

ORTA ÖLÇEKLİ ŞİRKET SİSTEM PROJESİ

HAZIRLAYANLAR

AHMET AKYÜZ

SENA KİNSİZ

TUĞÇE BÜŞRA ERDEM

OKTAY GÖRGÜLÜ

ZEYNEP CEYDA ELİKÜÇÜK

KAĞAN DEMİRÇİ

AHMET HATİP AKTAŞ

PROJE AMACI

Projenin amacı aynı domain içerisindeki kullanıcıların dosyaya erişim haklarını atamak; Exchange ile aynı domain ve farklı domainler arasında mail trafigini yönetmek; ESXI üzerinde kurulan PfSense ve Centos sanal cihazlarını Vcenter üzerinden yönetebilmektir.

TEKNİK BİLGİ

Active Directory Nedir?

Active Directory, Microsoft tarafından özellikle Windows Server ve Client bilgisayar sistemleri için tasarlanmış olan içerisinde sunucu, client bilgisayar, kullanıcı ve yazıcı gibi bilgileri tutan bir dizin servisidir. Tabi bahsi geçen verileri tuttuğu için aynı bir veritabanıdır. Bu servis içerisinde yer alan Group Policy yönetim aracı ile çeşitli kısıtlamalar yapabilir veya tek bir noktadan istediğimiz uygulamanın dağıtımını gerçekleştirebiliriz. Kaynakların kontrolü ve yönetimiminin merkezileştirilmesi açısından büyük kolaylık sağladığı için çok tercih edilen bir servistir.

Active Directory Özellikleri;

- Yönetilebilirlik
- Ölçeklenebilirlik
- Genişletilebilirlik
- Güvenlik Entegrasyonu
- Diğer Dizin Servisleriyle Birlikte Çalışabilme
- Güvenli Kimlik Doğrulama ve Yetkilendirme
- Group Policy ile Yönetim
- Dns ve Dhcp gibi Servislerle Birlikte Çalışabilme Özelliği

Active Directory FSMO Rollerı (Flexible Single Master of Operation);

Bir Active Directory sunucusu üzerinde 5 adet role bulunmaktadır. Bunlar;

- Schema Master
- Domain Naming Master
- PDC Emulator
- RID Master

- Infrastructure Master

şeklindedir. Bu rolleri "netdom query fsmo" komutu ile listeleyebiliriz.

Vmware vSphere Client Nedir?

VMware vSphere Client Windows işletim sistemi üzerine kurulup, ESX servera uzaktan bağlanmak için kullanılır. Sanal serverlara direk bağlanırsak kısıtlı işlemleri yapabiliriz yalnız ileri düzey işlemler için Vcenter sunucu üzerinden bağlanmak gerekiyor.

Vcenter Nedir?

Vmware vSphere ürün ailesinin yeni sürümüyle birlikte vCenter Server da güncellenmiştir. Vsphere sanal ortamındaki sunucuların yönetilmesi ve kontrolü için kullanılır. Kısacası tek bir ekranдан tüm sanal ortam yönetilebilir. vMotion, Distributed Resource Scheduler, High Availability ve Fault Tolerance gibi özellikler Vcenter olmadan yapılamaz. Vcenter Kurulumu için gerekli sunucu özellikleri aşağıdaki gibi olmalı.

*Windows Server 2008 SP1 ve Sonrası

*Intel veya AMD x64 işlemci 2.0 Ghz hızında en az 2 mantıksal çekirdek

*100 GB önerilen boş alan

*Tüm vCenter bileşenleri aynı makine üzerine kurulacaksa 12 GB RAM önerilmektedir.

ESX Server nedir?

ESX server donanım üzerine kurulan Linux tabanlı yazılımdır. kurulumu çok basittir. Ticari bir üründür. Sunucunun CPU, Ram ,Disk ve Network gibi ana kaynaklarını kullanarak birden çok sanal makineye soyutlayan bir sanallaştırma katmanıdır. Lisans ile kullanılan High Availability, DRS gibi bir çok gelişmiş özelliğe sahiptir. Ayrıca birden çok ESX host sunucu vCenter ile tek bir ekranдан yönetilebilir. ESX inin yeni adı vSphere Hypervisor olarak değiştirilmiştir.

Microsoft Exchange Server Nedir?

Microsoft Exchange Server™, şirketlerin iletişim trafiğini merkezi olarak yönetmesi için Microsoft tarafından geliştirilen ölçeklenebilir bir iletişim ve iş birliği platformudur. E-posta ve belge paylaşımı, takvim, rehber ve veri depolama gibi birçok özelliği destekleyen Microsoft Exchange Server, sahip olduğu üstün güvenlik ve veri depolama özellikleri sayesinde şirketlerin iletişim trafiğini mevzuatlara uygun ve güvenli bir şekilde yönetmelerine olanak tanır.

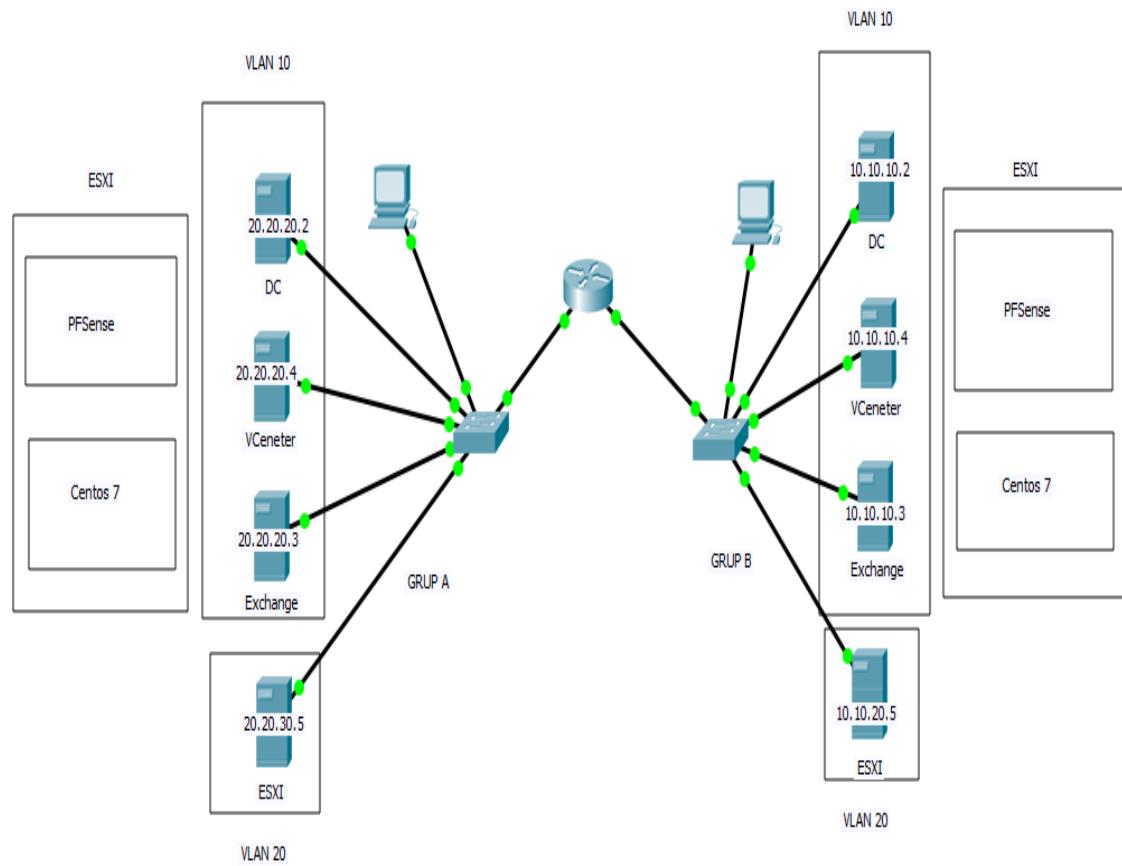
Microsoft Outlook™ ve benzeri e-posta istemcileri ve akıllı cihazlar ile etkileşimli bir şekilde çalışan Microsoft Exchange Server, mobil ve bulut tabanlı iş birliği ve iletişim özellikleri ile kullanıcılarının birçok farklı platform üzerinden iletişim kurmasına ve verileri tek bir noktada depolamasına olanak verir.

Microsoft Exchange Server, tüm bu özelliklere ek olarak sunduğu veri yedekleme ve olağanüstü durum kurtarma çözümleri ile işletmelerin sunucu, veri tabanı ve ağ bağlantısı arızalarının yol açabileceği negatif etkilerden korunmasına yardımcı olur.

Microsoft Exchange Server ile Neler Yapabilirsiniz?

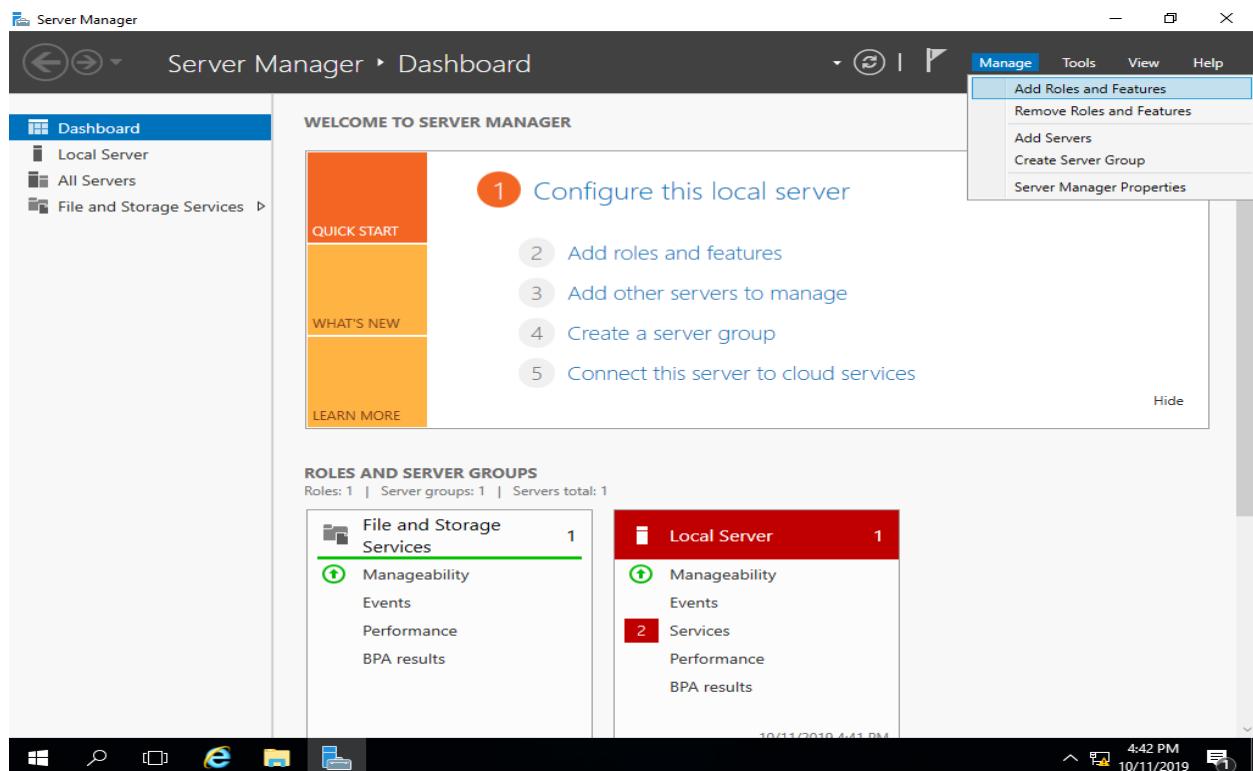
- E-posta ve doküman paylaşma
- Merkezi iletişim trafiği yönetimi
- Güvenli veri depolama ve veri yedekleme
- Takvim ve rehber oluşturma ve yönetme
- Bulut ve mobil tabanlı işbirliği
- Kurallar aracılığıyla işlem otomatikleştirme

TOPOLOJİ

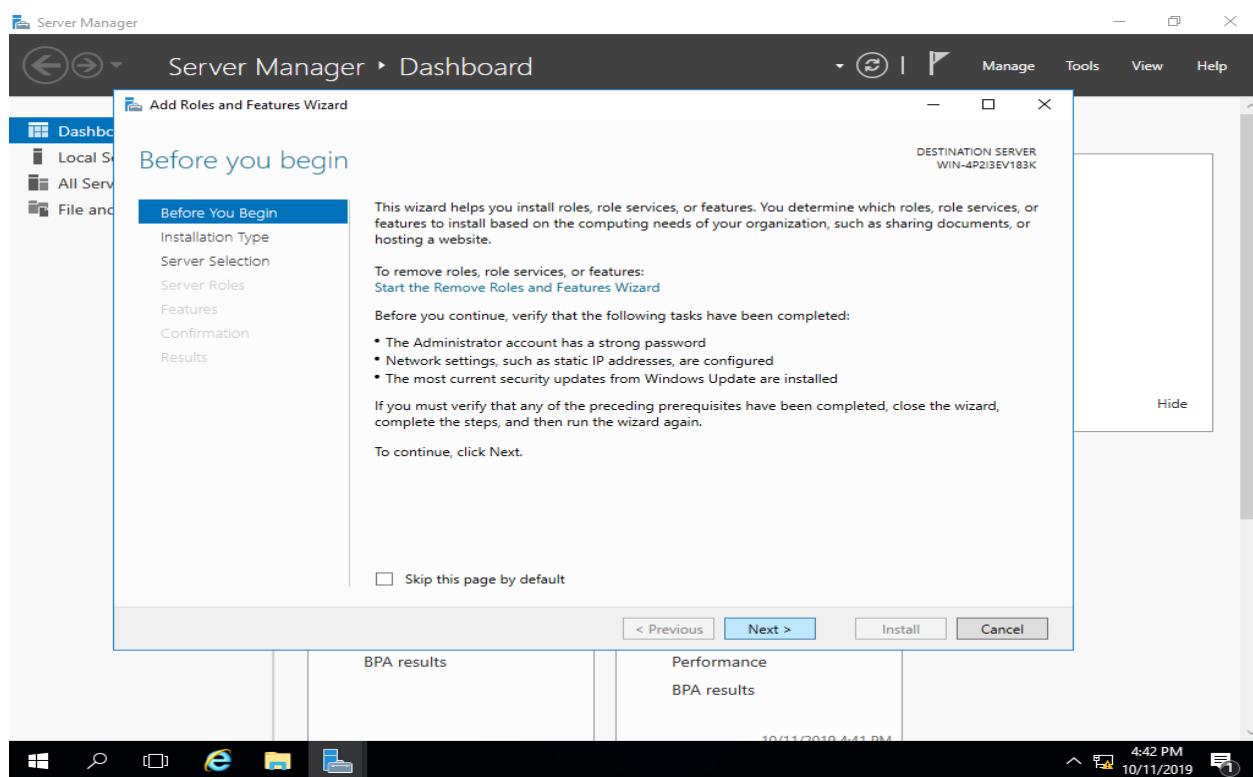


DC SERVER İÇİN YAPILAN İŞLEMLER

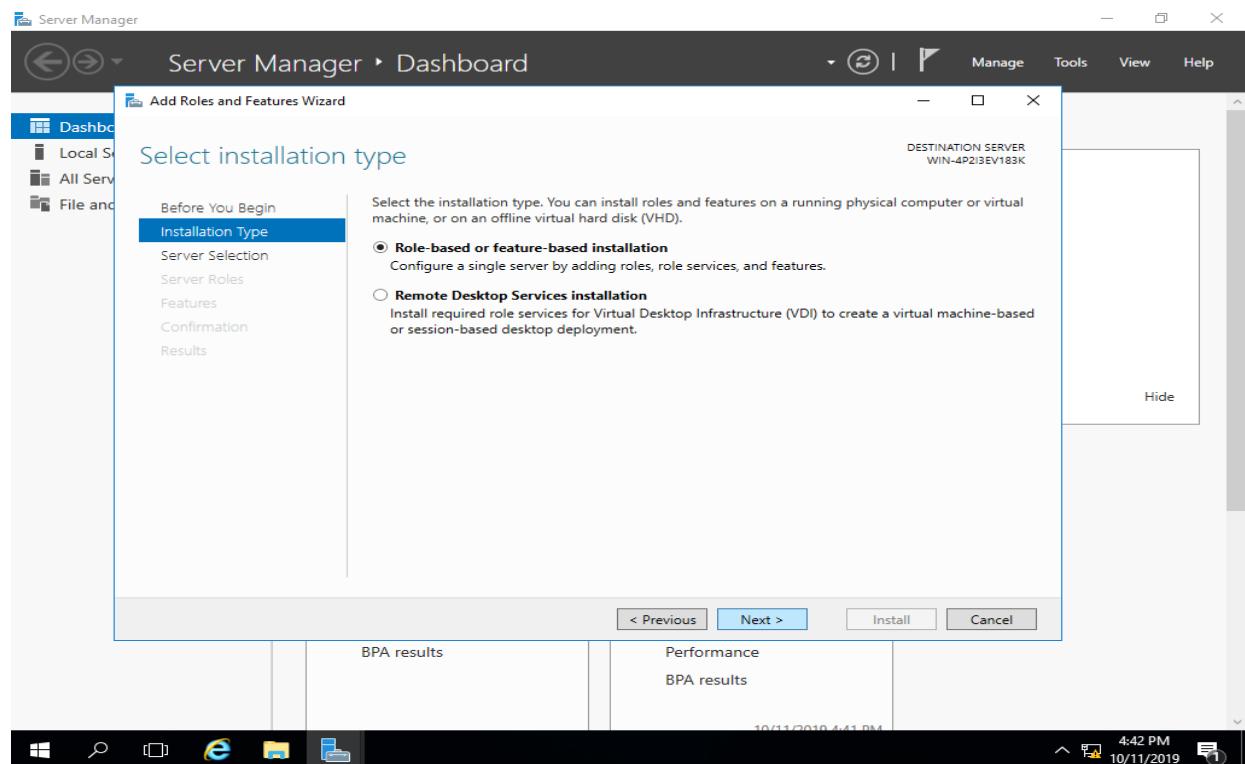
1-Server Manager>Add Roles and Features tıklanır.



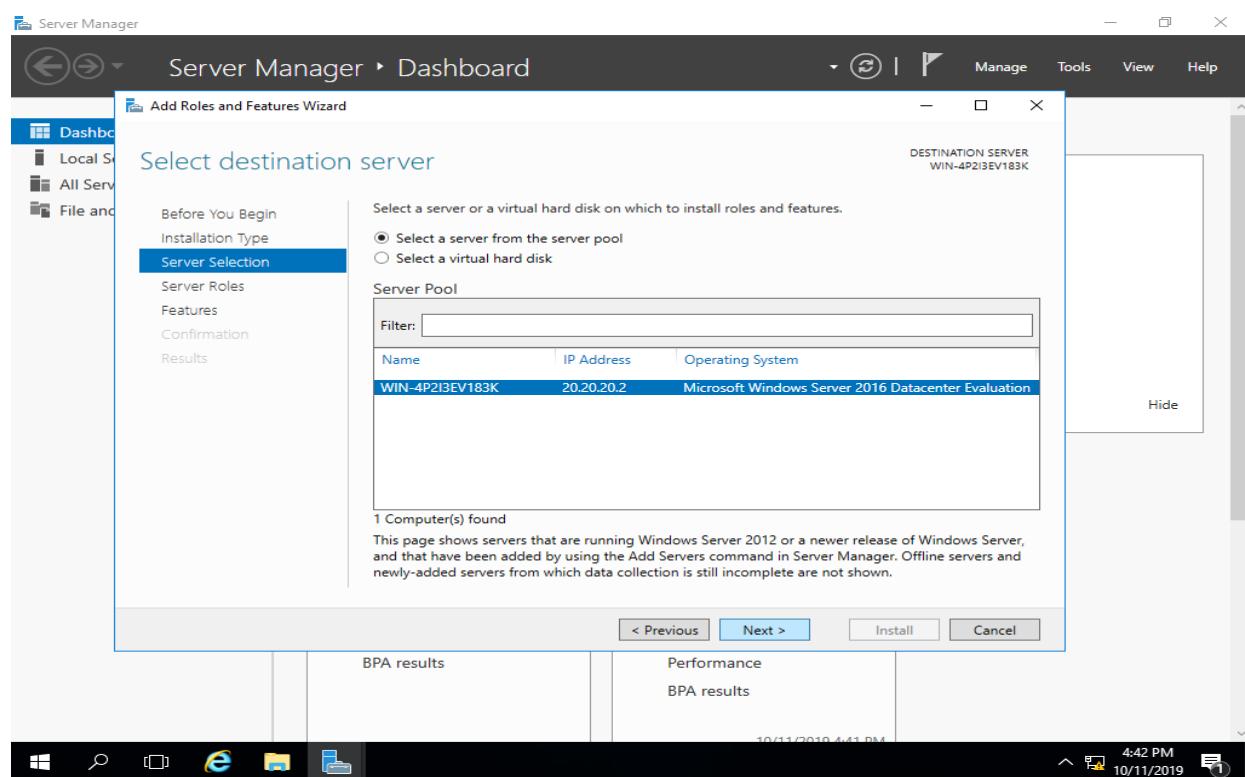
2-“Next” ile devam edilir.



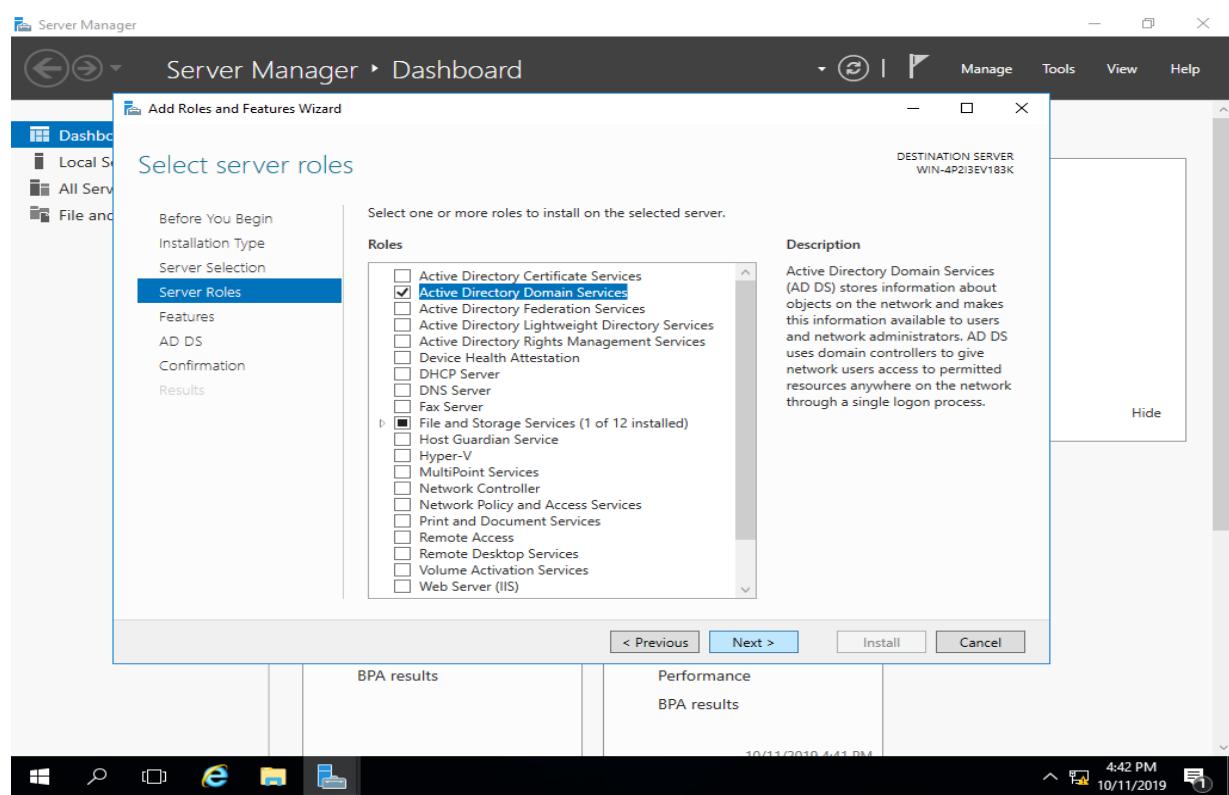
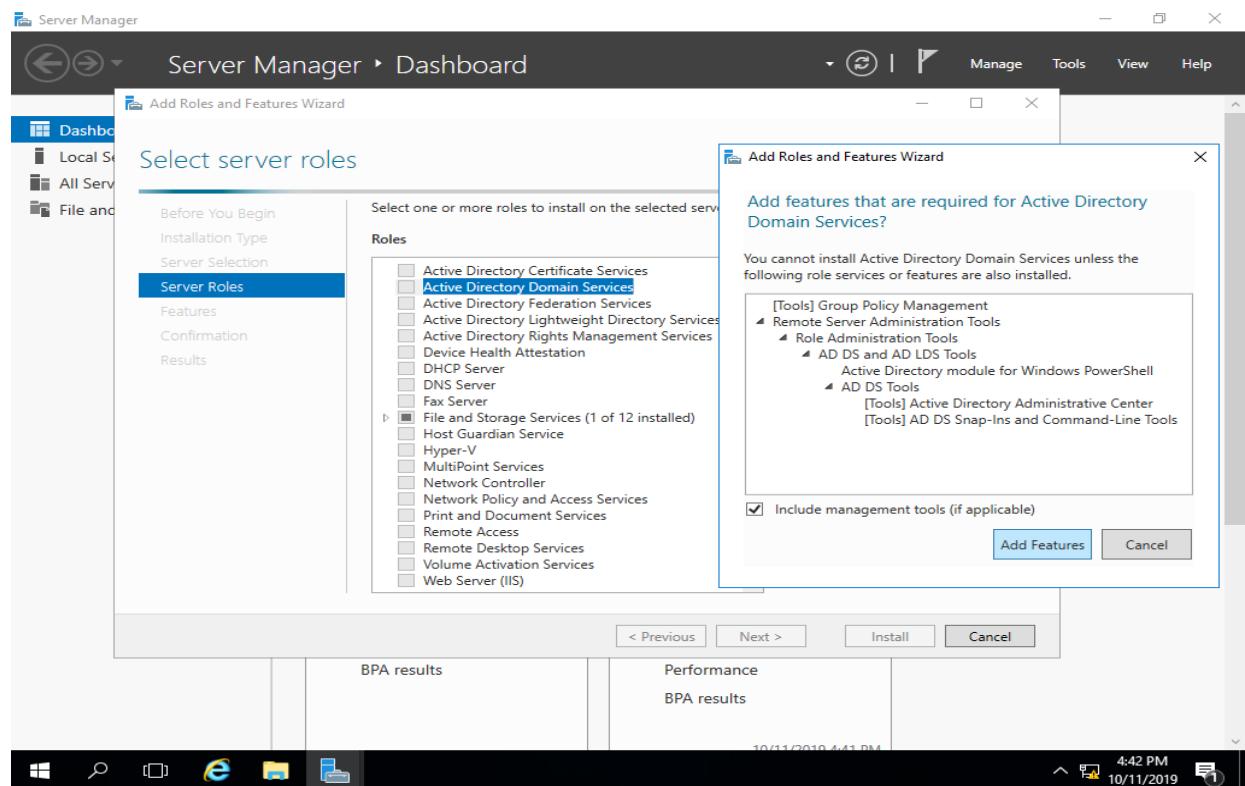
3-“Role-based or feature-based installation” seçiği seçilir ve devam edilir.



