

# Extend On-Premises Windows Server Active Directory to Azure VM

Complete Lab (V24.07)

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# Extend On-Premises Windows Server Active Directory to Azure VM

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## Extend On-Premises Windows Server Active Directory to Azure VM

### Lab Objective

Our goal in this lab is to extend On-Premise active directory to Microsoft Azure by create additional domain controller for existing On-Premise active directory domain in Microsoft Azure, so we can protect active directory in worst case disaster scenarios, and reduce downtime by redirect internal users to use DC in azure (additional) for authentication and other active directory benefits. Also by this scenario we reduce the active directory recovery time.

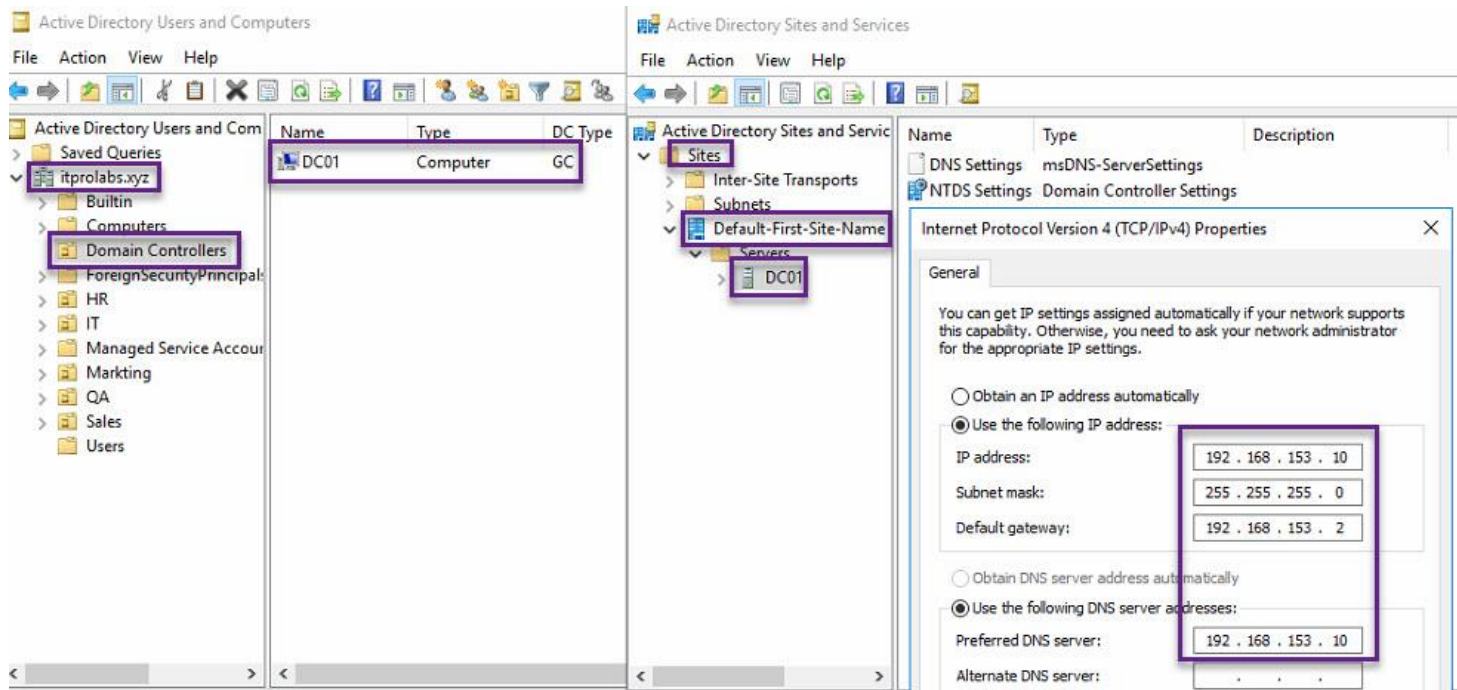
### Existing Active directory environment

We have only one On-Premise Domain controller for our ITPROLABS.XYZ domain named **DC01**, also we have only one active directory site that host our domain controller as explained in the figures below.

- ☒ Server IP: 192.168.153.10
- ☒ DNS: 192.168.153.10
- ☒ DC Name: DC01
- ☒ Domain Name: ITPROLABS.XYZ
- ☒ Site Name: Default-First-Site-Name

Full install windows server 2016 active directory lab explained in the below link:

<https://gallery.technet.microsoft.com/Install-Windows-Server-f37e3c6d>



## Extend On-Premises Windows Server Active Directory to Azure VM

### Existing DNS Configuration

We have one DNS server that host active directory integrated zone named ITPROLABS.XYZ domain, also this server (DC01.ITPROLABS.XYZ) working as Global Catalog, Kerberos and LDAP roles.

- ☒ DNS Server: 192.168.153.10
- ☒ DNS Zone: ITPROLABS.XYZ
- ☒ GC, Kerberos, LDAP Server: DC01.itprolabs.xyz

The screenshot shows the DNS Manager console tree with the following structure:

- DNS
  - DC01
    - Forward Lookup Zones
      - \_msdcs.itprolabs.xyz
        - itprolabs.xyz
          - \_msdcs
          - \_sites
          - \_tcp
          - \_udp
          - DomainDnsZones
          - ForestDnsZones
            - (same as parent folder)
            - (same as parent folder)
            - (same as parent folder)
            - dc01
            - VPN
            - VPN

Name	Type	Data	Timestamp
(same as parent folder)	Start of Authority (SOA)	[39], dc01.itprolabs.xyz., h...	static
(same as parent folder)	Name Server (NS)	dc01.itprolabs.xyz.	static
(same as parent folder)	Host (A)	192.168.153.10	5/28/2017
dc01	Host (A)	192.168.153.10	static
VPN	Host (A)	192.168.153.11	5/29/2017
VPN	Host (A)		5/29/2017

The screenshot shows the DNS Manager console tree with the following structure:

- DNS
  - DC01
    - Forward Lookup Zones
      - \_msdcs.itprolabs.xyz
        - itprolabs.xyz
          - \_msdcs
          - \_sites
            - Default-First-S...
            - \_tcp
          - \_tcp
          - \_udp

Name	Type	Data	Timestamp
_gc	Service Location (SRV)	[0][100][3268] DC01.itprolab..	5/28/2017
_kerberos	Service Location (SRV)	[0][100][88] DC01.itprolab..	5/28/2017
_ldap	Service Location (SRV)	[0][100][389] DC01.itprola..	5/28/2017

Extend On-Premises Windows Server Active Directory to Azure VM

Existing DHCP Configuration

DHCP Server: 192.168.153.10

Full DHCP server on windows server 2016 lab explained in the below link:

<https://gallery.technet.microsoft.com/Installing-and-Configuring-bf727a5f>

DHCP

File Action View Help

dc01.itprolabs.xyz

IPv4

Server Options

Scope [192.168.153.0] ITProL

Address Pool

Address Leases

Reservations

Scope Options

Policies

Policies

Filters

Start IP Address	End IP Address	Descrip Address
192.168.153.50	192.168.153.254	

DHCP

File Action View Help

dc01.itprolabs.xyz

IPv4

Server Options

Scope [192.168.153.0] ITProL

Address Pool

Address Leases

Reservations

Scope Options

Policies

Policies

Option Name	Vendor	Value
003 Router	Standard	192.168.153.2
006 DNS Servers	Standard	192.168.153.10
015 DNS Domain Name	Standard	itprolabs.xyz

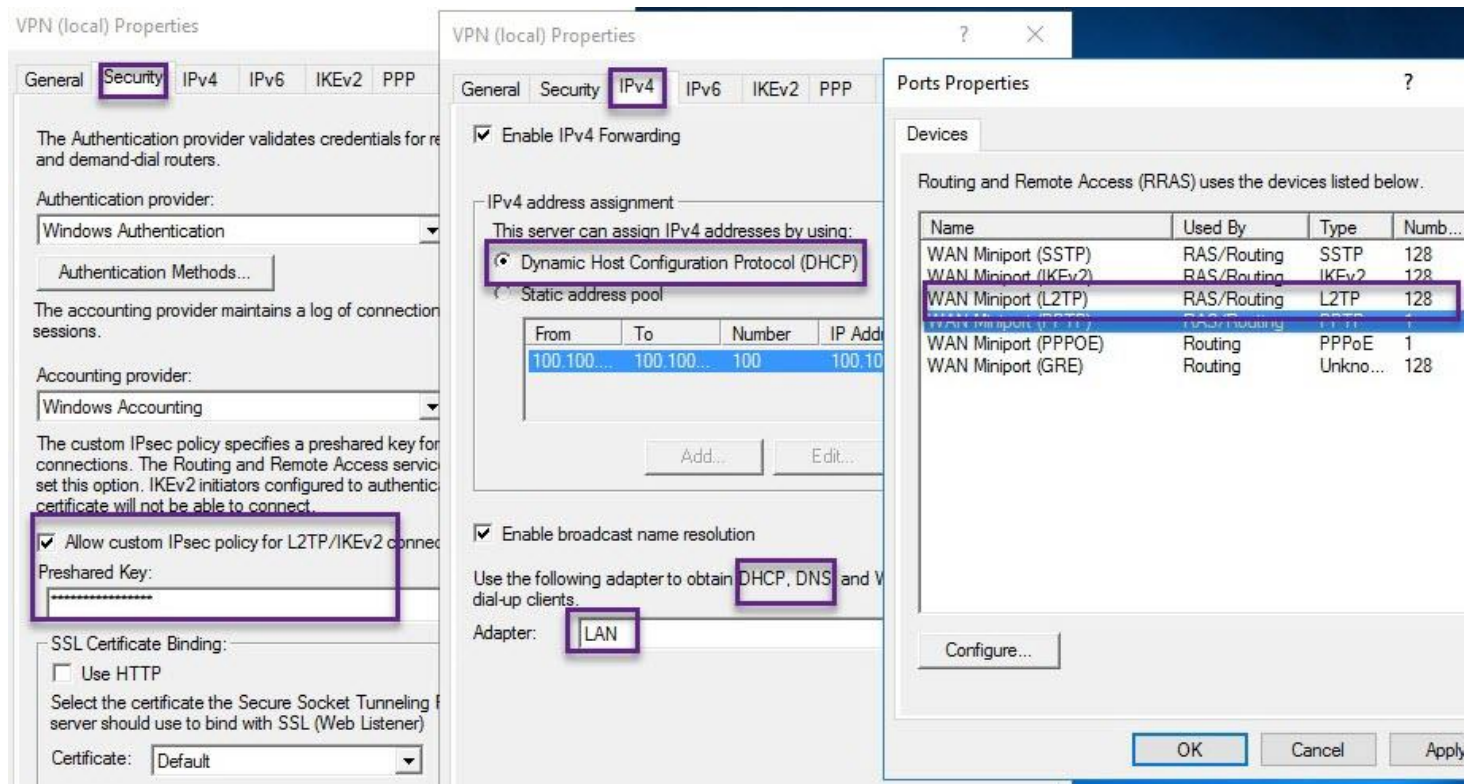
## Extend On-Premises Windows Server Active Directory to Azure VM

### Existing VPN Server Configuration

VPN configuration is important part in our lab because our Windows Server 2016 VM on Azure will contact On-Premise **itprolabs.xyz** domain through L2TP/IPsec VPN. Our VPN configuration fully explained in the following link:

<https://gallery.technet.microsoft.com/L2TPIPsec-VPN-On-Windows-5cc2c3ae>

**Note:** VM on azure doesn't support PPTP VPN.



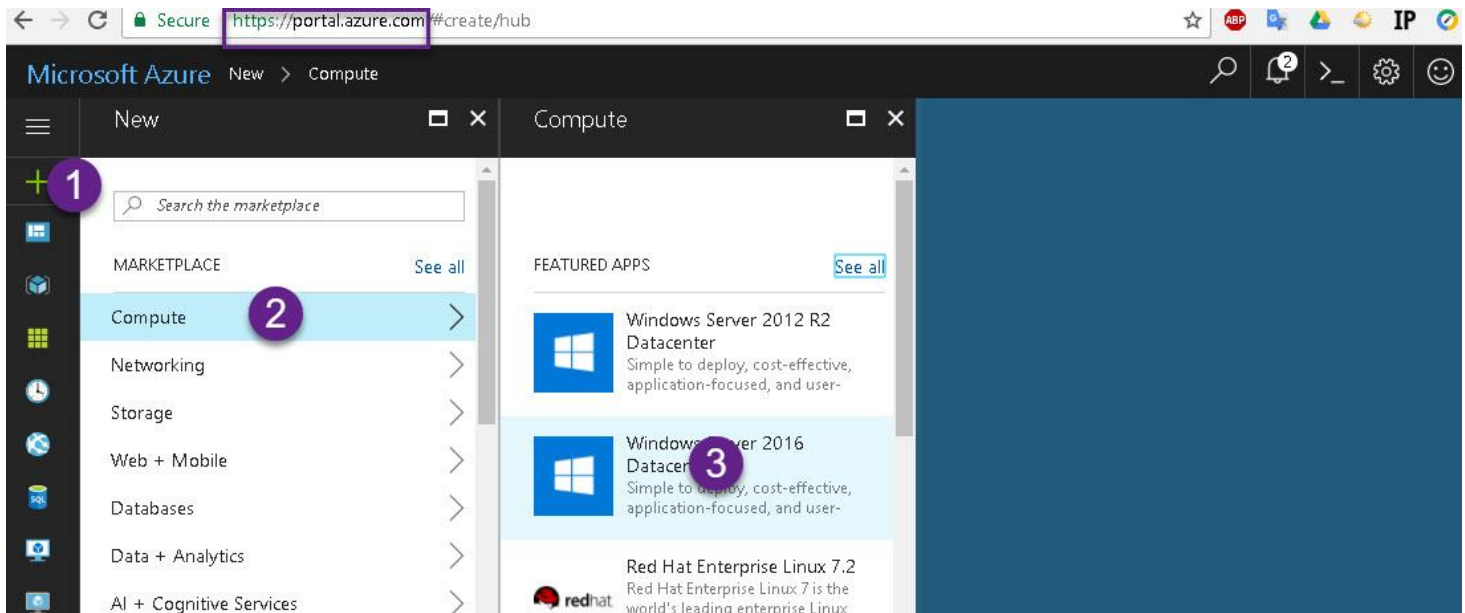


## Extend On-Premises Windows Server Active Directory to Azure VM

### Create Windows Server 2016 VM in Microsoft Azure

#### Create Windows Server 2016 Data Center VM step by step

1. **Login to Microsoft Azure Portal** and follow steps as explained in the figures below.



### 2. Configure VM basic settings including:

- 1- VM Name (special characters not allowed)
- 2- Hard Disk type: SSD or HDD
- 3- Create a local account on the VM with strong password (used for sign in to the VM).
- 4- Select your subscription.
- 5- Use existing resource group or create new one
- 6- Azure allows you to create resources, such as VMs, in geographic regions, so select region where you want the VM to run (There are 34 geographic regions for Microsoft Azure).

**Resource group** is logically group related resources such as storage accounts, virtual networks, and virtual machines (VMs) to deploy, manage, and maintain them as a single entity.

The screenshot displays the 'Create virtual machine' wizard in the Microsoft Azure portal, specifically the 'Basics' tab. The interface is annotated with numbered circles (1-9) indicating the steps for configuring the VM. Step 1 points to the 'Basics' tab. Step 2 points to the 'Name' field (AzureDC). Step 3 points to the 'VM disk type' dropdown (SSD). Step 4 points to the 'User name' field (aabelwahed). Step 5 points to the 'Password' field. Step 6 points to the 'Subscription' dropdown (MSDN Platforms). Step 7 points to the 'Resource group' dropdown (AzureAD\_RG). Step 8 points to the 'Location' dropdown (South Central US). Step 9 points to the 'OK' button at the bottom.



