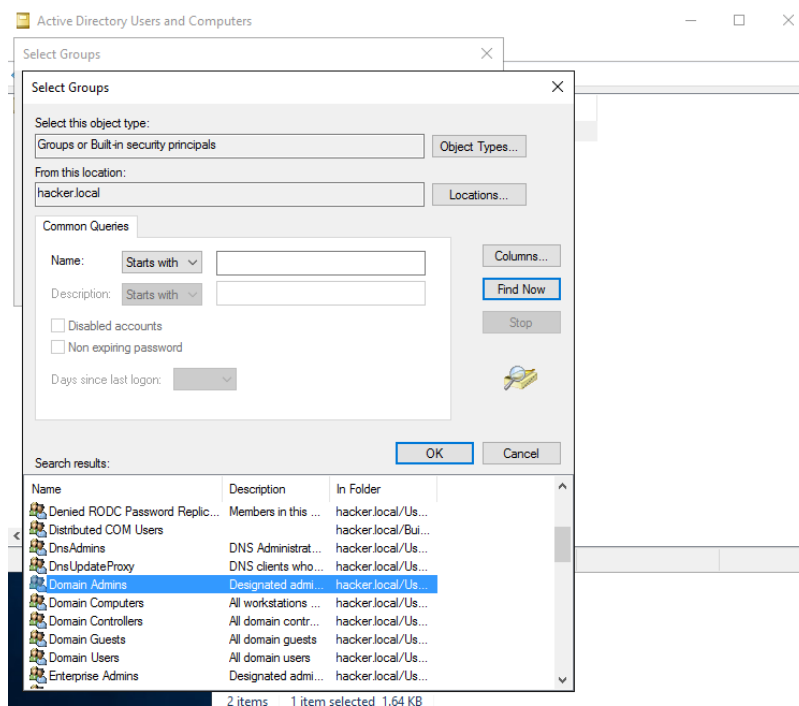
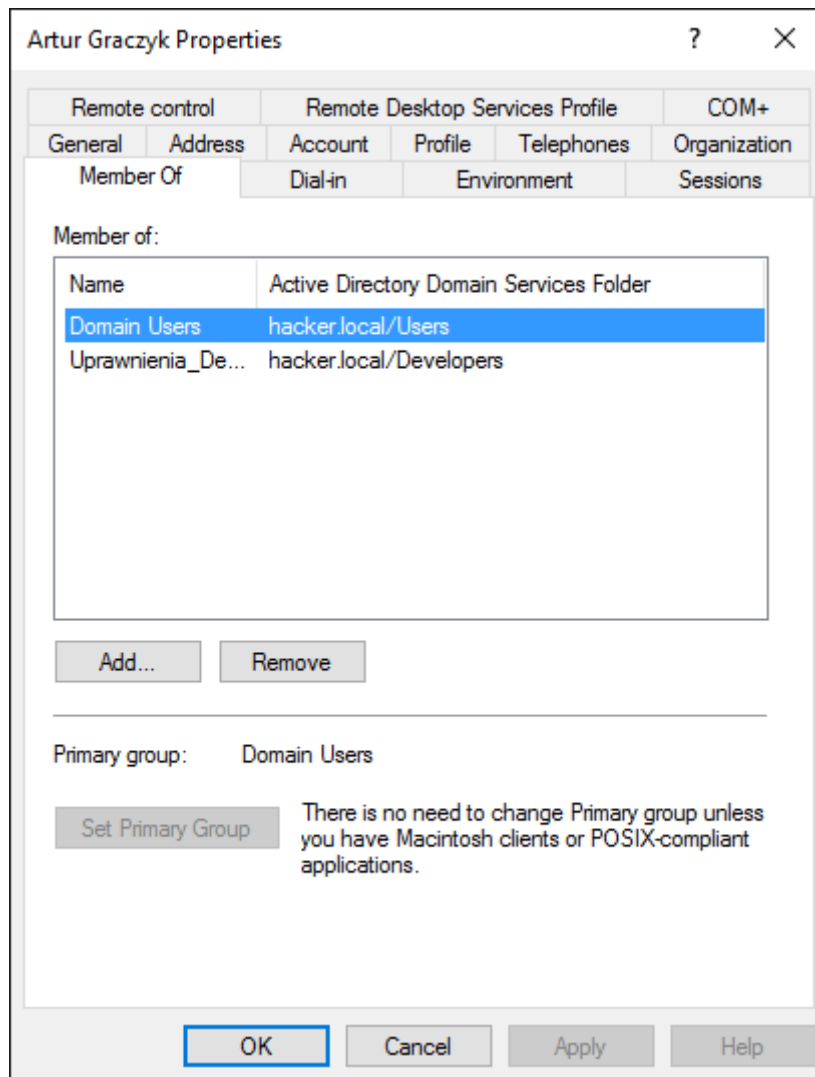
Group type

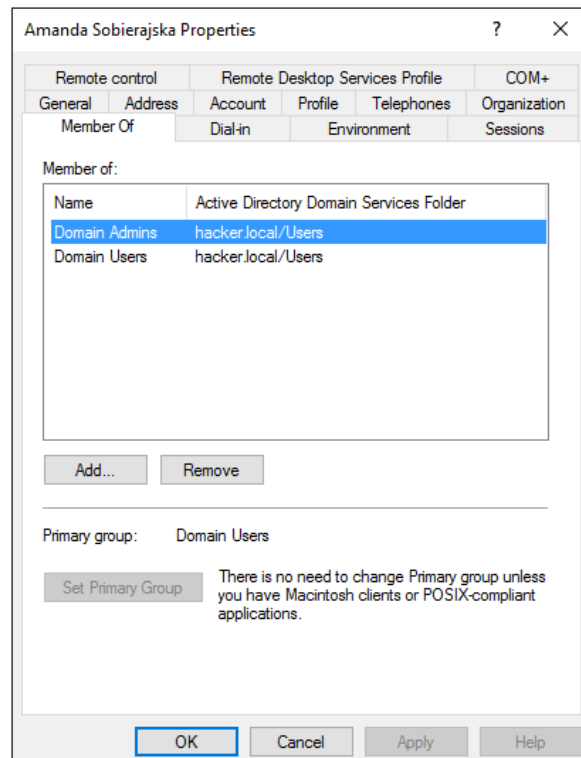
- ☒ Security
☐ Distribution

OK

Cancel

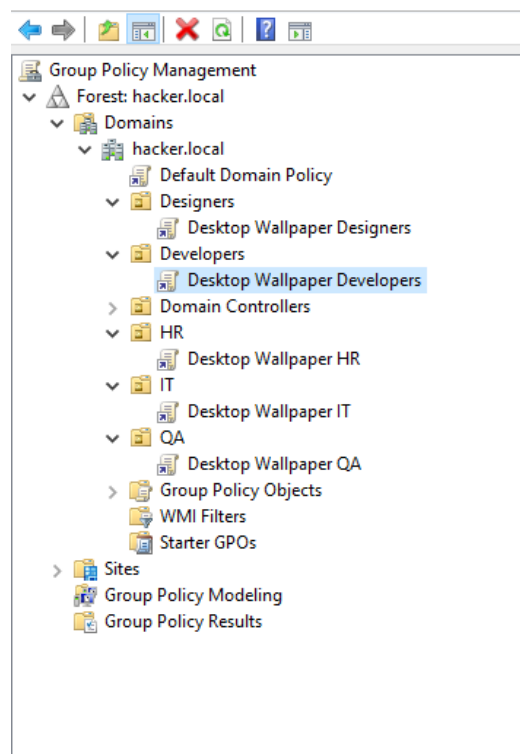
	Name	Type	Description
Active Directory Users and Com			
> Saved Queries			
▼ hacker.local			
> Built-in			
> Computers			
> Domain Controllers			
> ForeignSecurityPrincipal:			
> Managed Service Account			
> Users			
> Developers			
> IT			
> QA			
> HR			
> Designers			
	Amanda Sobierajska	User	
	Artur Graczyk	User	
	Barbara Kristof	User	
	Krystian Sobczak	User	
	Michal Gora	User	
	Uprawnienia_Developerzy	Security Group - Global	



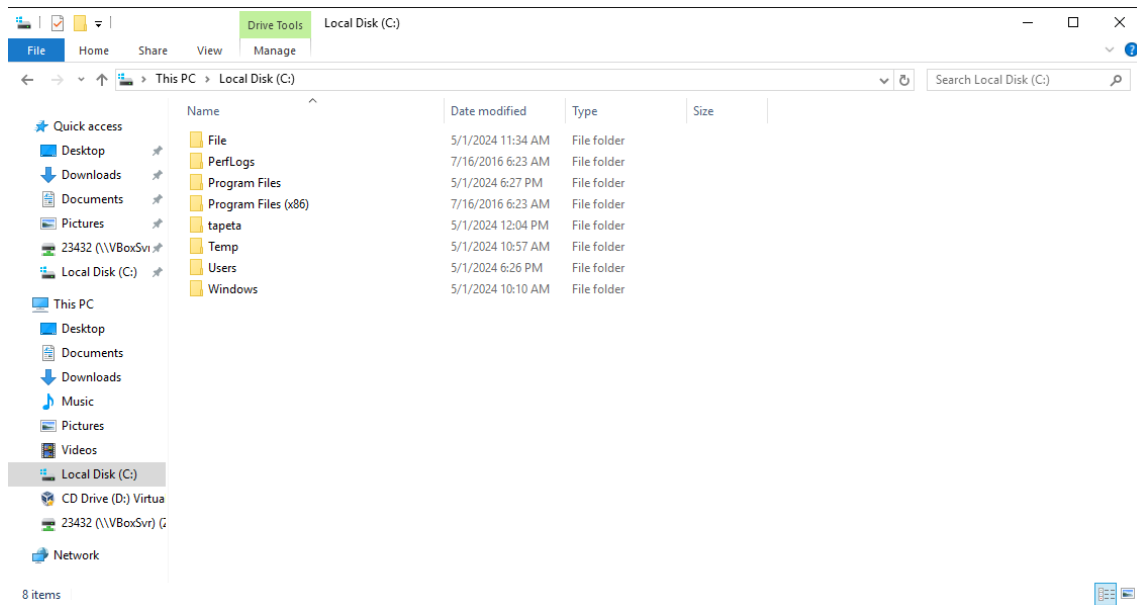


- 7 Create the following GPOs:
- Set a different wallpaper for each department.
 - Prevent the QA department's users from accessing the **Control Panel**.
 - Prevent the HR department's users from accessing the **CMD**.