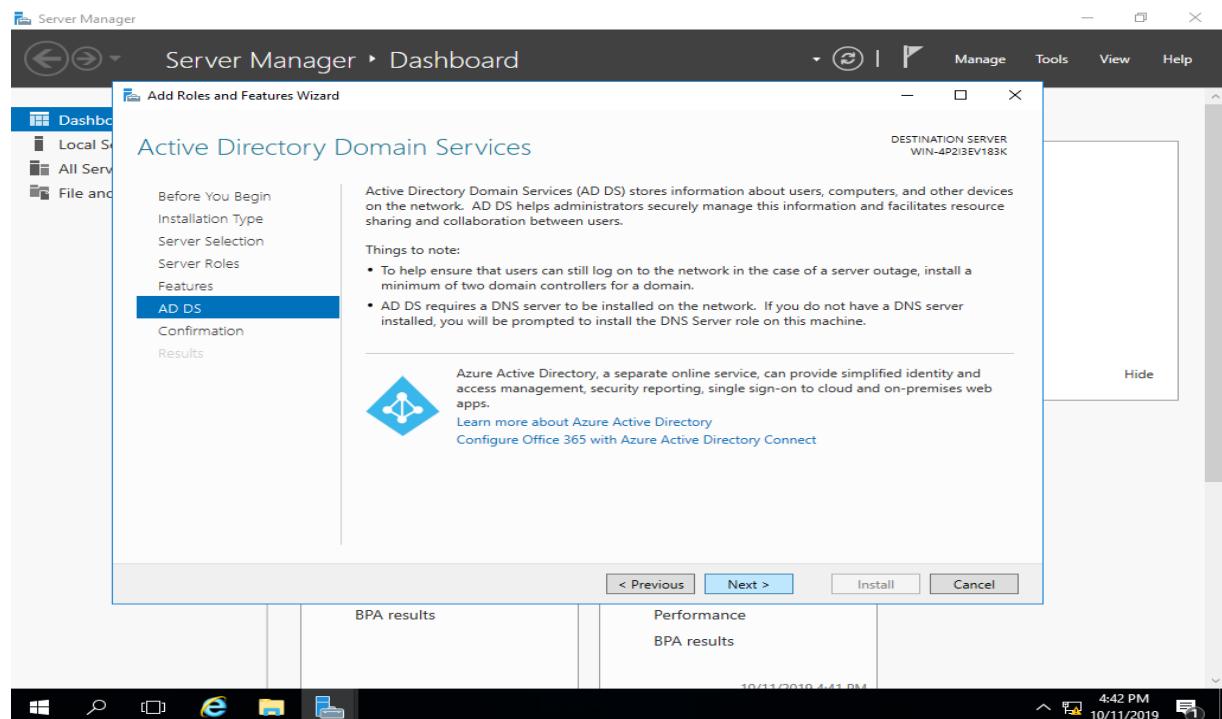
4-Select a server from the server pool seçilir ve devam edilir.



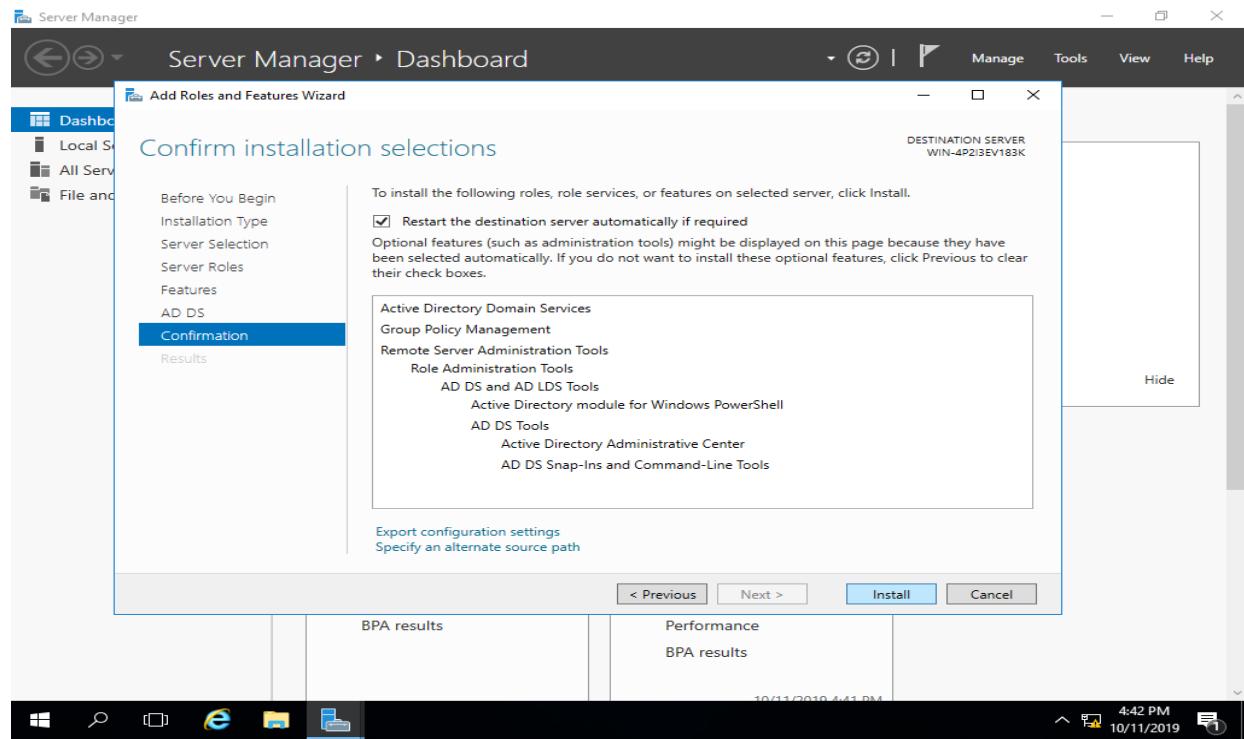
5-“Active Directory Domain Service” seçilir.



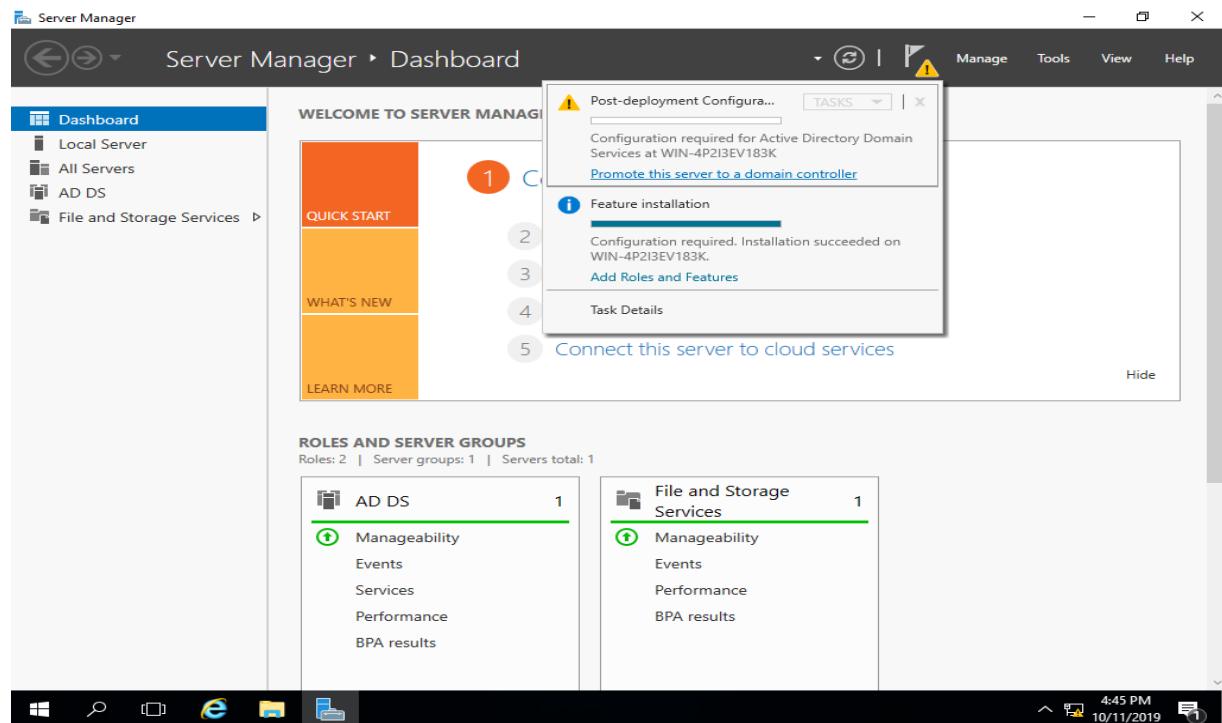
6-“Next” ile devam edilir.



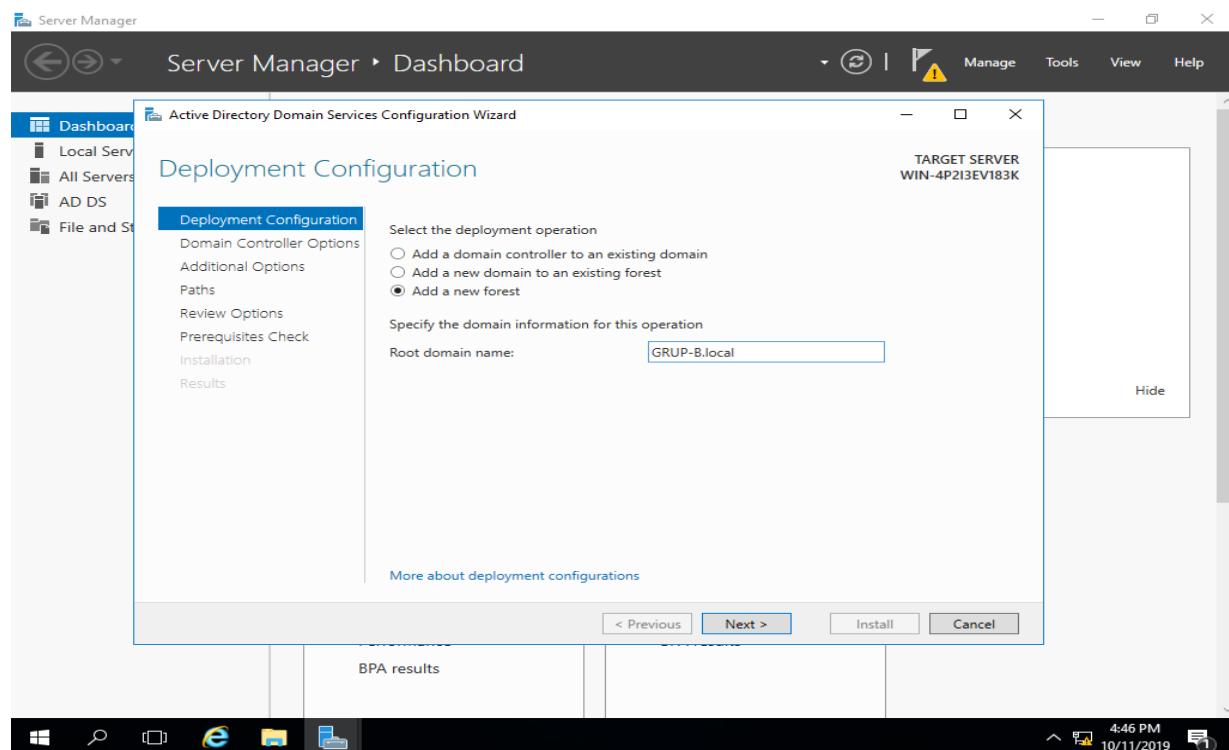
7-Kurulum sonrası “restart” seçeneği seçilir ve “install”denir.



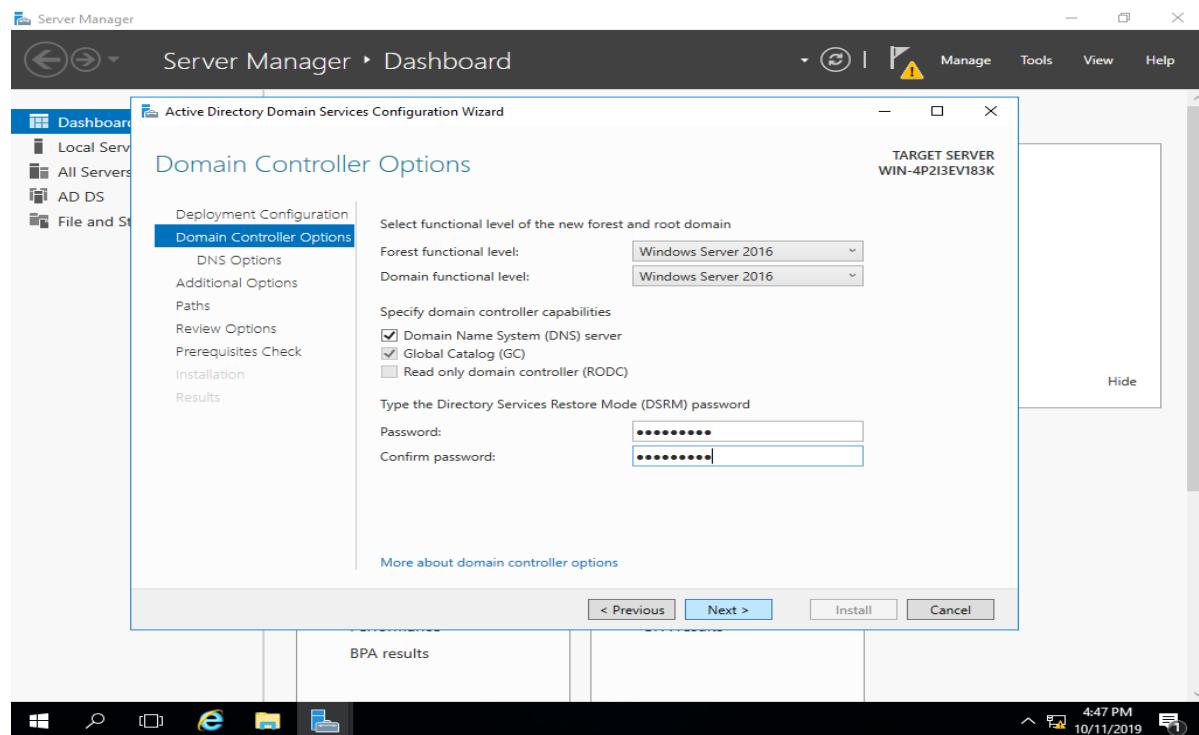
8-Yükleme bittikten sonra Server Manager uyarılar bölümüne gelinir ve “Promote this server to a domaincontroller” tıklanır.



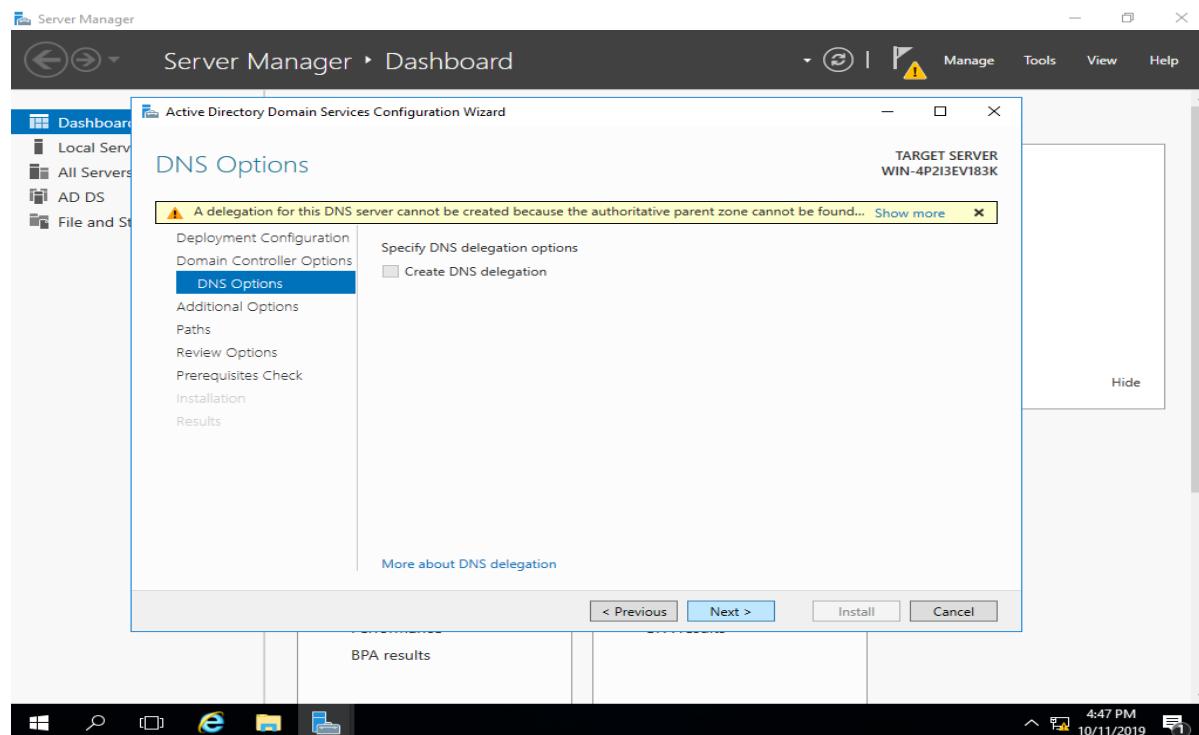
9-GRUP-B.local isimli forest oluşturulur.



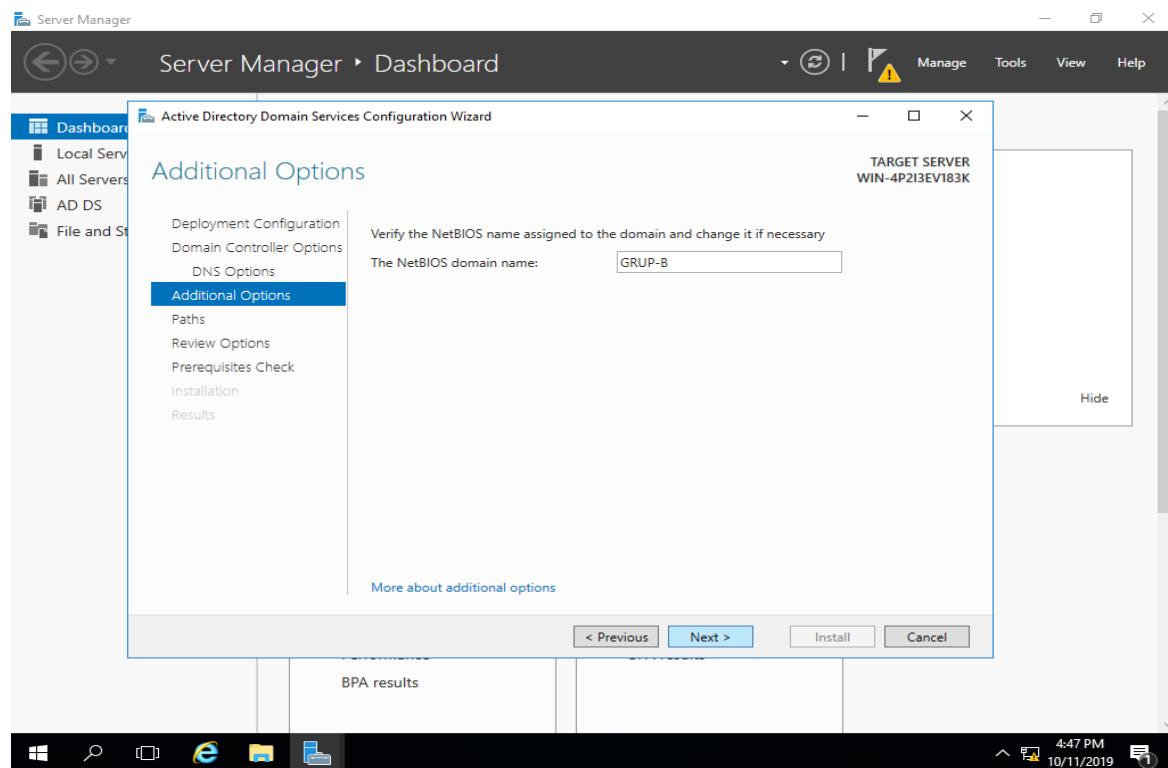
10-DSRM password belirlenir.



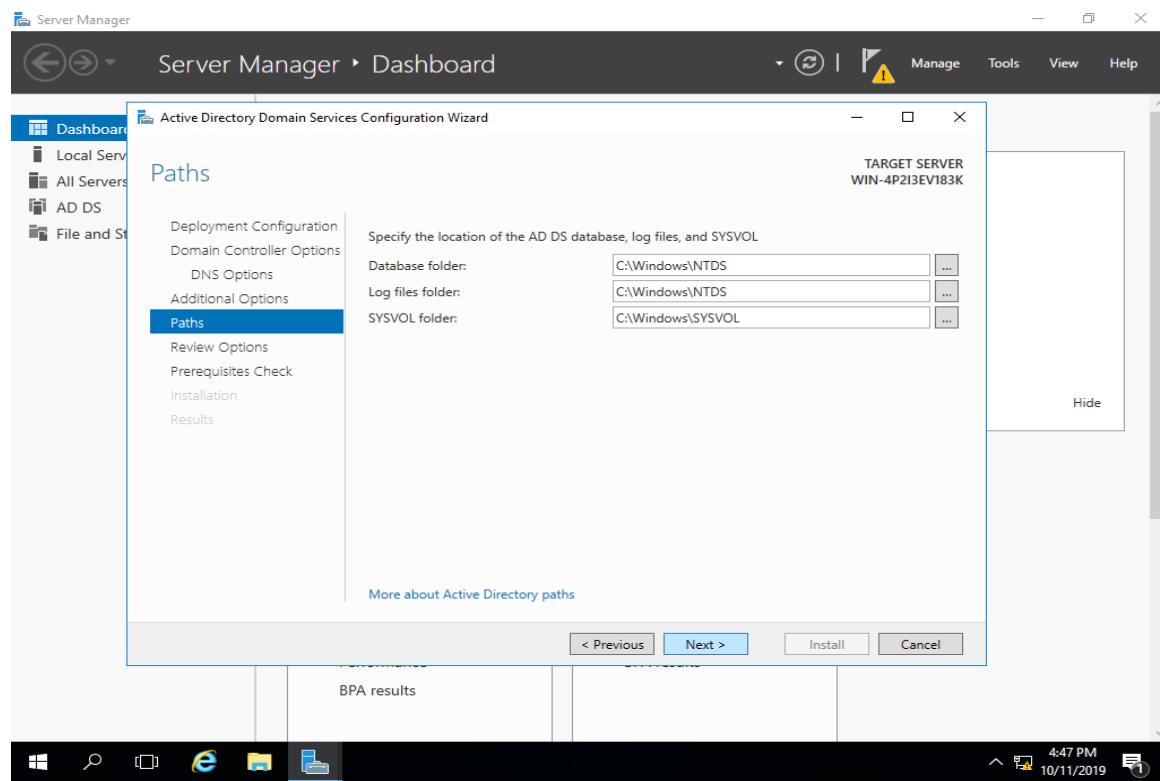
11-“Next” ile devam edilir.



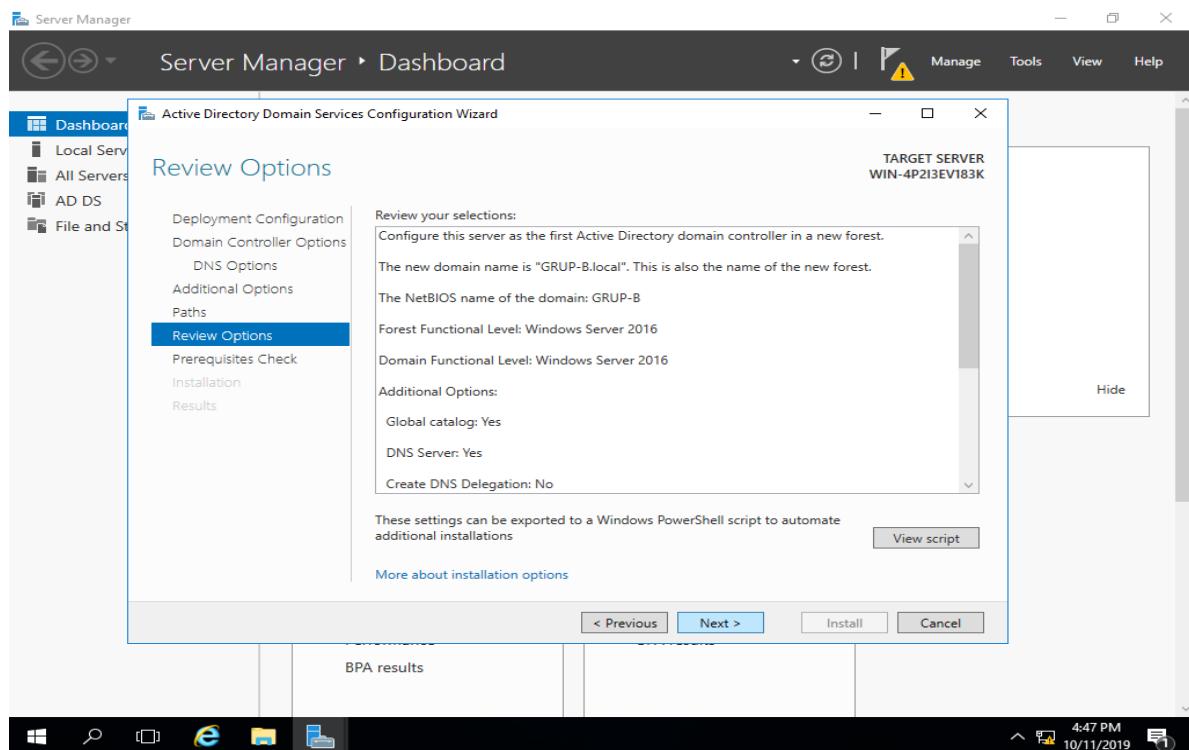
12-Otomatik olarak atanmış NetBIOS ismi belirlenir.