## Extend On-Premises Windows Server Active Directory to Azure VM

3. **Select VM size** that will determine VM configuration including RAM size, processor cores, storage size which will affect estimated monthly cost. In this lab DS1\_V2 Standard is our selected VM size.

Microsoft Azure New > Compute > Create virtual machine > Choose a size

Search resources

Create virtual machine

- 1 Basics Done
- 2 Size Choose virtual machine size
- 3 Settings Configure optional features
- 4 Summary Windows Server 2016 Datacenter

Choose a size  
Browse the available sizes and their features

Prices presented are estimates in your local currency that include only Azure infrastructure costs and any discounts for the subscription and location. The prices don't include any applicable software costs. Recommended sizes are determined by the publisher of the selected image based on hardware and software requirements.

Supported disk type: SSD Minimum cores: 1 Minimum memory (GiB): 0

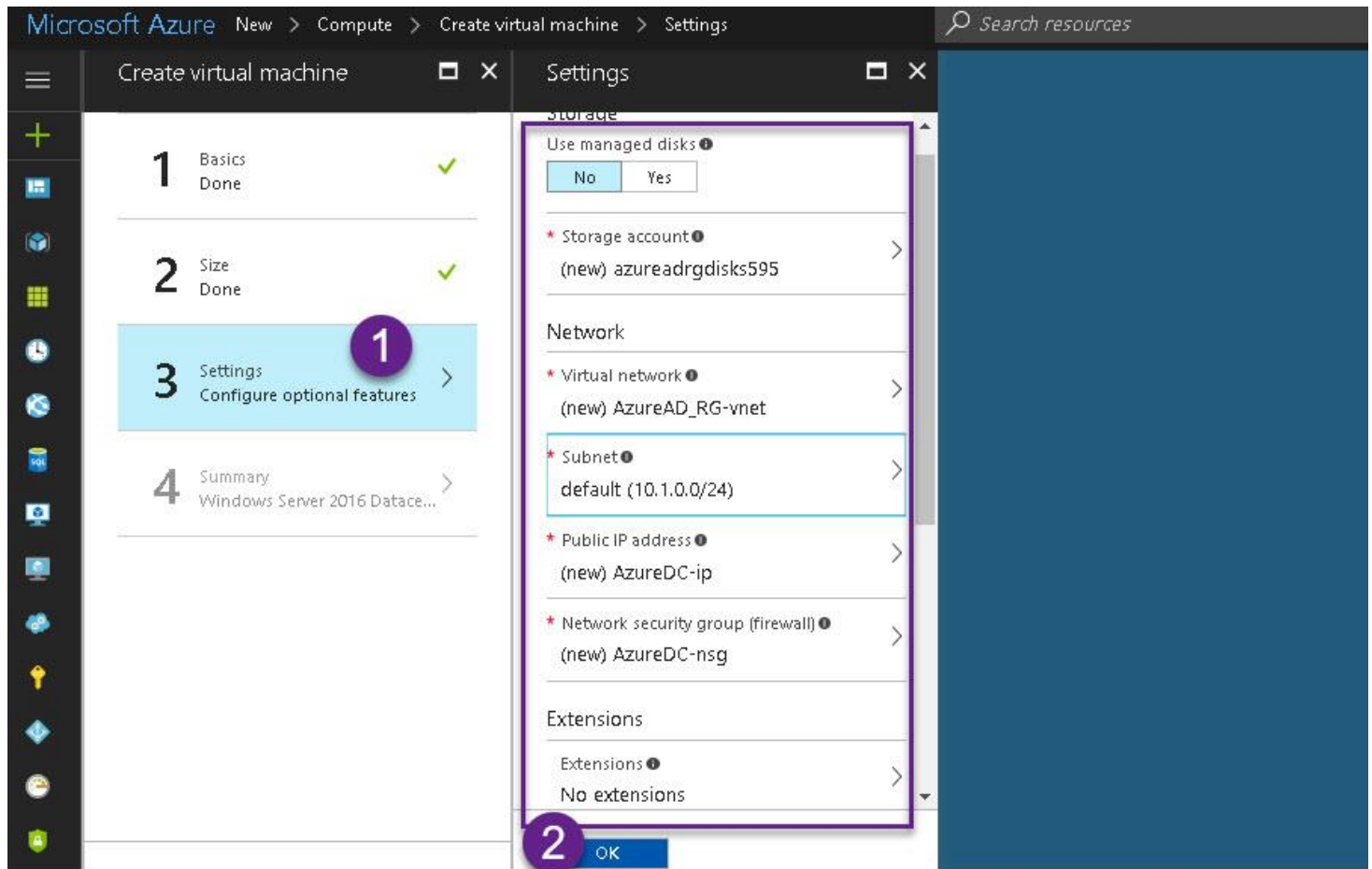
★ Recommended | View all

DS1_V2 Standard ★	DS2_V2 Standard ★	DS11_V2 Standard ★
1 Core	2 Cores	2 Cores
3.5 GB	7 GB	14 GB
2 Data disks	4 Data disks	4 Data disks
3200 Max IOPS	6400 Max IOPS	6400 Max IOPS
7 GB Local SSD	14 GB Local SSD	28 GB Local SSD
Load balancing	Load balancing	Load balancing
Premium disk support	Premium disk support	Premium disk support
178.56 SAR/MONTH (ESTIMATED)	354.33 SAR/MONTH (ESTIMATED)	463.14 SAR/MONTH (ESTIMATED)

3 Select

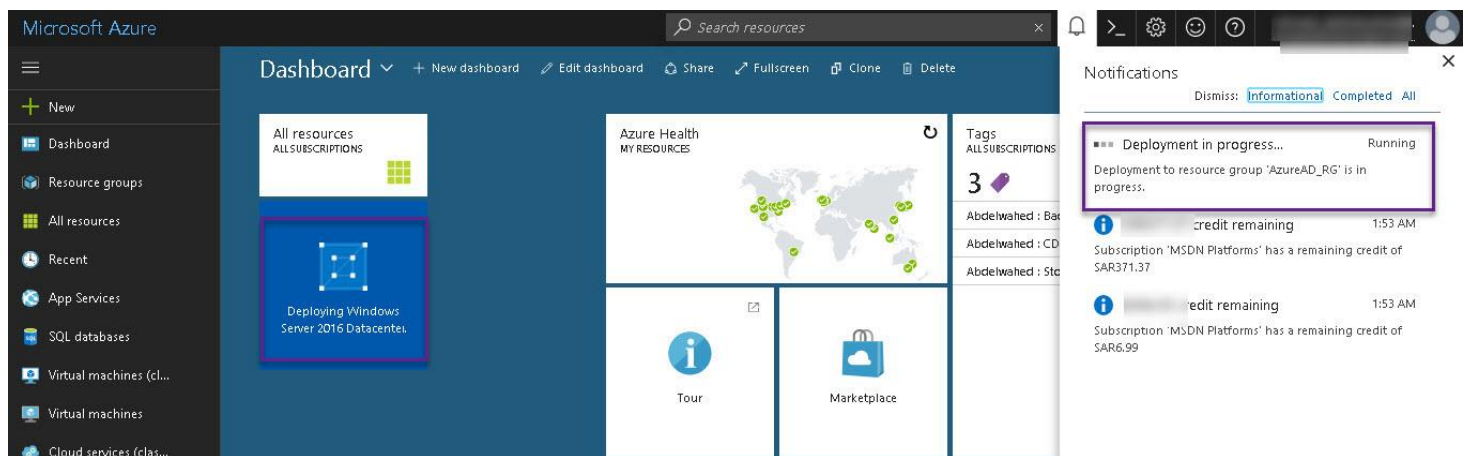
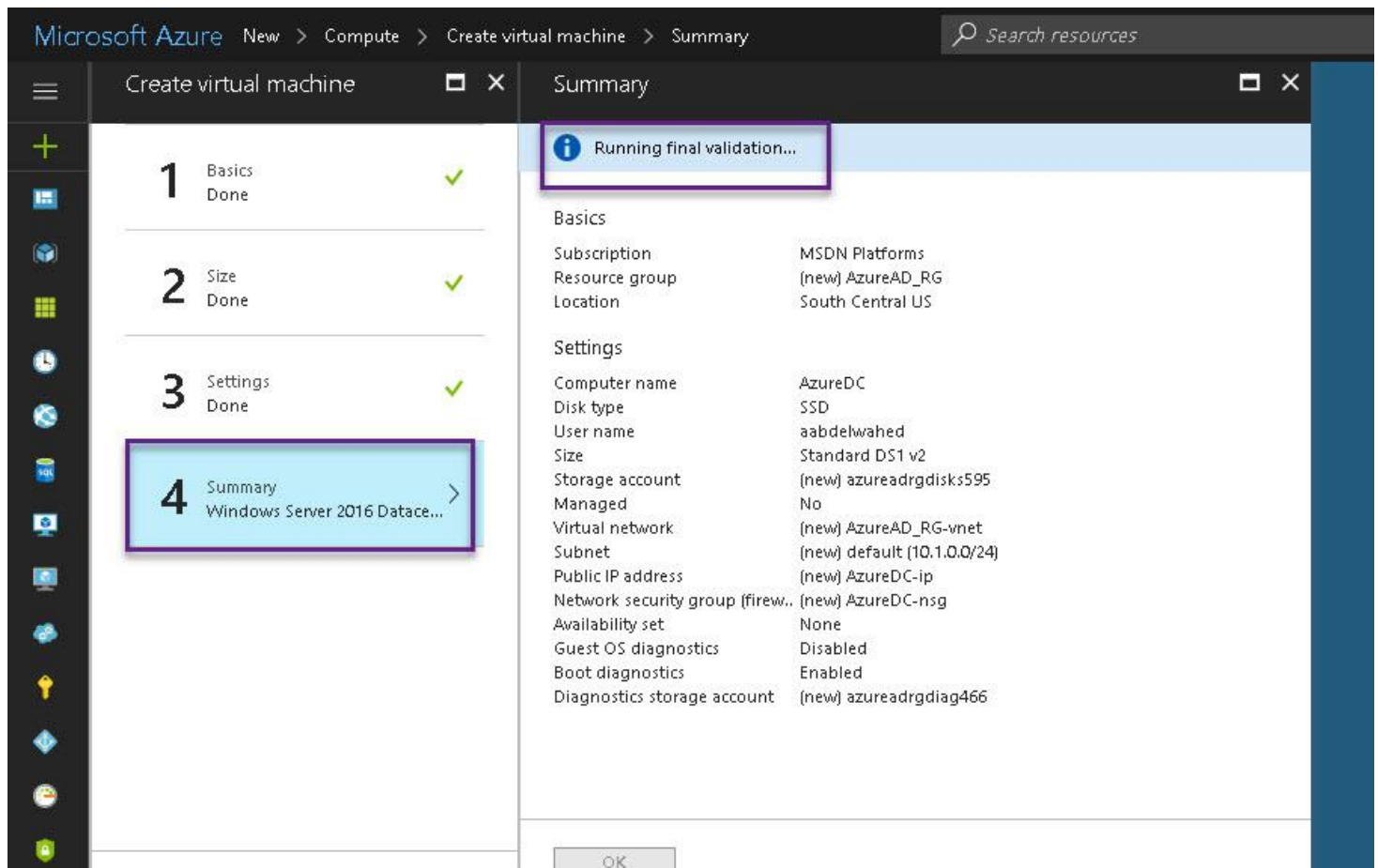
## Extend On-Premises Windows Server Active Directory to Azure VM

4. Configure **optional features** for example you can create virtual network and assign specific IP addresses to it or you can leave this option by default and azure will configure this options for you.



## Extend On-Premises Windows Server Active Directory to Azure VM

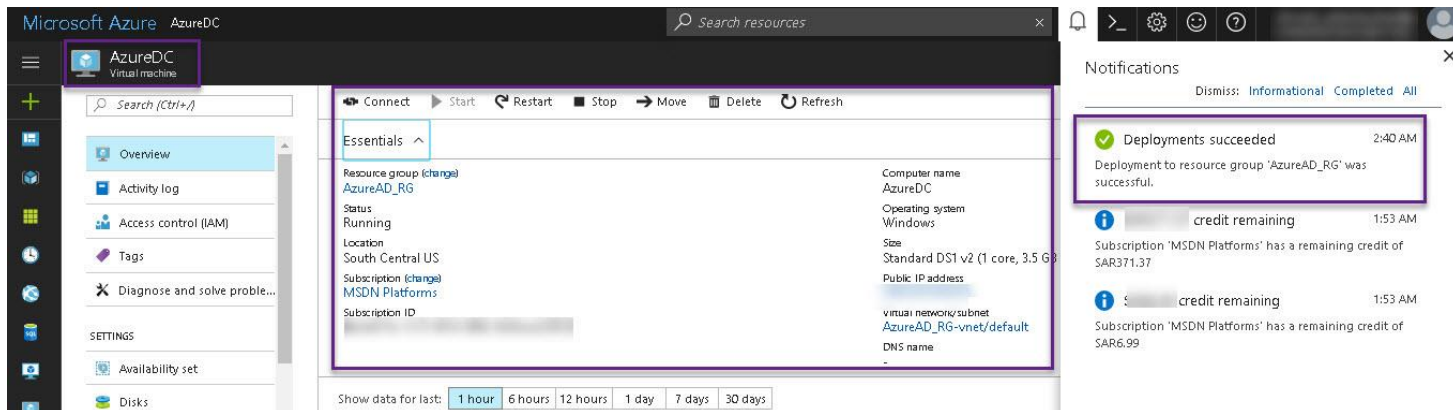
5. Before start VM creation Azure **validate** your configuration



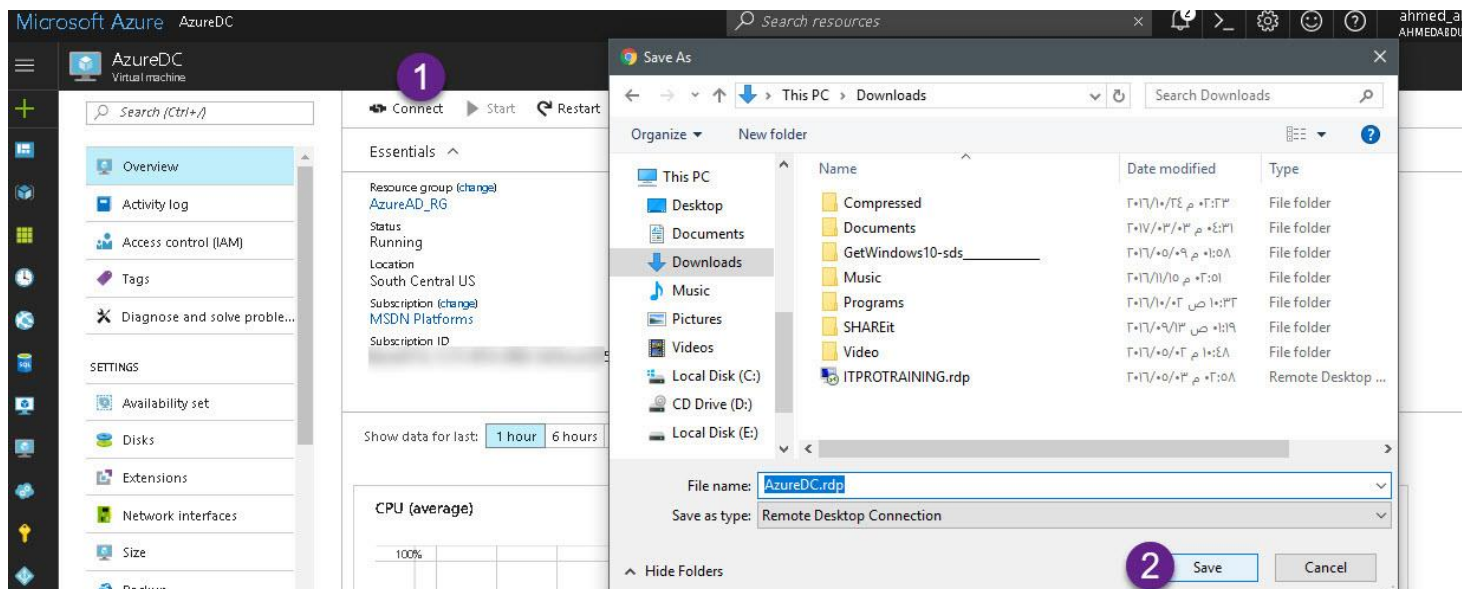
## Extend On-Premises Windows Server Active Directory to Azure VM