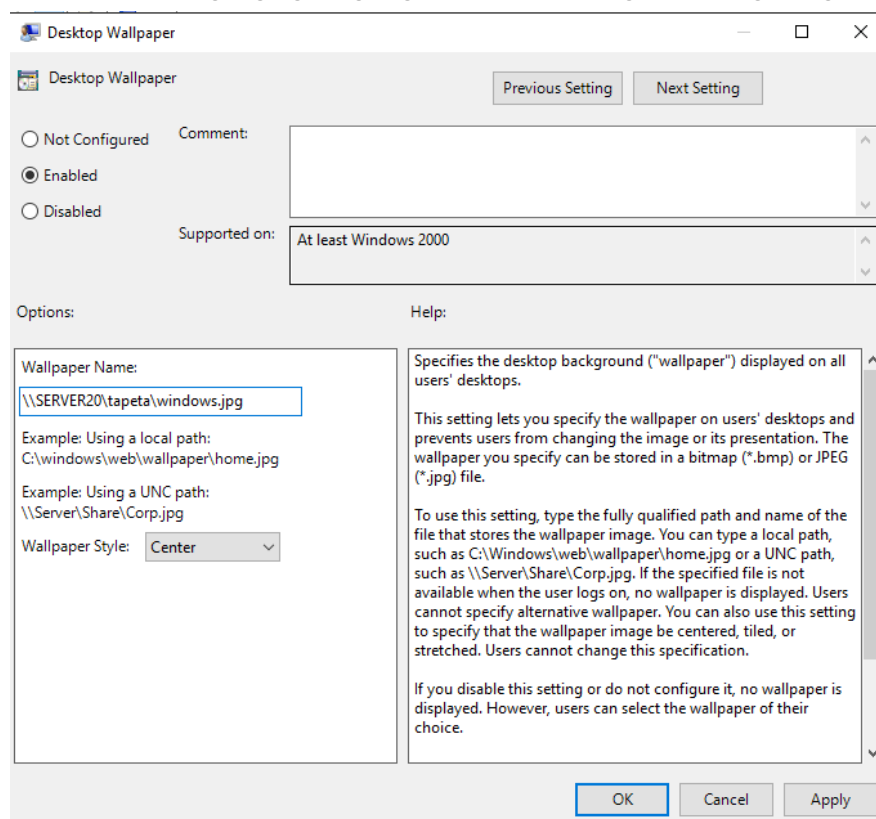
Created new GPO for each department named "Desktop Wallpaper *department name*"



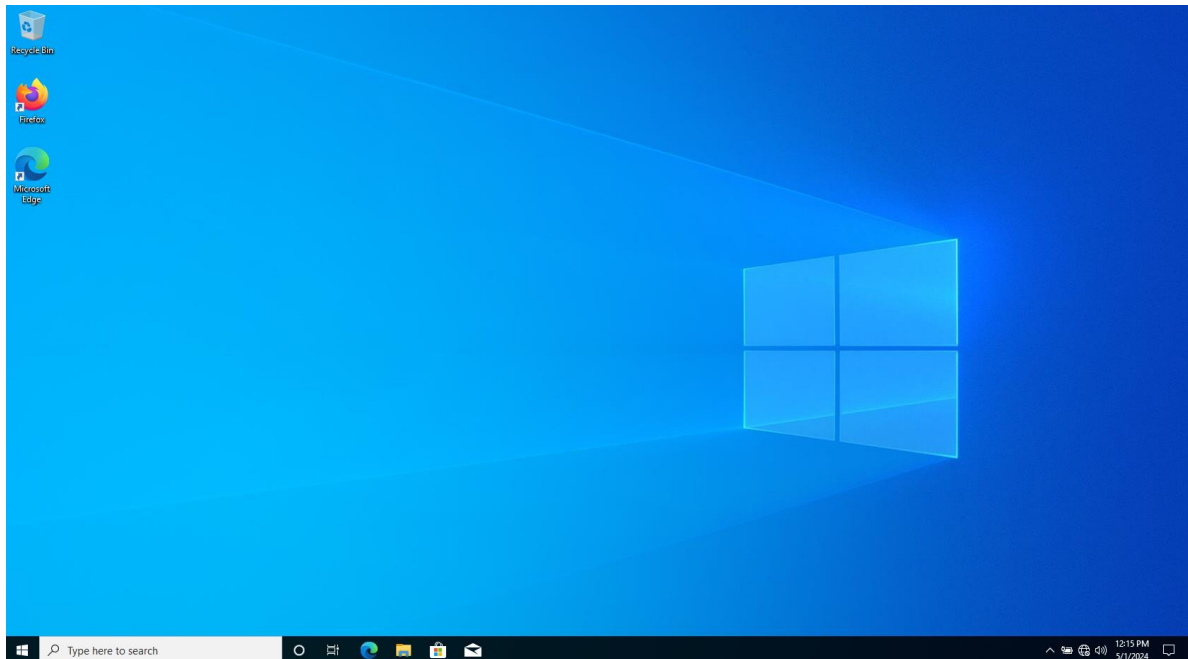
I CREATED FOLDER NAMED “tapeta” WHERE I CAN ADD PARTICULAR WALLPAPERS AND SHARED IT TO ALL USERS ON SERVER20



THEN I HAVE EDITED CREATED GPOS AND SET WALLPAPERS FOR ALL OF THEM. BELOW EXAMPLE FOR GPO DESKTOP WALLPAPER FOR DEVELOPERS