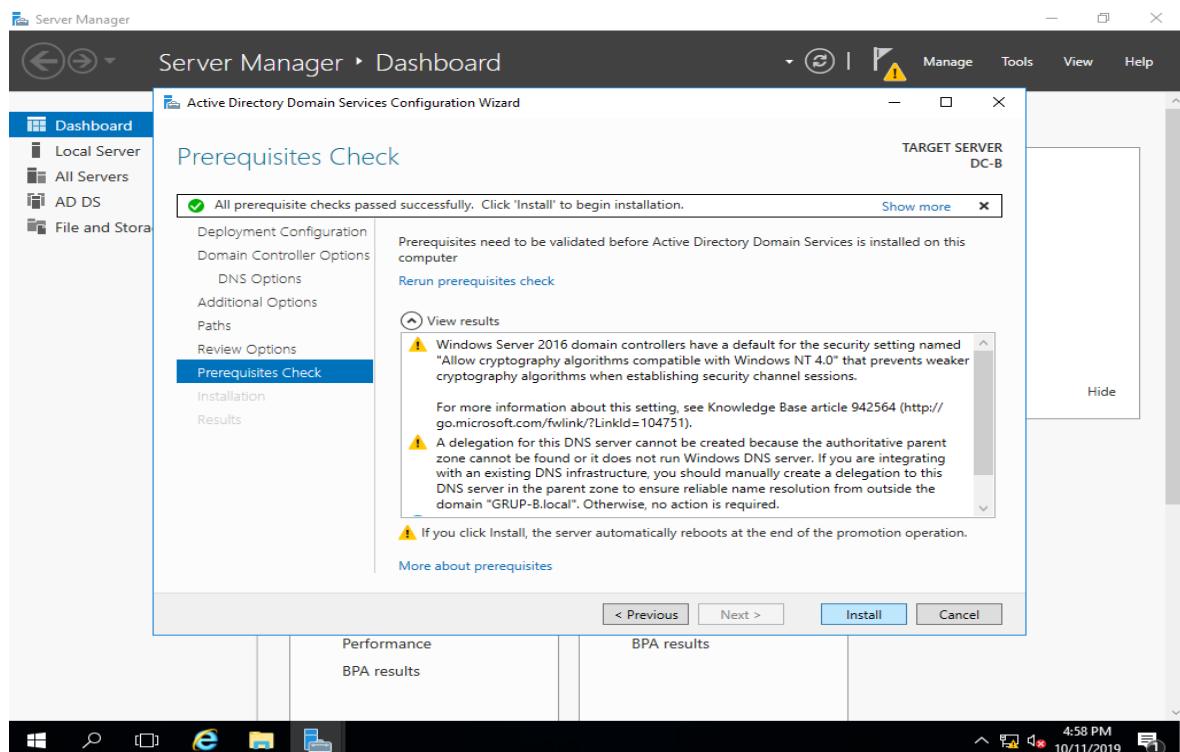
13-AD DS database'in nerede tutulacağı belirlenir.



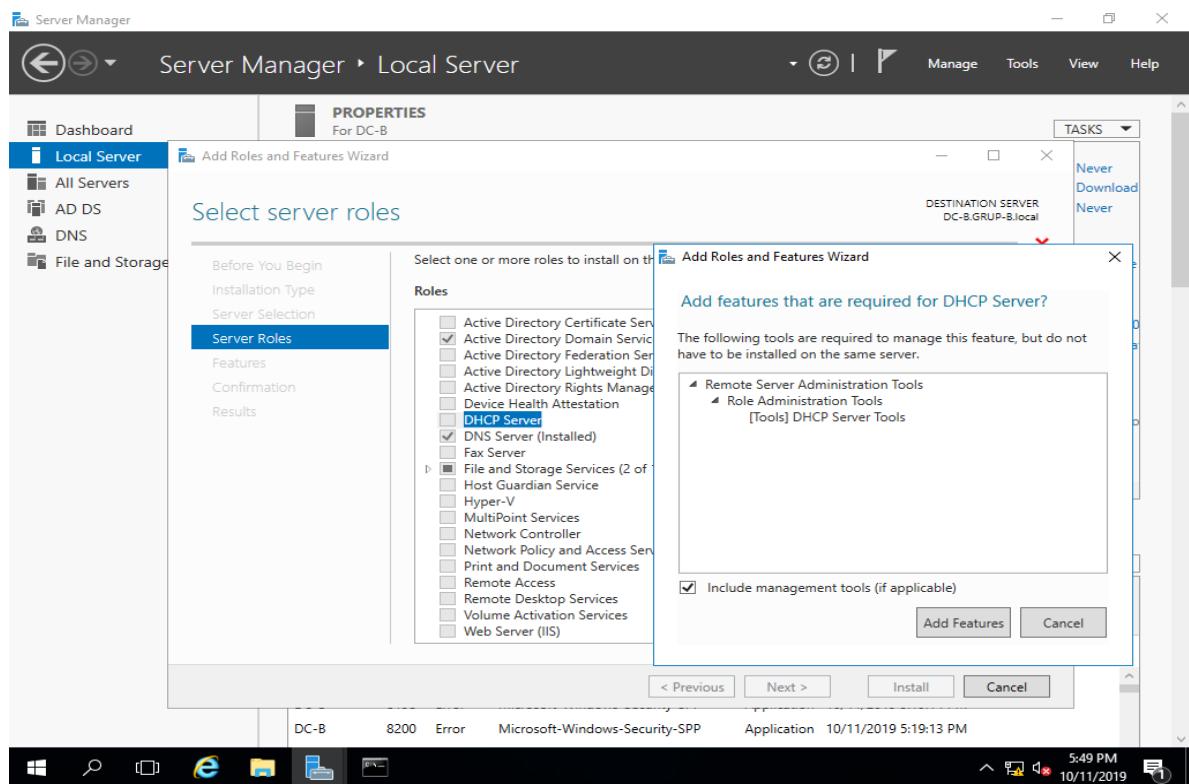
14-“Next” tıklanır.



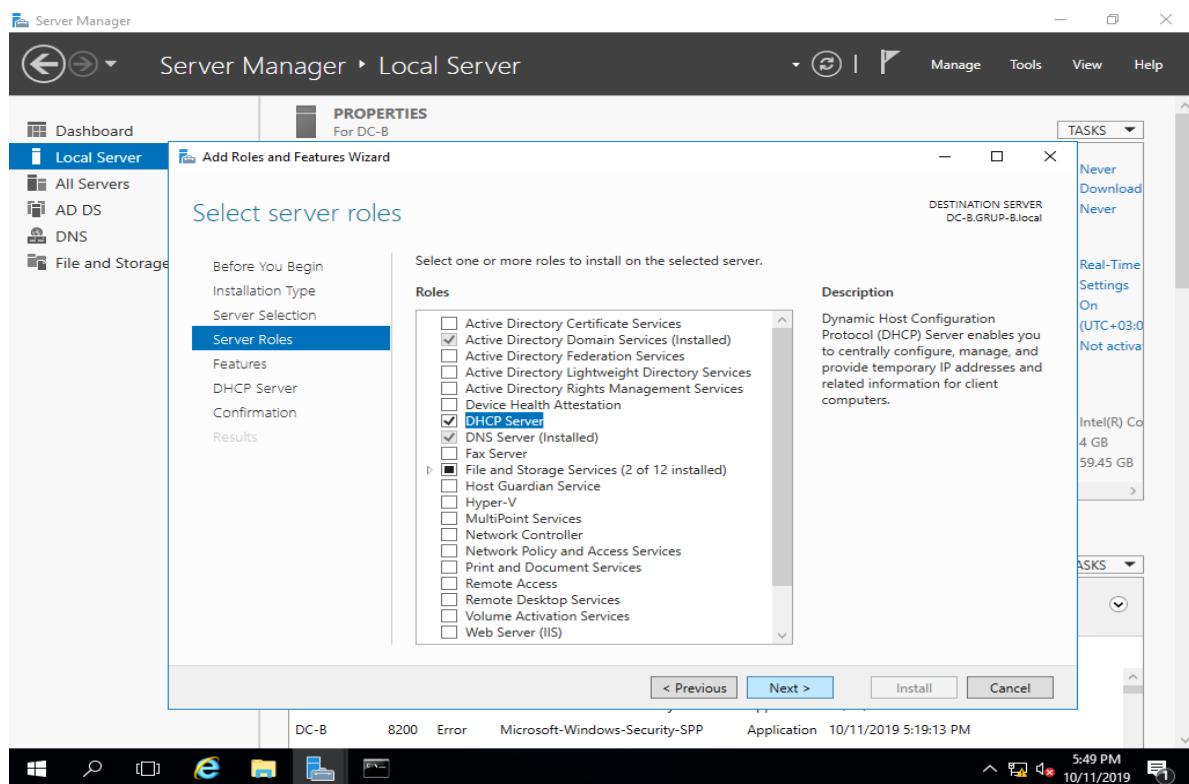
15-Tüm kontrol işlemleri bittikten sonra “install” edilir.



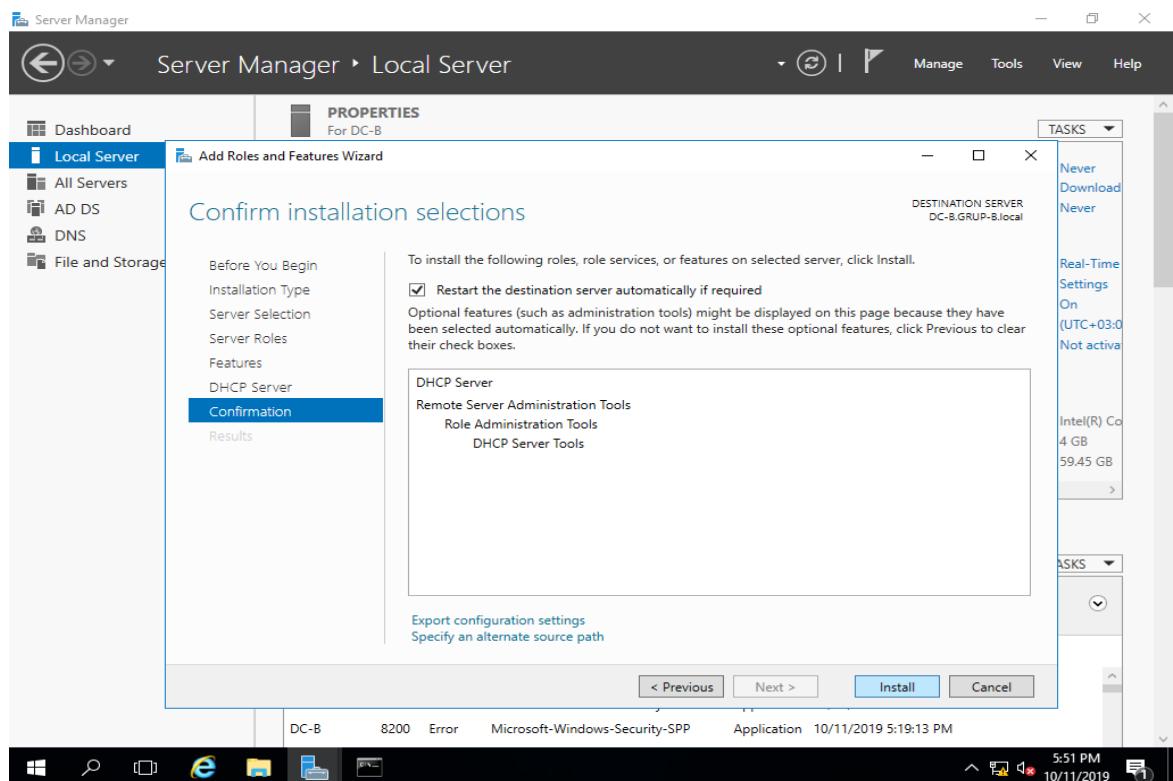
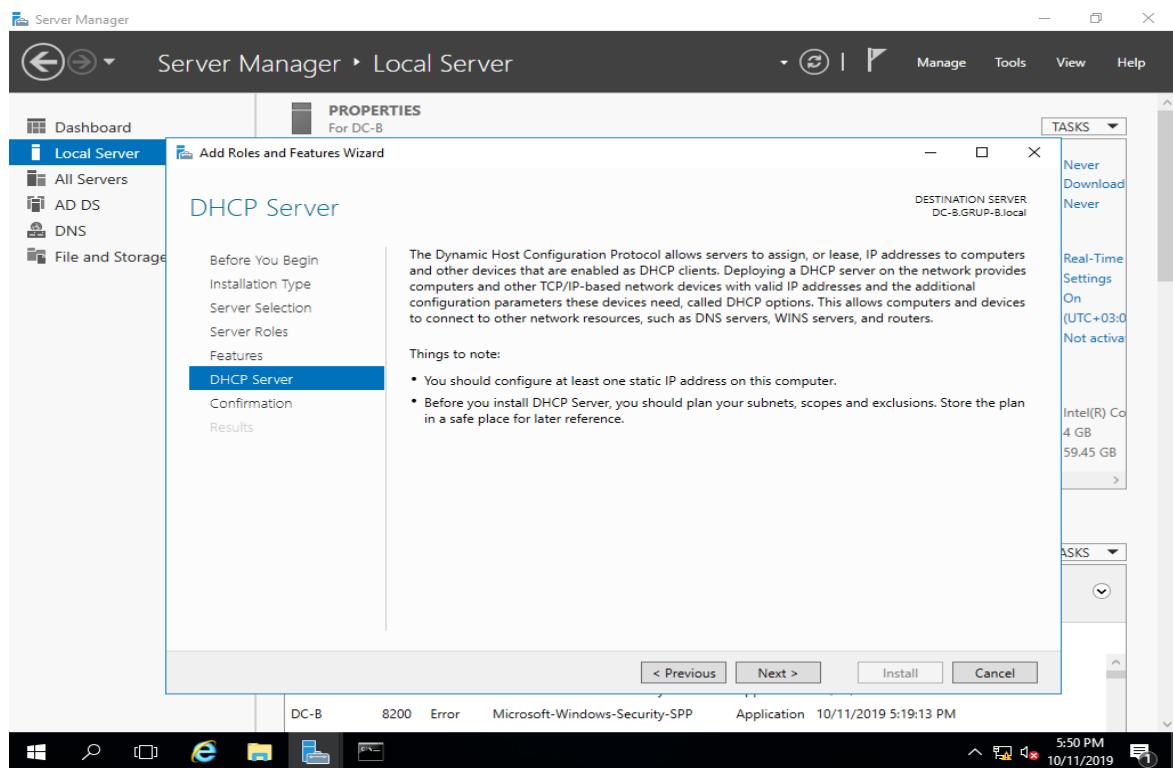
16-DNS Server Kurulumu da gerçekleştirilecektir.



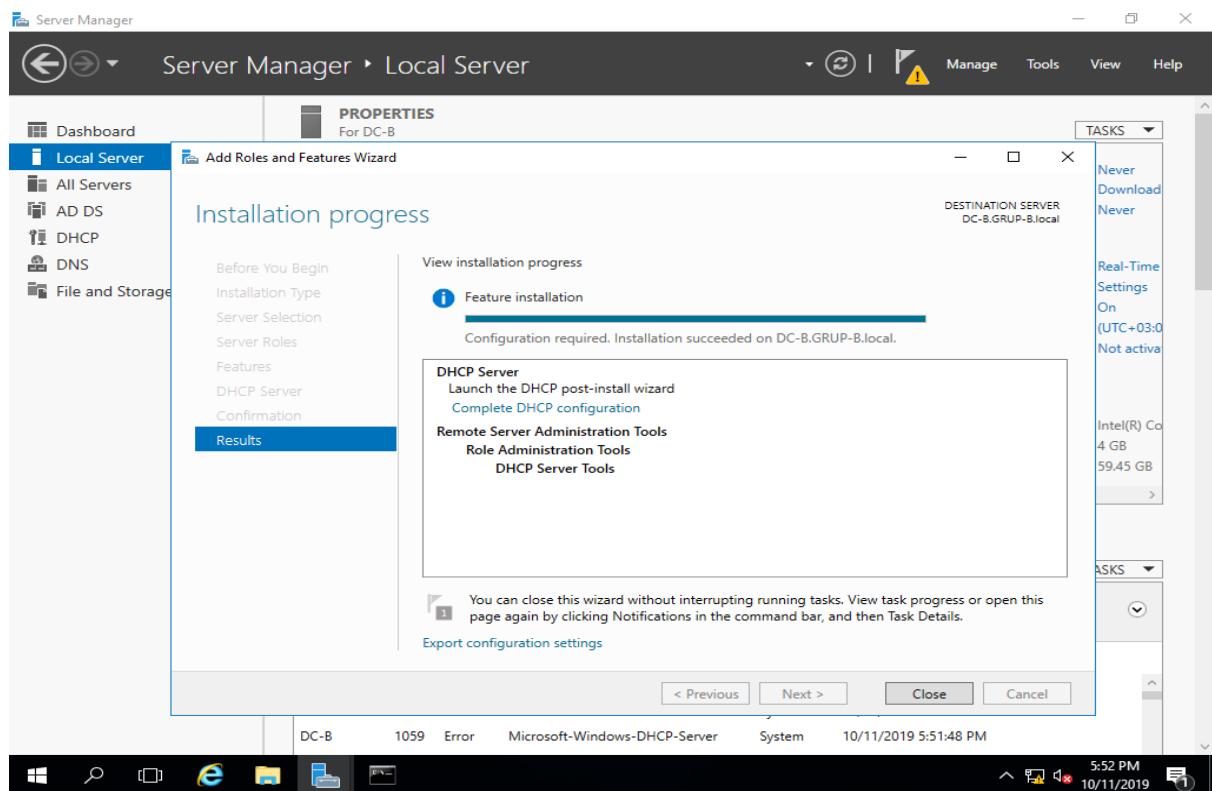
17-DHCP kurulumu da yapılır.



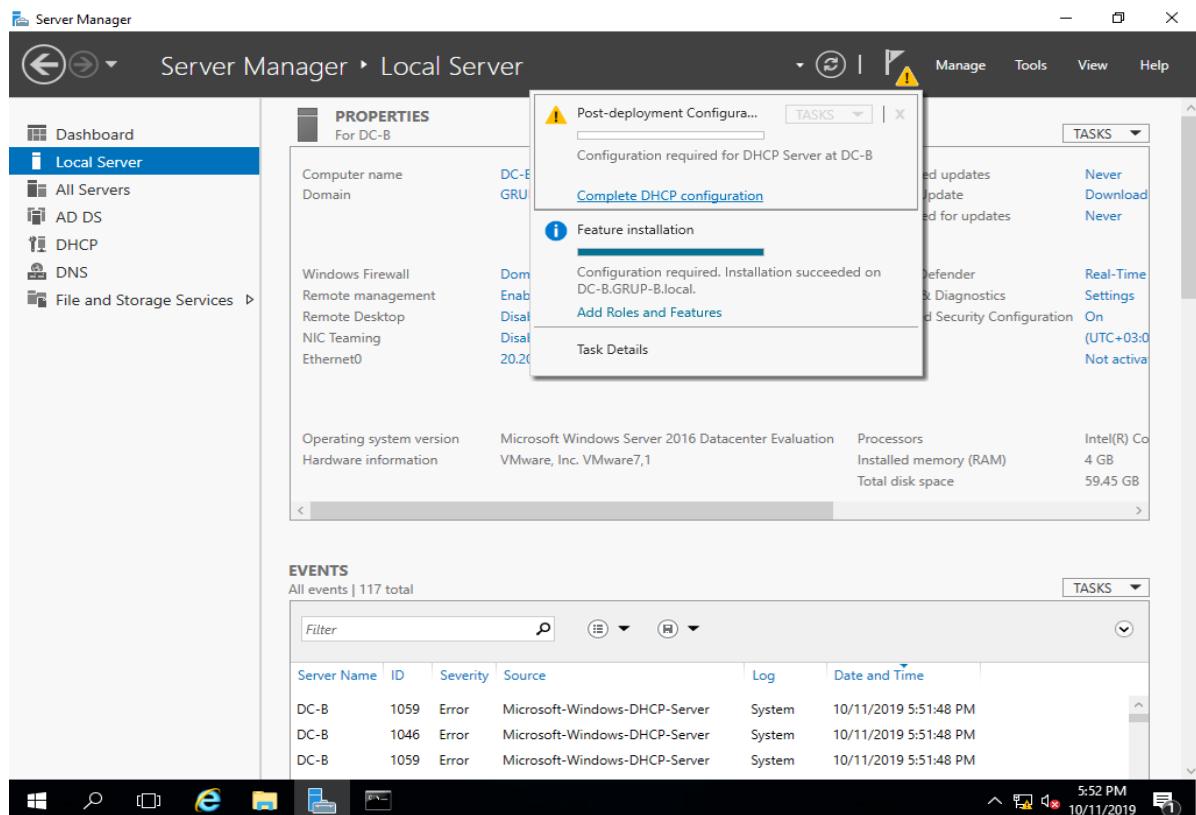
18-“Next” tıklanarak işleme devam edilir.



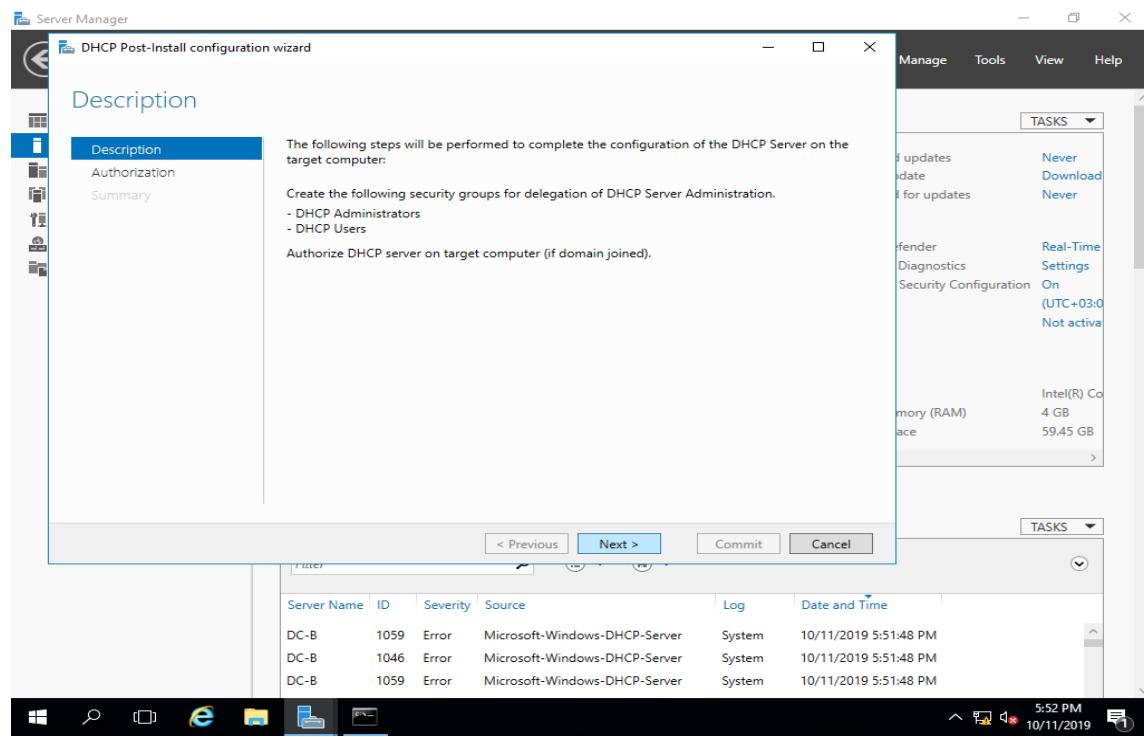
19-Kurulum gerçekleştirilecektir.



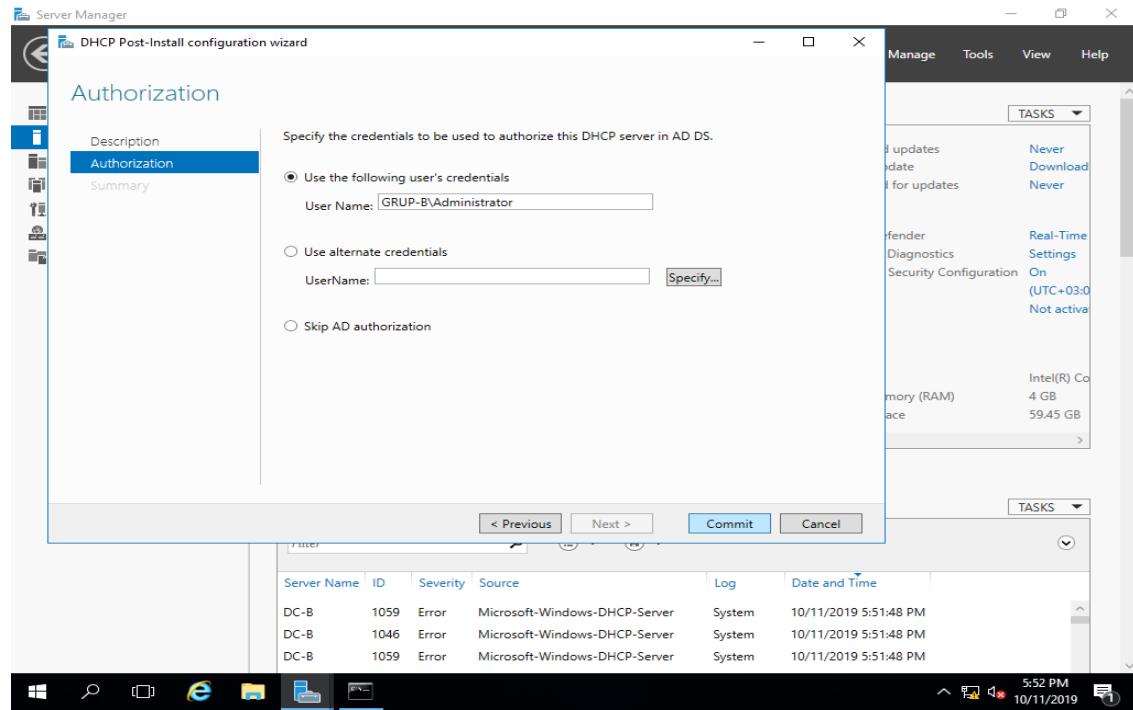
20-Daha sonra tekrar Server Manager uyarılar bölümünden “complete DHCP configuration” tıklanır.



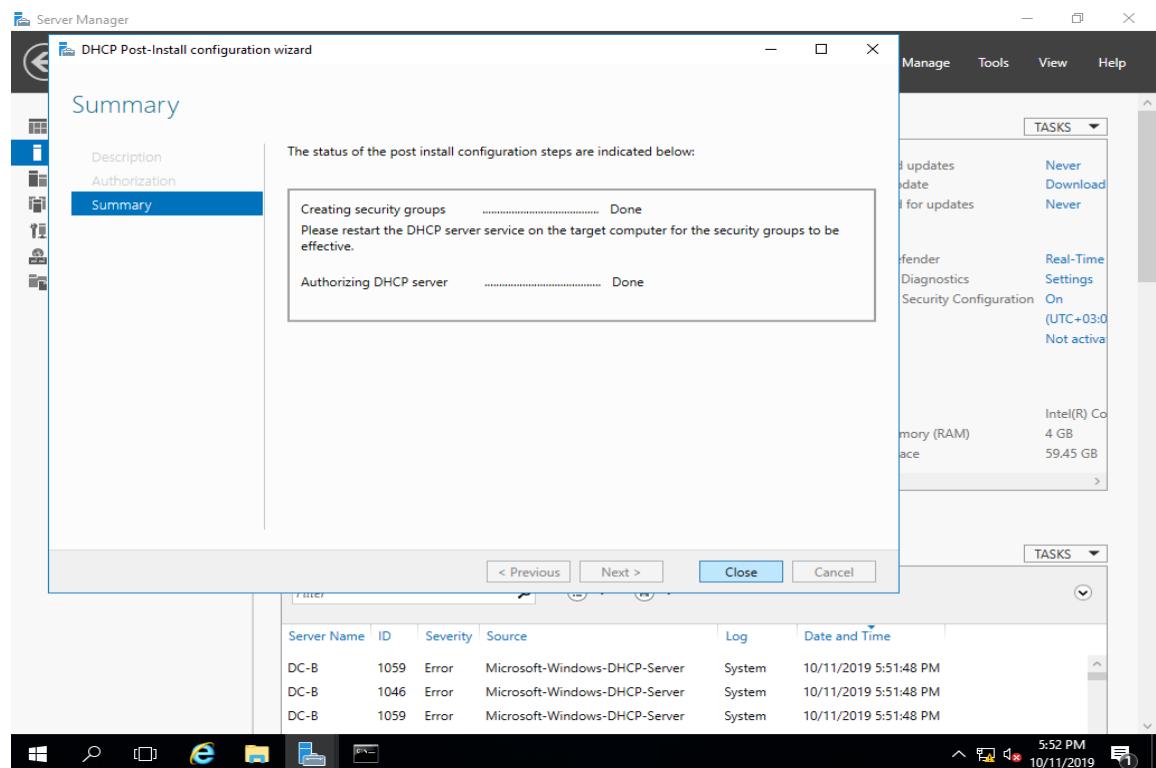
21-“Next” tıklanır.