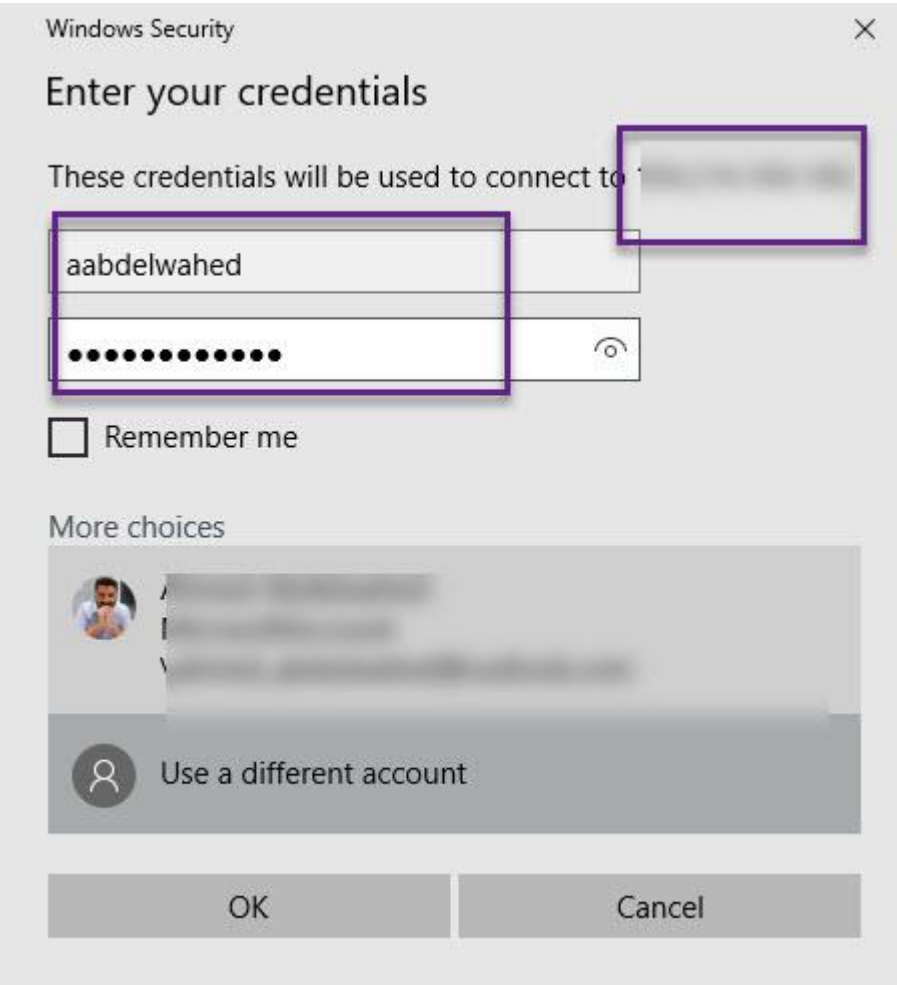
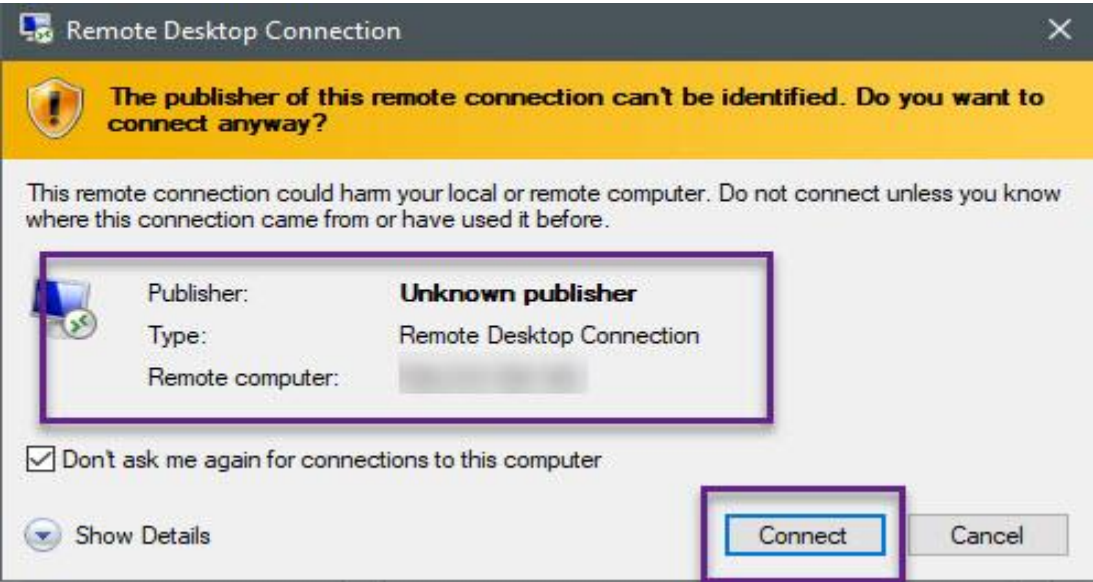
### Access Azure VM

Once your VM is created Microsoft Azure assign public IP address to it so you can access your VM through Remote Desktop with your local account credentials that you are created.



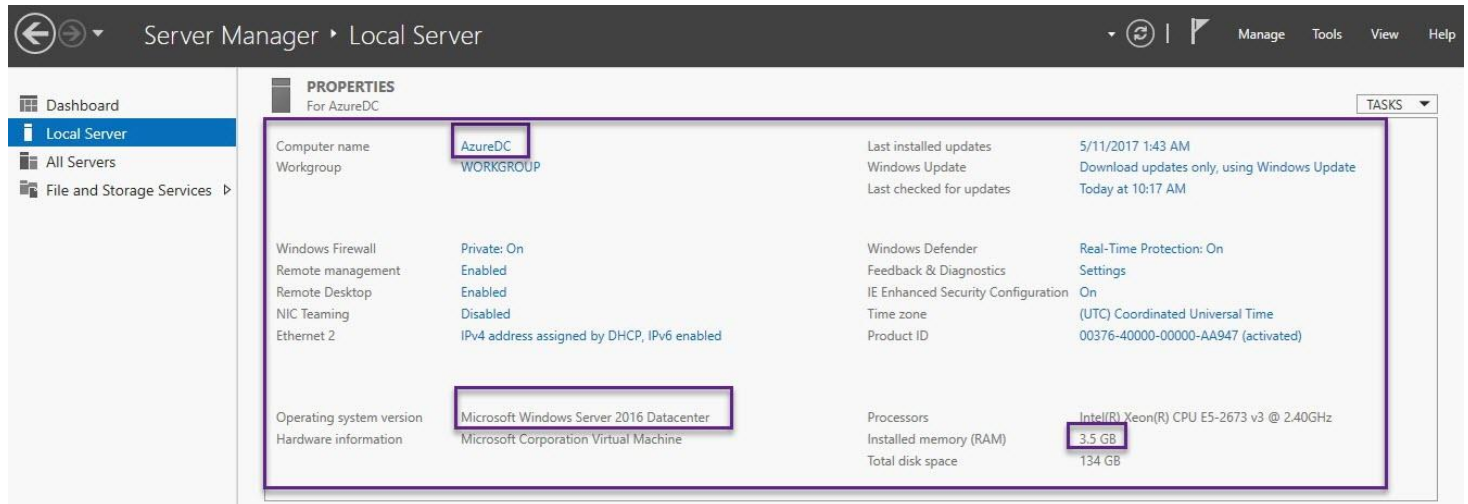
Now you can **connect** through remote desktop by click Connect tab as explained in the figures below





## Extend On-Premises Windows Server Active Directory to Azure VM

Finally, we sign in Windows Server 2016 VM which we created.



For more information about create and configure windows server 2016 VM on azure, check the following link:

<https://gallery.technet.microsoft.com/Create-and-Configure-65fec55>

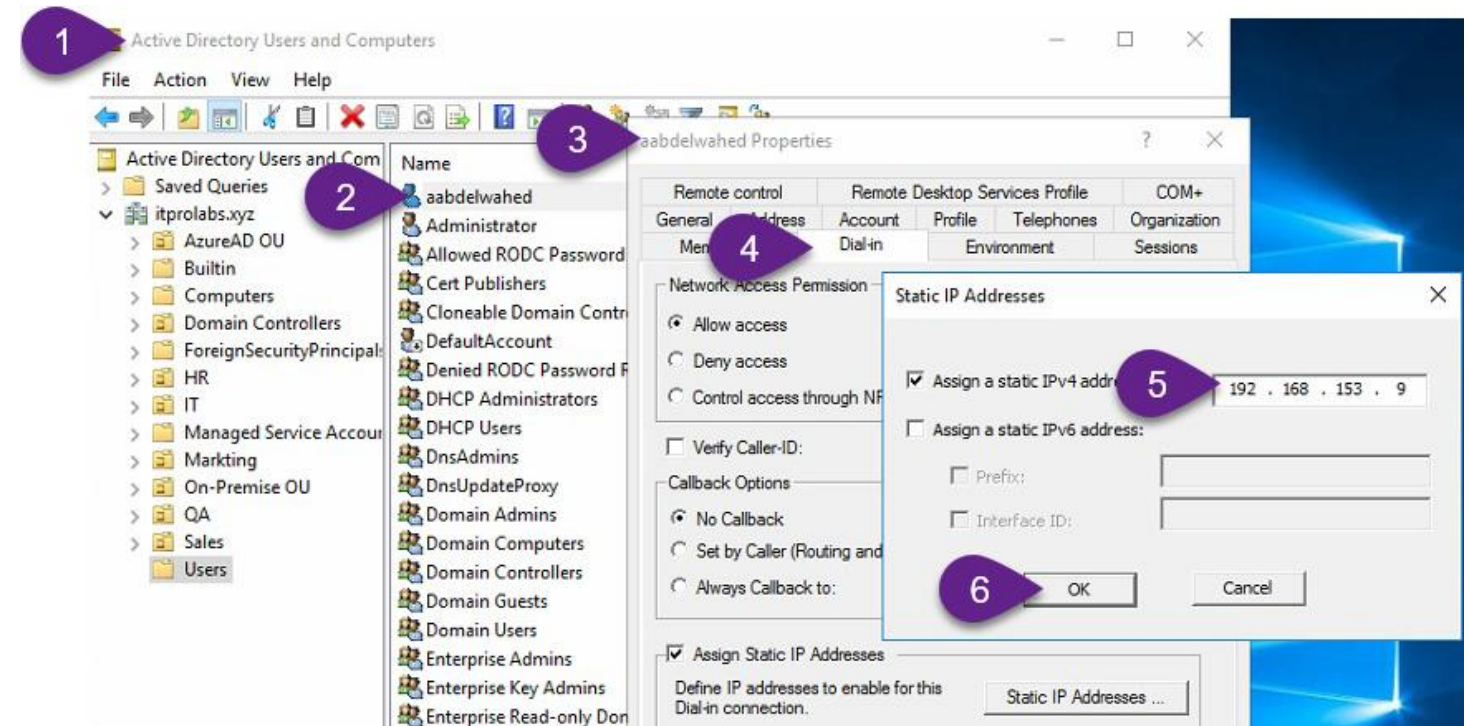


## Extend On-Premises Windows Server Active Directory to Azure VM

### Connect Azure VM Server to On-Premise network using L2TP/IPsec VPN

#### Assign static IP address for Azure VM VPN connection

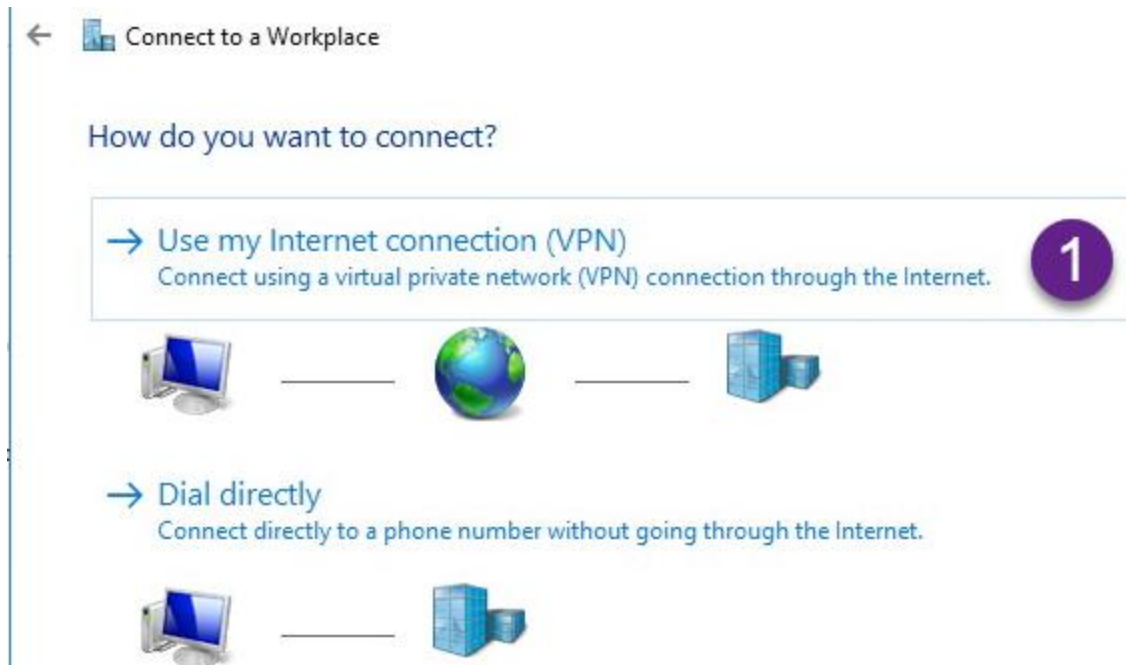
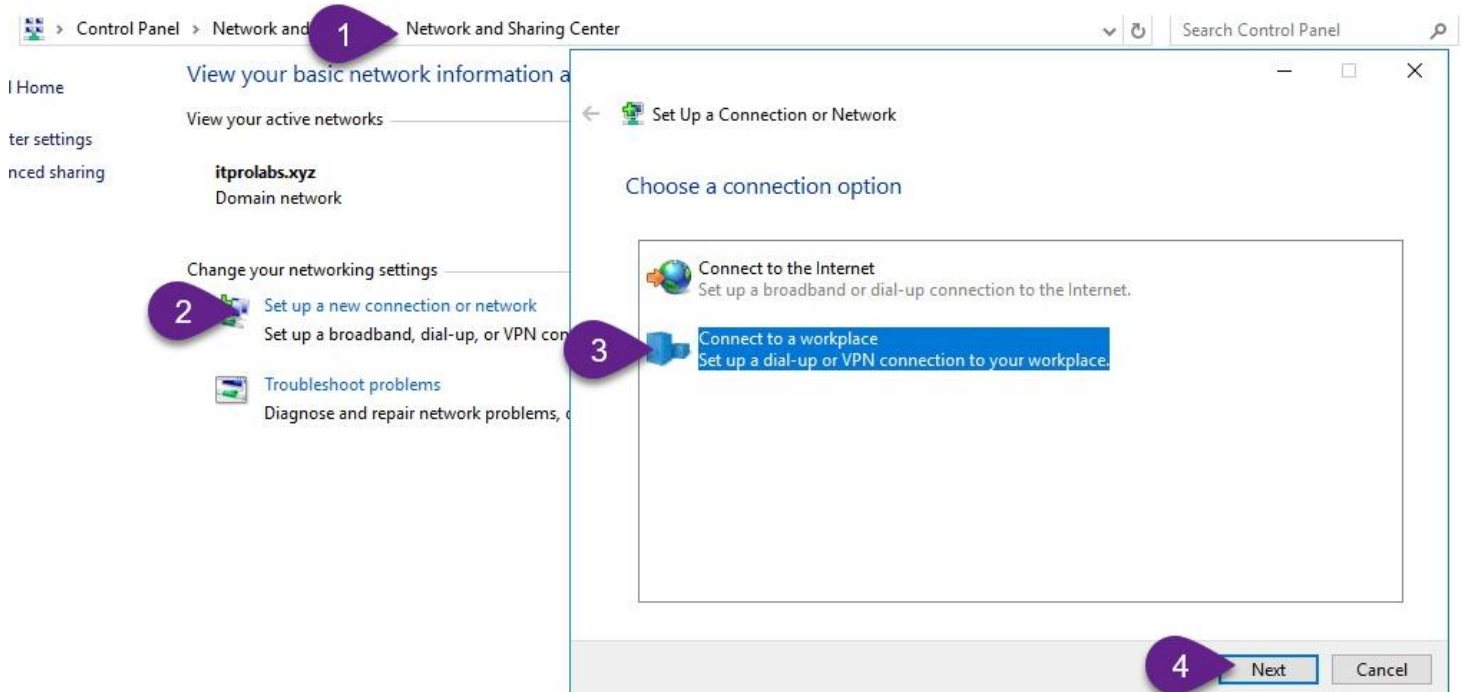
Its preferable to assign static IP address for additional DC when connect to On-Premise network, so PCs in On-Premise can contact additional DC easily, to do this we will assign static IP address for user that we will use it in VPN connection from Azure to On-Premise, in this example we will assign this option to **aabdelwahed** user.



## Extend On-Premises Windows Server Active Directory to Azure VM

### Create VPN connection from Windows Server 2016 VM on Microsoft Azure

Connect to Windows Server 2016 on Azure and create VPN connect, as explained in the figures below



## Extend On-Premises Windows Server Active Directory to Azure VM

← Connect to a Workplace

Type the Internet address to connect to

Your network administrator can give you this address.

Internet address:  1

Destination name:  2

☐ Use a smart card

☒ Remember my credentials

☒ Allow other people to use this connection  
This option allows anyone with access to this computer to use this connection.

3

### - Configure L2TP/IPsec

ITProLabs Connect Properties 1

General Options Security Networking Sharing

Type of VPN: Layer 2 Tunneling Protocol with IPsec (L2TP/IPsec) 3

Data encryption: Require encryption (disconnect if server declines) 6

Authentication

☐ Use Extensible Authentication Protocol (EAP)

☒ Allow all protocols 7

☐ Unencrypted password (PAP)

☐ Challenge Handshake Authentication Protocol (CHAP)

☒ Microsoft CHAP Version 2 (MS-CHAP v2)

☐ Automatically use my Windows logon name and password (and domain, if any)

9

Advanced Properties

L2TP

☒ Use preshared key for authentication

Key: ITProLabs@17 5

☐ Use certificate for authentication

☒ Verify the Name and Usage attributes of the server's certificate

8

## Extend On-Premises Windows Server Active Directory to Azure VM

- Enable internet connectivity with VPN and start connection

The image shows two screenshots from a Windows operating system. The top screenshot displays the 'Internet Protocol Version 4 (TCP/IPv4) Properties' dialog box. It has several numbered callouts: 1 points to the 'Internet Protocol Version 4 (TCP/IPv4)' checkbox in the 'Networking' tab; 2 points to the 'Networking' tab itself; 3 points to the 'Obtain an IP address automatically' radio button; 4 points to the 'Obtain DNS server address automatically' radio button; 5 points to the 'Advanced...' button; and 6 points to the 'Use default gateway on remote network' checkbox in the 'Advanced TCP/IP Settings' sub-dialog. The bottom screenshot shows the Windows 'Settings' app. A purple arrow points from the 'VPN' section in the left sidebar to the 'VPN' title in the main pane. Another purple arrow points from the 'Add a VPN connection' button to the 'ITProLabs Connect' entry. A third purple arrow points from the 'Connect' button to the 'Connect' button. Below the 'Connect' button, the 'Advanced Options' section is visible, showing the 'Allow VPN over metered networks' toggle set to 'Off'.

1. Internet Protocol Version 4 (TCP/IPv4) Properties

2. Networking

3. Obtain an IP address automatically

4. Obtain DNS server address automatically

5. Advanced...

6. Use default gateway on remote network

Settings

Home

Find a setting

Network & Internet

Status

Ethernet

Dial-up

VPN

Proxy

VPN

Add a VPN connection

ITProLabs Connect

Connect

Advanced options

Remove

Advanced Options

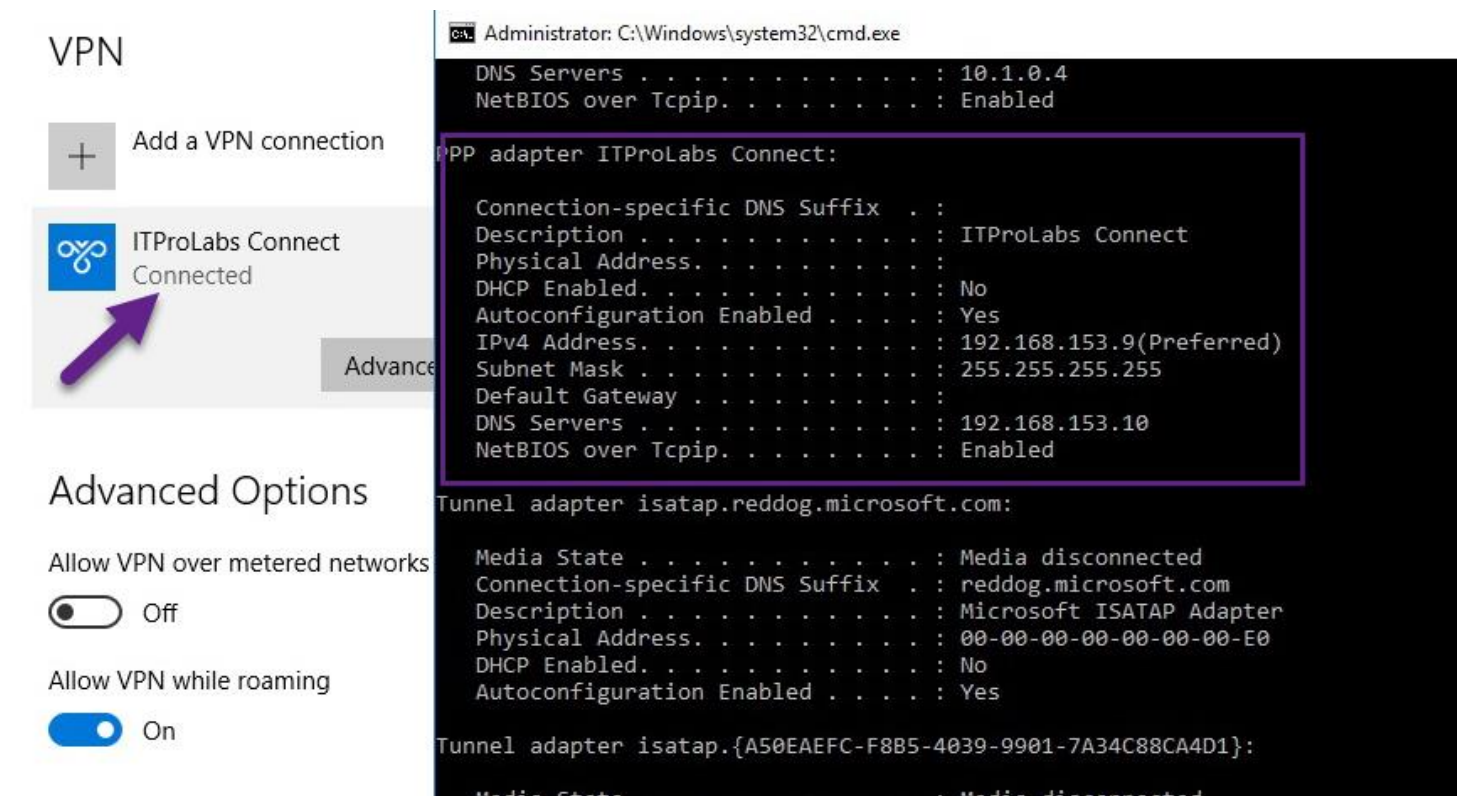
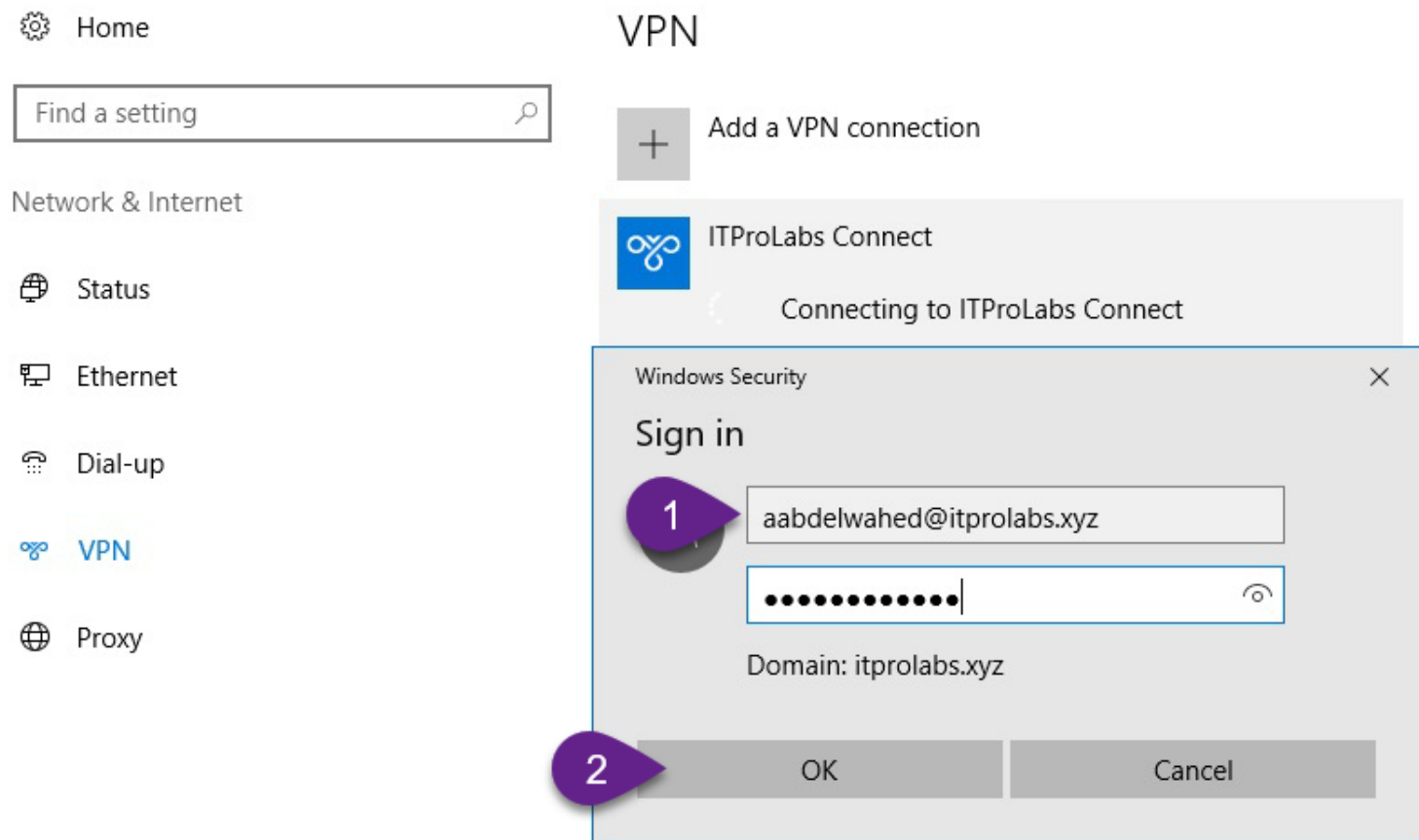
Allow VPN over metered networks

Off

Allow VPN while roaming



## Extend On-Premises Windows Server Active Directory to Azure VM



# Now Windows Server 2016 VM on Microsoft Azure is ready to be additional DC for ITPROLABS.XYZ

## [Install additional DC in Azure Windows Server 2016 VM](#)

Now windows server 2016 VM on Microsoft Azure connected to our private network through L2TP/IPsec, so now we can create additional DC for our domain On-Perm ([itprolabs.xyz](#))

[install Active Directory Domain services](#)

Server Manager Dashboard

WELCOME TO SERVER MANAGER

1 Configure this local server

2 Add roles and features

3 Add other servers to the server pool

4 Create a server group

5 Connect this server to the Internet

QUICK START

WHAT'S NEW

LEARN MORE

Add Roles and Features Wizard

Select installation type

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 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 or session-based desktop deployment.