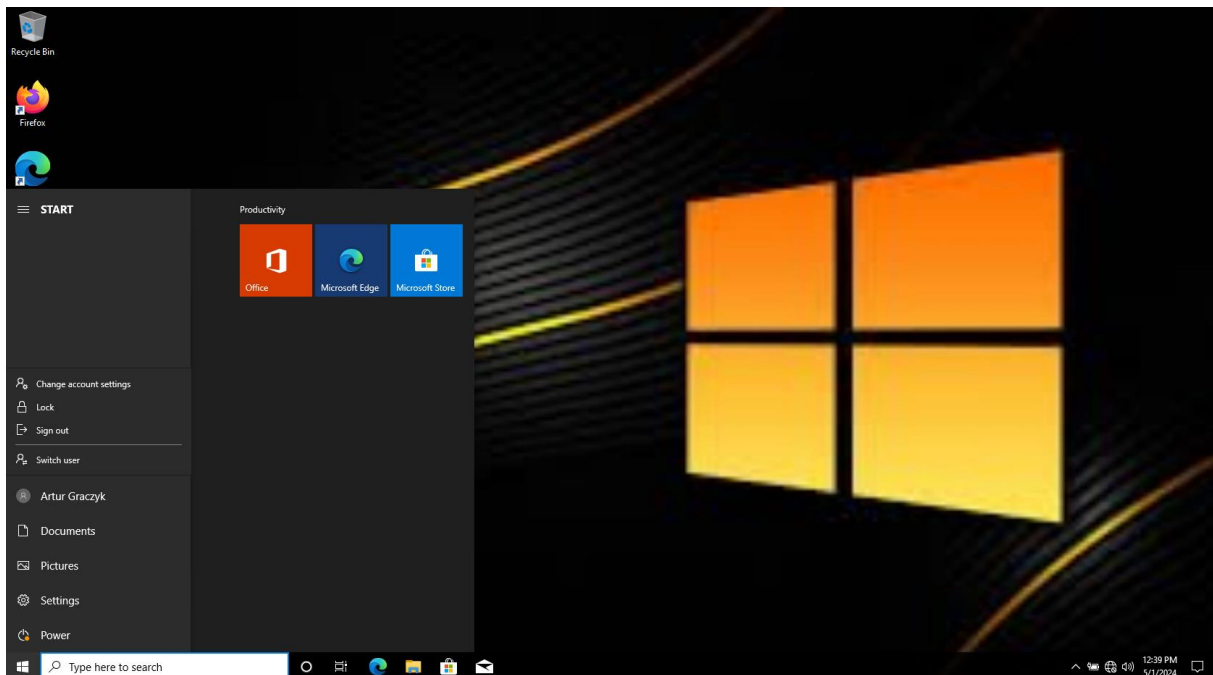
USER AMANDA SOBIERAJSKA GROUP DEVELOPERS DESKTOP WALLPAPER BEFORE POLICY UPDATE



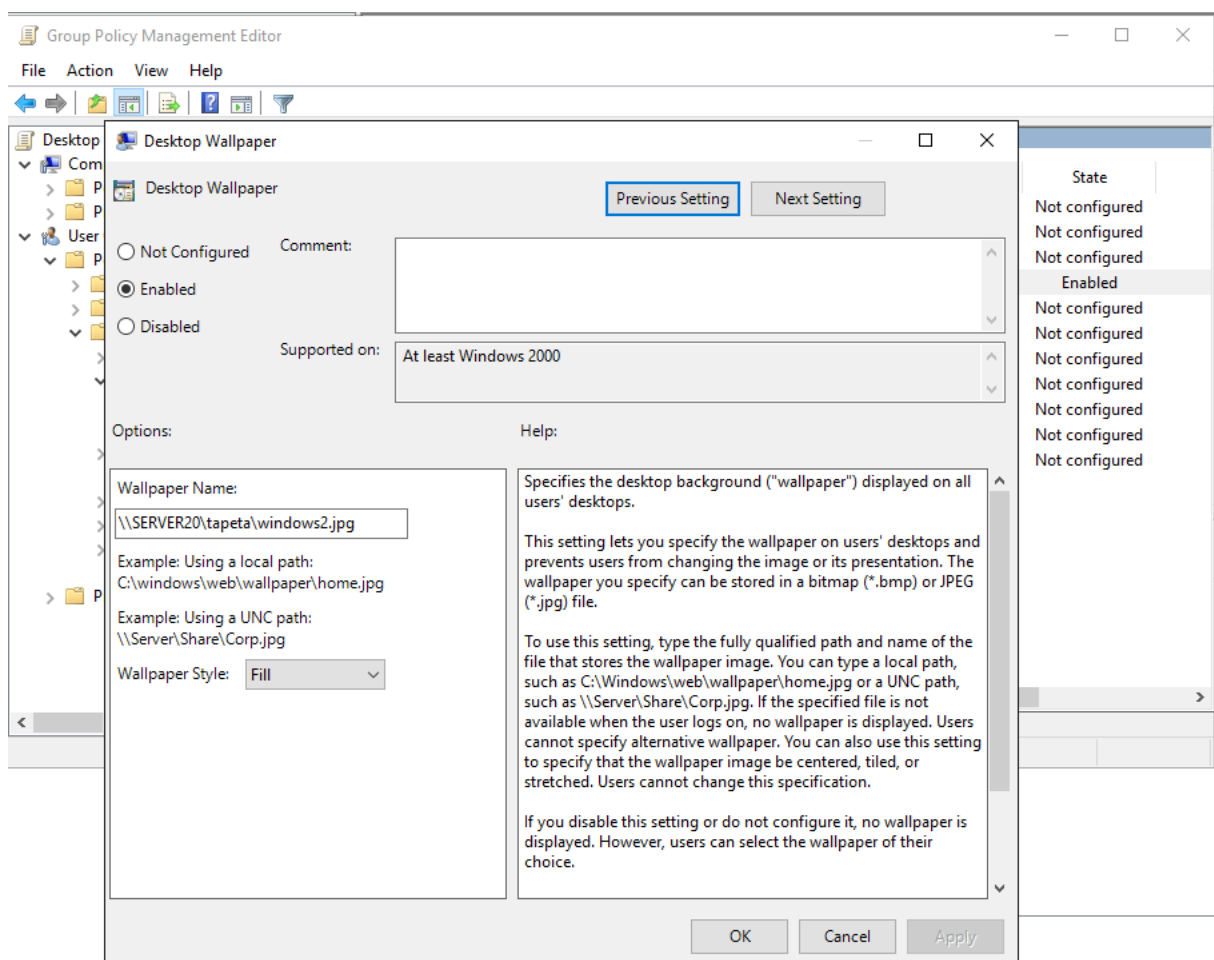
AND AFTER

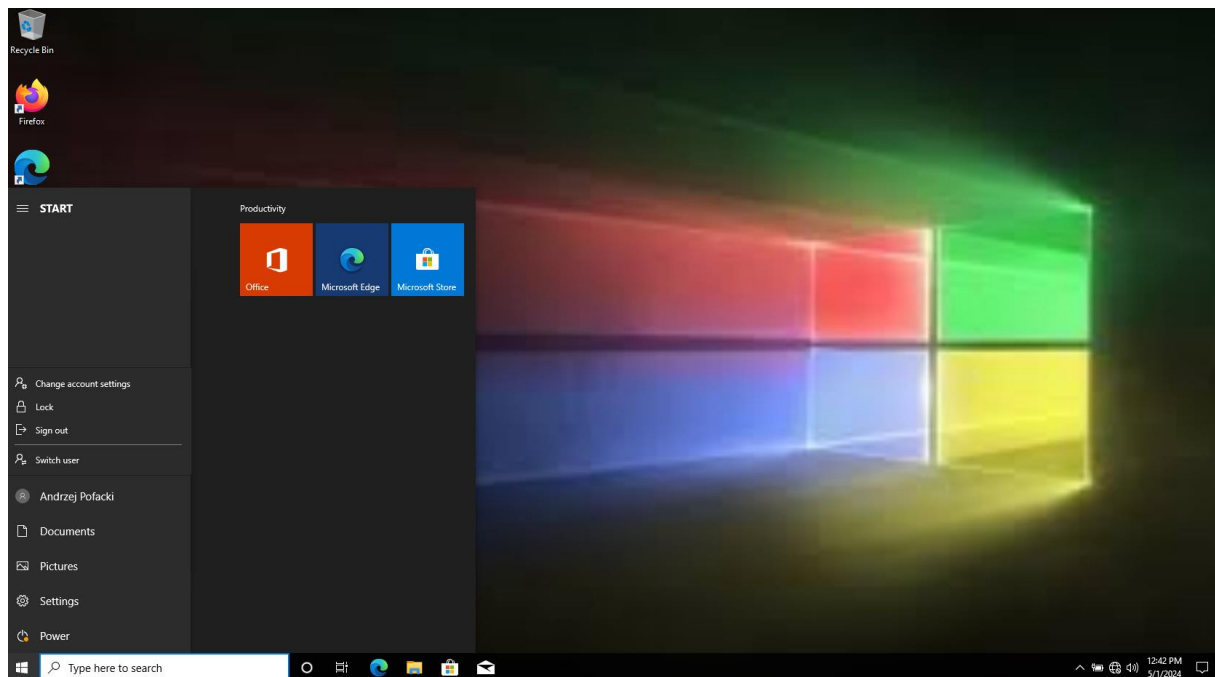


AS WE CAN SEE DESKTOP WALLPAPER HAS CHANGED ALSO FOR OTHER USER FROM DEVELOPERS GROUP NAMED ARTUR GRACZYK:



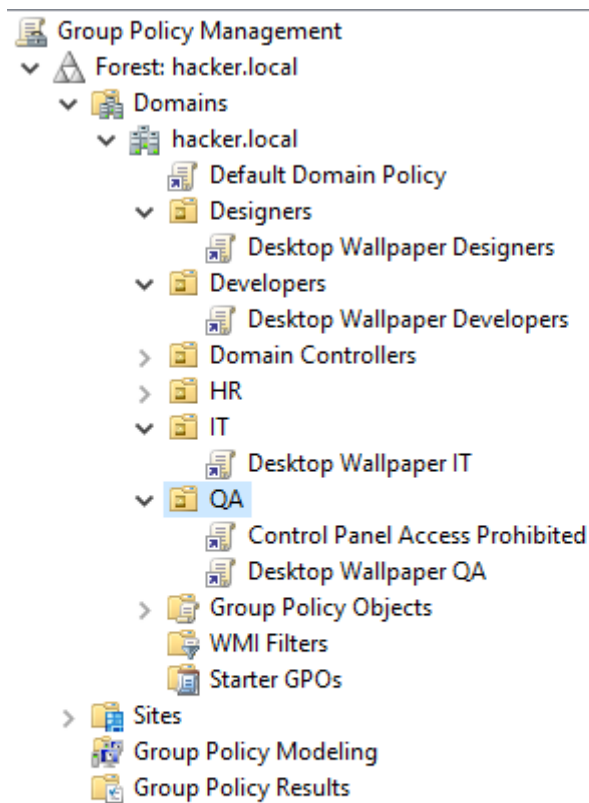
LETS CHECK USER FROM IT GROUP NAMED ANDRZEJ POFACKI

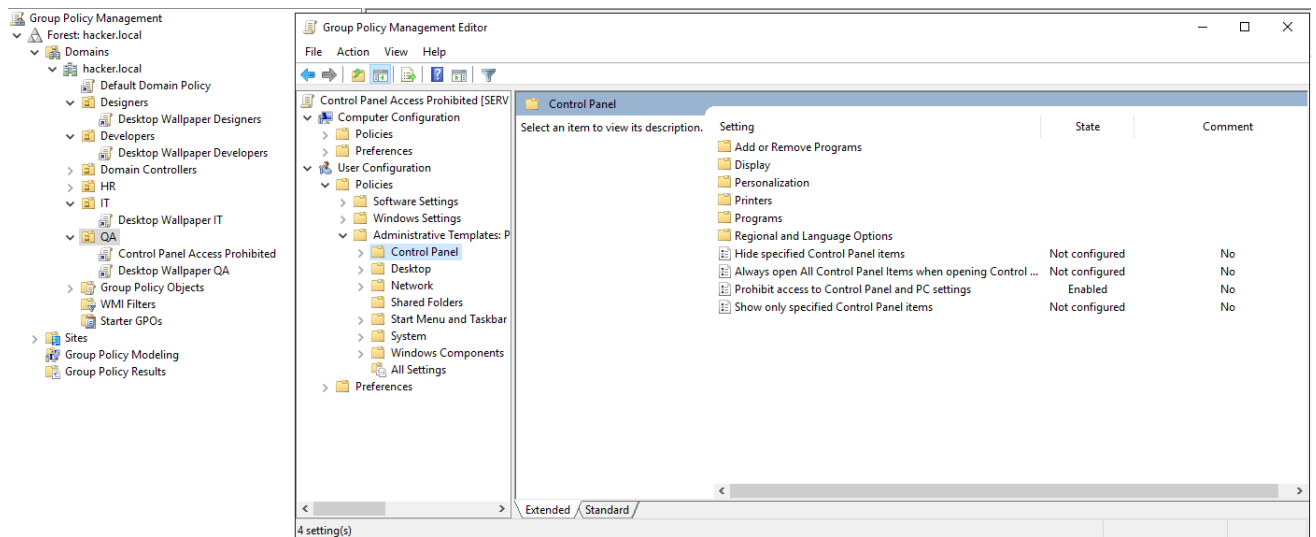




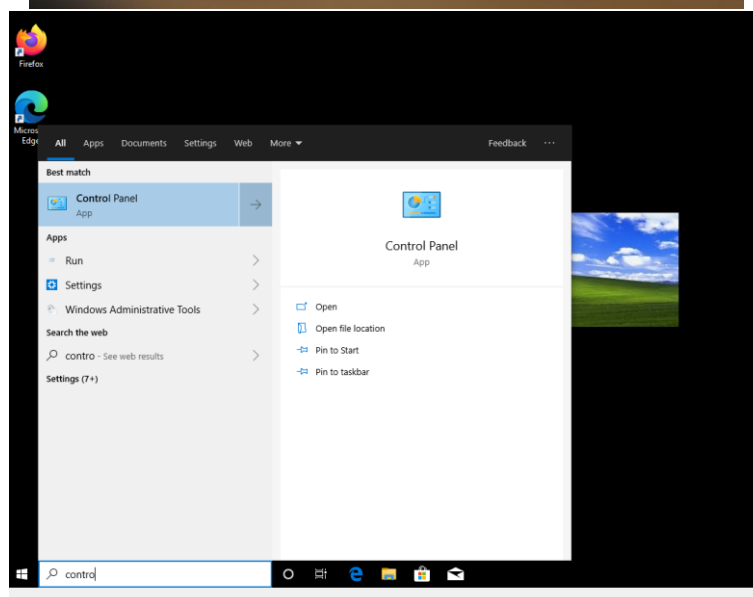
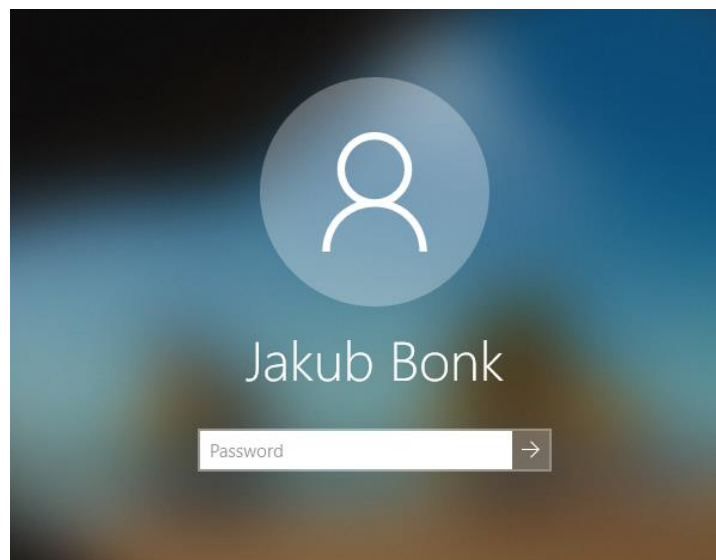
WALLPAPER IS DIFFERENT THAN A DEFAULT ONE