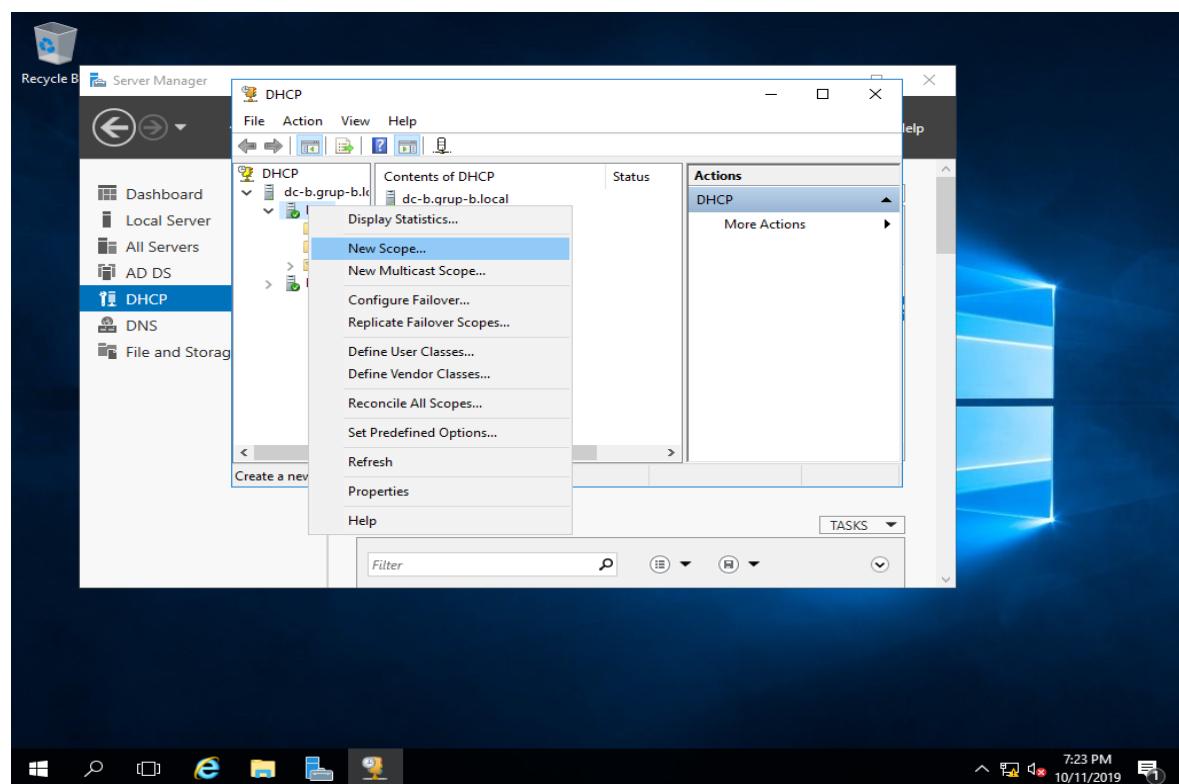
22-“Use the following user’s credentials” seçilir ve “User Name” girilir.



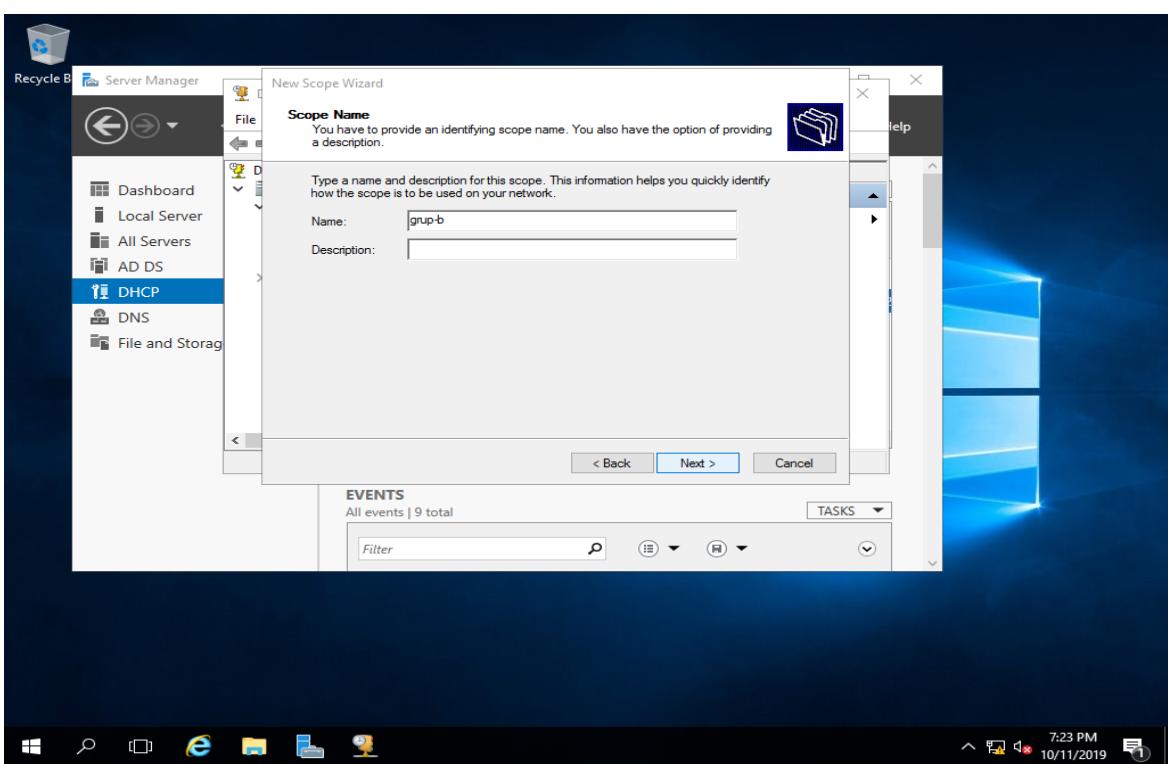
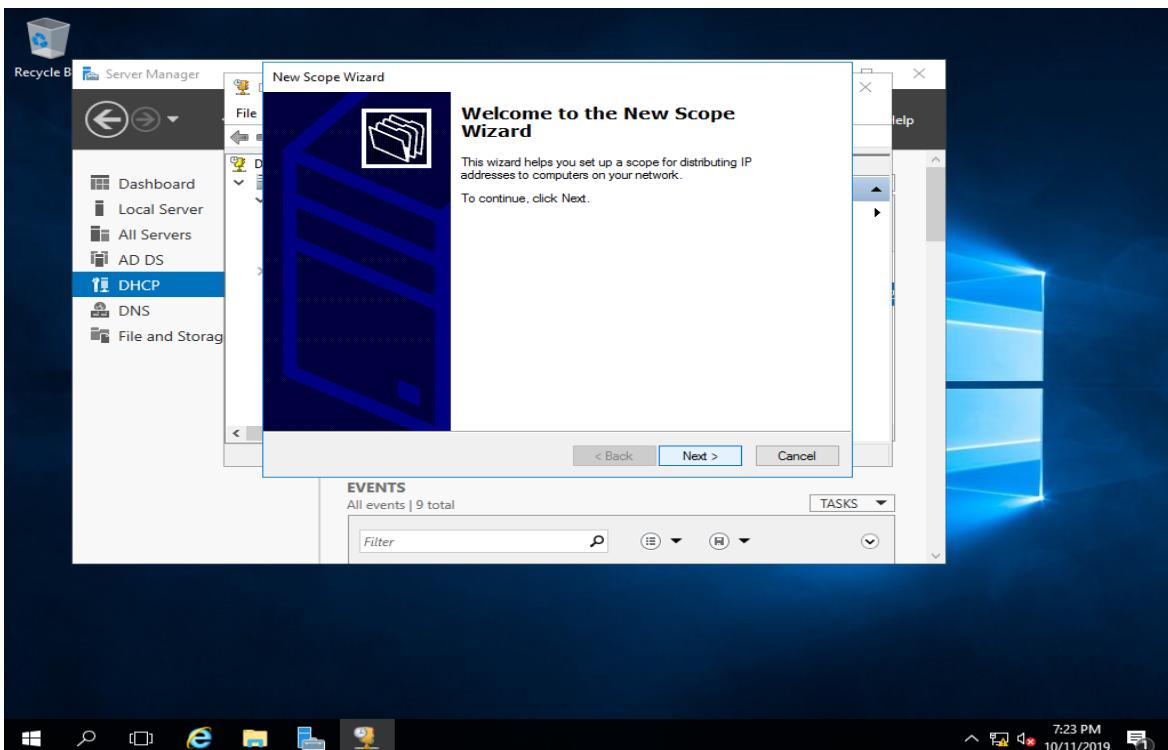
23-Tüm ayarlamalar yapıldı.



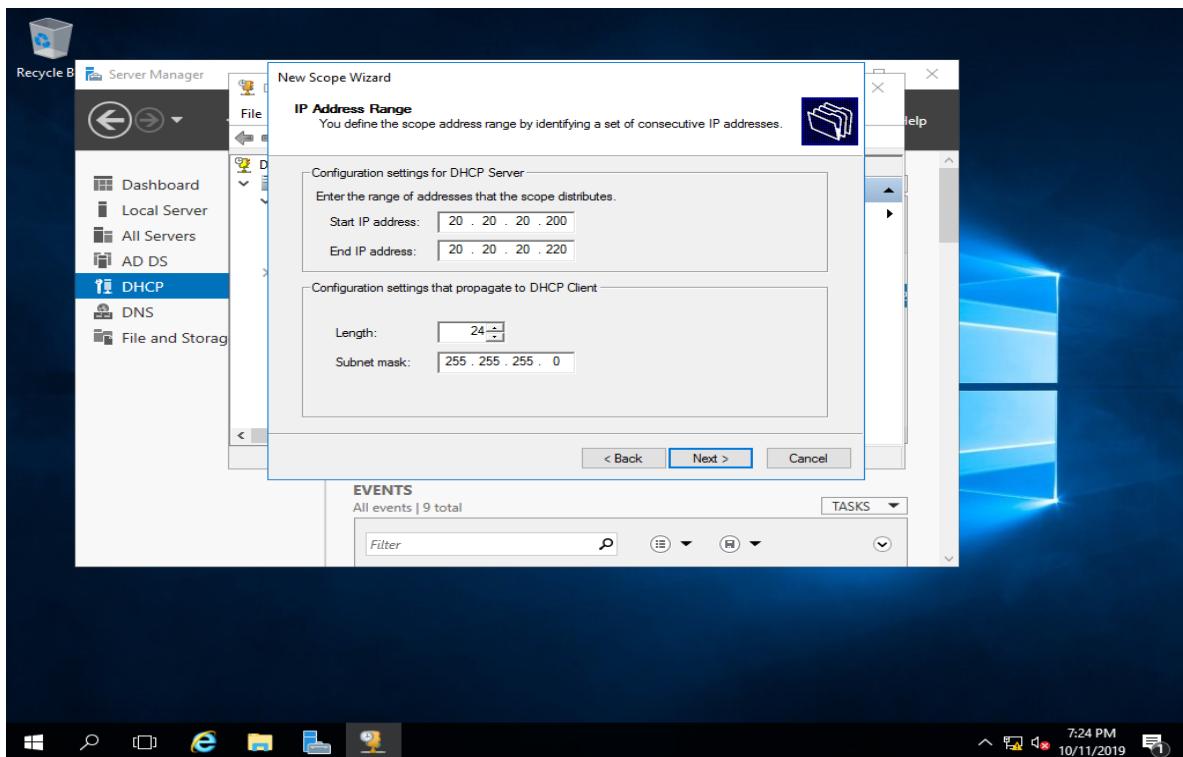
24-Kurulum işlemlerinden sonra DHCP Manager'a girilir ve “New Scope” oluşturulur.



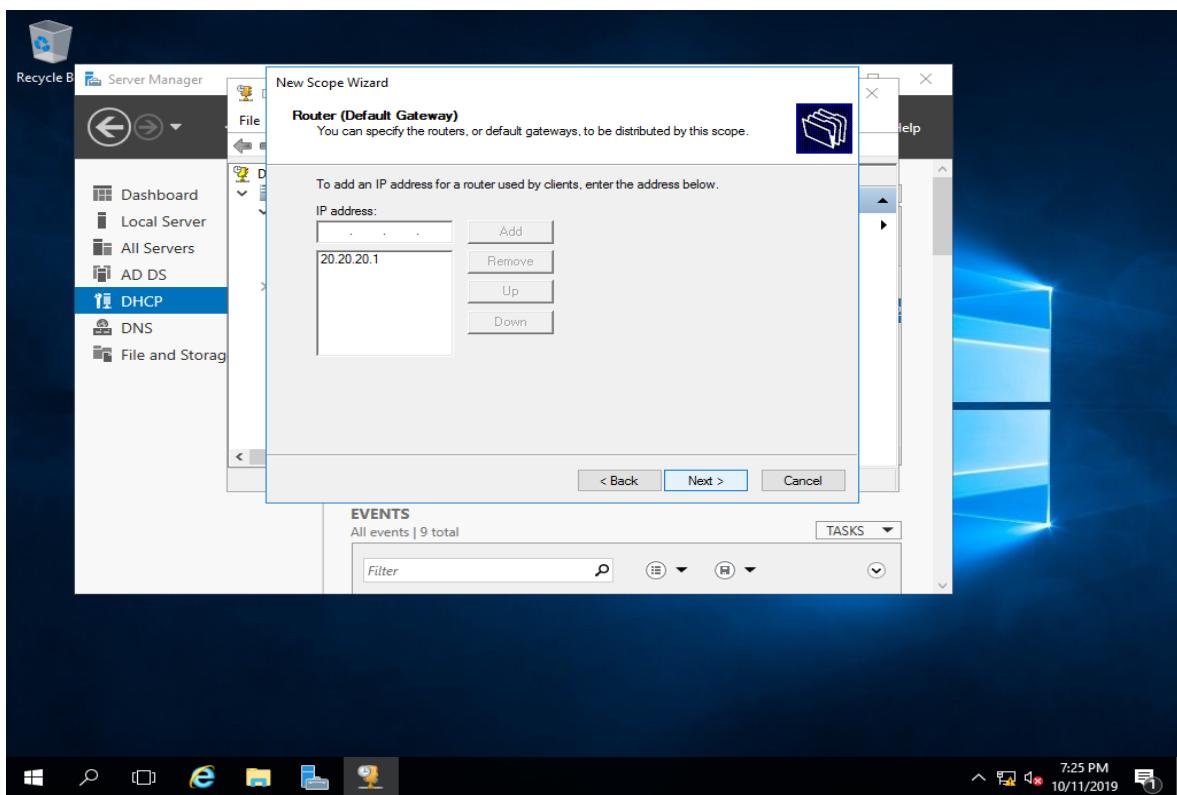
25-“Next” tıklanır ve “Scope name” belirlenir.



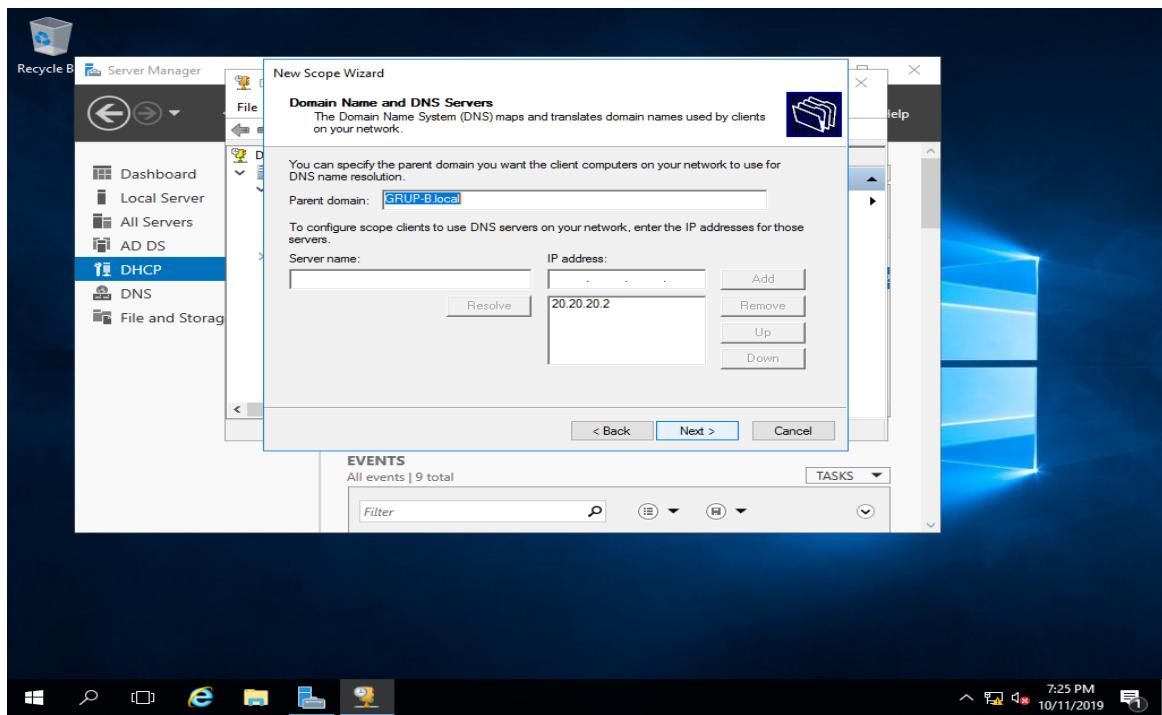
26-Dağıtılmak ip adresi aralıkları belirlendi.



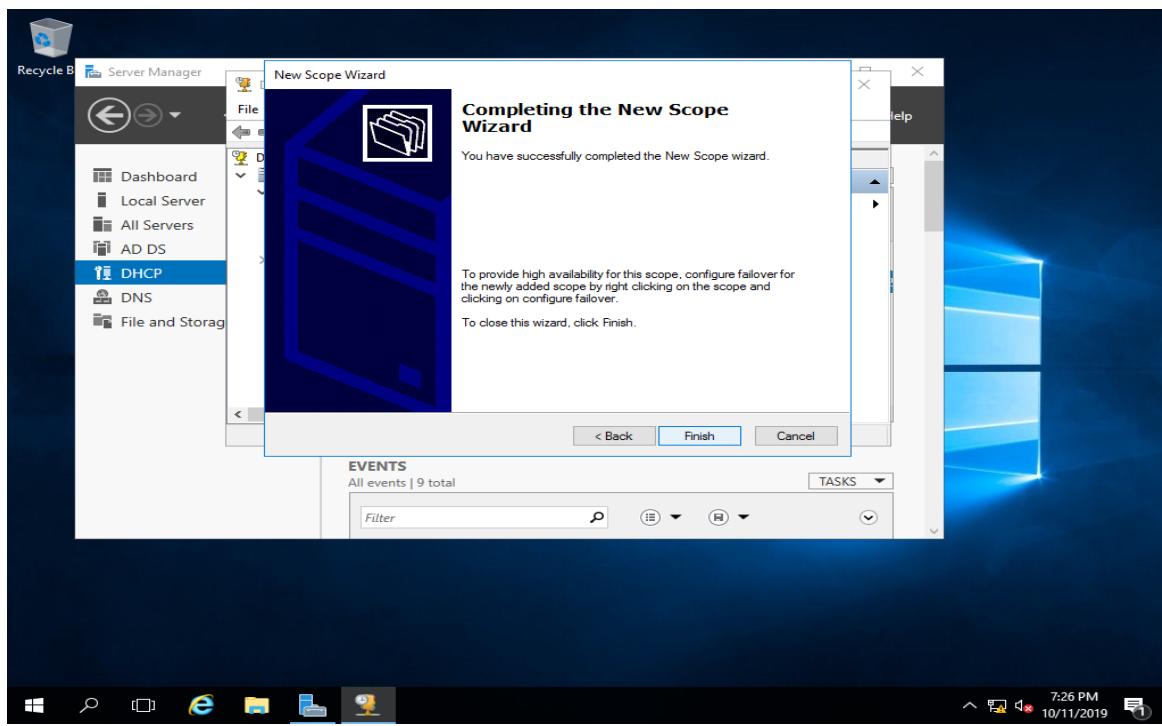
27-Default Gateway belirlendi.



28-DNS ip adresi belirtildi.

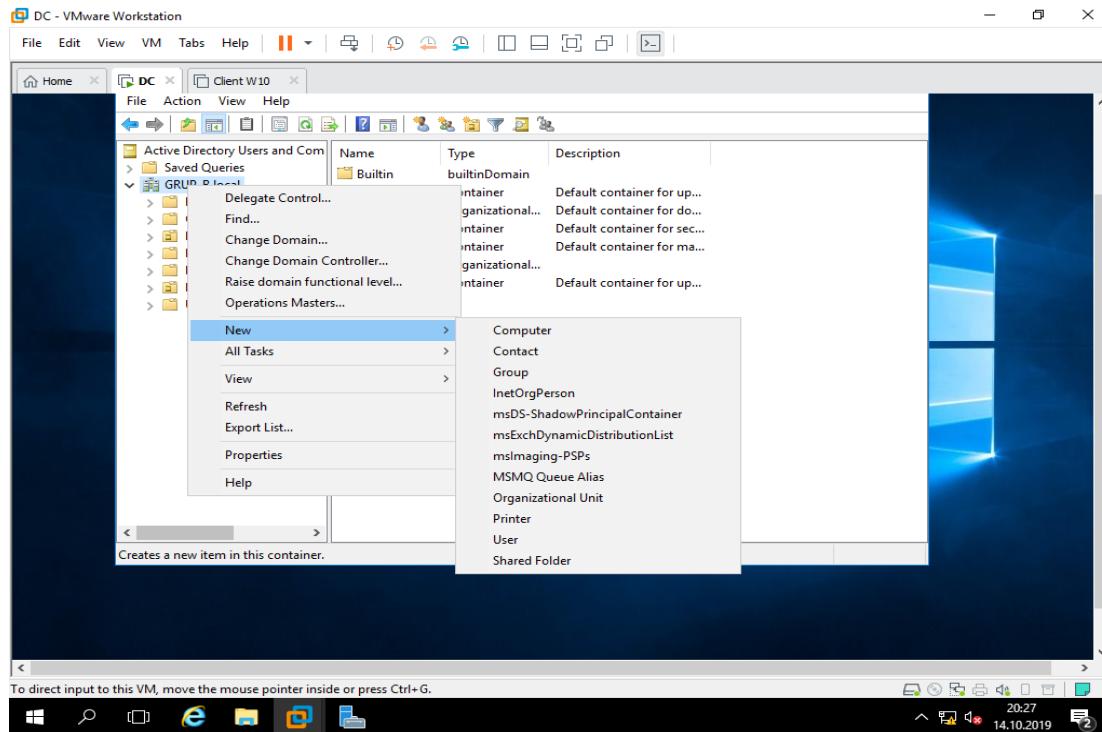


29-Scope oluşturuldu.

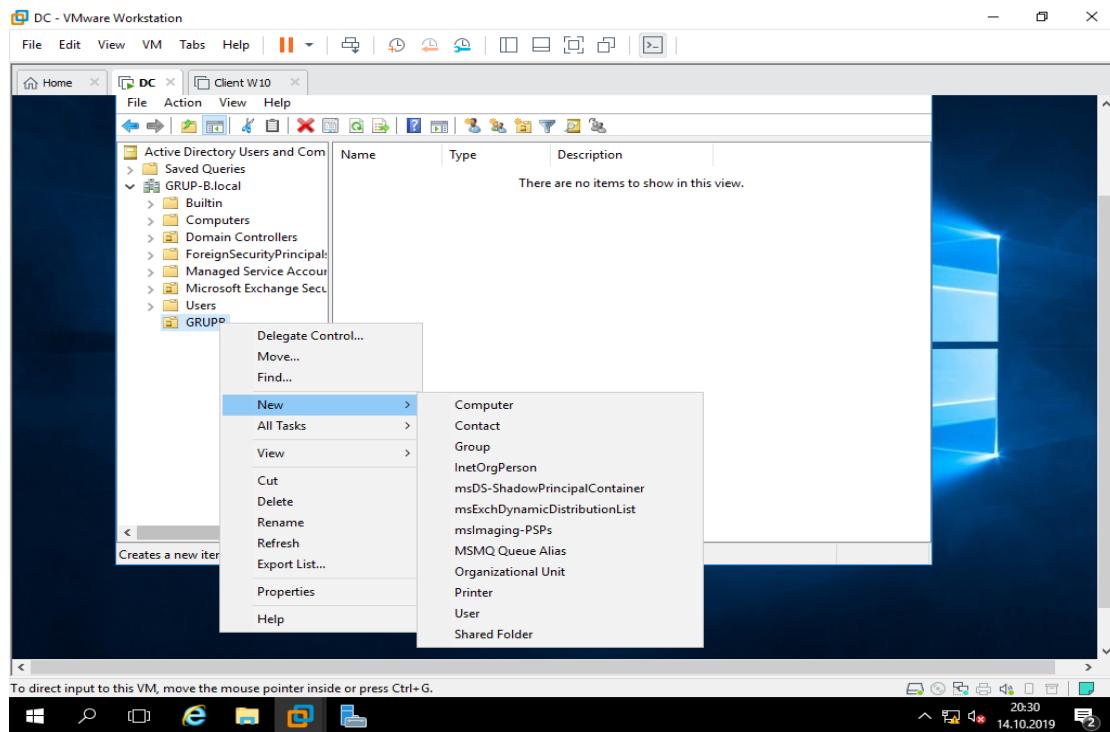


DC SERVER'DA YAPILAN DİĞER İŞLEMLER

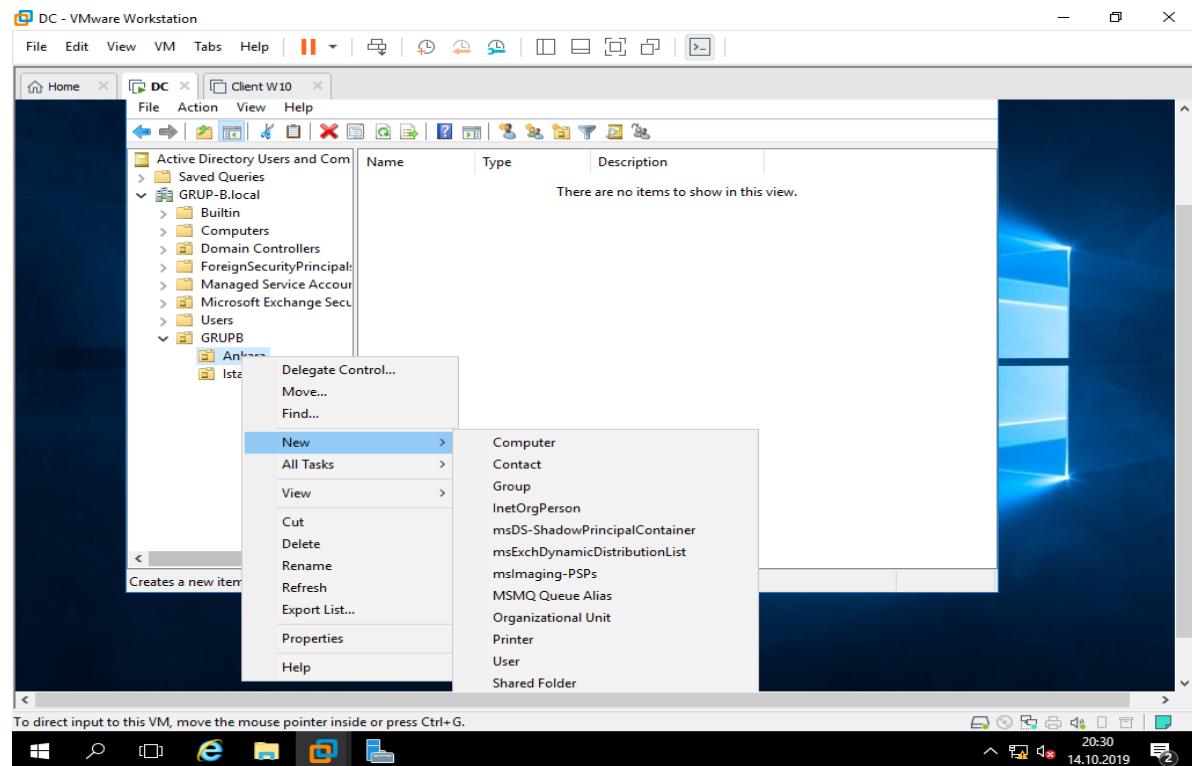
1-İlk olarak GRUPB İsimli bir OU oluşturuldu.