Select destination server

Before You Begin

Installation Type

Server Selection

Server Roles

Features

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
AzureDC	10.1.0.4	Microsoft Windows Server 2016 Datacenter

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

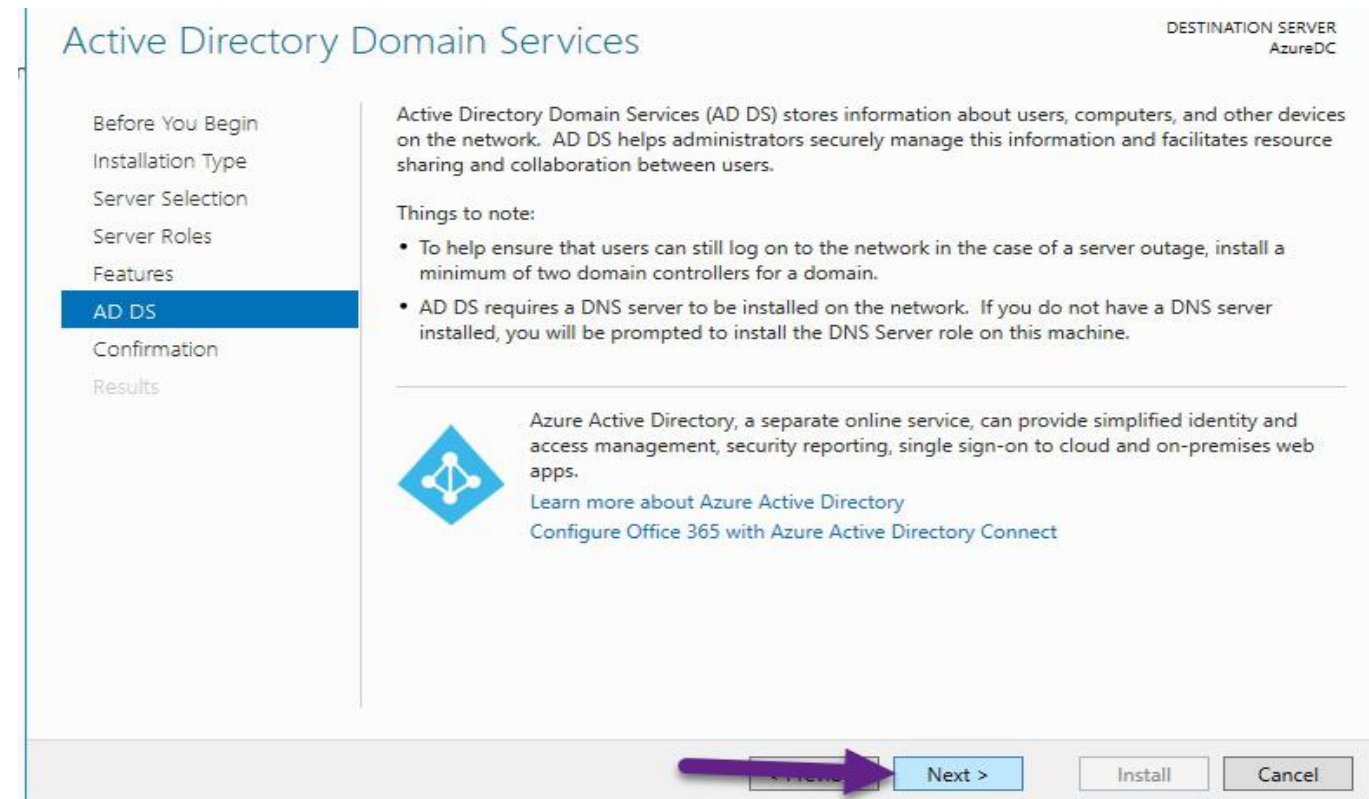
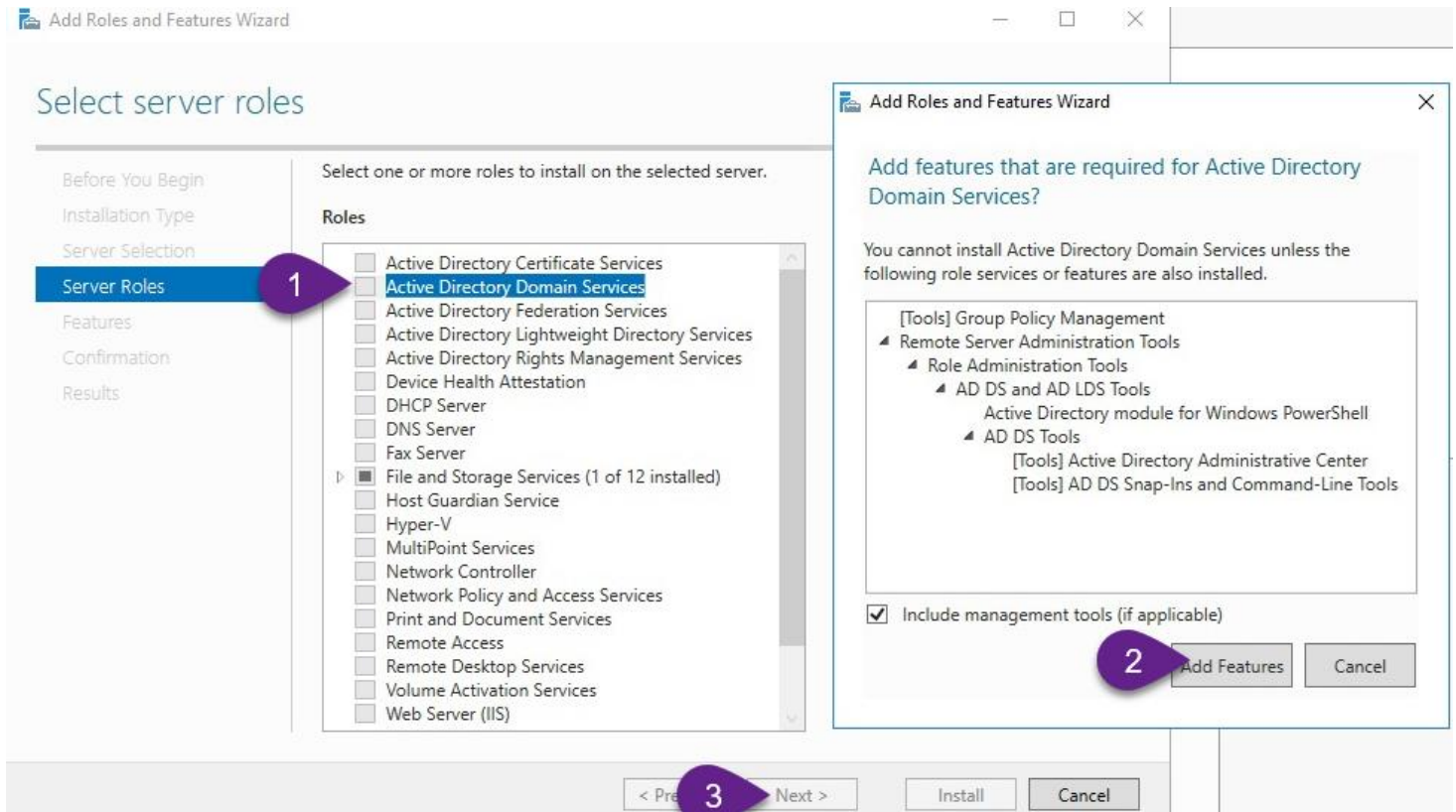
Next >

Install

Cancel



## Extend On-Premises Windows Server Active Directory to Azure VM



## Extend On-Premises Windows Server Active Directory to Azure VM

**Add Roles and Features Wizard**

**Select features**

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 (Installed)
- ☐ BitLocker Network Unlock
- ☐ BranchCache
- ☐ Client for NFS
- ☐ Containers
- ☐ Data Center Bridging
- ☐ Direct Play
- ☒ Enhanced Storage (Installed)
- ☐ Failover Clustering
- ☒ Group Policy Management
- ☐ Host Guardian Hyper-V Support
- ☐ I/O Quality of Service
- ☐ IIS Hostable Web Core
- ☐ Internet Printing Client
- ☐ IP Address Management (IPAM) Server
- ☐ iSNS Server service

**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.

**DESTINATION SERVER**  
AzureDC

**Next >** **Install** **Cancel**

**Add Roles and Features Wizard**

**Confirm installation selections**

Before You Begin  
Installation Type  
Server Selection  
Server Roles  
Features  
**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](#)

**DESTINATION SERVER**  
AzureDC

**Install** **Cancel**

## Extend On-Premises Windows Server Active Directory to Azure VM

Installation progress

DESTINATION SERVER  
AzureDC

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

View installation progress

**Feature installation**  
Installation started on AzureDC

**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

**1** 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

## Promote Windows Server 2016 Data Center VM in Azure to be additional DC

Server Manager ▸ Dashboard

WELCOME TO SERVER MANAGER

**1** Configure this local server

**2** Add roles and features

**3** Add other servers to manage

**4** Create a server group

**5** Connect this server to cloud services

**Post-deployment Configuration**  
Configuration required for Active Directory Domain Services at AZUREDC  
**Promote this server to a domain controller**

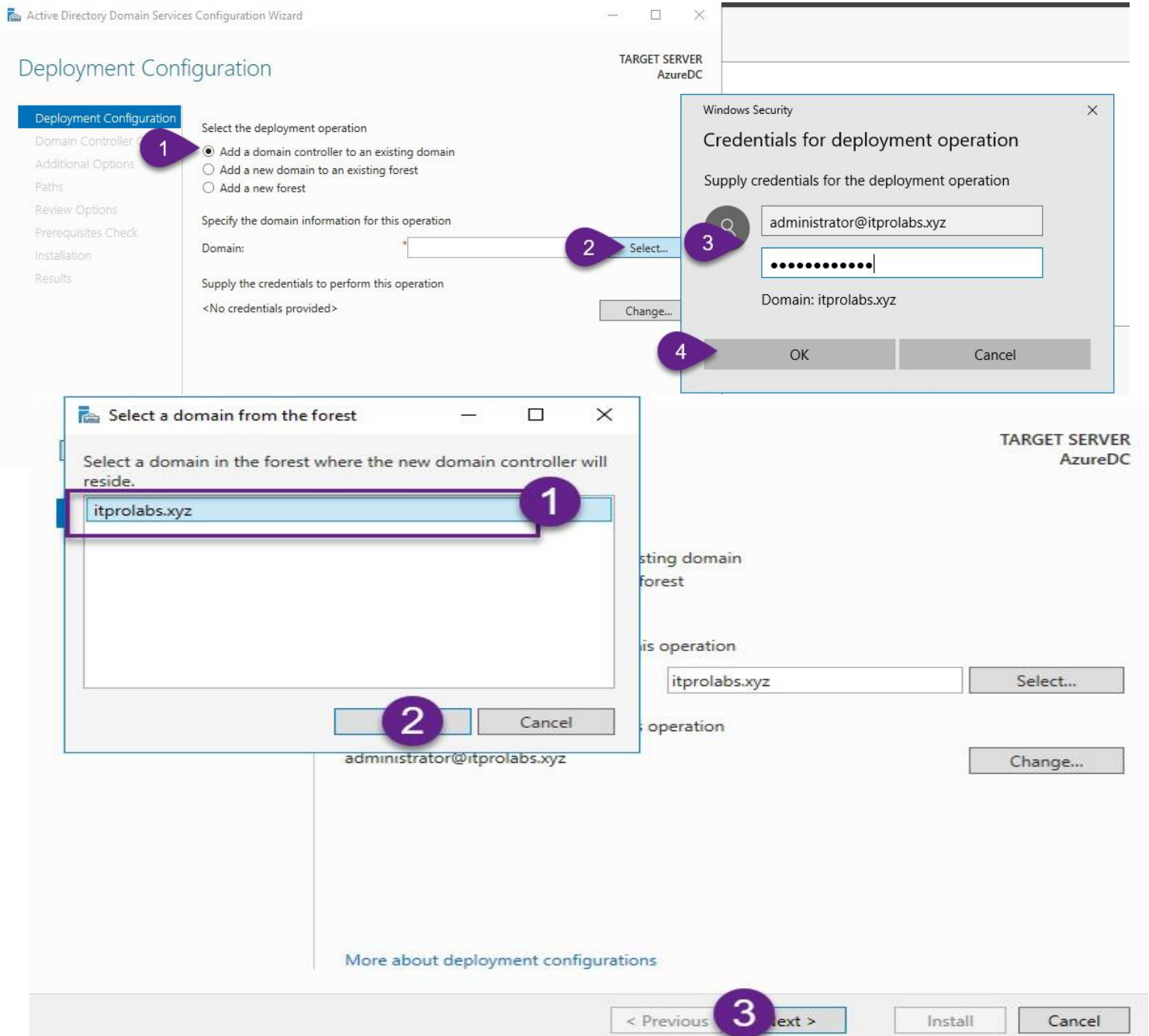
**Feature installation**  
Configuration required, Installation succeeded on AzureDC.  
[Add Roles and Features](#)  
[Task Details](#)

**1** **2**

Manage

## Extend On-Premises Windows Server Active Directory to Azure VM

1. There are three options when you try to promote your server to active directory:
  - Promote your server to be additional DC in existing domain (selected for our scenario)
  - Promote your server to child domain in existing forest
  - Promote your server to new forest
2. Select your domain that you want to create additional for (select itprolabs.xyz for our scenario).





## Extend On-Premises Windows Server Active Directory to Azure VM

3. It's recommended to allow this server to also work as **GC** and **DNS** according to your requirements, also select site that will host your server, if you select the same site with parent domain your replication between two servers will be at the same time by default.

Active Directory Domain Services Configuration Wizard

Domain Controller Options

TARGET SERVER  
AzureDC

Deployment Configuration

**Domain Controller** 1

DNS Options 2

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

Specify domain controller capabilities and site information

☒ Domain Name System (DNS) server

☒ Global Catalog (GC)

☐ Read only domain controller (RODC)

Site name: 3

Default-First-Site-Name

Type the Directory Services Restore Mode (DSRM) password

Password: .....

Confirm password: .....

More about domain controller options

< Previous 4 Next >

Install

Cancel

## Extend On-Premises Windows Server Active Directory to Azure VM

DNS Options

TARGET SERVER  
AzureDC

A delegation for this DNS server cannot be created because the authoritative parent zone cannot be found... [Show more](#) X

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

Specify DNS delegation options

☐ Update DNS delegation

[More about DNS delegation](#)

Next > Install Cancel

4. Select which DC that you want to replicate from

Active Directory Domain Services Configuration Wizard

Additional Options

Deployment Configuration  
Domain Controller Options  
DNS Options  
Additional Options  
Paths  
Review Options  
Prerequisites Check

Specify Install From Media (IFM) Options

☐ Install from media

Specify additional replication options

Replicate from:

1

Any domain controller  
Any domain controller  
DC01.itprolabs.xyz

TARGET SERVER  
AzureDC



## Extend On-Premises Windows Server Active Directory to Azure VM

### 5. Select active directory database and log files store location

Active Directory Domain Services Configuration Wizard

Paths

TARGET SERVER  
AzureDC

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

## Extend On-Premises Windows Server Active Directory to Azure VM

### 6. Review your selected configuration

# Review Options

Deployment Configuration

Domain Controller Options

DNS Options

Additional Options

Paths

Review Options

Prerequisites Check

Installation

Results

TARGET SERVER  
AzureDC

Review your selections:

Configure this server as an additional Active Directory domain controller for the domain "itprolabs.xyz".