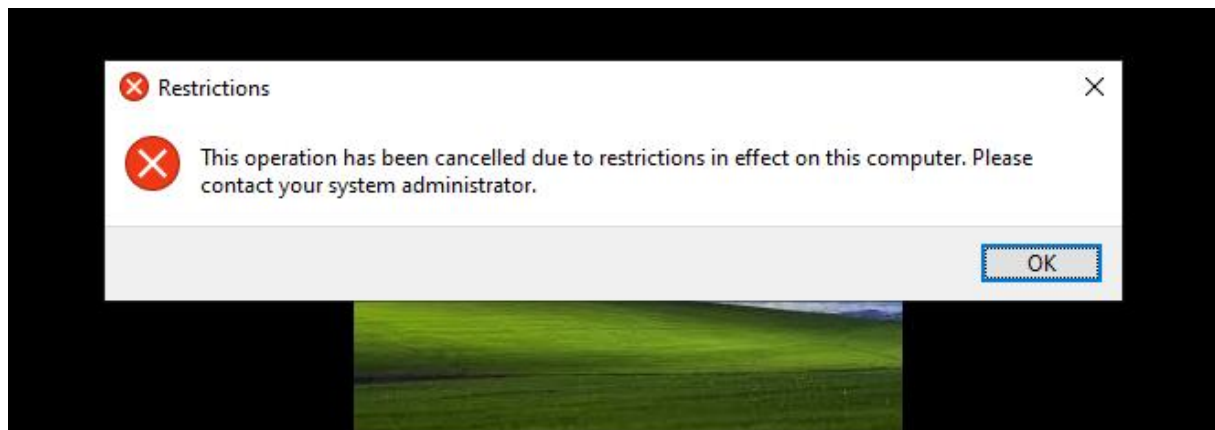
PREVENTING USERS FROM QA DEPARTMENT TO ENTER TO CONTROL PANEL



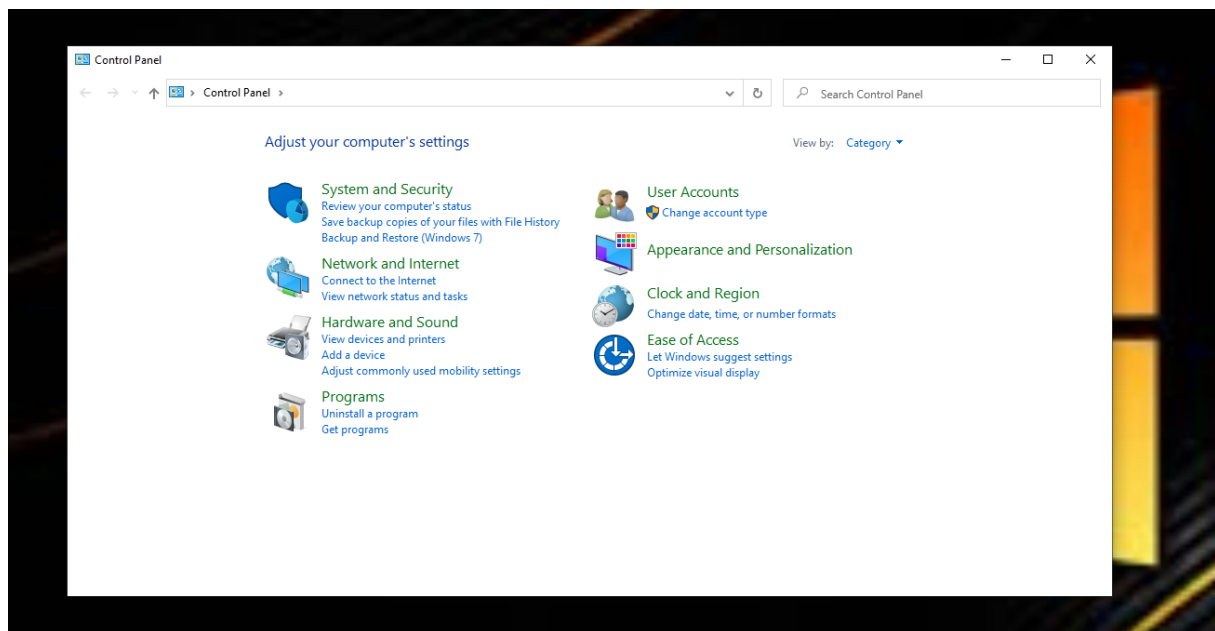


LETS CHEK ON USER JAKUB BONK FROM QA





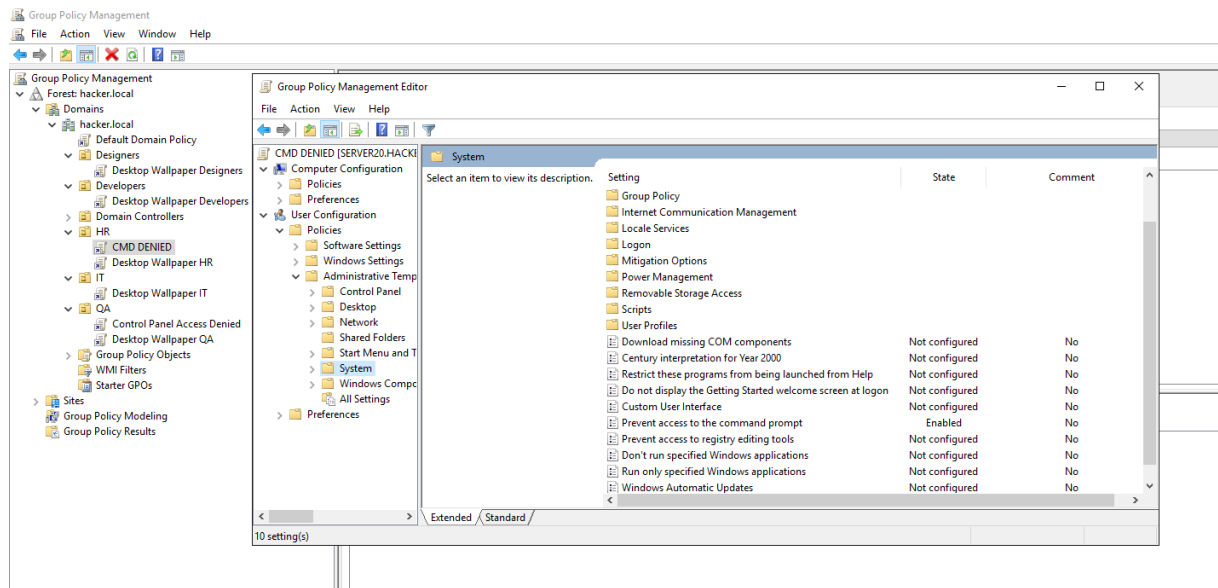
Lets check on Amanda Sobierajska if this policy didn't apply to other groups



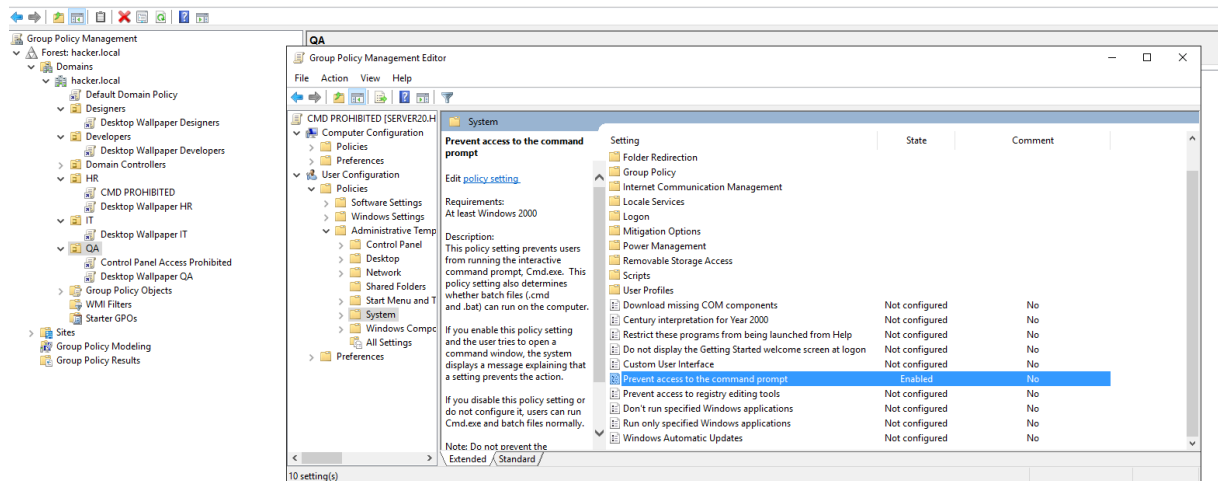
Yep, it works

PREVENT HR DEPARTMENT USERS FROM ACCESSING THE CMD

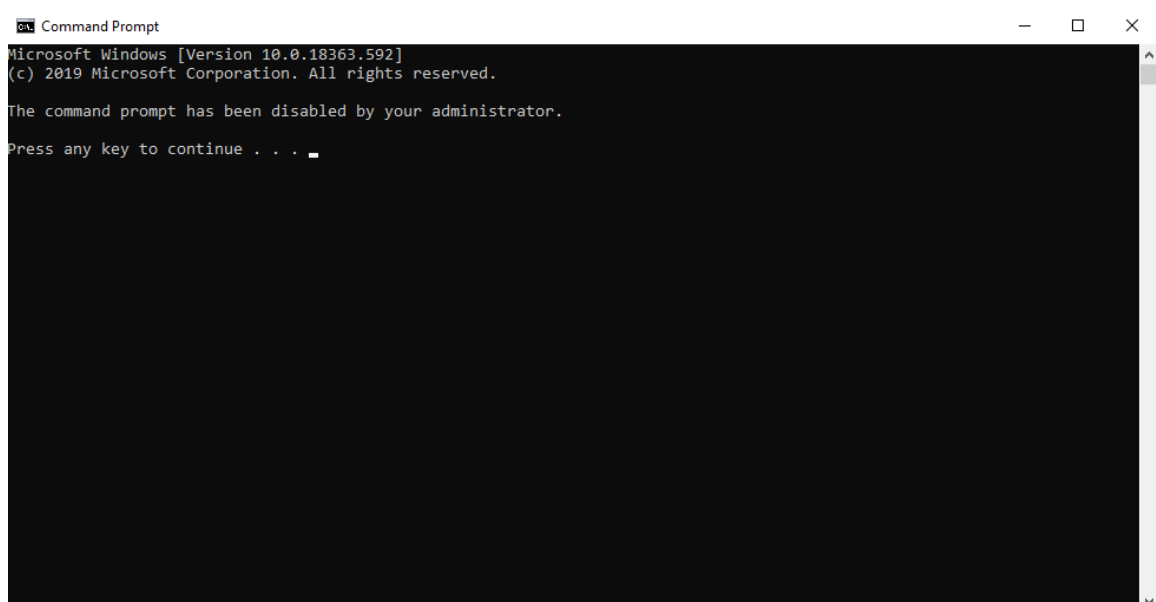
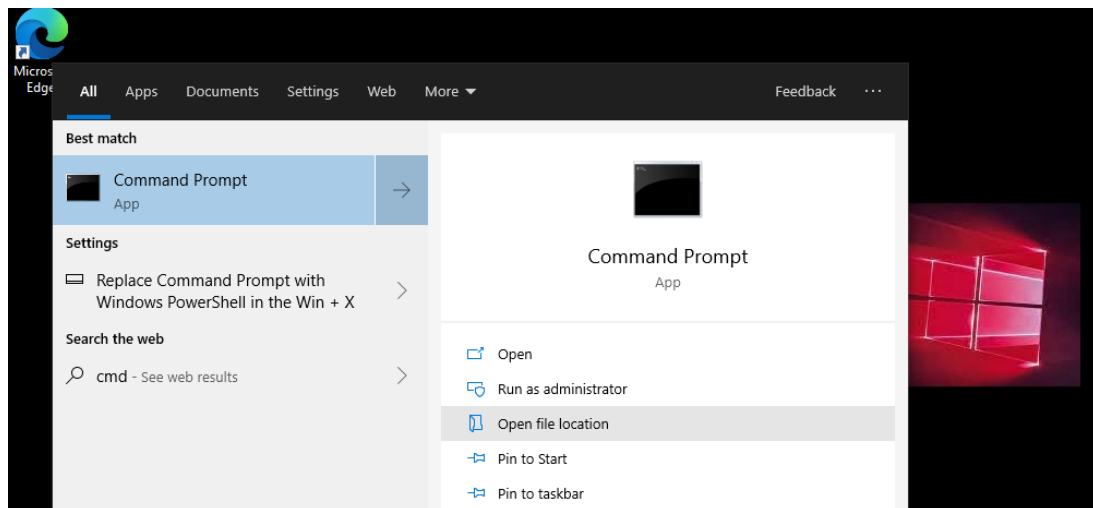
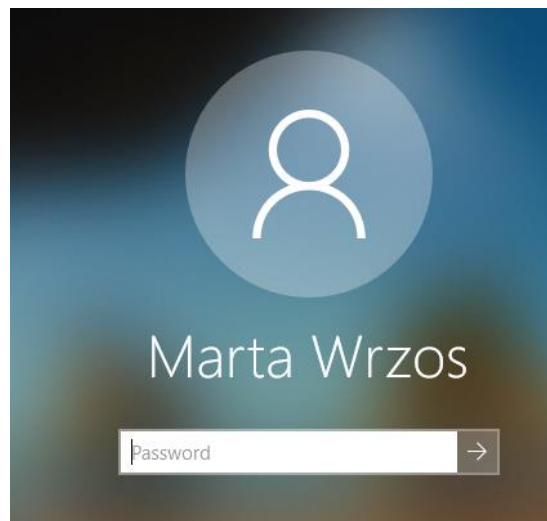
CREATED GPO NAMED CMD PROHIBITED