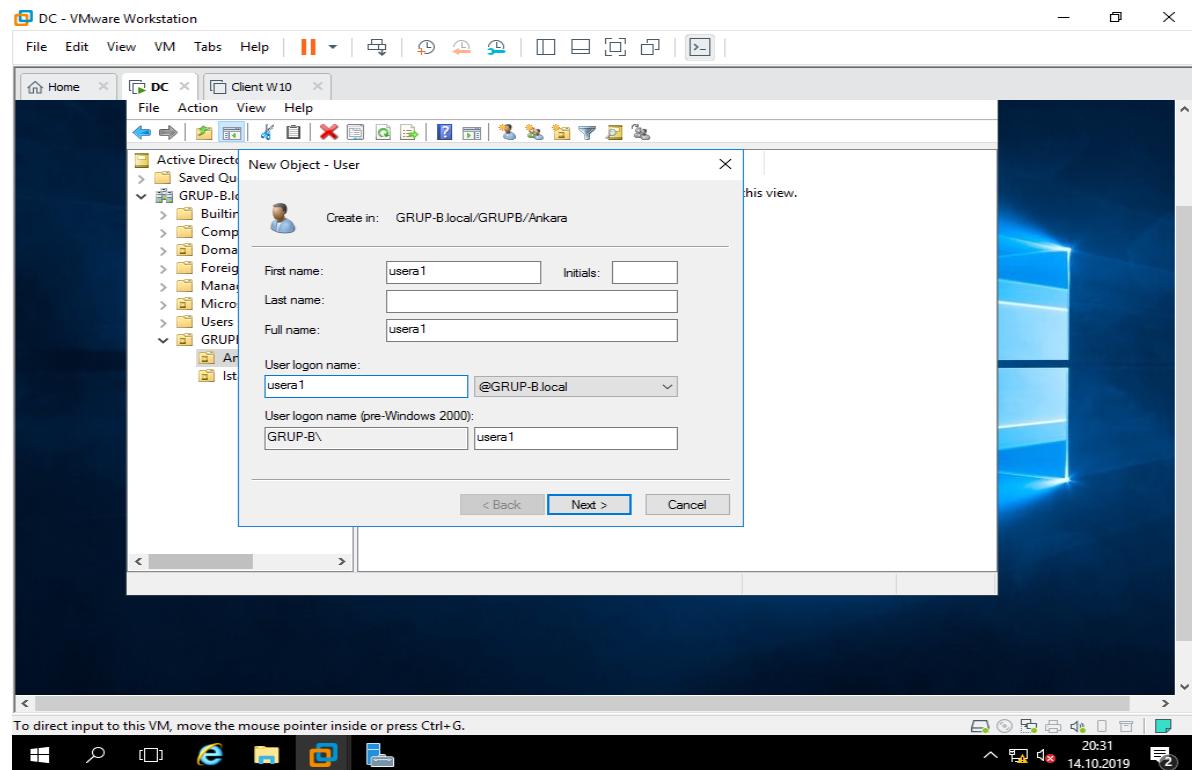
2-Daha sonra İstanbul ve Ankara olmak üzere iki tane daha OU oluşturuldu.



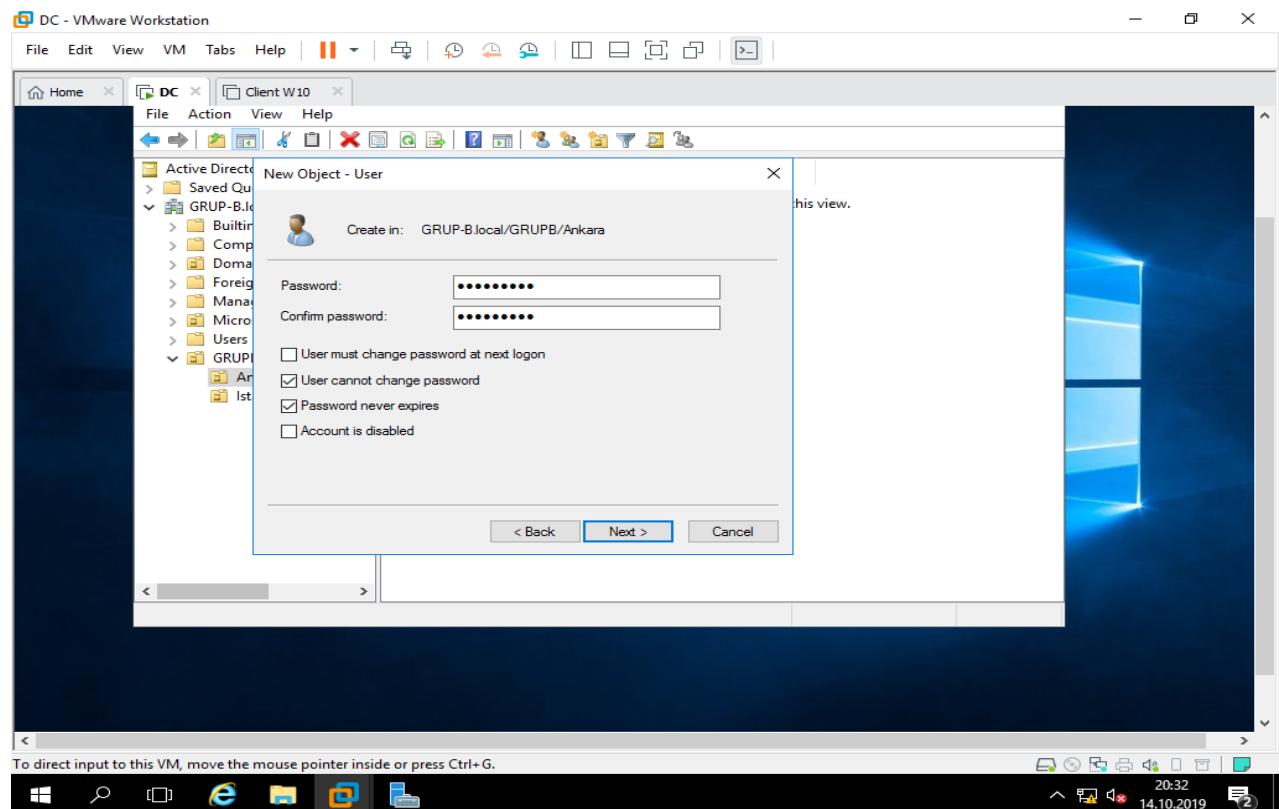
3-Ankara ve İstanbul OU'ların içine User'lar eklendi.



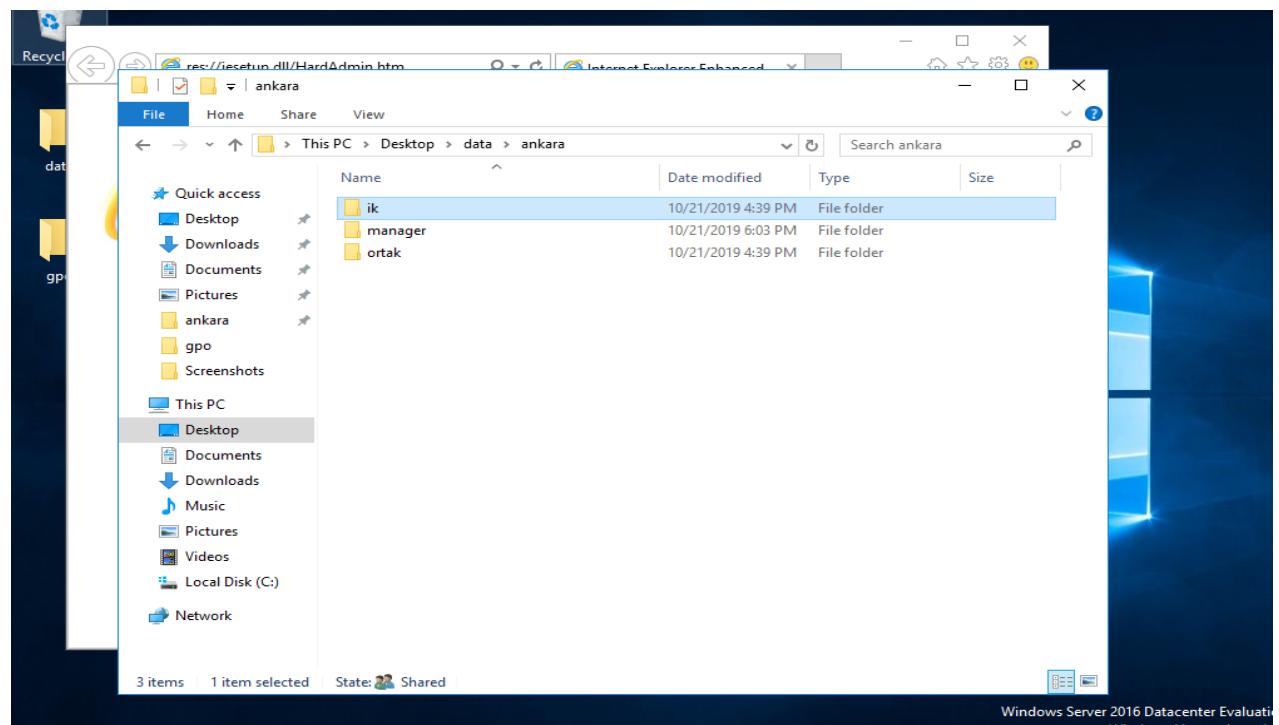
4-Hem Ankara hem İstanbul OU'daki tümUser lar için gerekli bilgiler girildi.



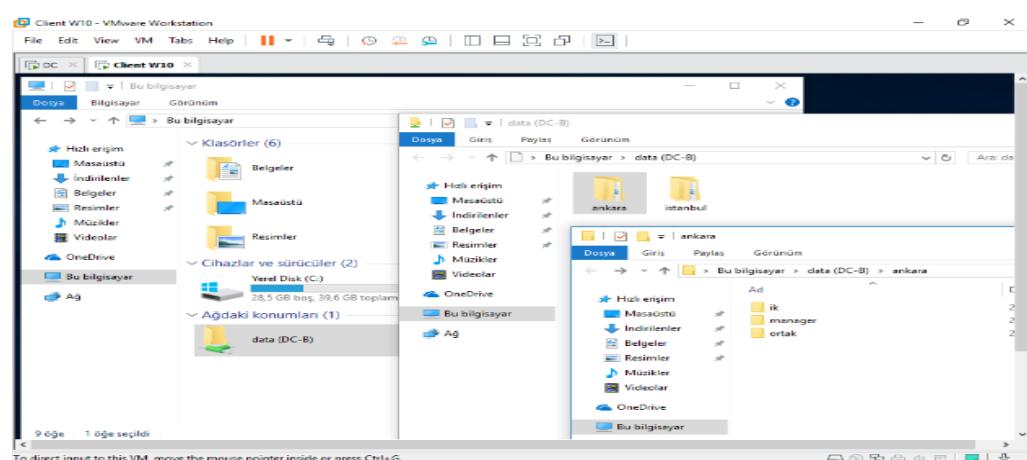
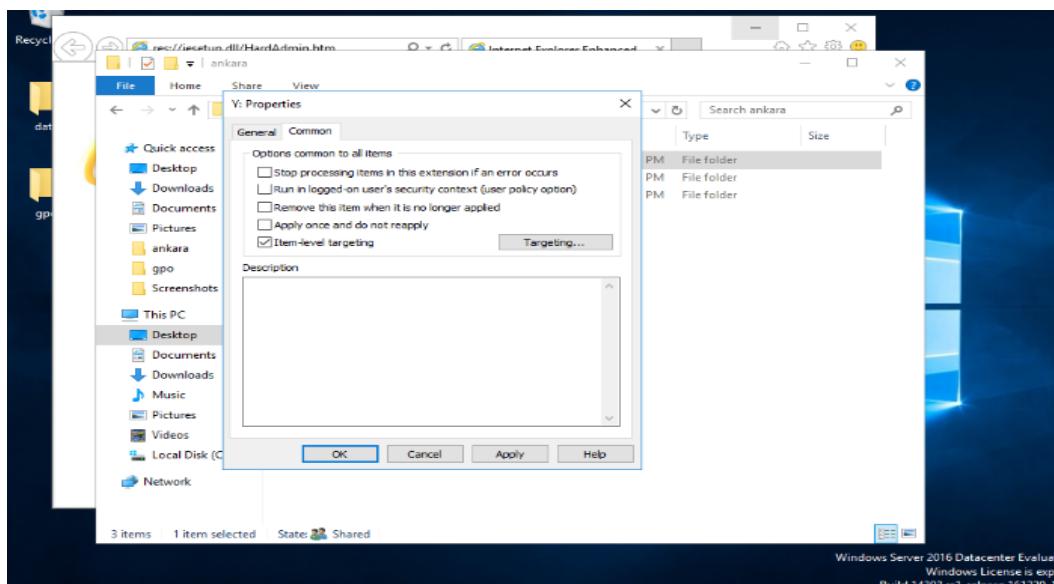
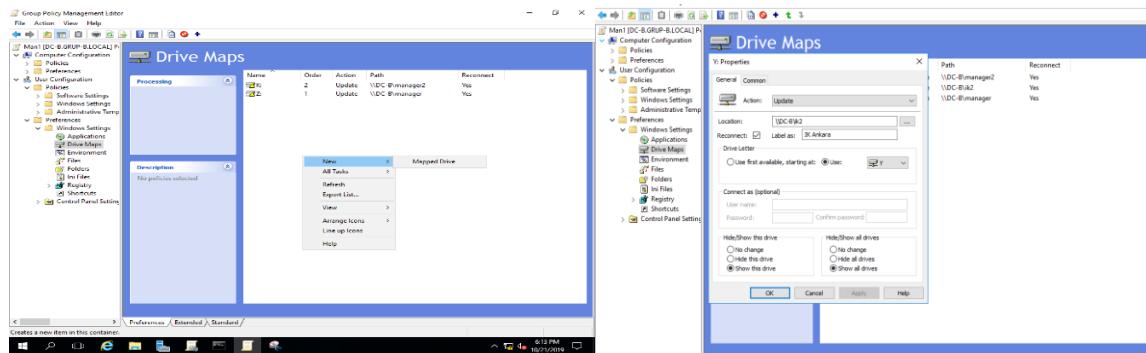
5-User'lar için passwordler oluşturuldu.



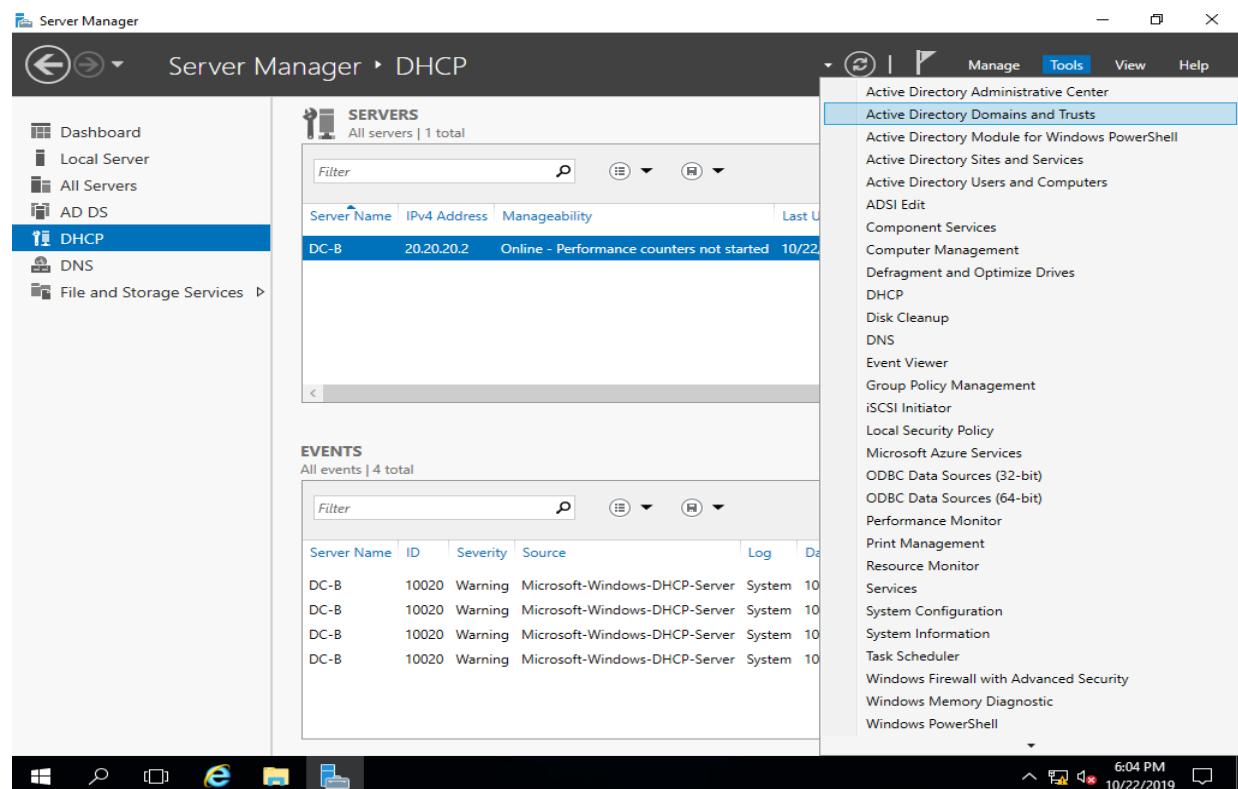
6-Masaüstünde data isimli bir klasör oluşturuldu, bu klasör içine Ankara ve İstanbul isimli iki klasör daha oluşturuldu. Daha sonra her ikisinin de içine "Manager", "İk" ve "Ortak" isimli klasörler oluşturuldu."Manager" olan userlar tüm klasörler için Read/Write yetki sahibi edinildi."İk" grubundaki kullanıcılar ise sadece "ik ve ortak" klasörlerine girsin istendi.Tüm Bunlar için Group "Policy Management Editorden" GPO oluşturuldu.



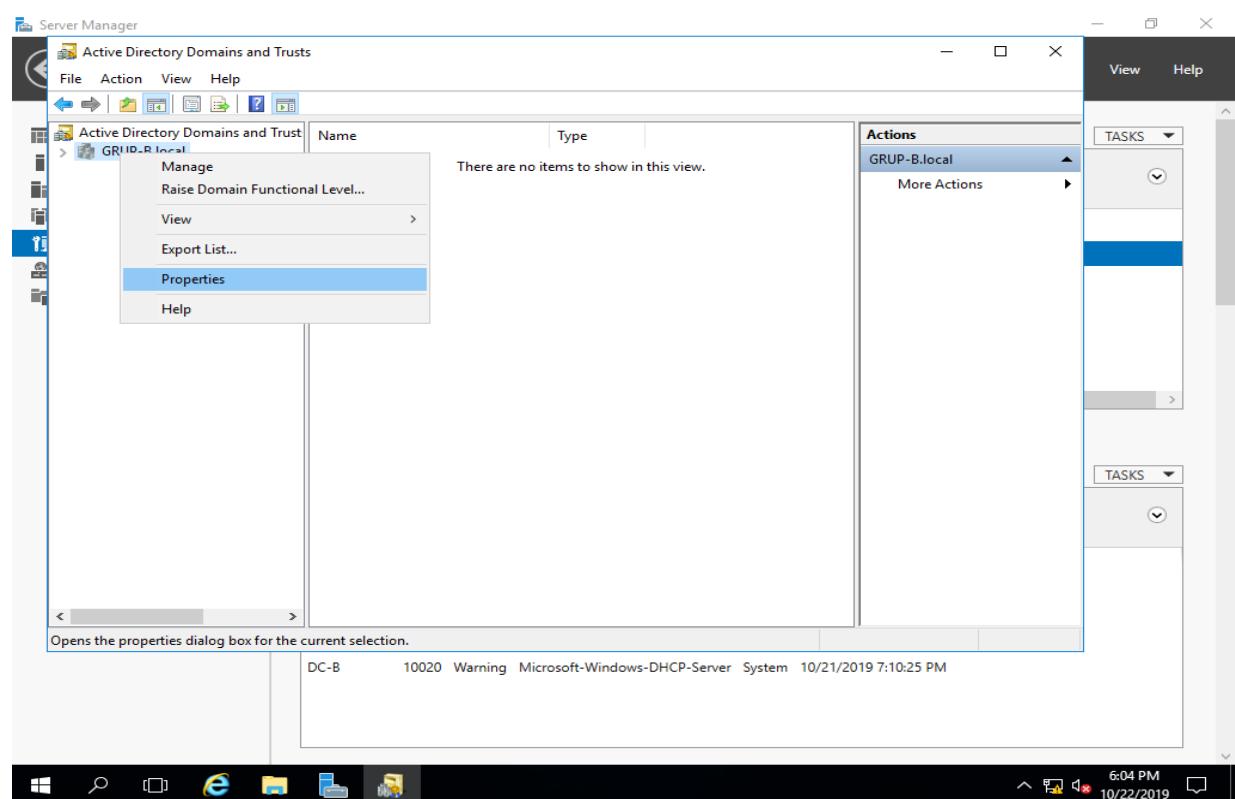
7-“Windows Settings” altındaki Drive Map tıklanır ve “Data” Klasörü için “Mapped Drive” yapılır. General Sekmesinde “location” yerine data klasörünün paylaşım sekmesindeki uzantısı kopyalanır,ardından “Reconnect” seçilir, gösterileceği drive letter da seçildikten sonra “Show all drives” ve “Show this drives” seçilir. Daha sonra “Common” sekmesinden Item-level targeting seçilir ve bu işlem bitirilir. Bu aşamalrdan sonra data klasörü görünür.



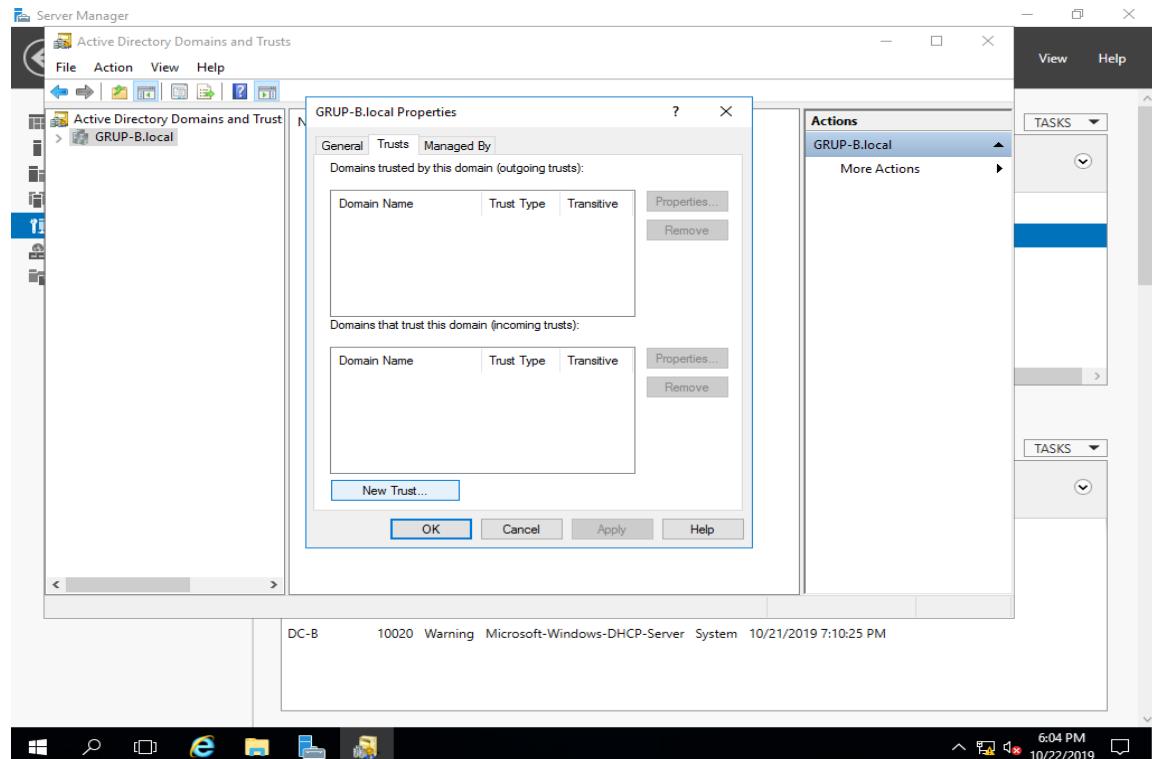
8-Server Manager>Tools>Active Directory Domain and Trusts



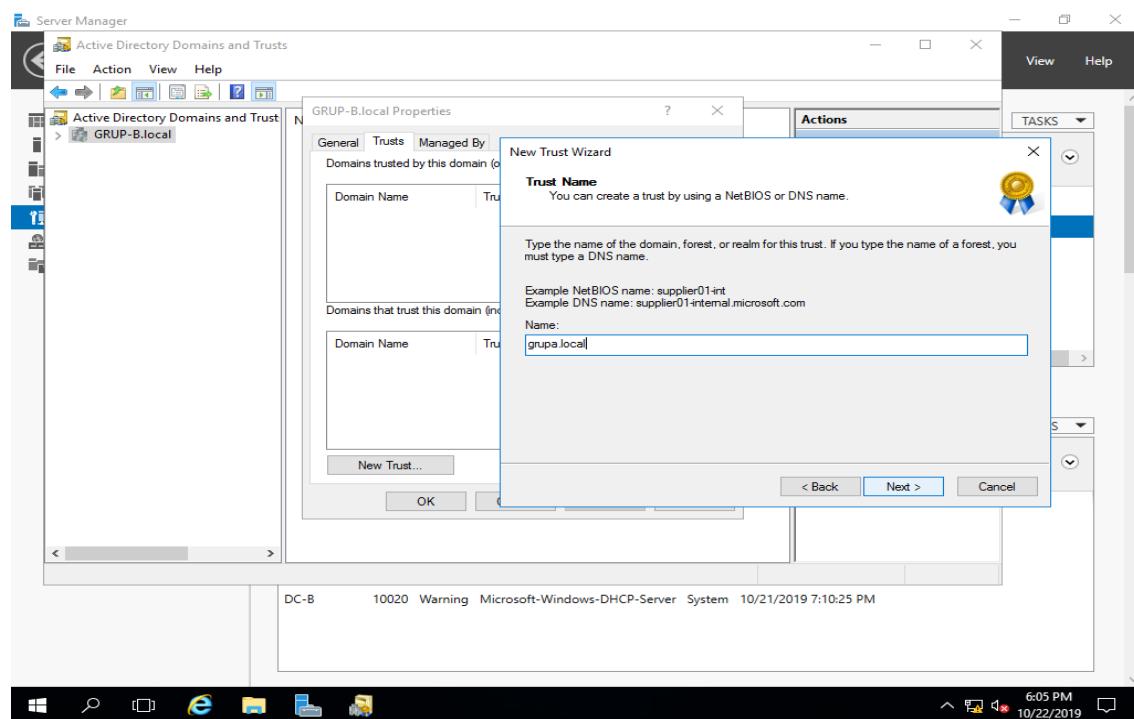
9-Ardından Özellikler tıklanır.