Site Name: Default-First-Site-Name

Additional Options:

Read-only domain controller: No

Global catalog: Yes

DNS Server: Yes

Update DNS Delegation: No

Source DC: DC01.itprolabs.xyz

These settings can be exported to a Windows PowerShell script to automate additional installations

View script

More about installation options

< Previous

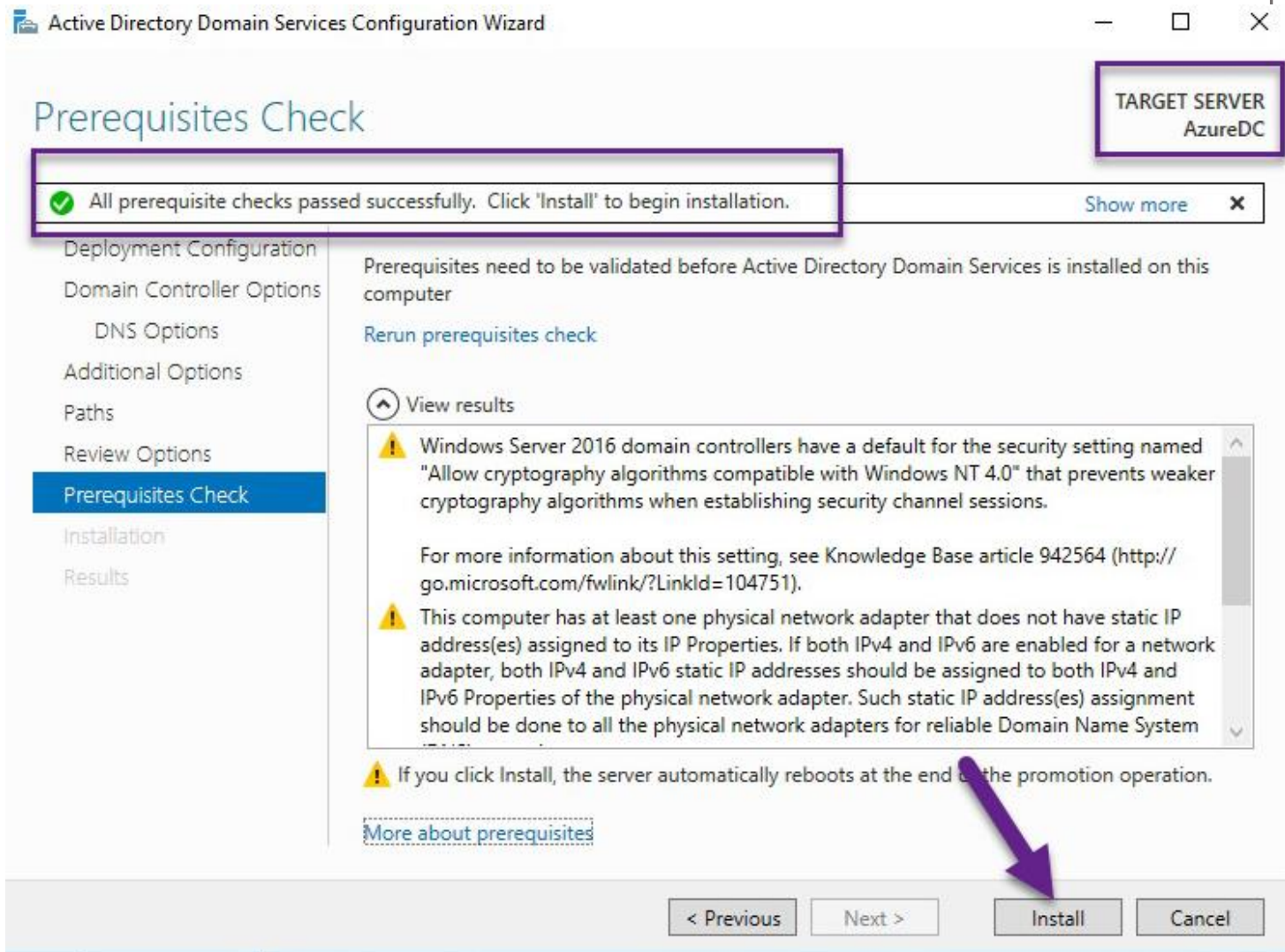
Next >

Install

Cancel

## Extend On-Premises Windows Server Active Directory to Azure VM

7. Prerequisites checked passed, now your VM is ready to promote.



Extend On-Premises Windows Server Active Directory to Azure VM

8. Now Windows Server 2016 is working as additional DC.

Server Manager ▸ Local Server

Dashboard

Local Server

All Servers

AD DS

DNS

File and Storage Services ▸

PROPERTIES

For AzureDC

Computer name

AzureDC

Domain

itprolabs.xyz

Windows Firewall

Domain: On

Remote management

Enabled

Remote Desktop

Enabled

NIC Teaming

Disabled

Ethernet 2

Assigned by DHCP

Operating system version

Microsoft Windows Se

Hardware information

Microsoft Corporation

Active Directory Users and Computers

File Action View Help

Active Directory Users and Com

itprolabs.xyz

AzureAD OU

Builtin

Computers

Domain Controllers

ForeignSecurityPrincipal

HR

IT

Managed Service Accour

Marketing

On-Premise OU

QA

Sales

Users

Name	Type	DC Type	Site
AZUREDC	Computer	GC	Default-First-Si...
DC01	Computer	GC	Default-First-Si...

## Extend On-Premises Windows Server Active Directory to Azure VM

### Check Active Directory & DNS changes

1. From **DNS**, our new DC on azure is added as name server, GC, Kerberos and LDAP.

The first screenshot shows the DNS Manager console for the DC01 server. The left pane shows the hierarchy: DNS > DC01 > Forward Lookup Zones > itprolabs.xyz. The right pane displays a list of DNS records. The records for the Name Server (NS) and Host (A) types are highlighted with a yellow box. The records are:

Name	Type	Data	Timestamp
(same as parent folder)	Start of Authority (SOA)	[79], dc01.itprolabs.xyz, h...	static
(same as parent folder)	Name Server (NS)	dc01.itprolabs.xyz.	static
(same as parent folder)	Name Server (NS)	azuredc.itprolabs.xyz.	static
(same as parent folder)	Host (A)	192.168.153.9	6/2/2017 3
(same as parent folder)	Host (A)	192.168.153.10	5/28/2017
(same as parent folder)	Host (A)	10.1.0.4	6/2/2017 3
AzureDC	Host (A)	192.168.153.9	static
AzureDC	Host (A)	10.1.0.4	static

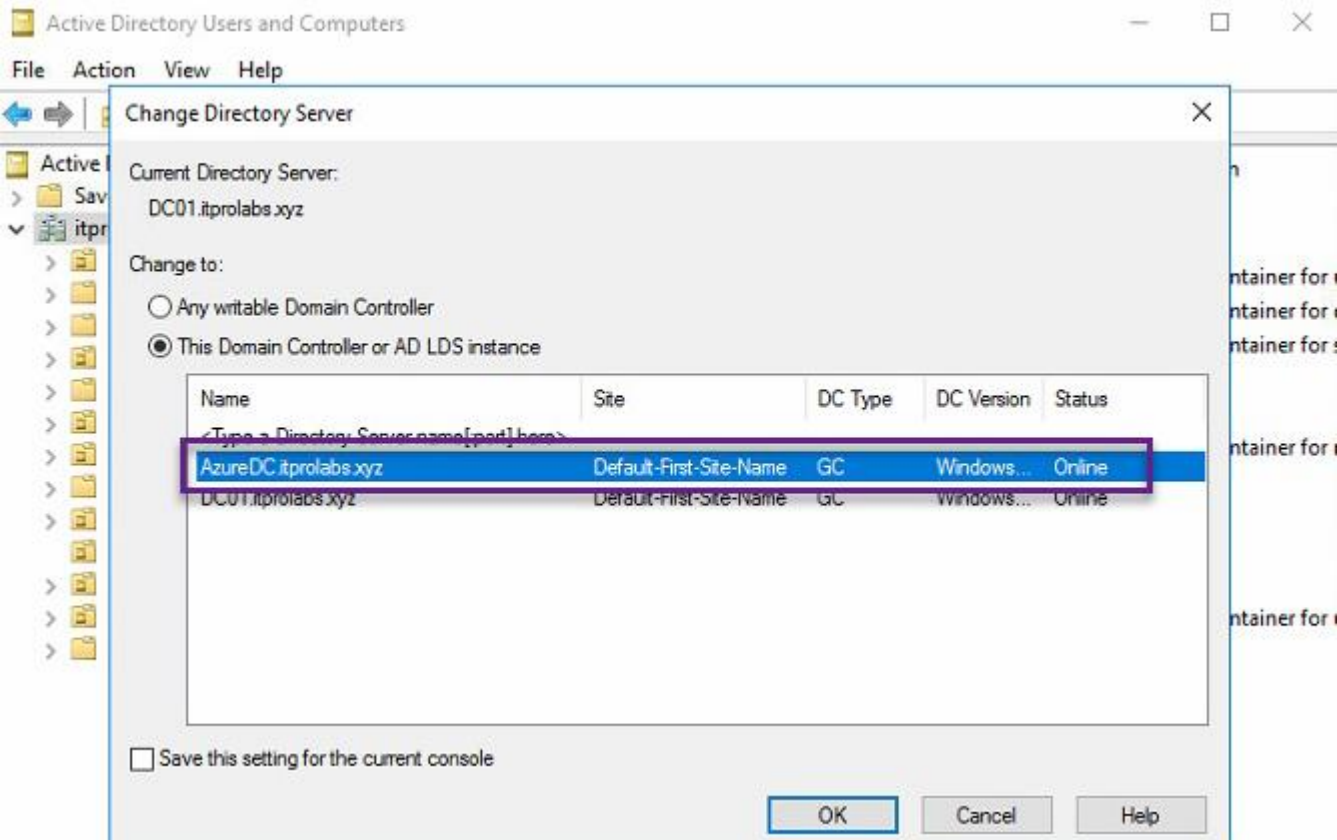
The second screenshot shows the DNS Manager console for the DC01 server. The left pane shows the hierarchy: DNS > DC01 > Forward Lookup Zones > itprolabs.xyz > \_sites > Default-First-S... > \_tcp. The right pane displays a list of DNS records. The records for the Service Location (SRV) type are highlighted with a yellow box. The records are:

Name	Type	Data	Timestamp
_gc	Service Location (SRV)	[0][100][3268] AzureDC.itprolabs.xyz.	6/2/2017 3
_gc	Service Location (SRV)	[0][100][3268] DC01.itprolabs.xyz.	5/28/2017
_kerberos	Service Location (SRV)	[0][100][88] AzureDC.itprolabs.xyz.	6/2/2017 3
_kerberos	Service Location (SRV)	[0][100][88] DC01.itprolabs.xyz.	5/28/2017
_ldap	Service Location (SRV)	[0][100][389] AzureDC.itprolabs.xyz.	6/2/2017 3
_ldap	Service Location (SRV)	[0][100][389] DC01.itprolabs.xyz.	5/28/2017