EDITING CMD PERMISSIONS IN USER CONFIGURATION > ADMINISTRATIVE TEMPLATES...>System



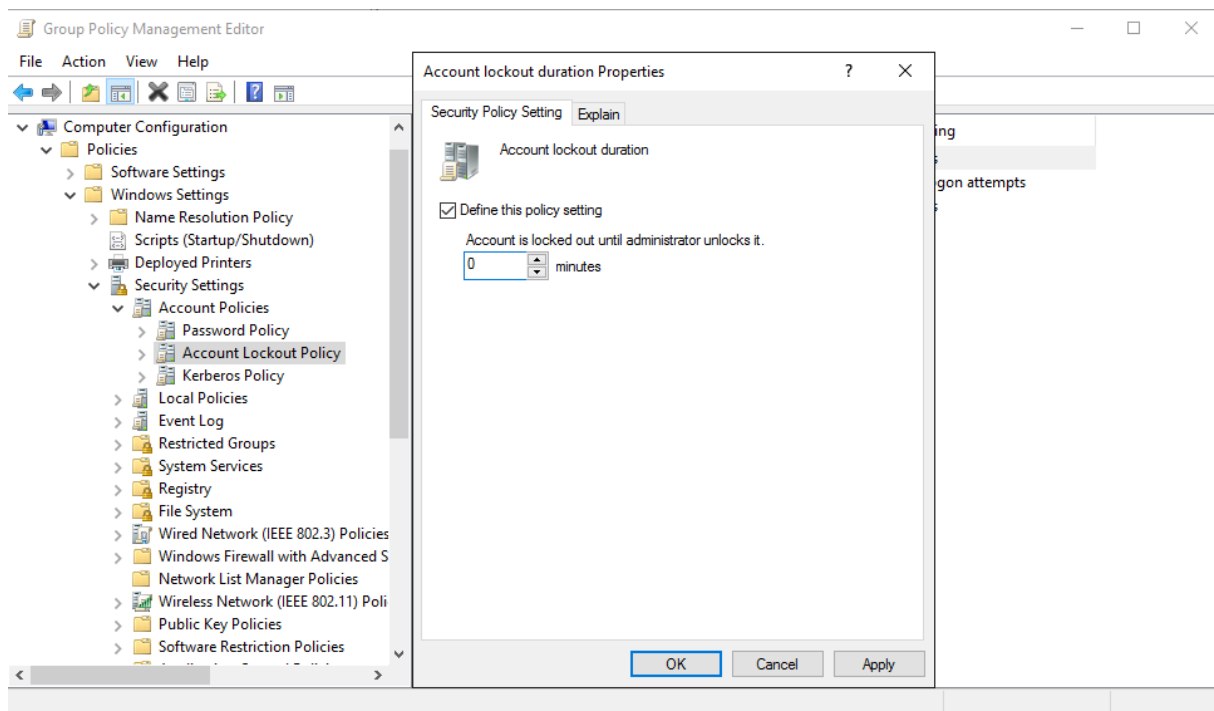
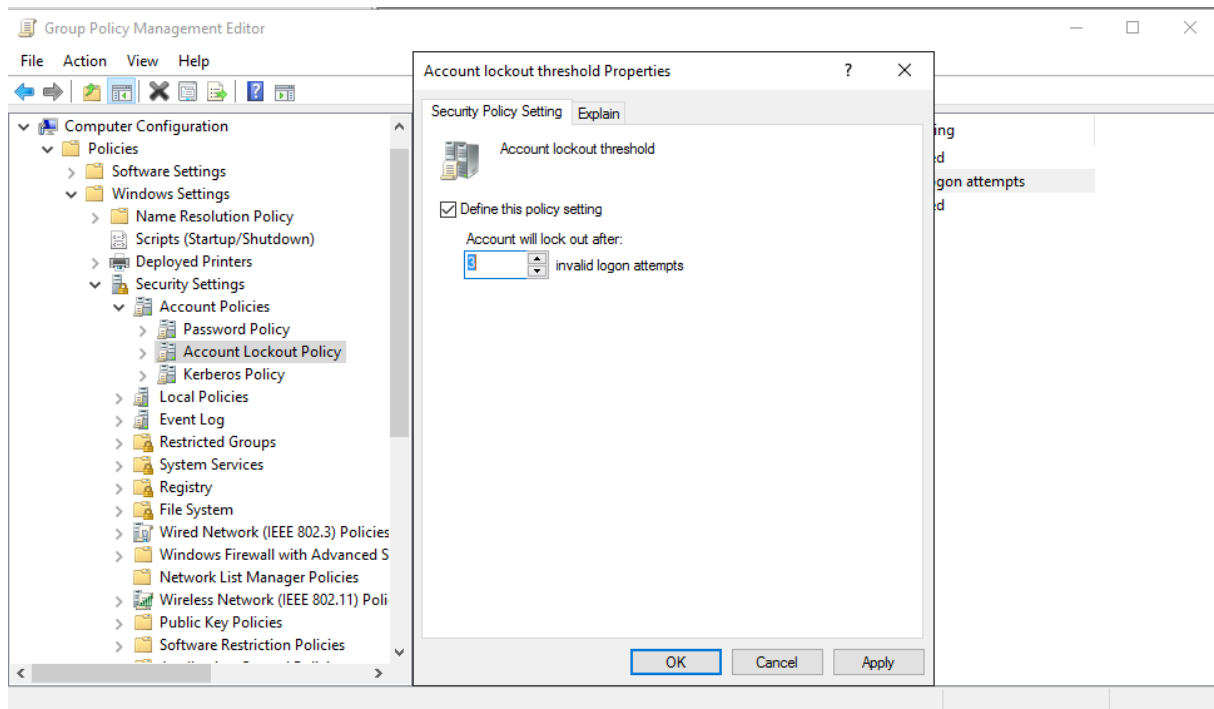
LETS CHECK ON HR USER NAMED MARTA WRZOS

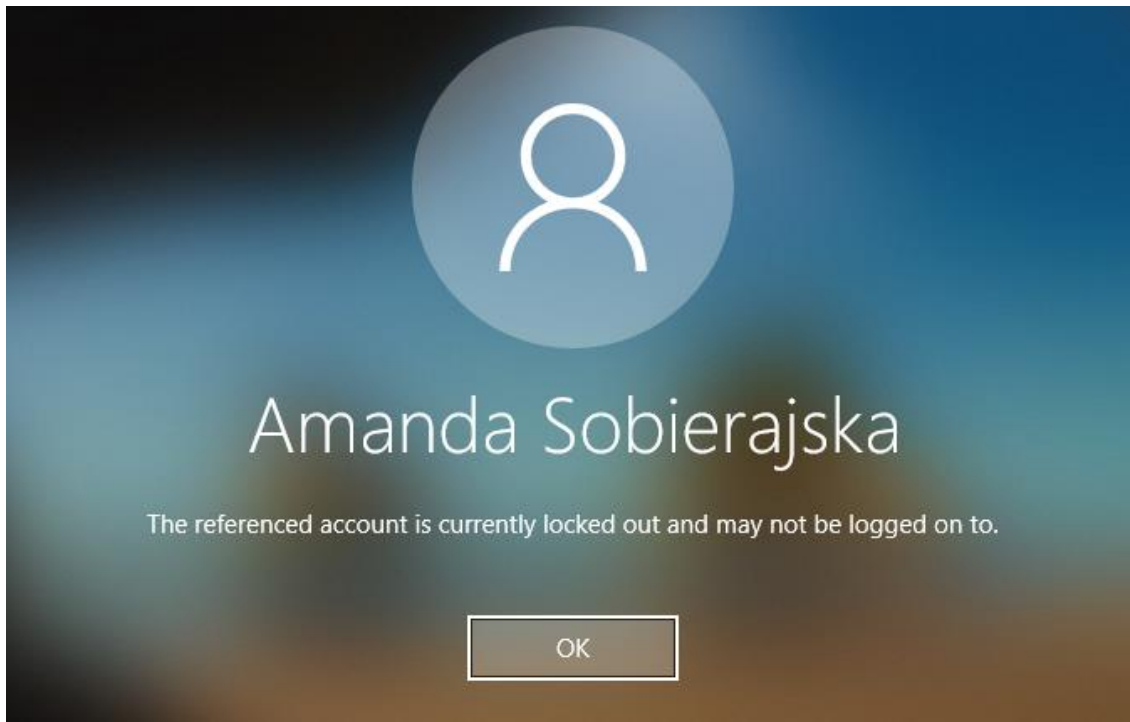


CHECKED ON USERS FROM THE OTHER DEPARTMENT IF THEY CAN USE COMMAND PROMT AND THE ANSWER IS THEY CAN.

- 8 Configure the system to lock out users after 3 failed login attempts.
Only the administrator will be able to unlock the user account.