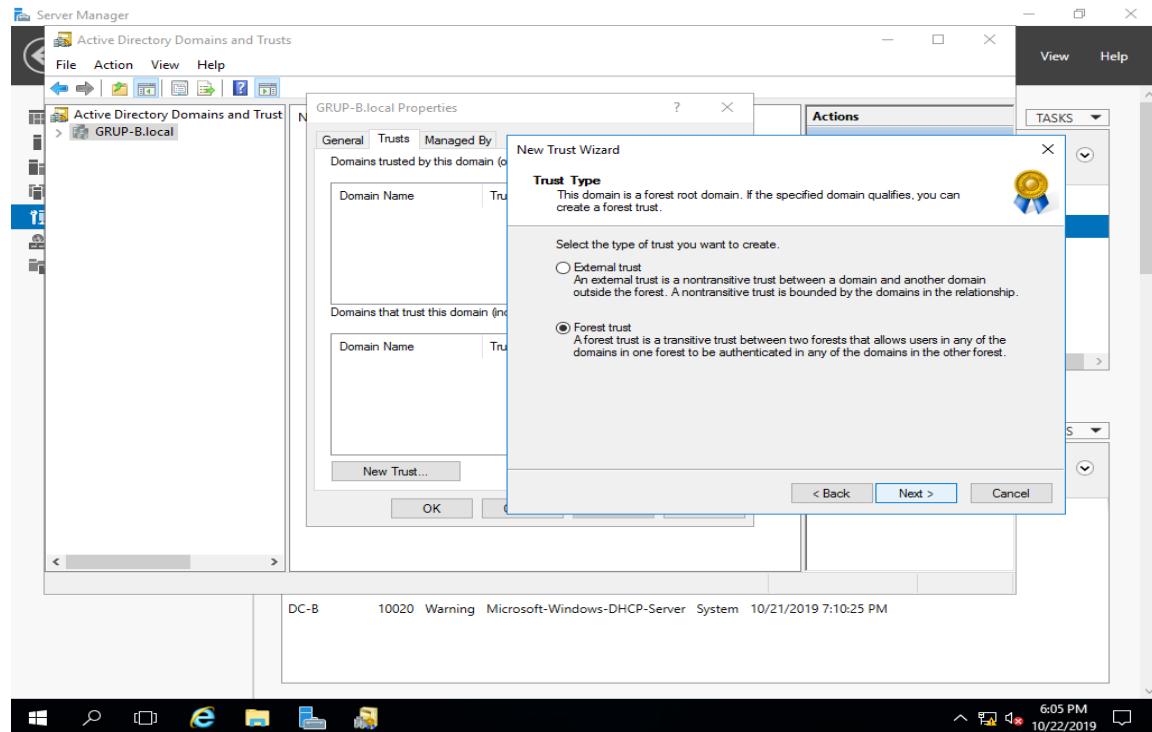
10-Trusts Sekmesinden New Trust seçilir.



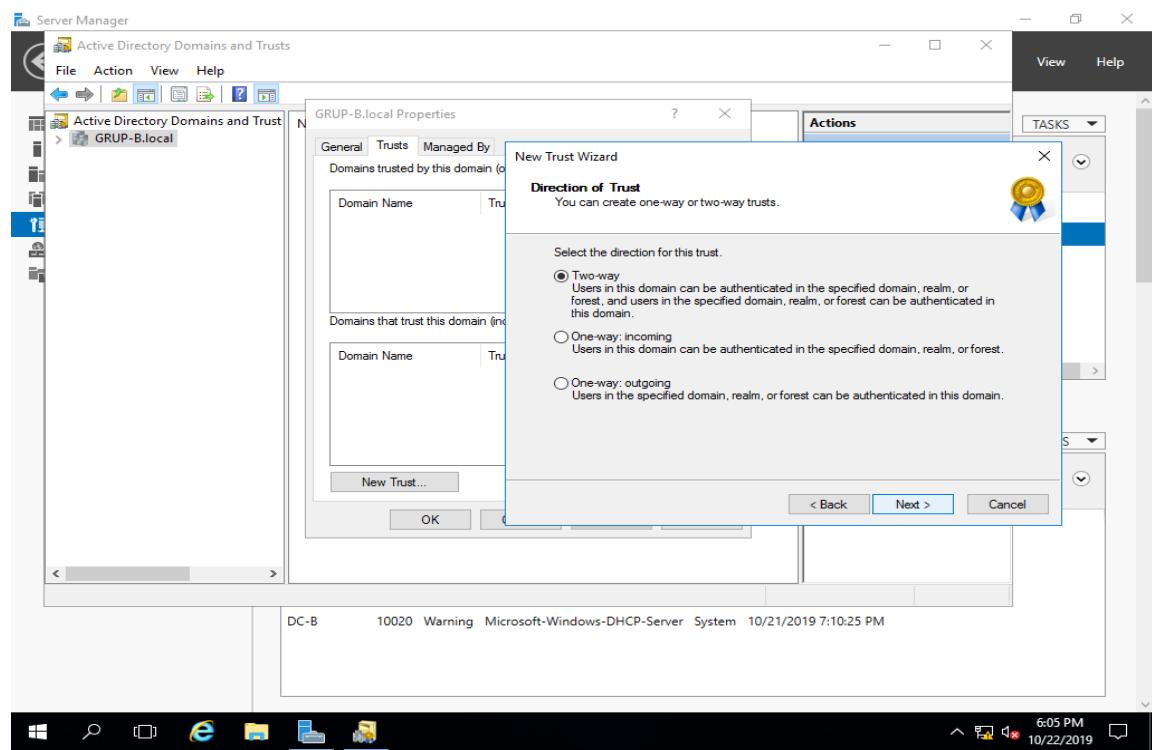
11-Diger grubun Name'i girilir.



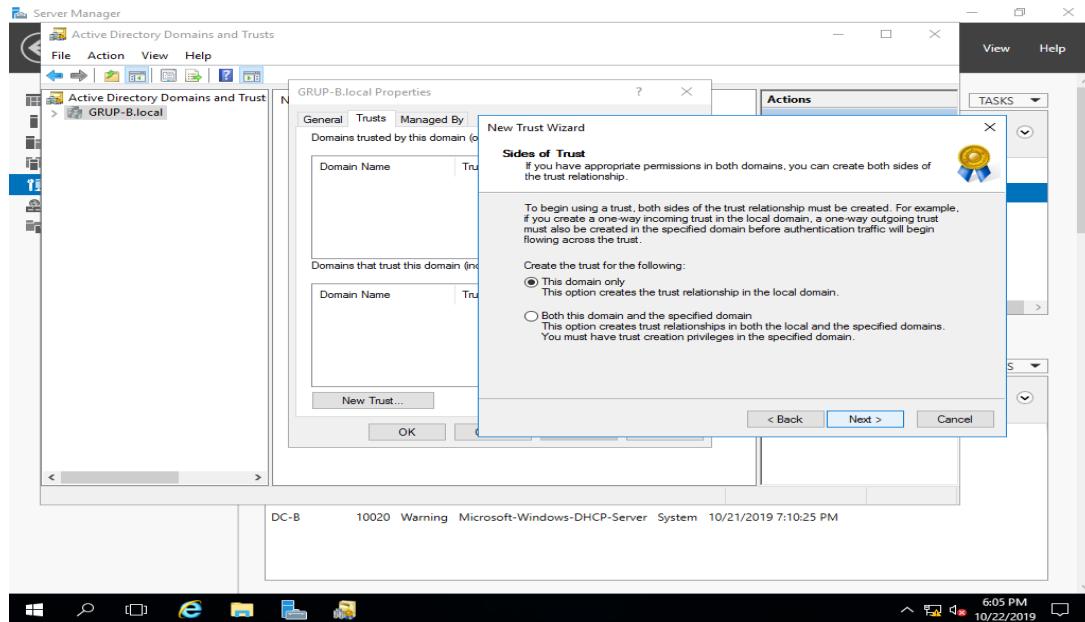
12-Trust Tipi “Forest trust” seçilir ve devam edilir.



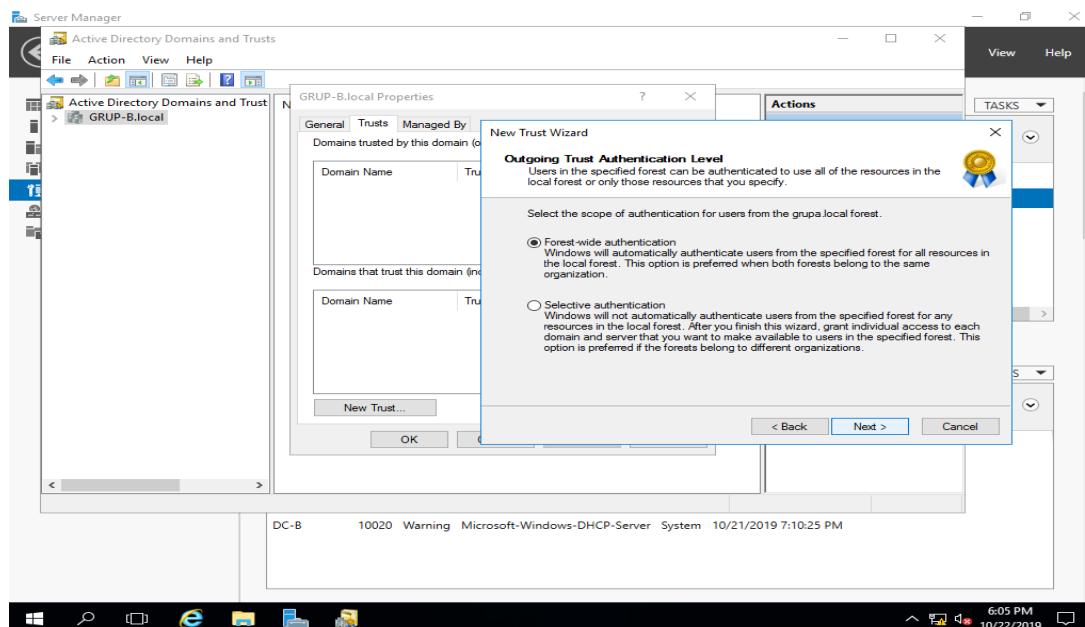
13-“Two-way” seçeneği seçilir ve devam edilir.



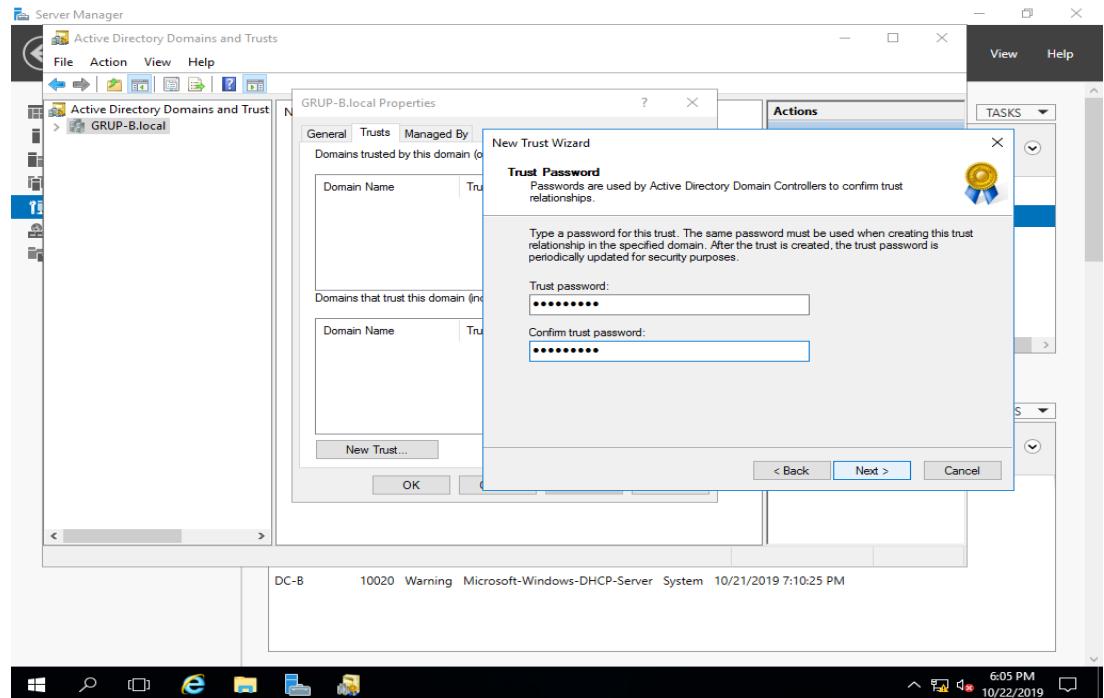
14-Sadece mevcut domainde bulunur.



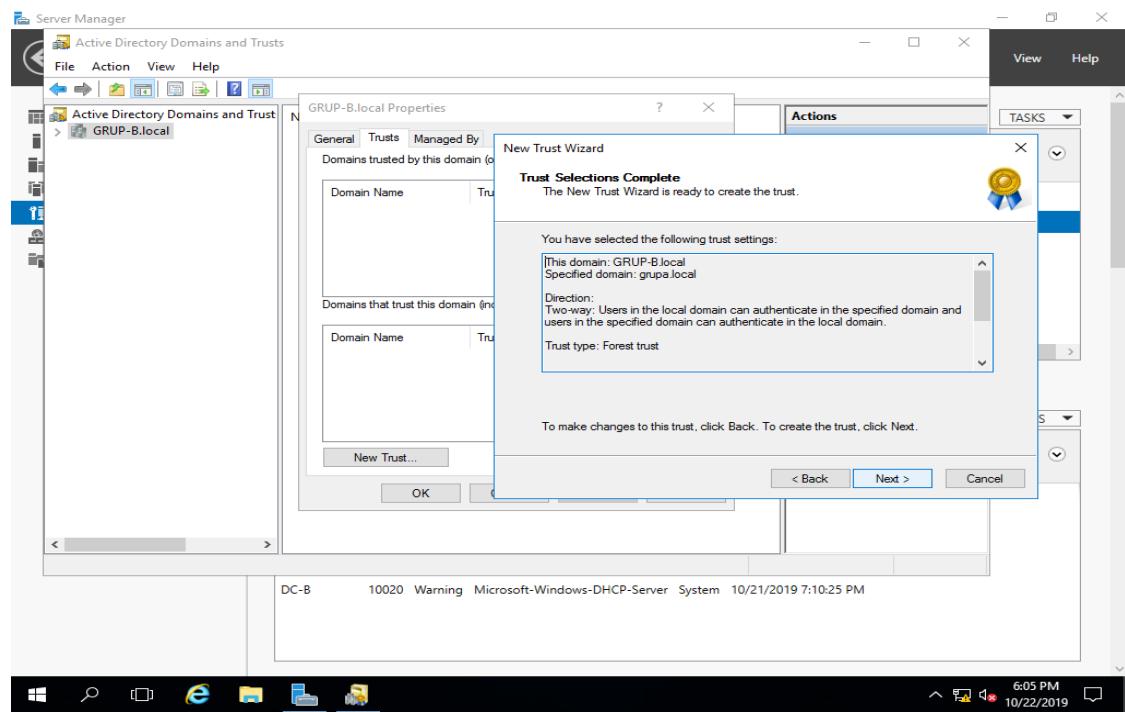
15-Bütün haklar verildi.



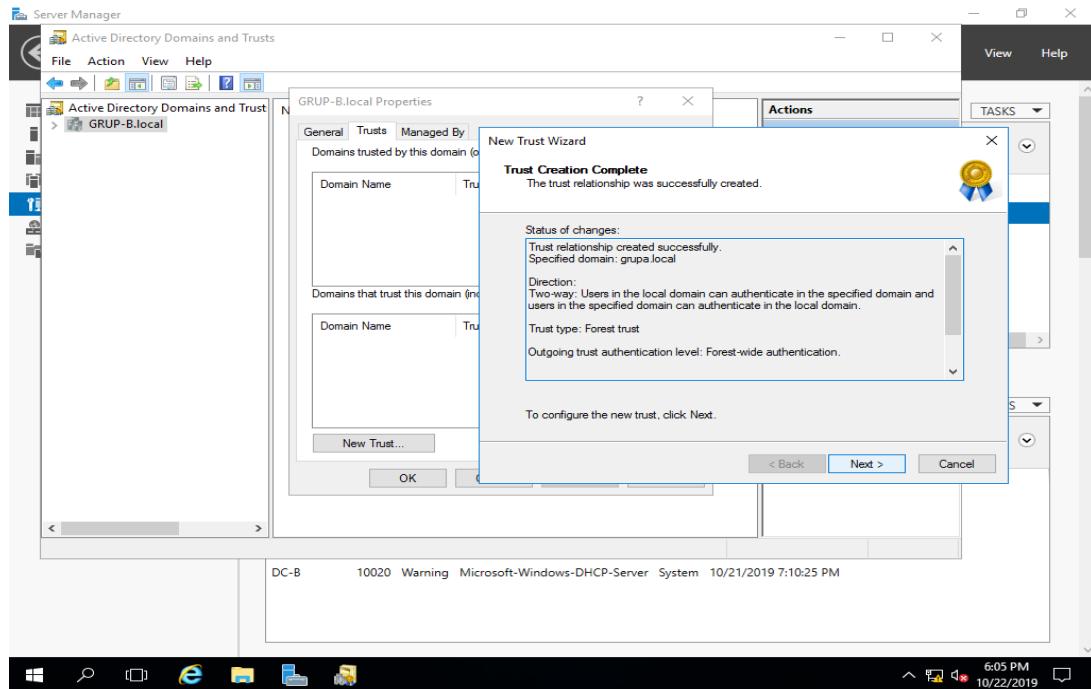
16-Eklediğimiz domainin şifresini girilir.



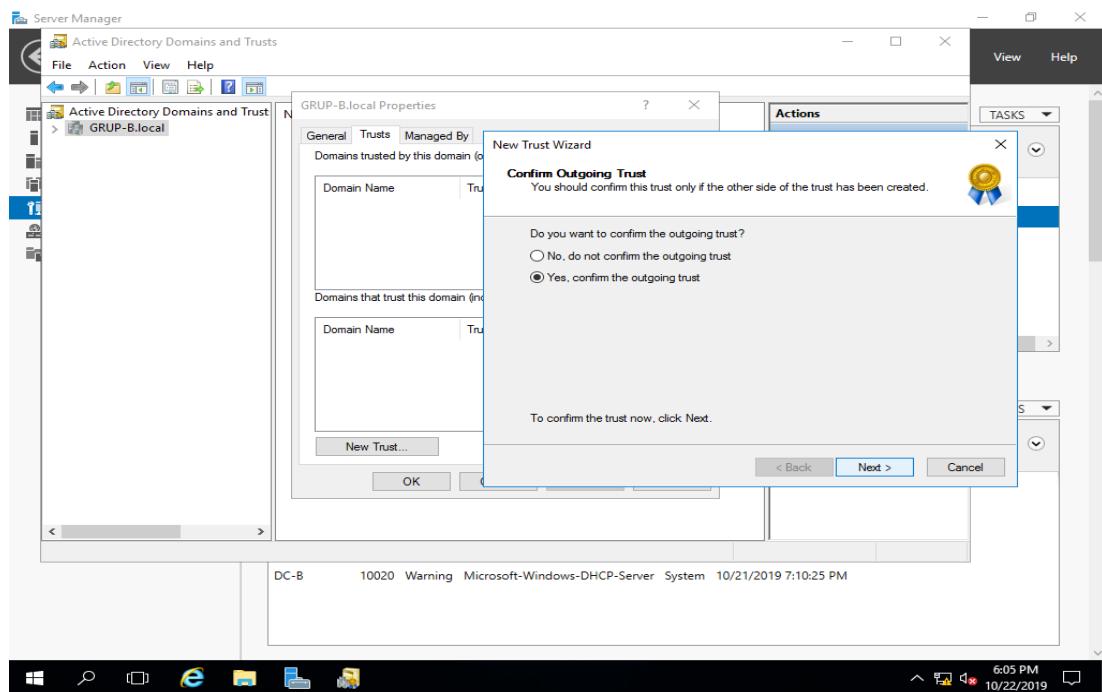
17-



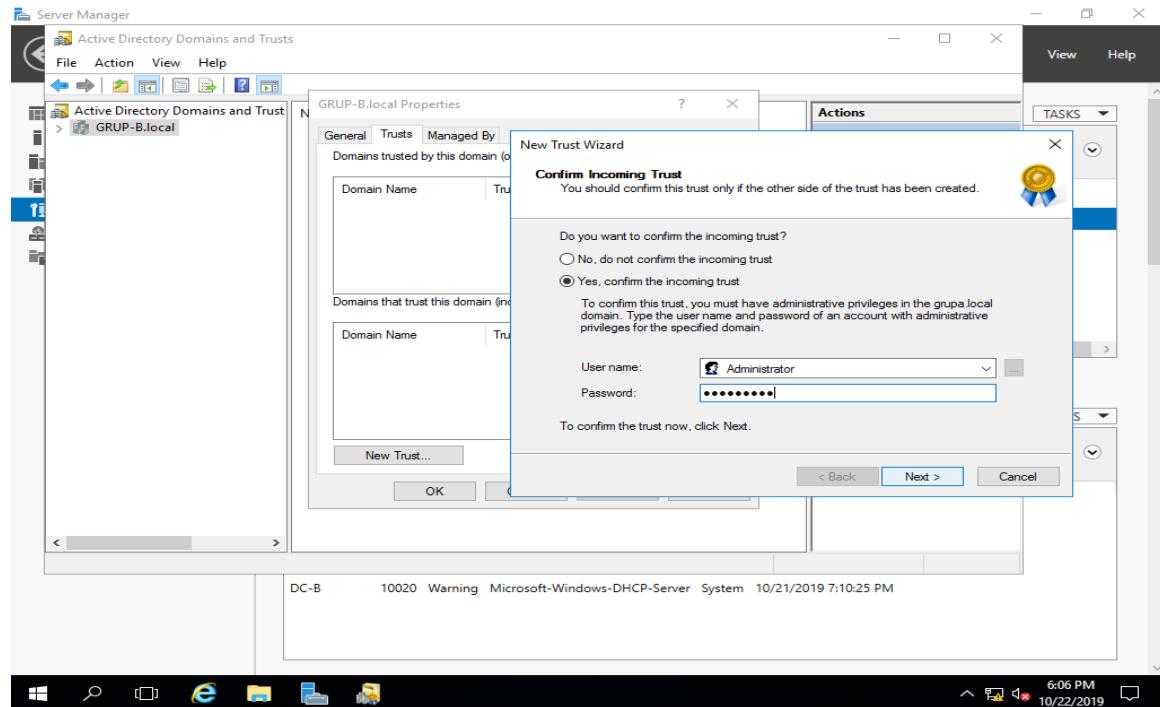
18-Başarılı bir şekilde trust işlemi tamamlandı.



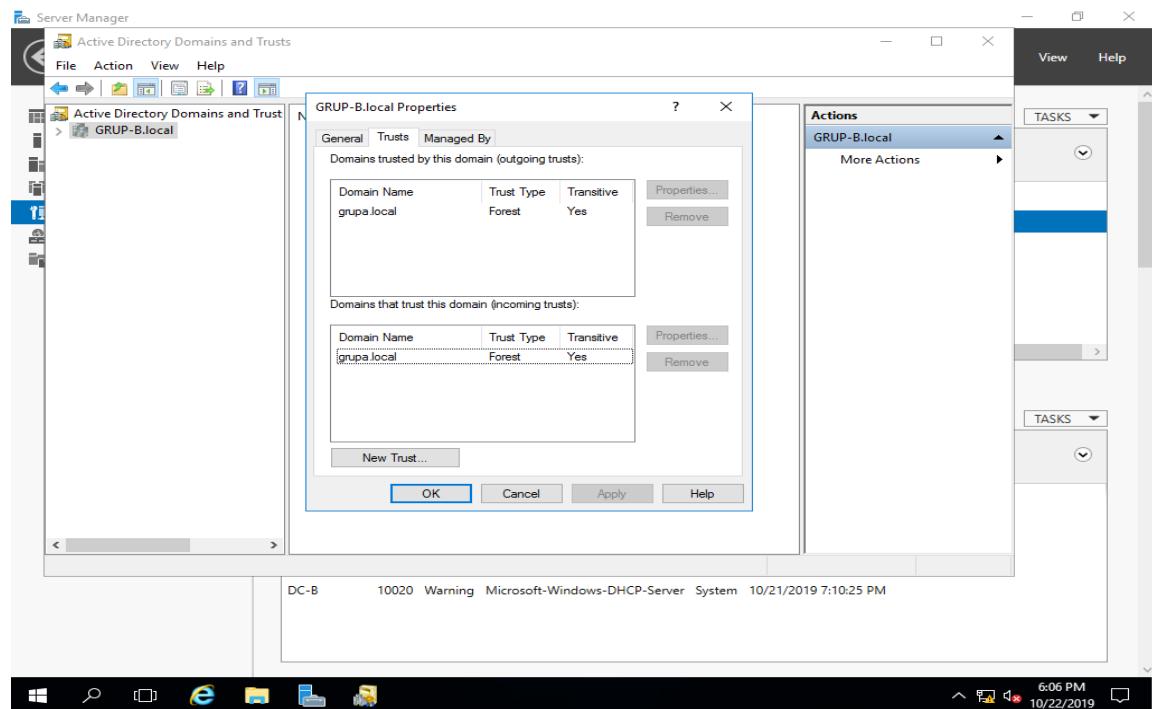
19-Outgoing Trust için onay verilir.