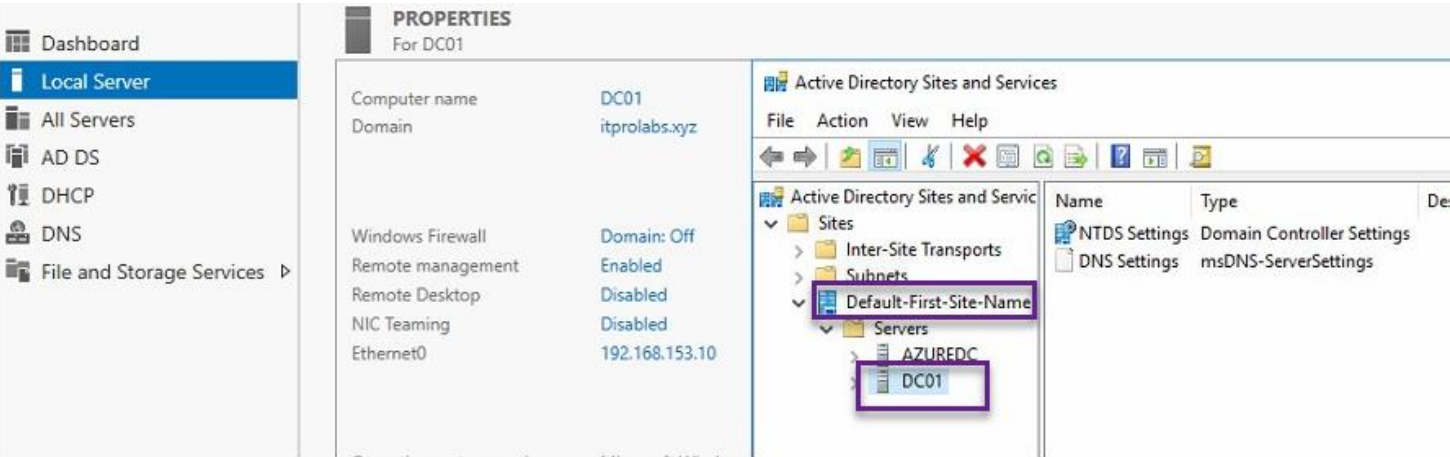


Extend On-Premises Windows Server Active Directory to Azure VM

2. Our VM Server on Azure is added as a DC



3. Also, is added as second server in default active directory site

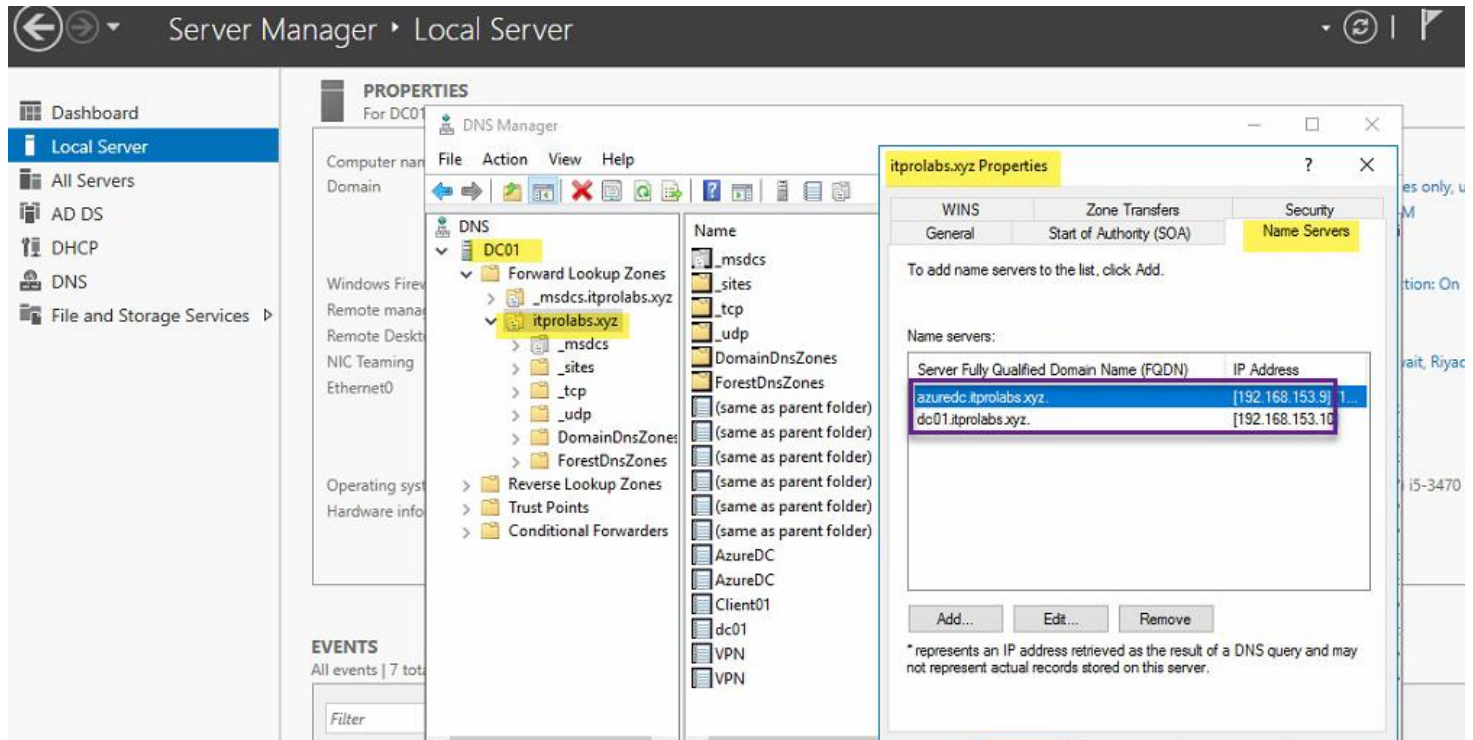




## Extend On-Premises Windows Server Active Directory to Azure VM

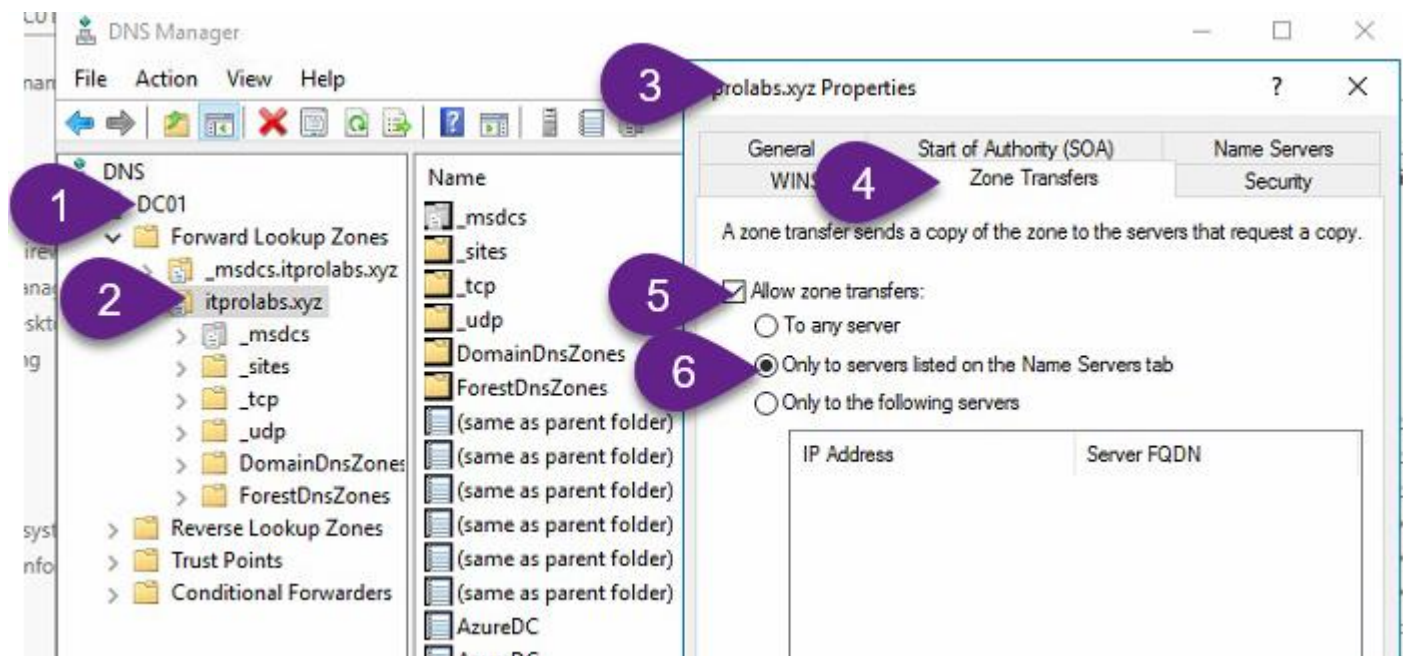
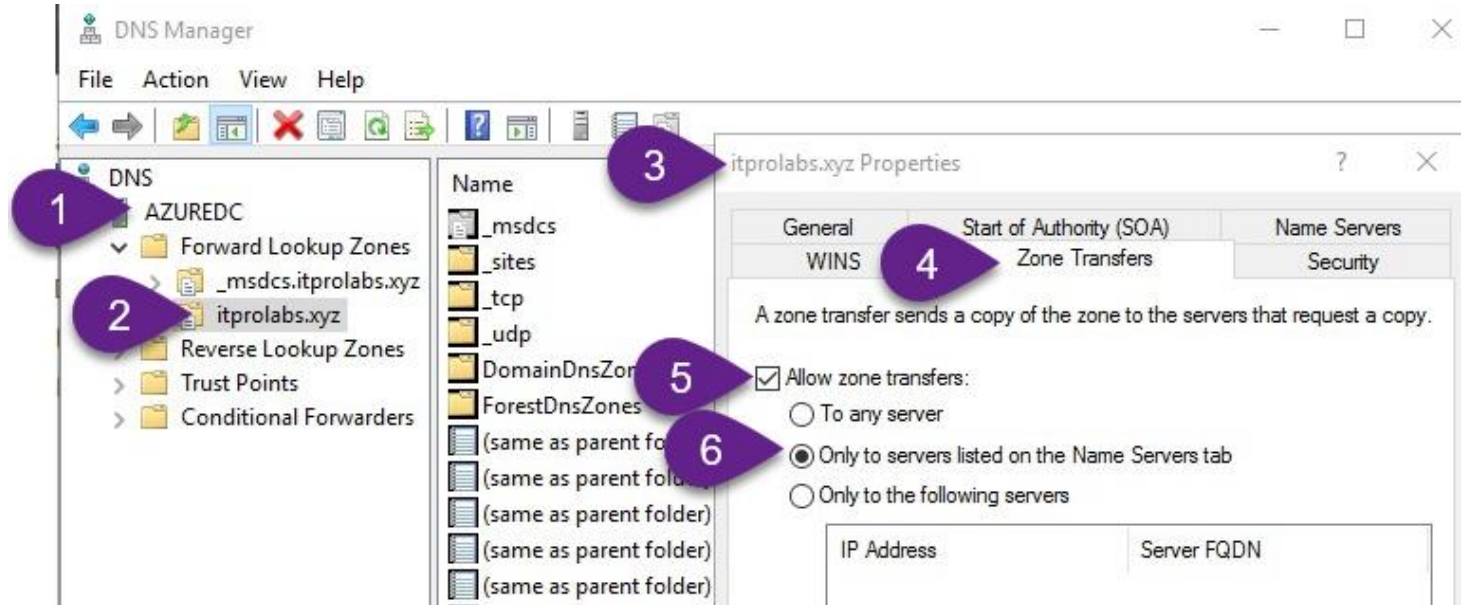
### Allow DNS zone transfer between two servers

through additional DC installation and configuration process we allow additional DC to work as DNS server, so when we access DNS wizard as figured below we will find in **name servers** tab our two DNS servers.



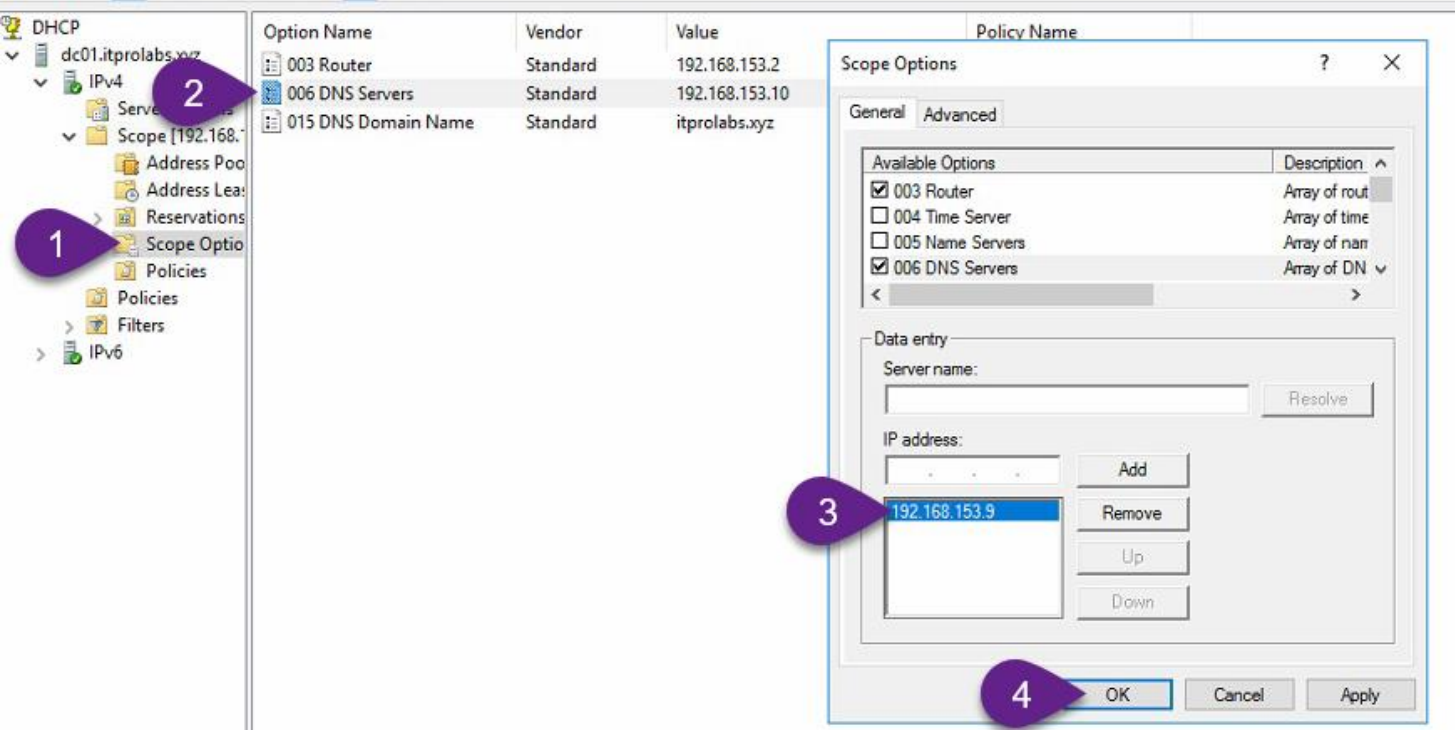
## Extend On-Premises Windows Server Active Directory to Azure VM

Finally, we will configure DNS zone transfer between the two servers. As explained in the figures below



Extend On-Premises Windows Server Active Directory to Azure VM

Configure DHCP to force internal users to use a new DC on Azure as DNS



## Extend On-Premises Windows Server Active Directory to Azure VM

### Configure DNS to force internal users to use a new DC on Azure for authentication

To force clients to authenticate or use your new server as GC or LDAP, just increase Azure VM weight or decrease weight for On-Prem server as explained below.

The screenshot shows the Windows DNS Manager interface. On the left, the 'PROPERTIES For AzureDC' pane shows the computer name 'AzureDC' and domain 'itprolabs.xyz'. The main pane shows the DNS hierarchy with 'Forward Lookup Zones' expanded, and 'itprolabs.xyz' selected. The 'Default-First-Site-Name' zone is also visible. The right pane shows a list of service location records. The record for '\_kerberos' is highlighted in yellow. The '\_kerberos Properties' dialog box is open, showing the 'Service Location (SRV)' tab. The 'Domain' is 'Default-First-Site-Name.\_sites.itprolabs.xyz', the 'Service' is '\_kerberos', the 'Protocol' is '\_tcp', the 'Priority' is '0', and the 'Weight' is '50'. The 'Port number' is '88'. The 'Host offering this service' is 'DC01.itprolabs.xyz'.

Name	Type	Data	Timestamp
_gc	Service Location (SRV)	[0][100][3268] AzureDC.itp...	6/2/2017 3
_gc	Service Location (SRV)	[0][100][3268] DC01.itprol...	5/28/2017
_kerberos	Service Location (SRV)	[0][100][88] DC01.itprolab...	6/2/2017 1
_kerberos	Service Location (SRV)	[0][100][88] AzureDC.itpro...	6/2/2017 1
_kerberos	Service Location (SRV)	[0][50][88] DC01.itprolabs...	6/2/2017 1
_ldap	Service Location (SRV)	[0][100][389] DC01.itprola...	5/28/2017
_ldap	Service Location (SRV)	[0][100][389] AzureDC.itpr...	6/2/2017 3