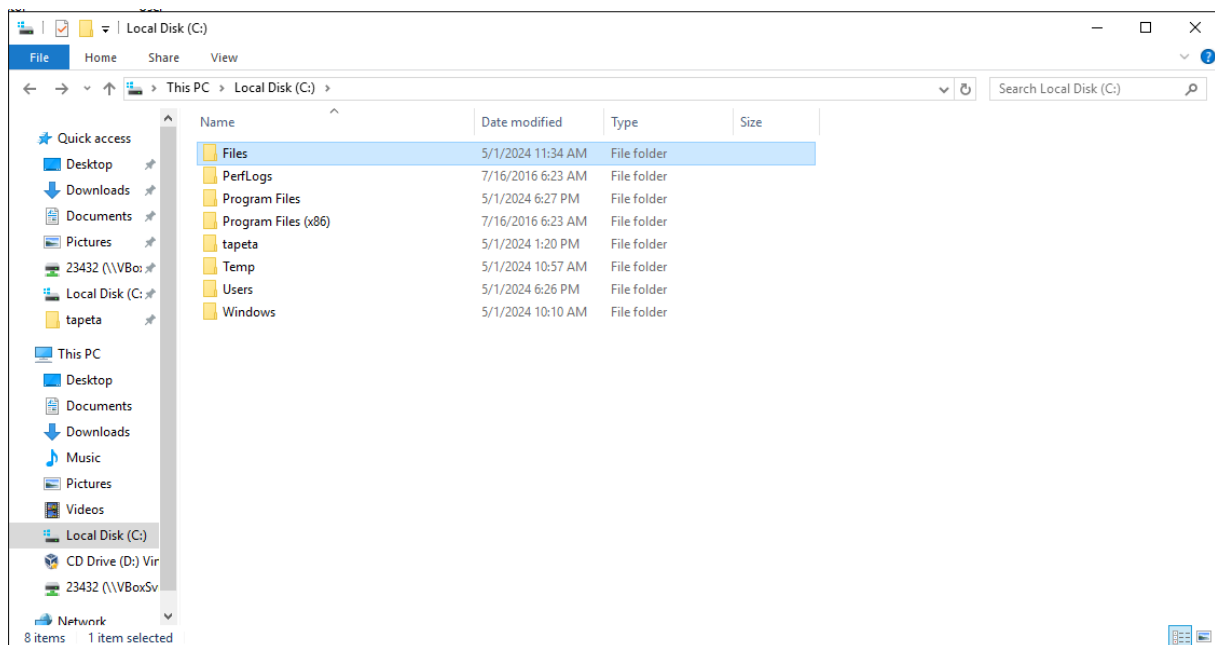
IN DOMAIN GROUP POLICY WE ARE GOING TO COMPUTER CONFIGURATION > WINDOWS SETTINGS > SECURITY SETTINGS > ACCOUNT POLICIES > ACCOUNT LOCKOUT POLICY





- 9 Create a shared drive named “Files” that will only be accessible to users of the **Designers** and **Developers** departments.