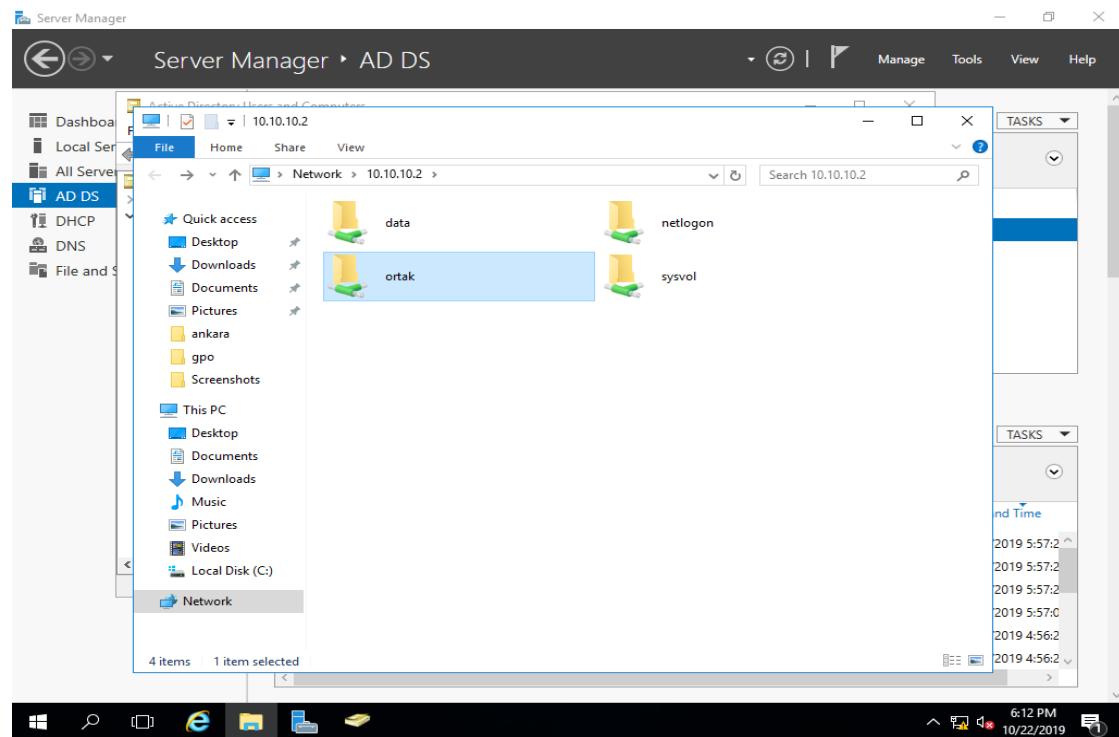
20-Incoming Trust için User name ve password bilgileri girilir.



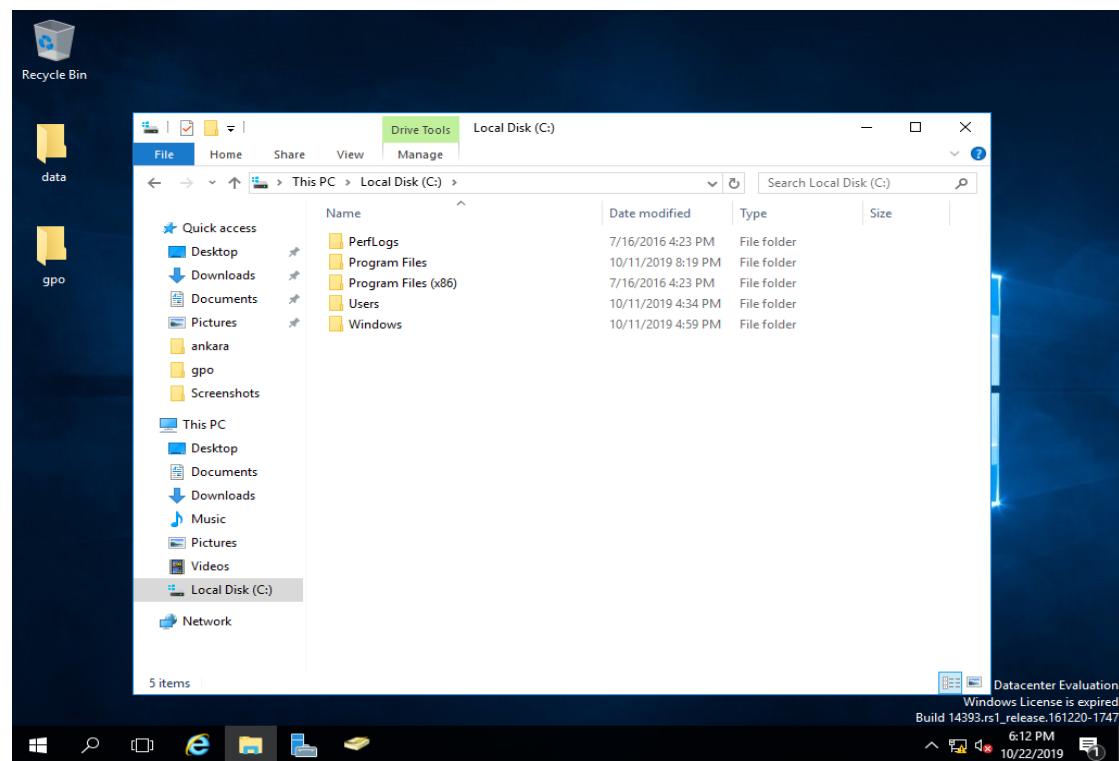
21-Eklenen domain gözüür.



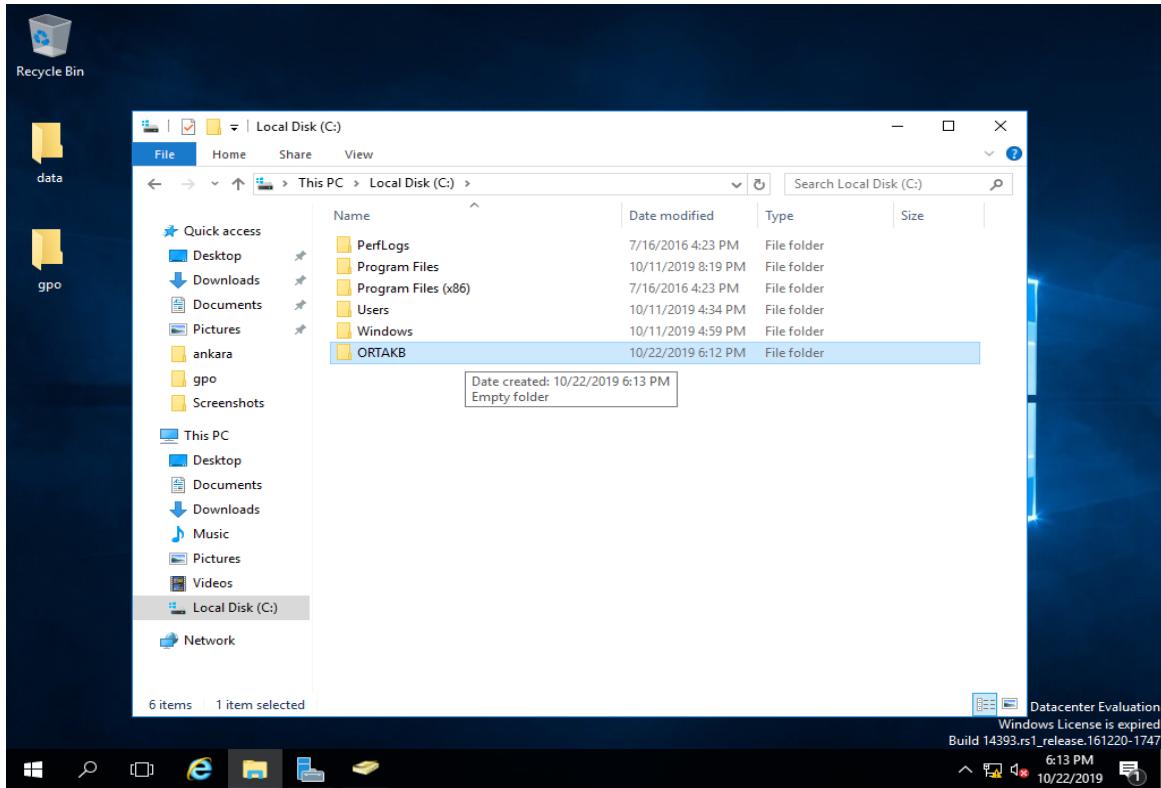
22-Diğer domainin paylaşama açtığı klasörü görür.



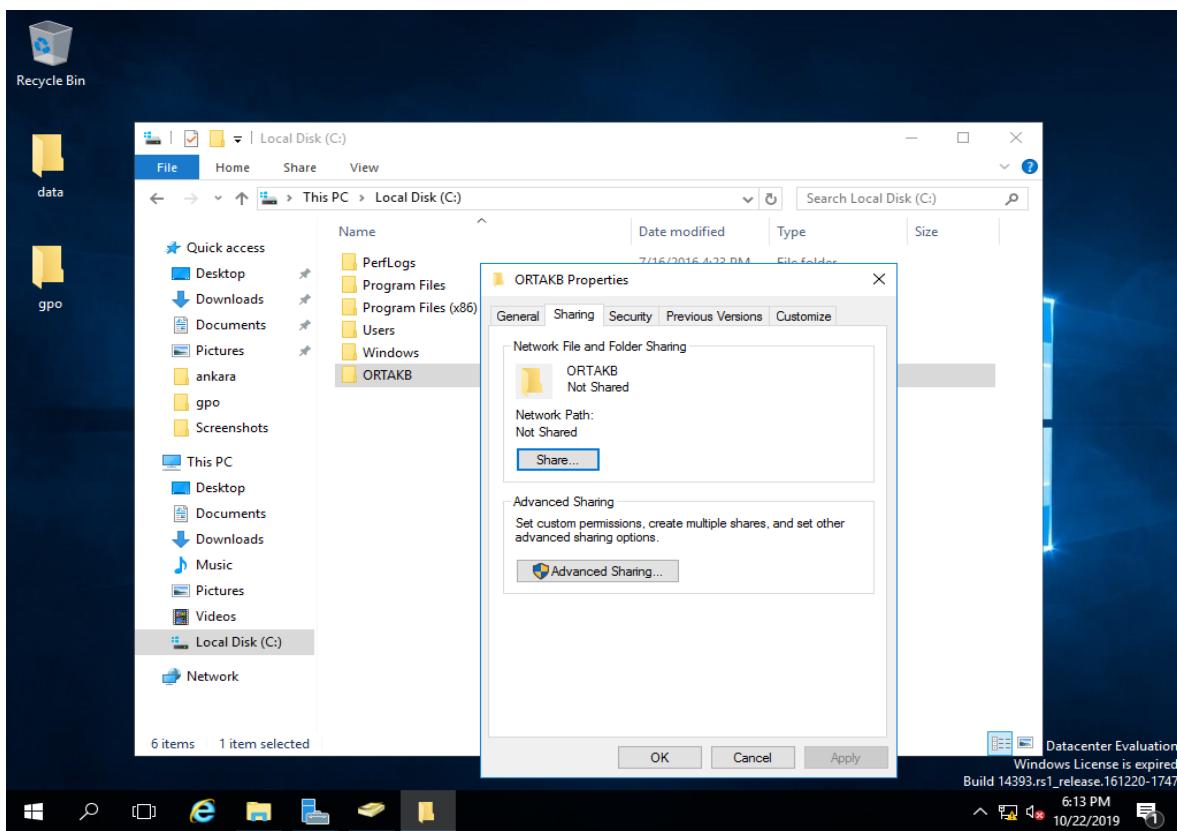
23-



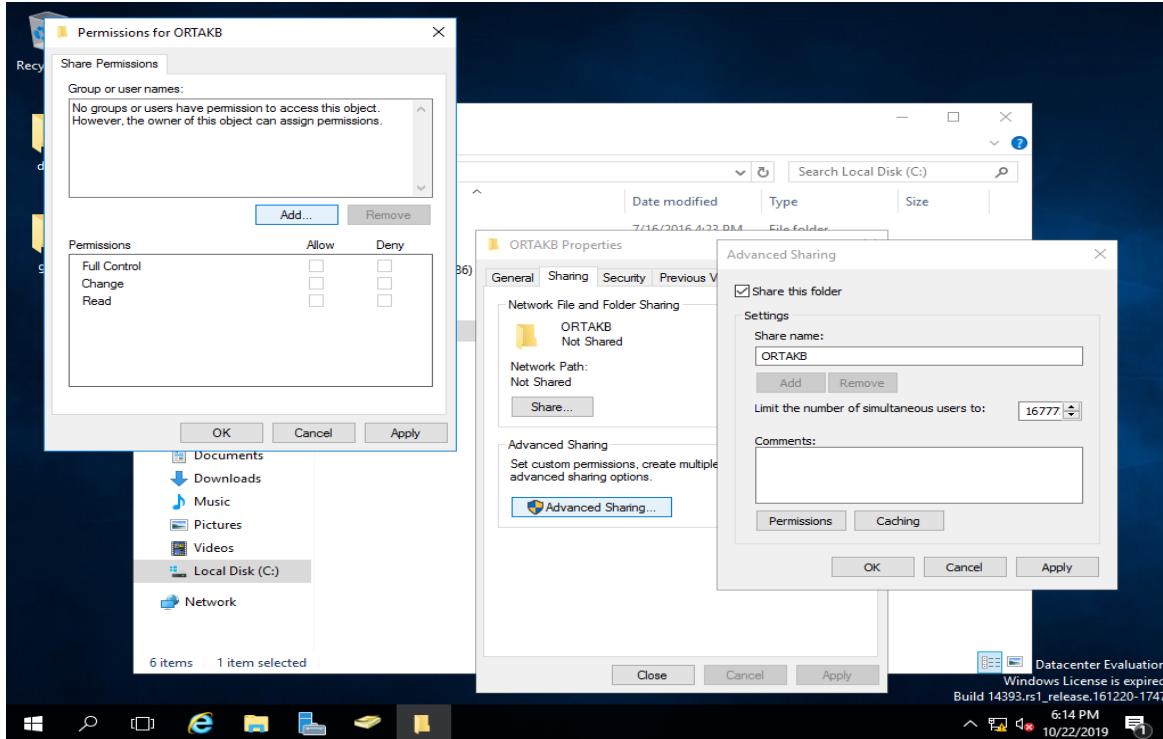
24-Grup B localdeki ortak klasörü paylaşımı açıldı.



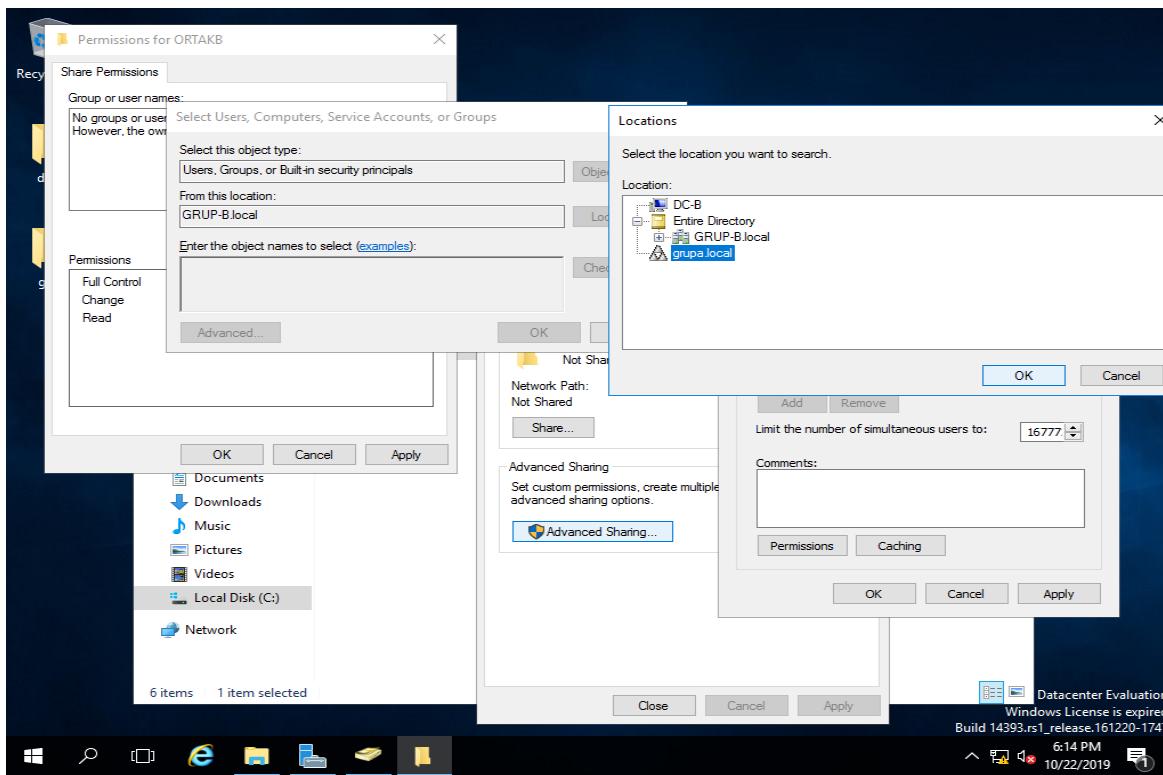
25-Paylaşım için gerekli izinler verildi.



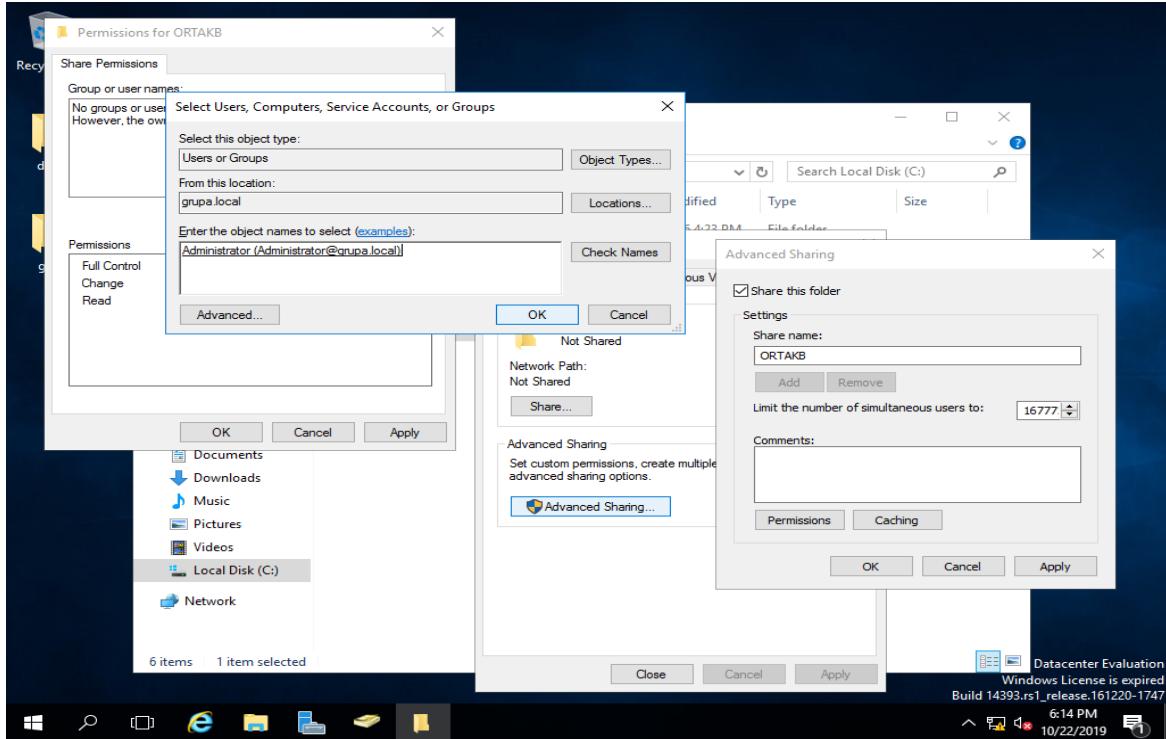
26- Paylaşım için gerekli izinler verildi.



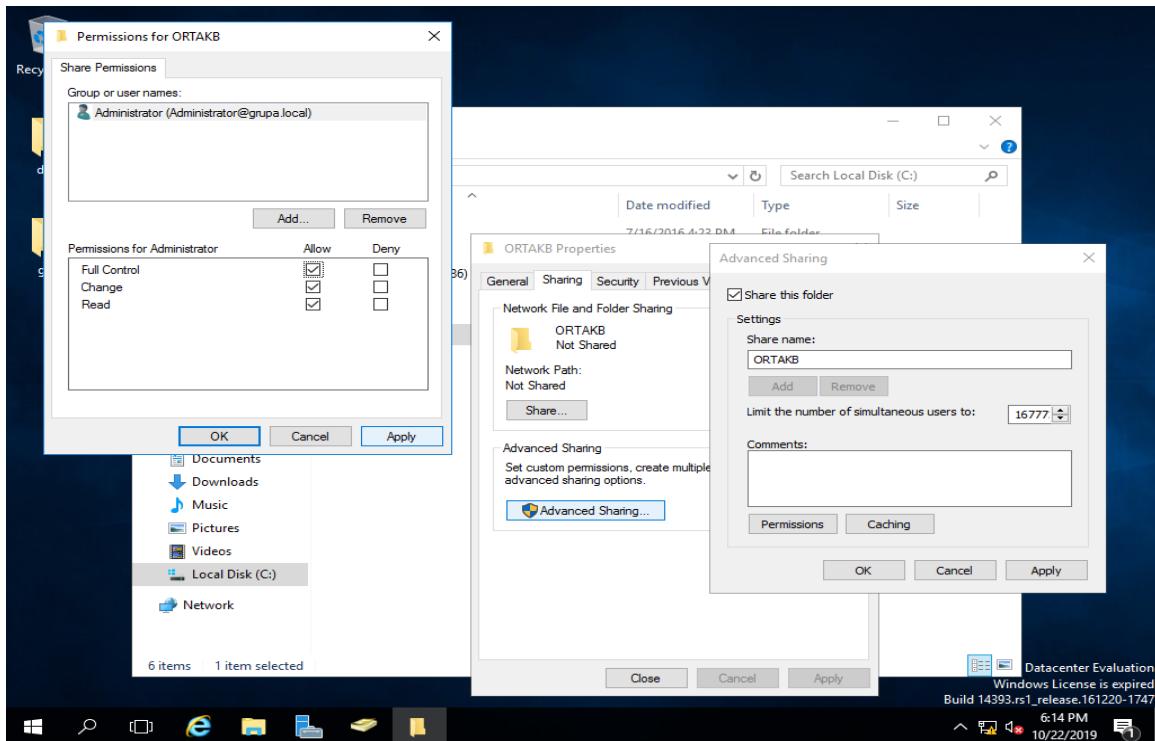
27- Location seçilir.



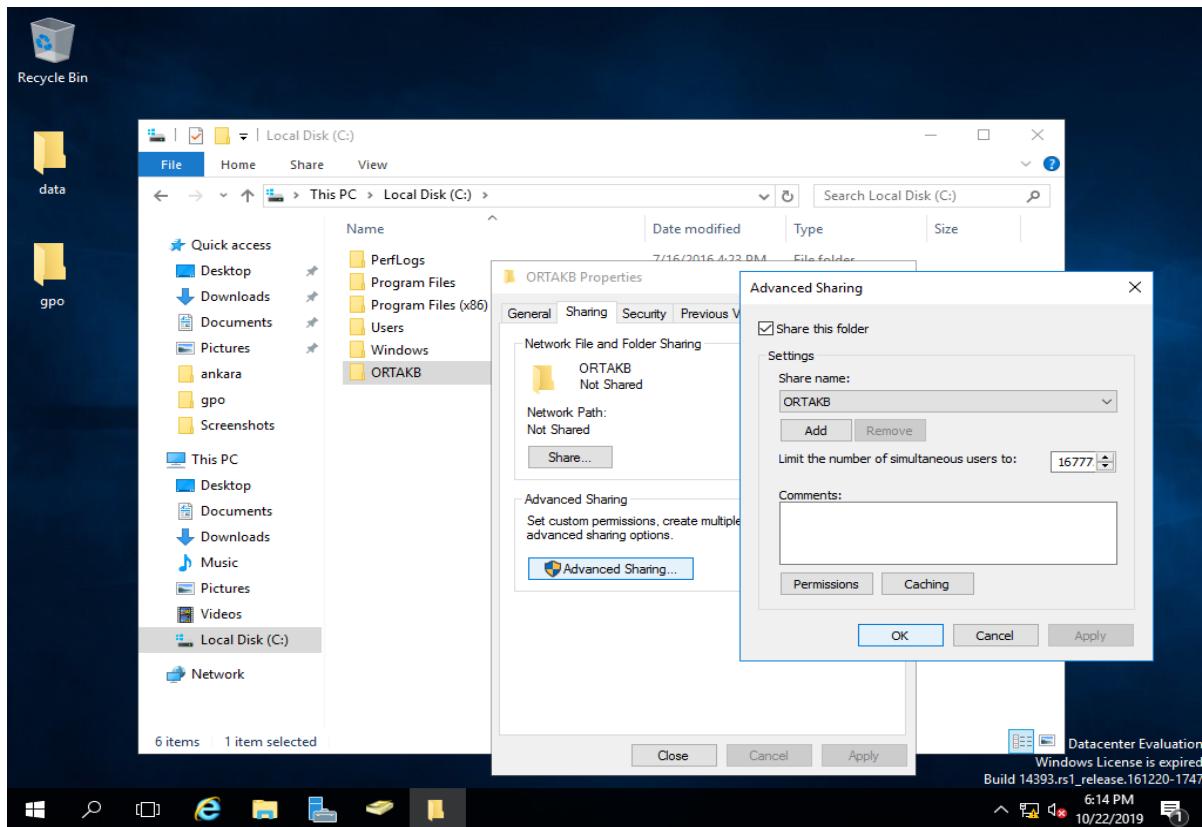
28-Diğer domaindeki kullanıcılar seçilir.



29- Paylaşım için gerekli izinler verildi.