**Events**  
All events | 135 total

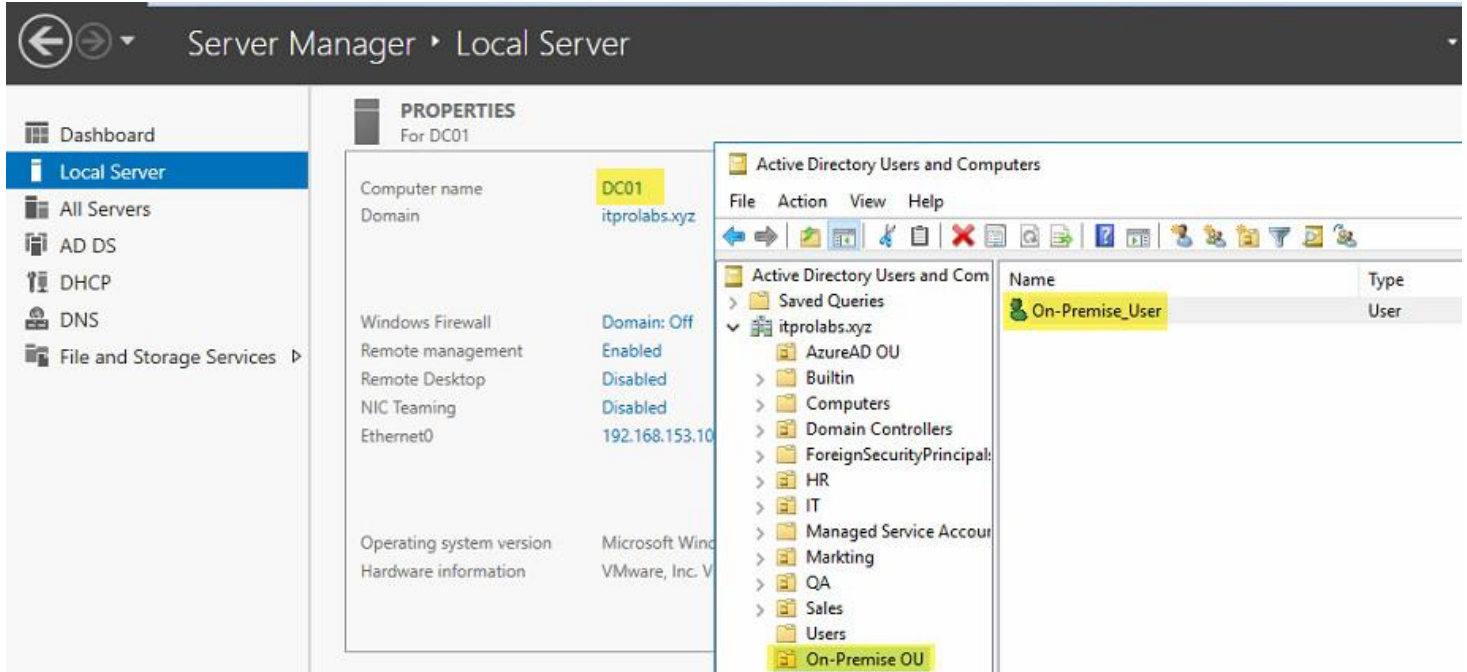


## Extend On-Premises Windows Server Active Directory to Azure VM

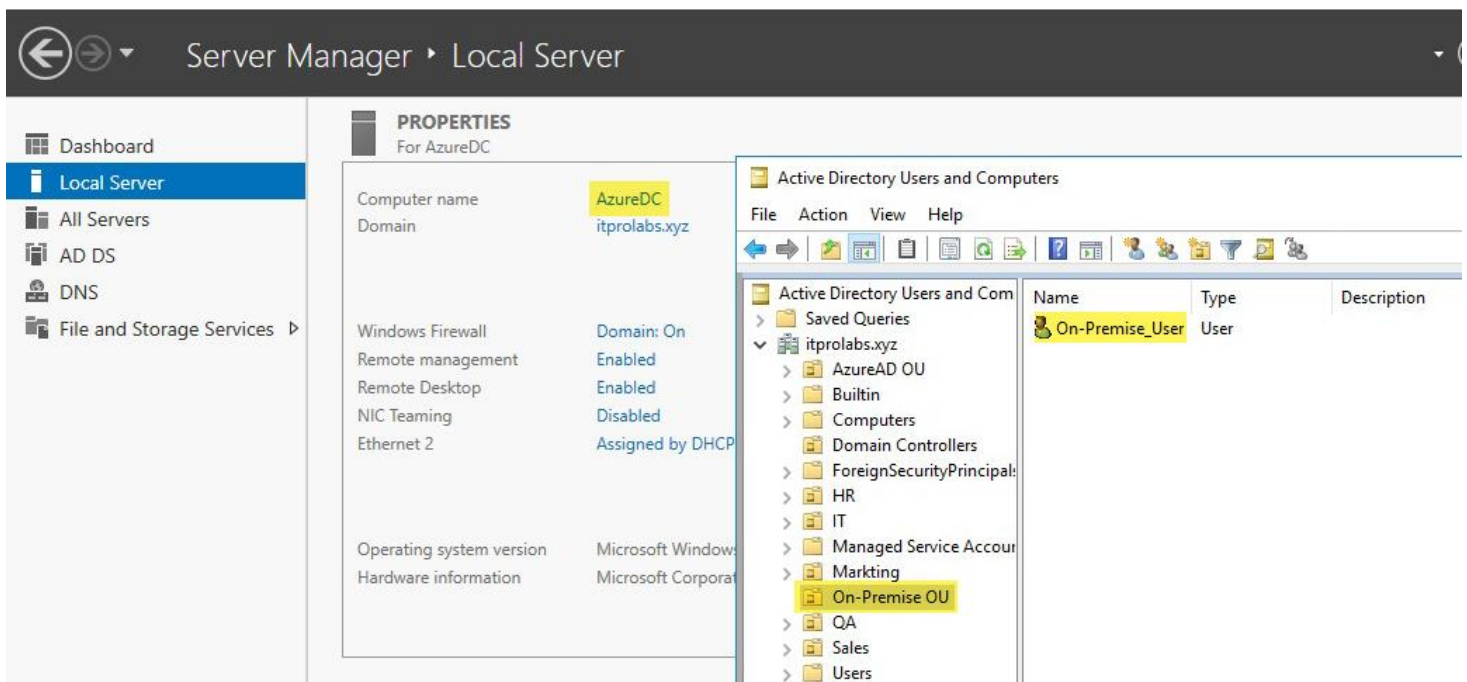
### Testing

#### Test two side active directory replications

1. Create OU On-Perm and create test user with in and check replication on VM on Azure



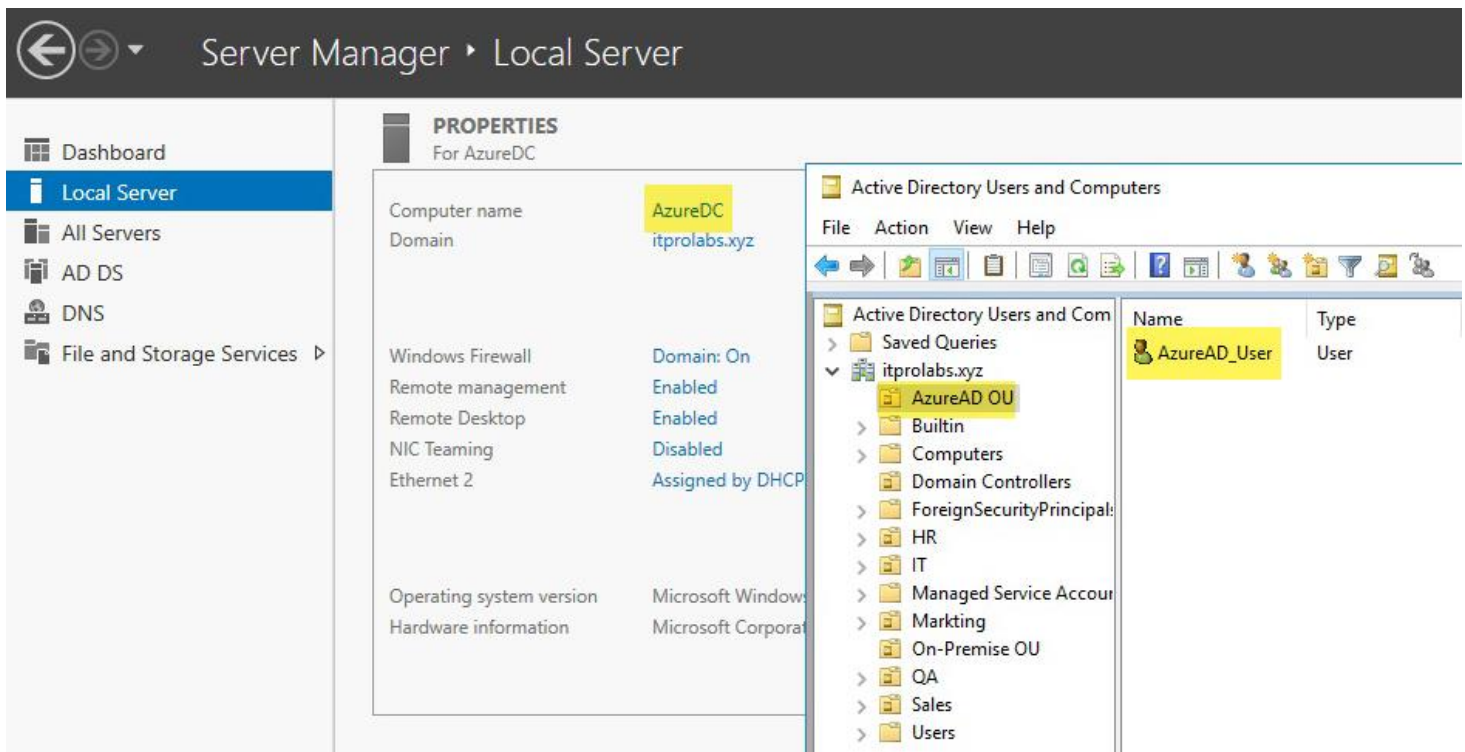
In the figure below the created OU with user replicated to VM on Azure



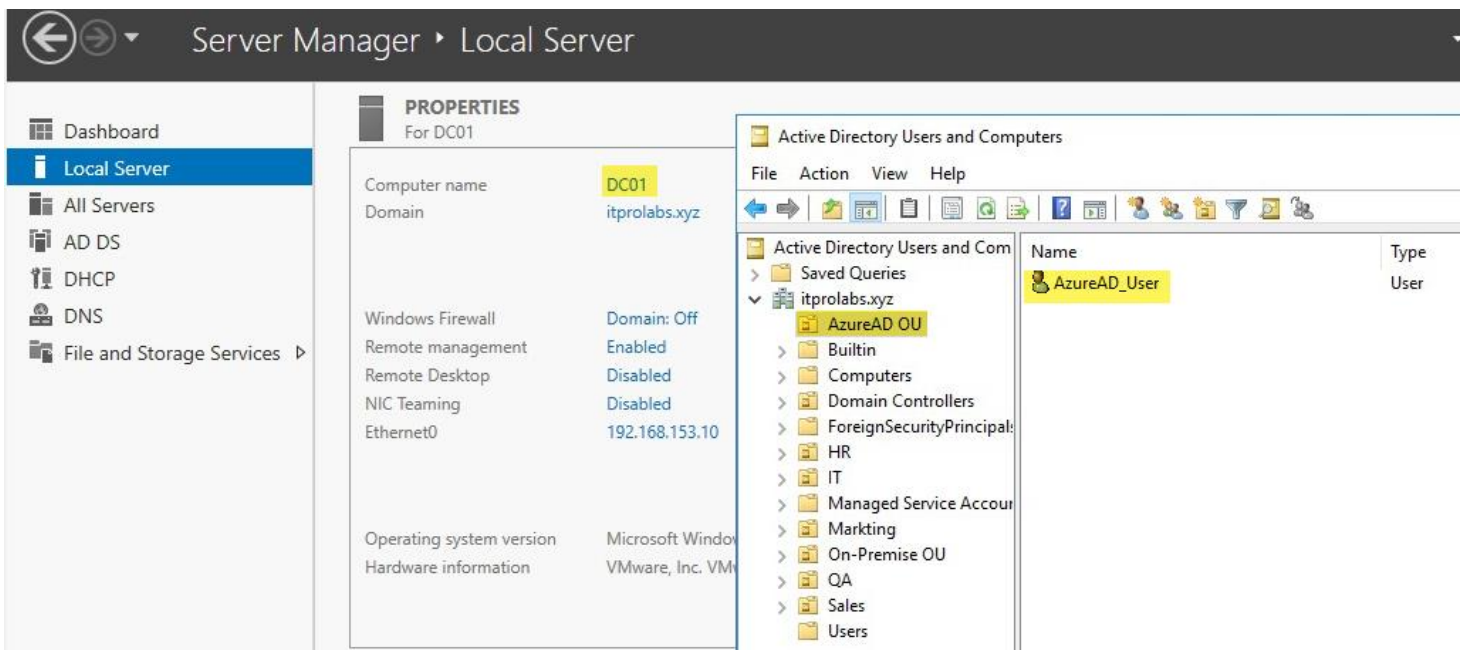


## Extend On-Premises Windows Server Active Directory to Azure VM

2. create OU on Azure and create test user within and check replication On-Perm



In the figure below the created OU with user replicated to On-Perm server



## Extend On-Premises Windows Server Active Directory to Azure VM

### Join On-Premise Windows 10 Client to domain through DC on Azure

Configure windows 10 Client to obtain IP address automatic from DHCP server which distribute Windows Server 2016 VM on Azure as DNS server (192.168.153.9), also we force users early in this lab to authenticate from VM on Azure.

The image shows a Windows 10 desktop environment with several windows open, illustrating the steps to join a computer to a domain.

**Network Connection Details:**

Property	Value
Connection-specific DN...	itprolabs.xyz
Description	Intel(R) 82574L Gigabit Network Connect
Physical Address	00-0C-29-82-C9-70
DHCP Enabled	Yes
IPv4 Address	192.168.153.50
IPv4 Subnet Mask	255.255.255.0
Lease Obtained	Thursday, June 1, 2017 4:07:53 PM
Lease Expires	Saturday, June 10, 2017 4:18:12 PM
IPv4 Default Gateway	192.168.153.2
IPv4 DHCP Server	192.168.153.10
IPv4 DNS Server	192.168.153.9
IPv4 WINS Server	
NetBIOS over Tcpip En...	Yes
Link-local IPv6 Address	fe80::387a:2731:245c:d047%3
IPv6 Default Gateway	
IPv6 DNS Server	

**System Properties:**

Computer Name: Client01  
Full computer name: Client01  
Workgroup: WORKGROUP

**Computer Name/Domain Changes:**

Computer name: Client01  
Full computer name: Client01  
Member of: ☒ Domain: itprolabs.xyz  
☐ Workgroup: WORKGROUP

**Windows Security:**

Computer Name/Domain Changes  
Enter the name and password of an account with permission to join the domain.  
administrator  
[Password field]

**System Information:**

Windows edition: Windows 10 Enterprise  
© 2017 Microsoft Corporation. All rights reserved.

System:

Processor: Intel(R) Core(TM) i5-3470  
Installed memory (RAM): 2.00 GB  
System type: 64-bit Operating System  
Pen and Touch: No Pen or Touch Input is

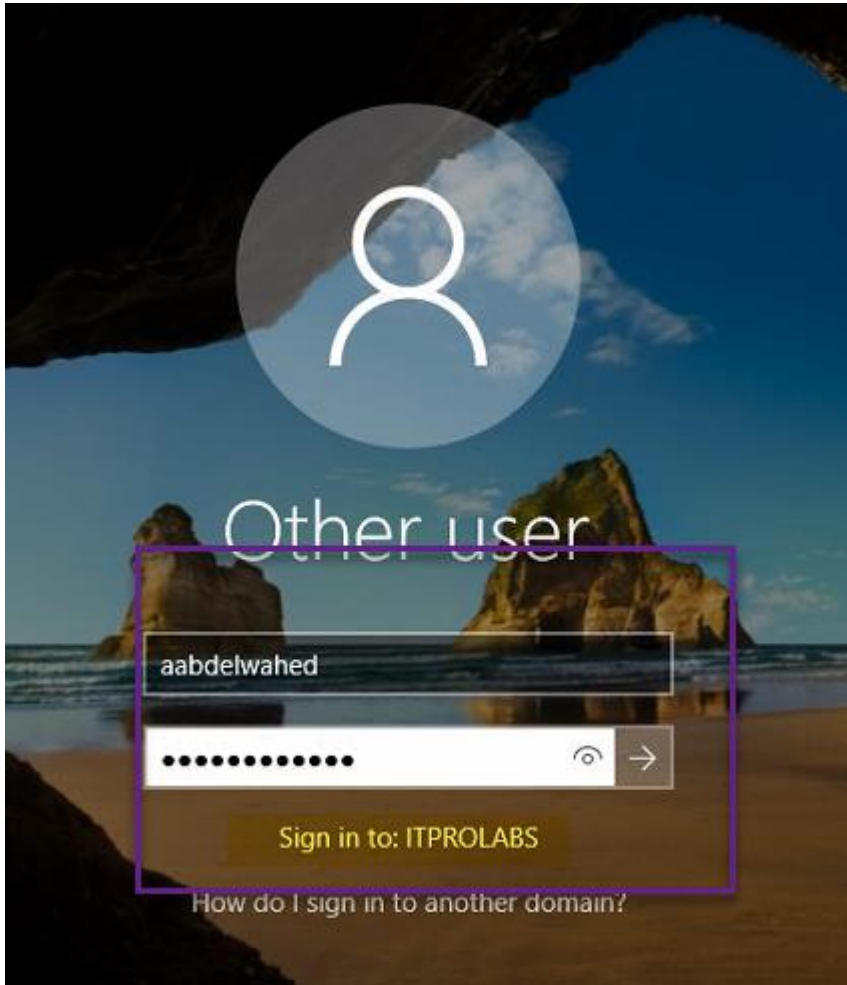
Computer name, domain, and workgroup settings:

Computer name: Client01  
Full computer name: Client01  
Computer description:  
Workgroup: WORKGROUP

Windows activation:

Windows is not activated. [Read the Microsoft Software](#)  
Product ID: 00329-00000-00003-AA343

## Extend On-Premises Windows Server Active Directory to Azure VM



### View basic information about your computer

#### Windows edition

Windows 10 Enterprise

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#### System

Processor: Intel(R) Core(TM) i5-3470 CPU @ 3.20GHz 3.20 GHz  
Installed memory (RAM): 2.00 GB  
System type: 64-bit Operating System, x64-based processor  
Pen and Touch: No Pen or Touch Input is available for this Display

#### Computer name, domain, and workgroup settings

Computer name: Client01  
Full computer name: Client01.itprolabs.xyz  
Computer description:  
Domain: itprolabs.xyz

 [Change settings](#)

## Extend On-Premises Windows Server Active Directory to Azure VM

### Testing internet connectivity with ITPROLABS.XYZ DNS on Azure

From VM on Azure we use local DNS Server that related to our itprolabs.xyz domain