CREATING FOLDER FILES ON A SERVER AND SHARE FOR DEPARTMENTS DESIGNERS AND DEVELOPERS



CREATING A SCRIPT WHICH WILL ADD SHARED DRIVE ON A GROUP ACCOUNTS DURING LOG ON

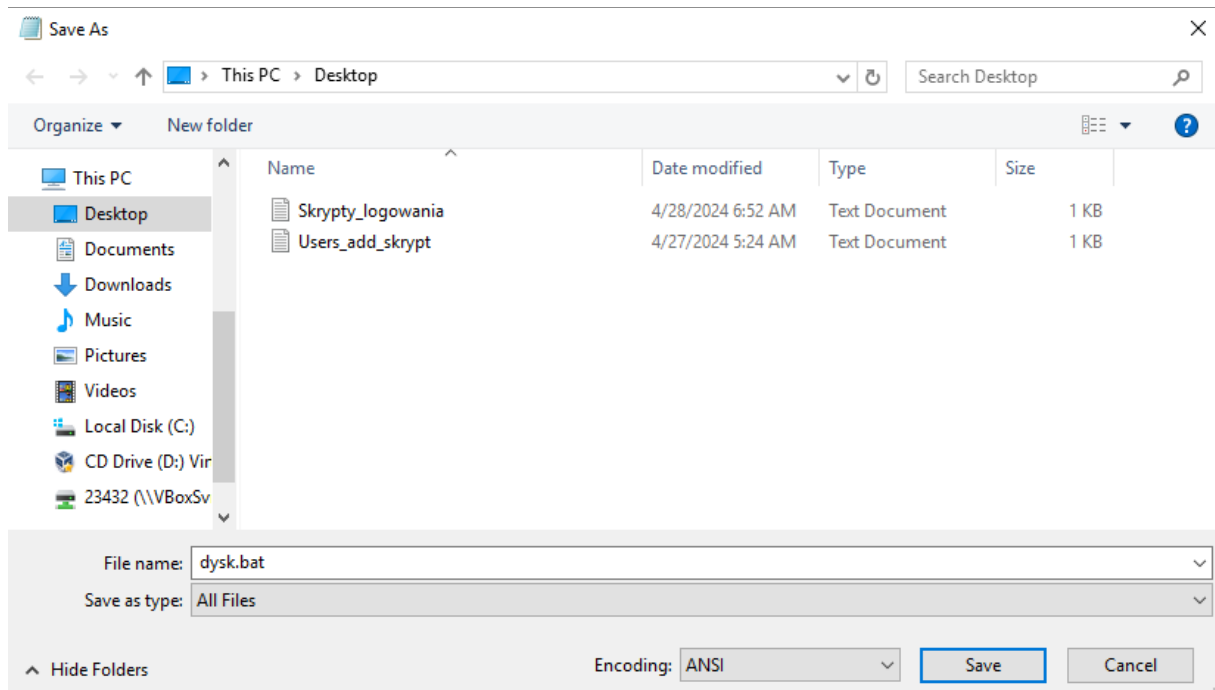
Skrypty_logowania - Notepad

File Edit Format View Help

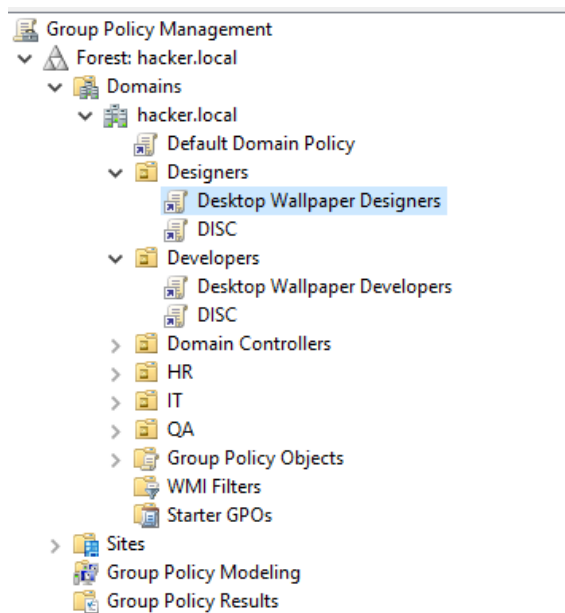
```
net use x: \\10.0.0.1\Files
```

|

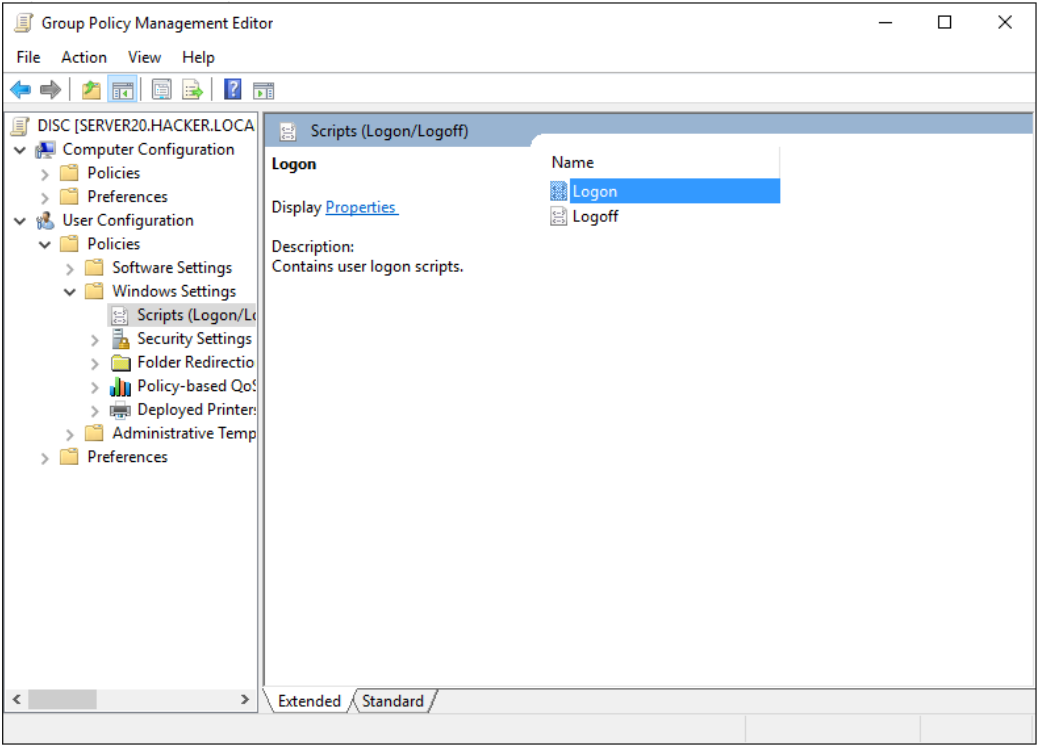
SAVE AS dysk.bat



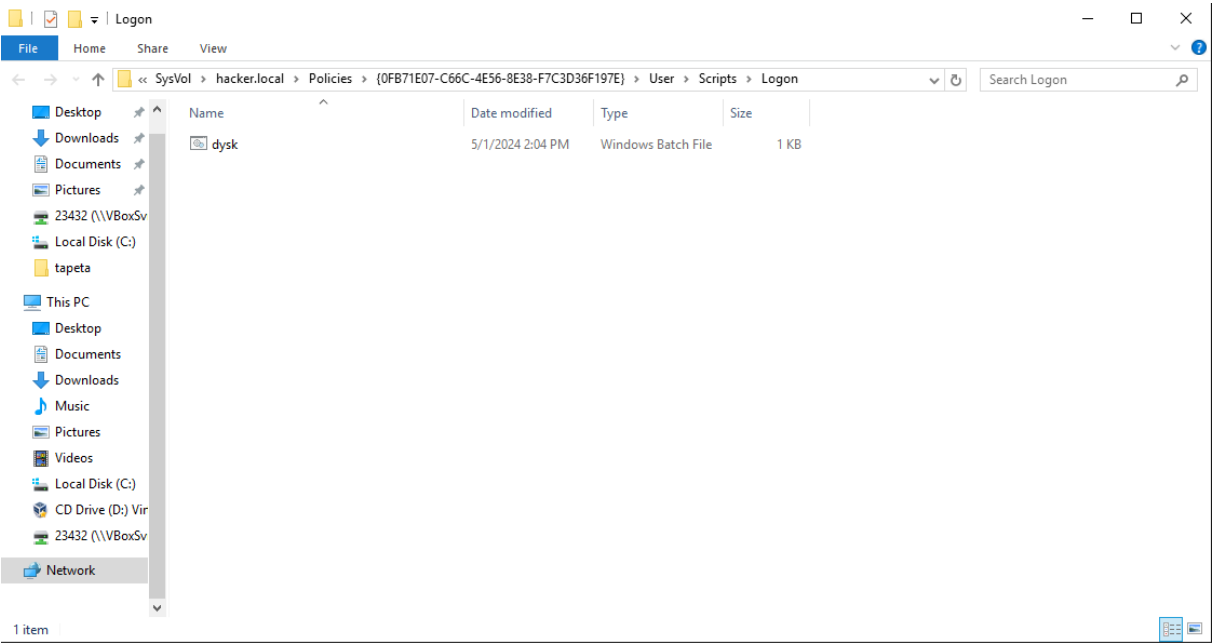
CREATING POLICY NAMED DISC AND LINK TO DEPARTMENTS DESIGNERS AND DEVELOPERS



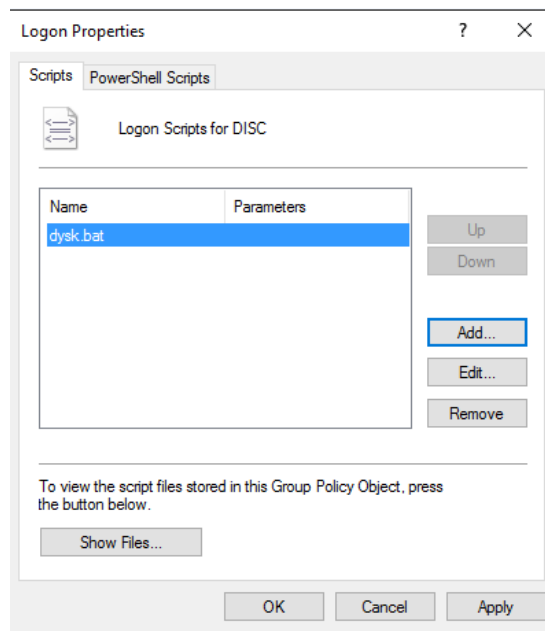
USER CONFIGURATION > POLICIES > WINDOWS SETTINGS >SCRIPTS LOGON/LOGOFF



ADDING CREATED SCRIPT TO THE SYSVOL:

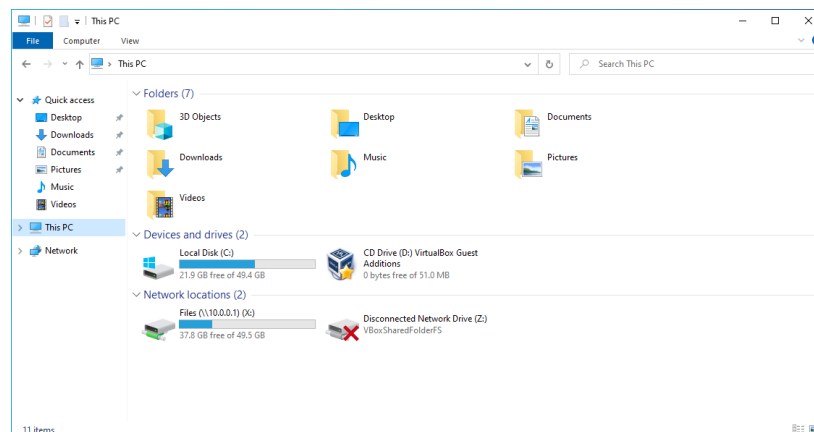


ADDING SCRIPT TO THE LOGON PROPERTIES

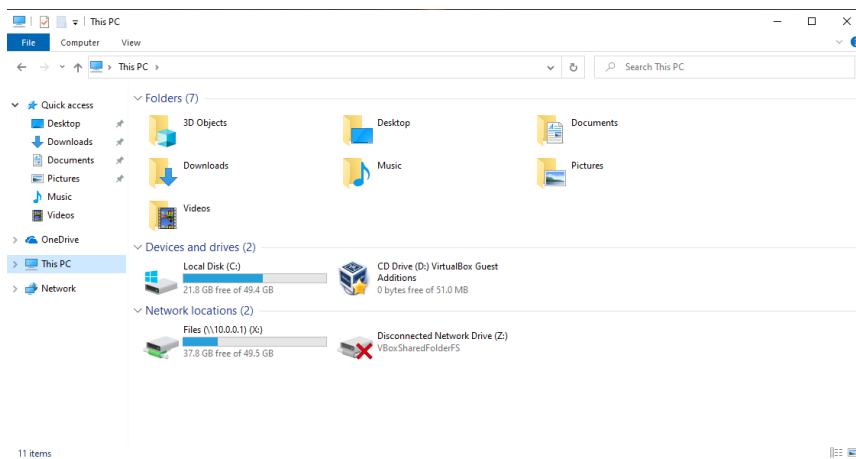


CHECKING IF SCRIPT WORKS PROPERLY

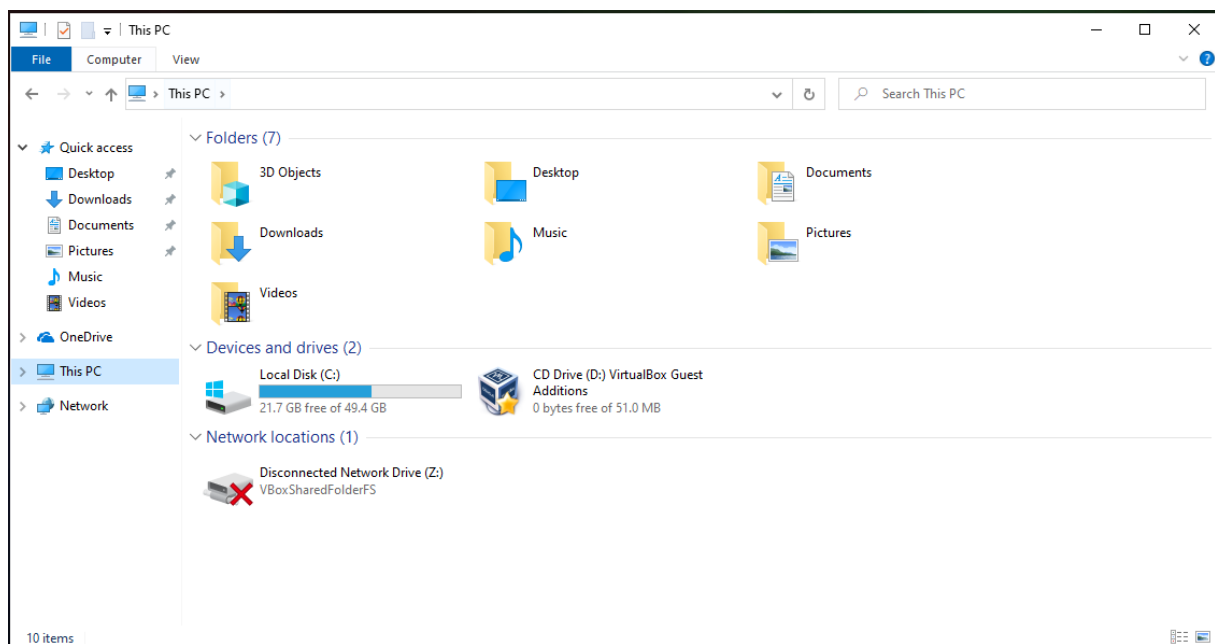
USER MACIEJ BAMPC FROM DESIGNERS DEPARTMENT:



USER ARTUR GRACZYK FROM DEVELOPERS DEPARTMENT



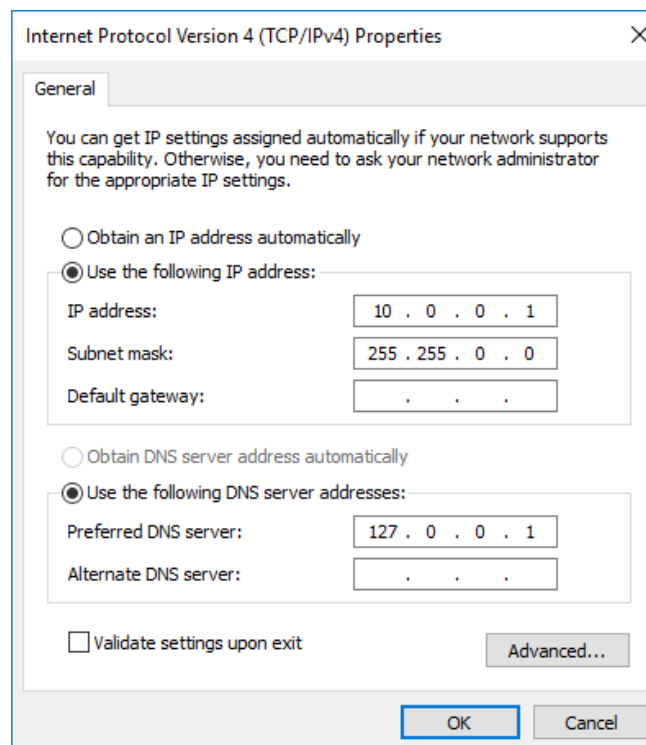
LETS CHECK ON USER FROM IT DEPARTMENT



DRIVE IS NOT SHARED FOR IT DEPARTMENT SO ANDRZEJ POFACKI DOESN'T SEE THIS DRIVE ON HIS ACCOUNT.

- 10 Configure a DHCP server that assigns IP addresses from the pool in the range of 10.0.2.120 - 10.0.2.150.

CHANGING SUBNET MASK TO 16 bits MASK



ADDING NEW SCOPE IN DHCP MANAGER TOOL WITH IP ADDRESS RANGE 10.0.2.120 TO 10.0.2.150 /16

New Scope Wizard

IP Address Range
You define the scope address range by identifying a set of consecutive IP addresses.

Configuration settings for DHCP Server

Enter the range of addresses that the scope distributes.

Start IP address: 10 . 0 . 2 . 120

End IP address: 10 . 0 . 2 . 150

Configuration settings that propagate to DHCP Client

Length: 16

Subnet mask: 255 . 255 . 0 . 0

< Back Next > Cancel

CHANGING IPv4 PROPERTIES ON PC01 TO OBTAIN AN IP ADDRESS AUTOMATICALLY. DNS SERVER AS WELL.

Ethernet Properties

Networking

Internet Protocol Version 4 (TCP/IPv4) Properties

General Alternate Configuration

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☒ Obtain an IP address automatically

☐ Use the following IP address:

IP address: . . .

Subnet mask: . . .

Default gateway: . . .

☒ Obtain DNS server address automatically

☐ Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

☐ Validate settings upon exit

Advanced...

OK Cancel

RELEASE AND RENEW IP CONFIGURATION ON PC01

```
C:\Users\a.pofacki>ipconfig /release

Windows IP Configuration

Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::84ed:770c:deeb:21b0%12
    Default Gateway . . . . . : 

C:\Users\a.pofacki>ipconfig /renew

Windows IP Configuration

Ethernet adapter Ethernet:

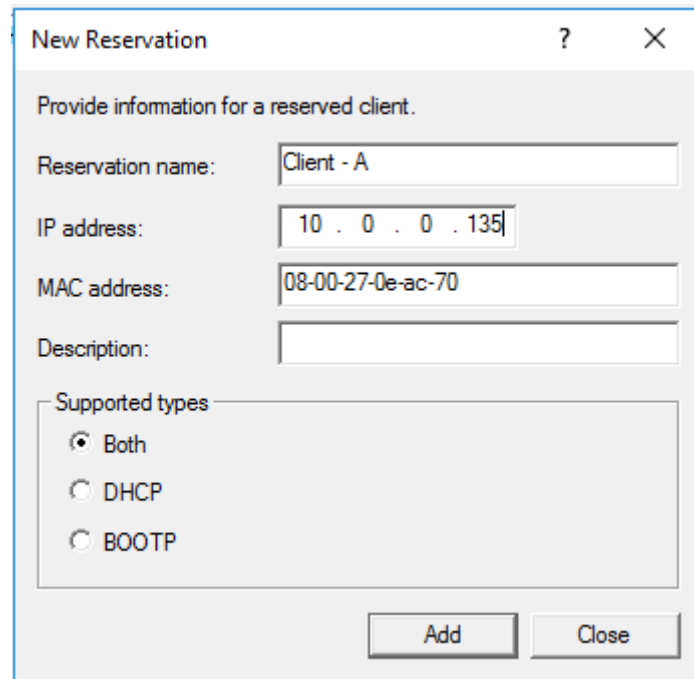
    Connection-specific DNS Suffix  . : hacker.local
    Link-local IPv6 Address . . . . . : fe80::84ed:770c:deeb:21b0%12
    IPv4 Address. . . . . : 10.0.2.120
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . :
```

CHECKING ADDRESS LEASES TO CHECK IF THERE IS CONNECTION BETWEEN DHCP SERVER AND PC01

	Client IP Address	Name	Lease Expiration	Type
DHCP				
server20.hacker.local				
IPv4				
Scope [10.0.2.0] Pula 120				
Address Pool				
Address Leases	10.0.2.120	PC01.hacker.local	5/9/2024 3:05:52 PM	DHCP
Reservations				
Scope Options				
Policies				
Server Options				
Policies				
Filters				
IPv6				

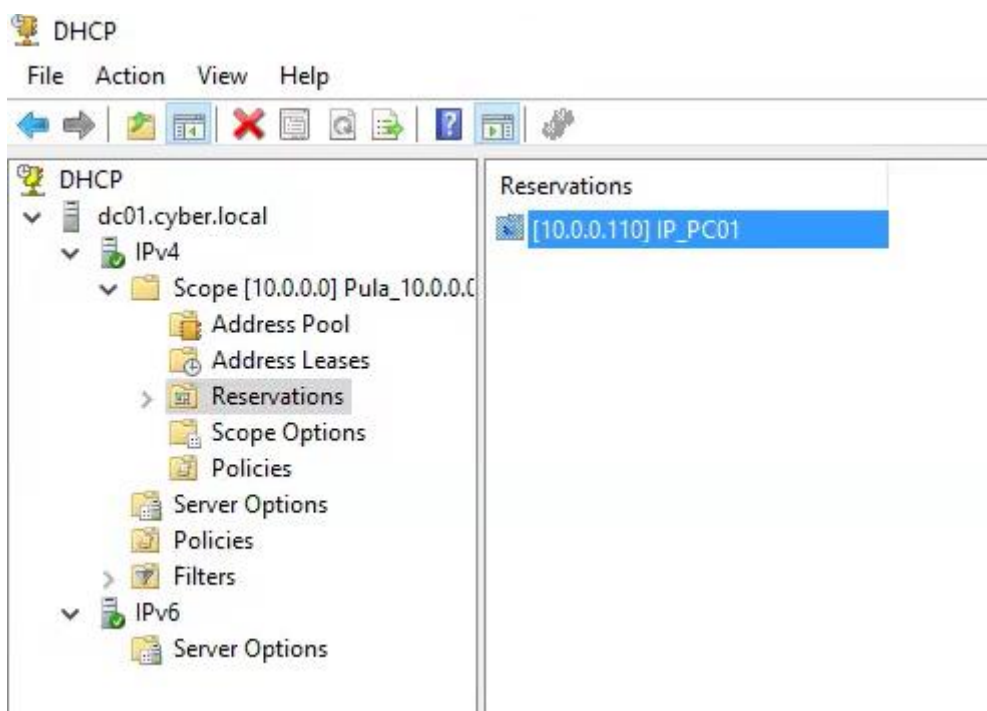
- 11 Create a DNS record that will identify the **Windows 10** client machine by the name "Client-A."

MAKING RESERVATION IN DHCP BY THE MAC ADDRESS FOR PC01



The "New Reservation" dialog box is shown. It contains the following fields and options:

- Reservation name: Client - A
- IP address: 10 . 0 . 0 . 135
- MAC address: 08-00-27-0e-ac-70
- Description: (empty)
- Supported types:
 - ☒ Both
 - ☐ DHCP
 - ☐ BOOTP
- Buttons: Add, Close



AS WE CAN SEE ON A HOST PC01 HAS IP ADDRESS 10.0.0.135

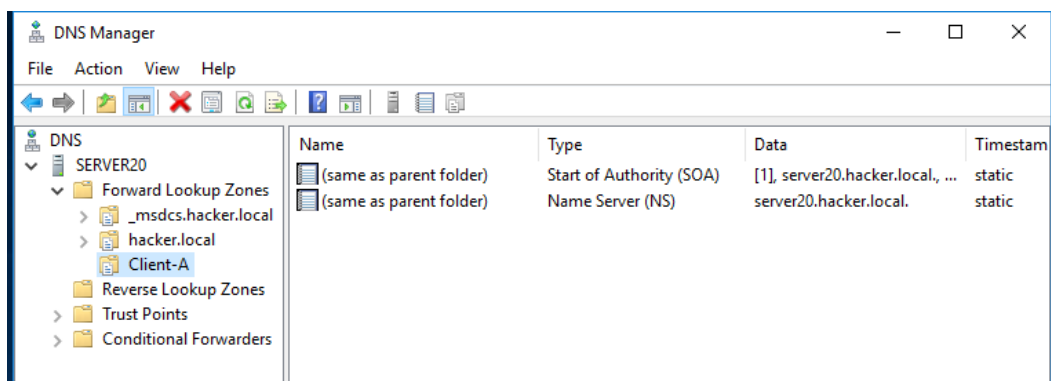
```
C:\Users\a.sobierajska>ipconfig /renew

Windows IP Configuration

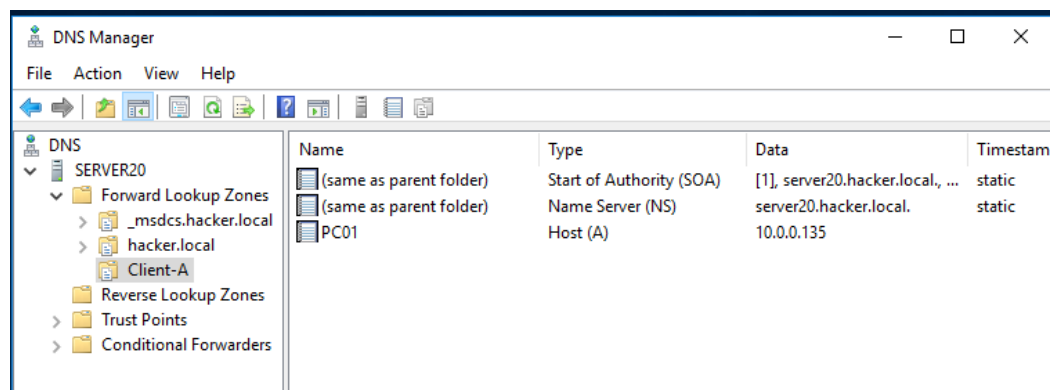
Ethernet adapter Ethernet:

    Connection-specific DNS Suffix  . : hacker.local
    Link-local IPv6 Address . . . . . : fe80::84ed:770c:deeb:21b0%12
    IPv4 Address. . . . . : 10.0.0.135
    Subnet Mask . . . . . : 255.255.0.0
    Default Gateway . . . . . :
```

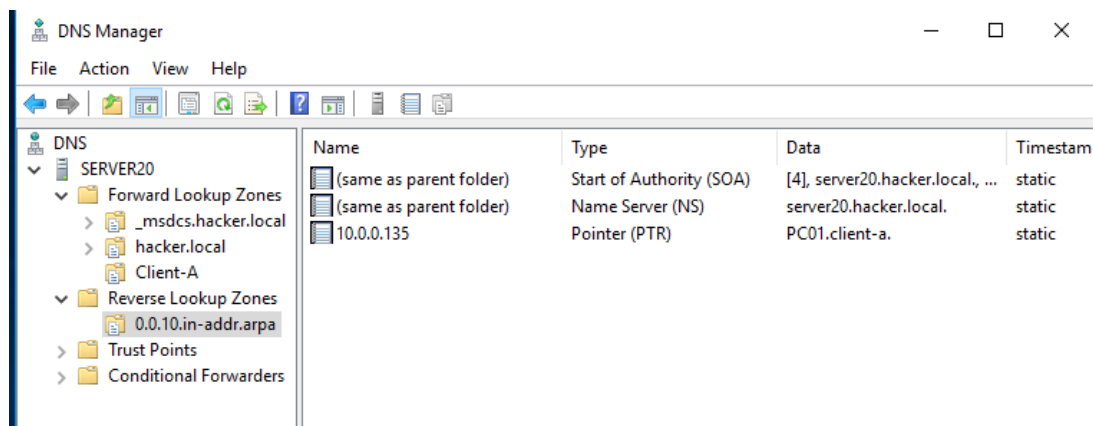
CREATING A NEW ZONE IN DNS MANAGER FORWARD LOOKUP ZONES



ADDING NEW HOST A/AAAA NAMED PC01 IP ADDRESS 10.0.0.135



CREATING NEW ZONE IN REVERSE LOOKUP



CHECKING

```
C:\Users\Administrator>nslookup 10.0.0.135
DNS request timed out.
    timeout was 2 seconds.
Server:  UnKnown
Address:  ::1

Name:    PC01.client-a
Address: 10.0.0.135

C:\Users\Administrator>nslookup PC01.Client-A
DNS request timed out.
    timeout was 2 seconds.
Server:  UnKnown
Address:  ::1

Name:    PC01.Client-A
Address: 10.0.0.135
```