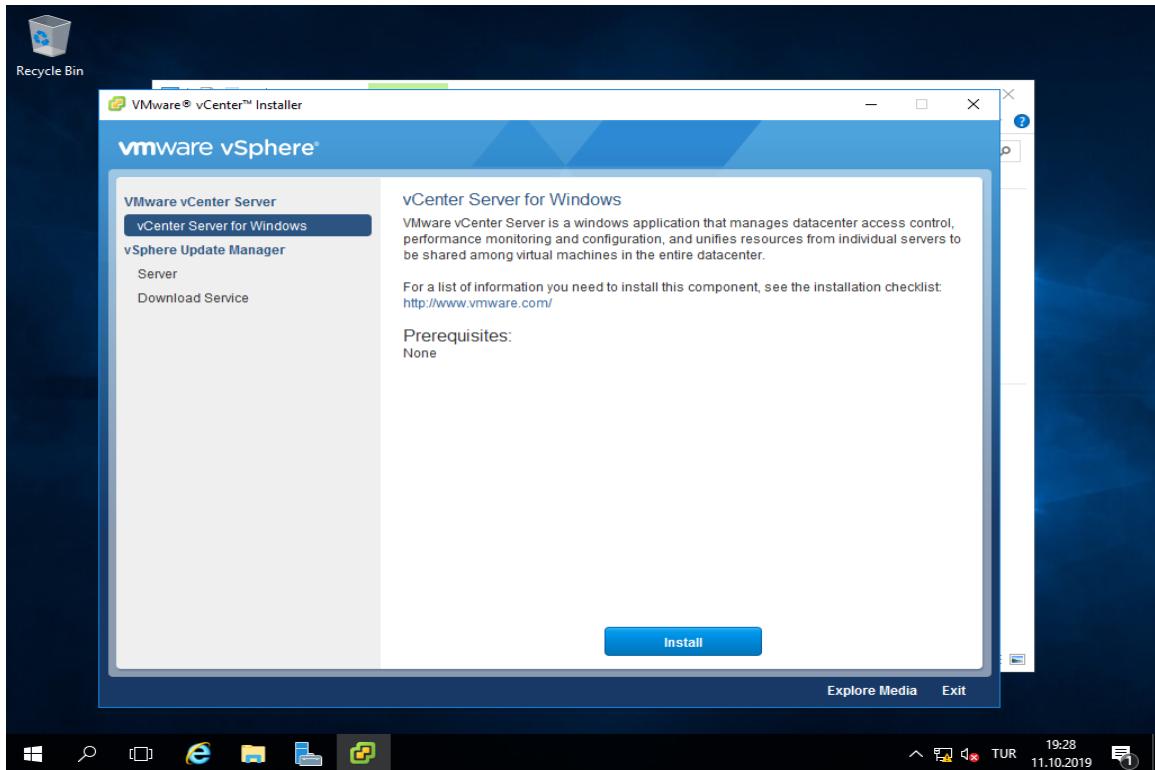


30-

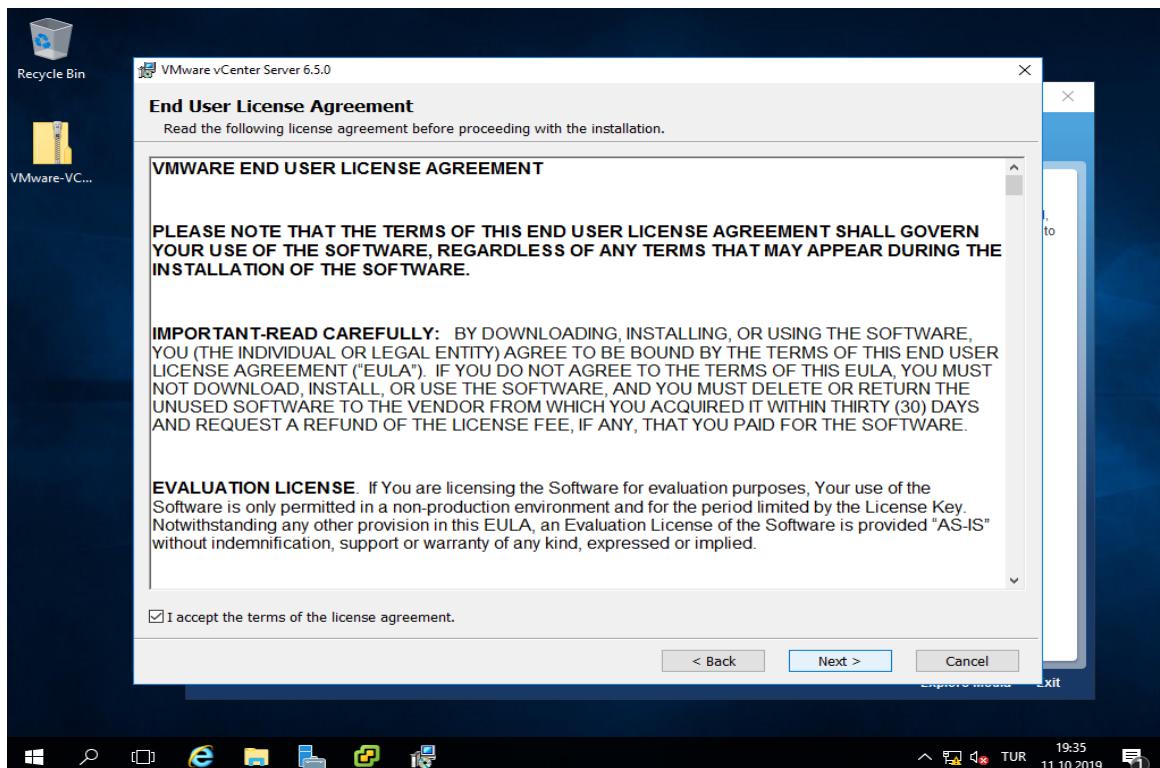


vCenter KURULUMU

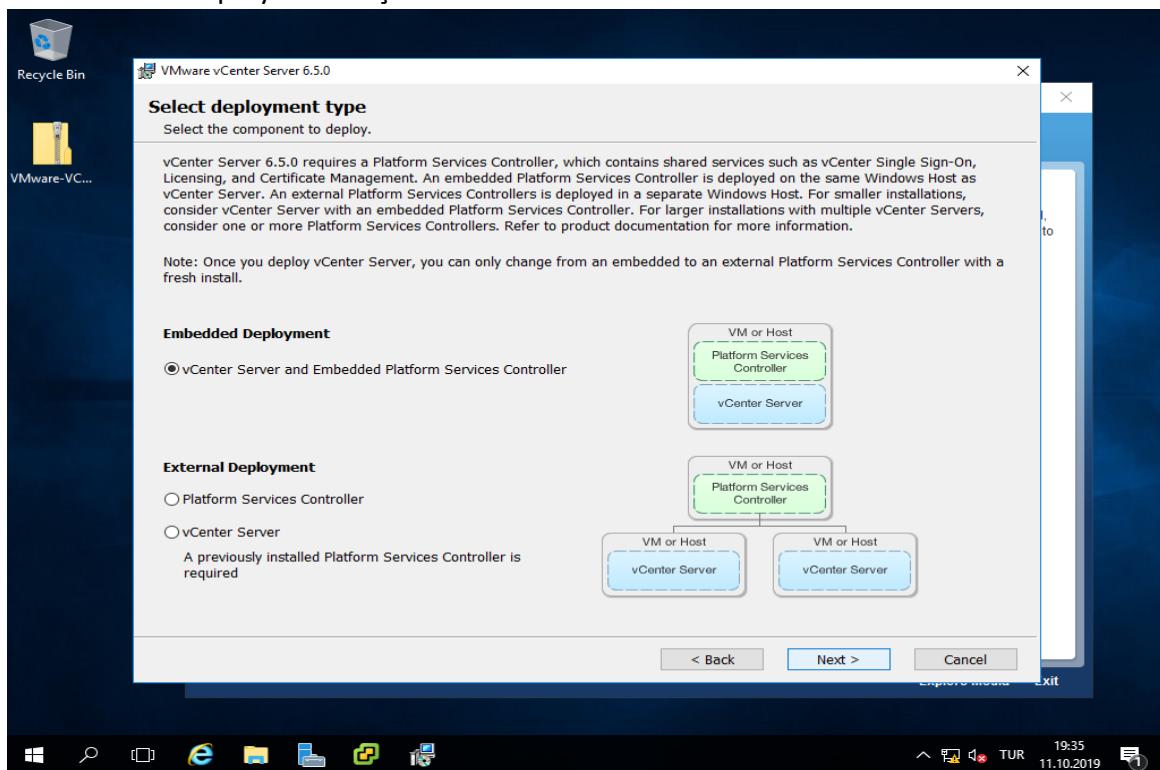
1-ESXi kurulu serverların yönetimi için vCenter kurulumuna başlandı.



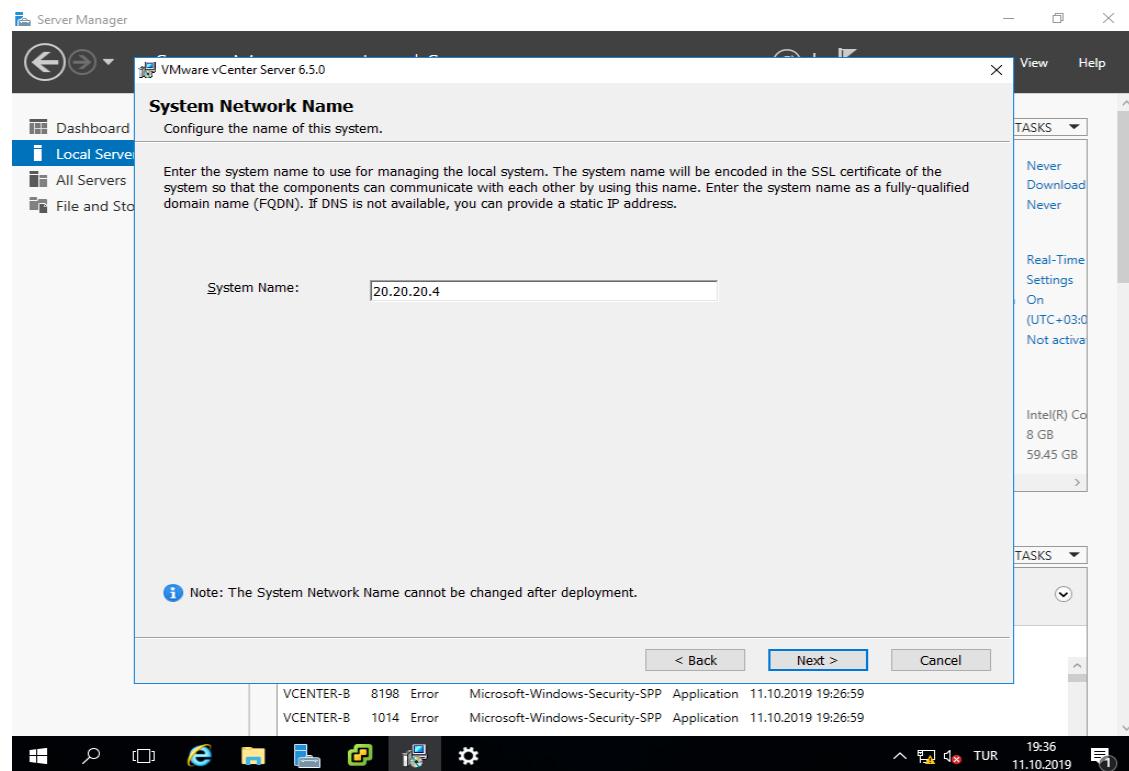
3-Lisans sözleşmesi onaylayarak kurulum devam edilir.



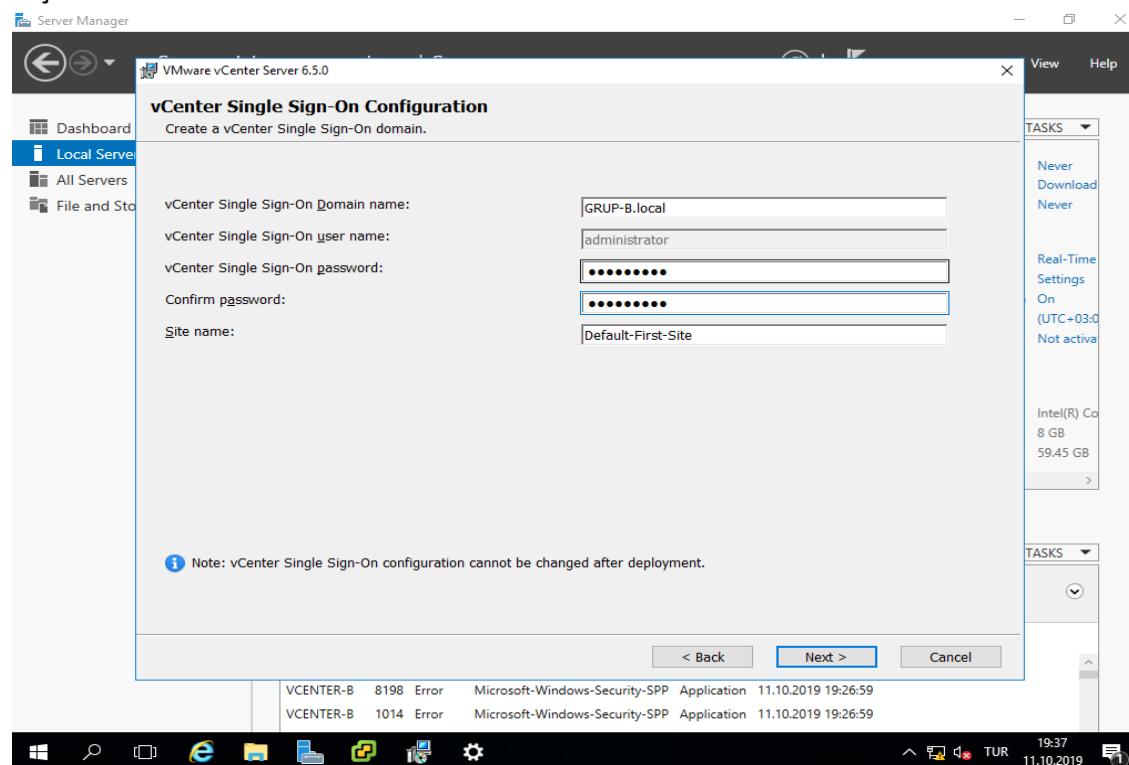
4-Embedded Deployment seçilerek devam edilir.



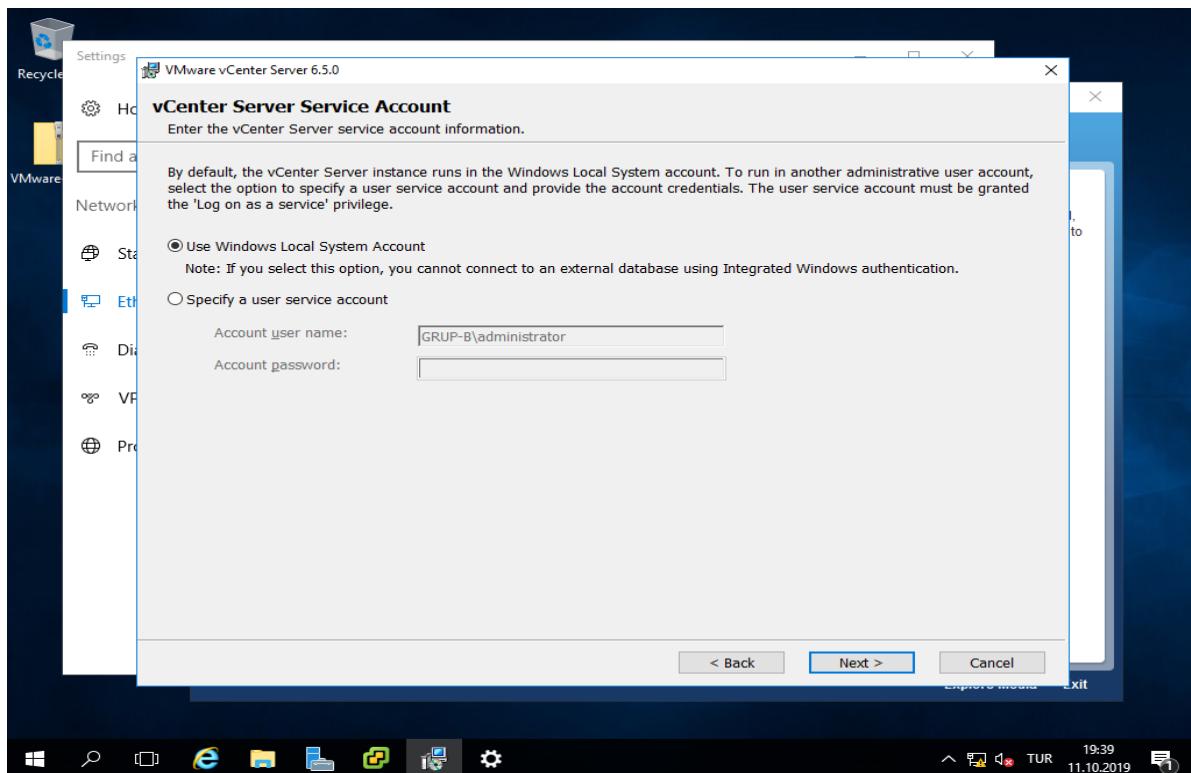
5-Server'ın ip adresi girilerek devam edilir.



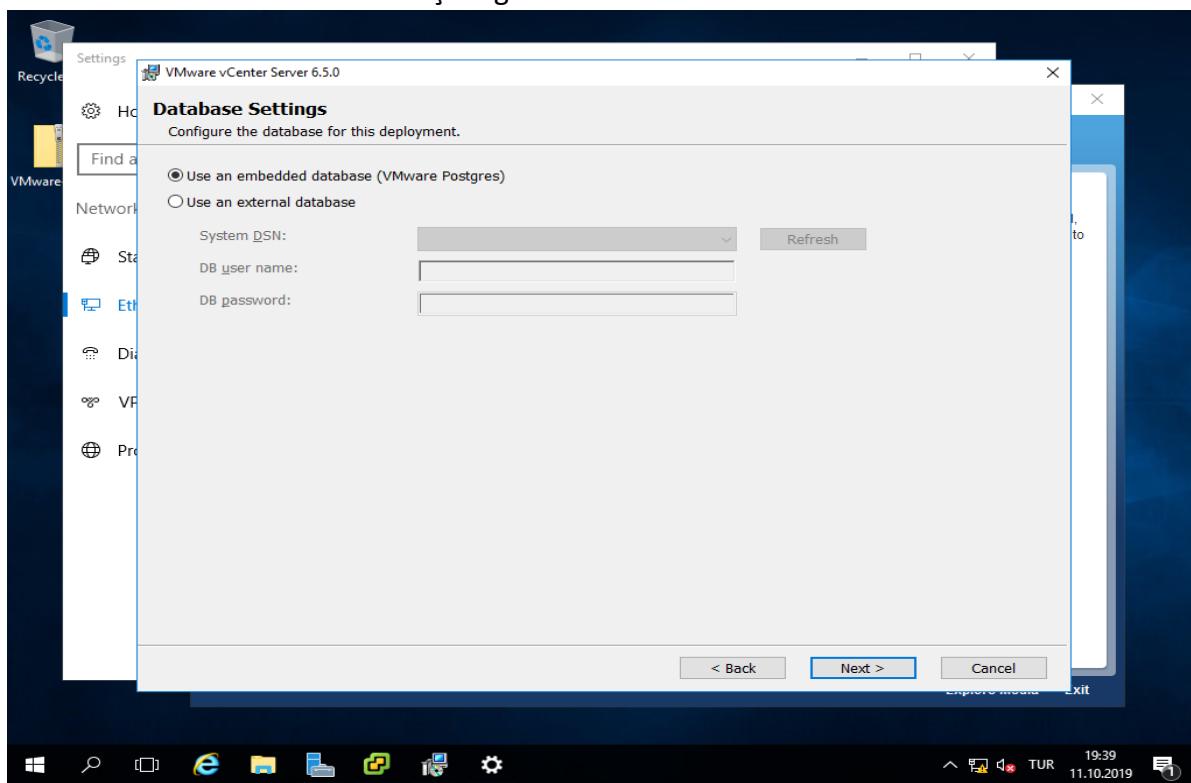
6-Sifre verilerek devam edilir.



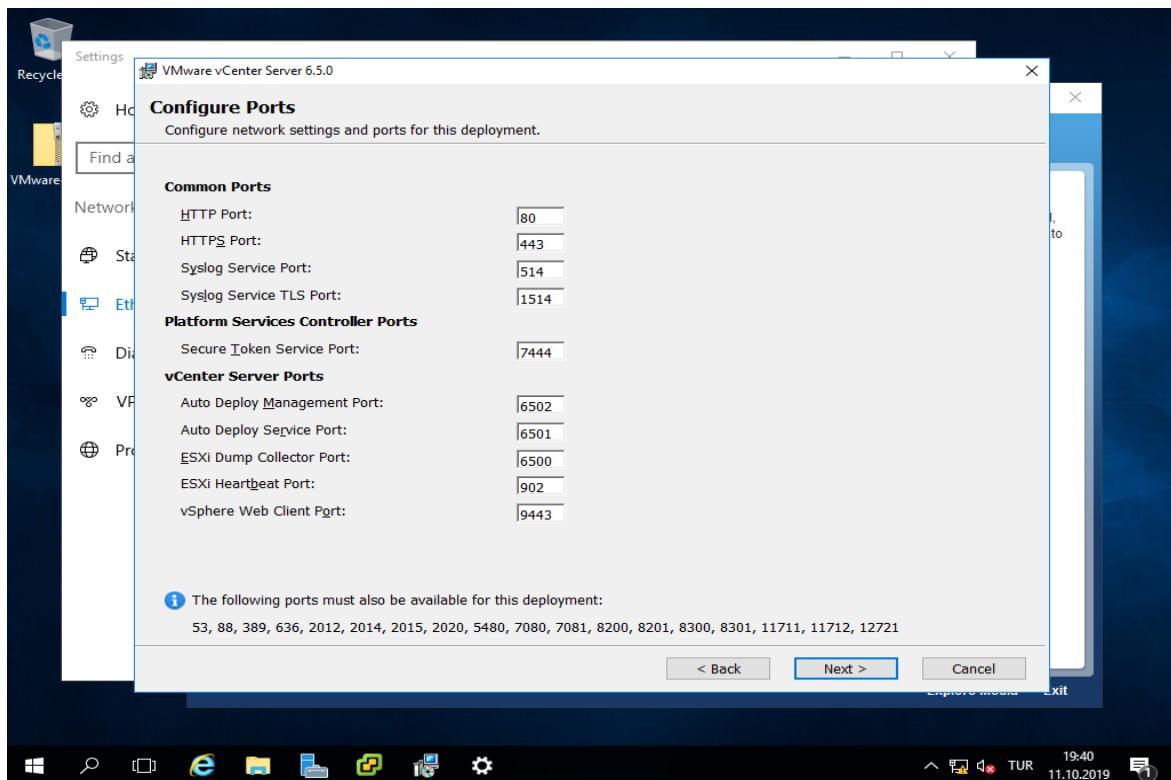
7-Local sistem hesap kullanımı seçilerek devam edilir.



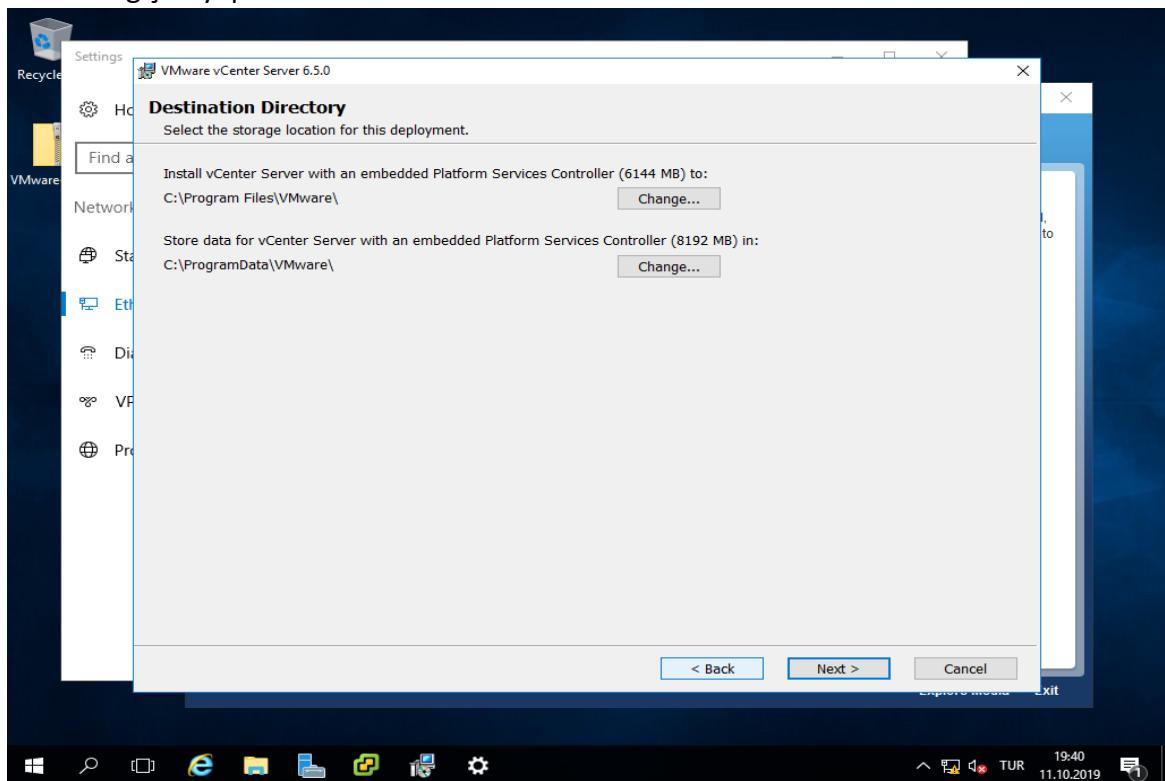
8-Use an embedded database seçeneği ile devam edilir.



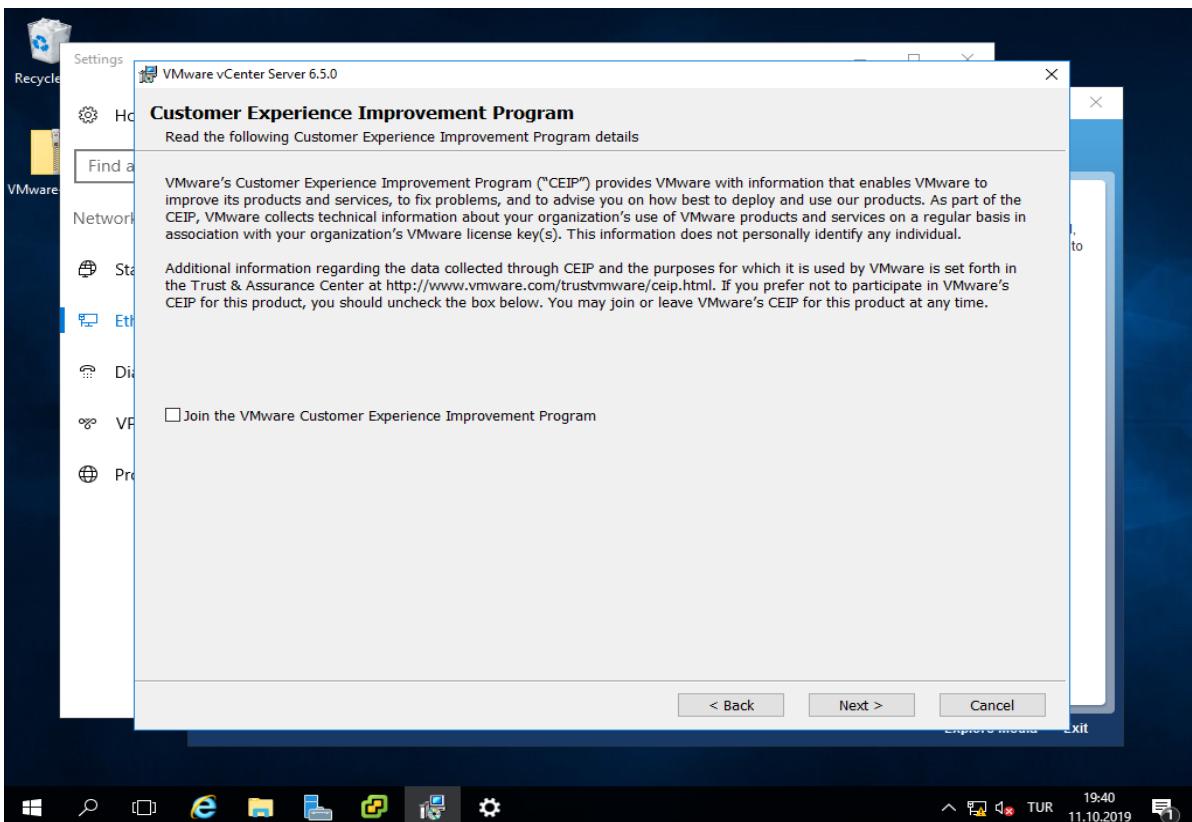
9-Portlarda bir değişim yapılmadan devam edilir.



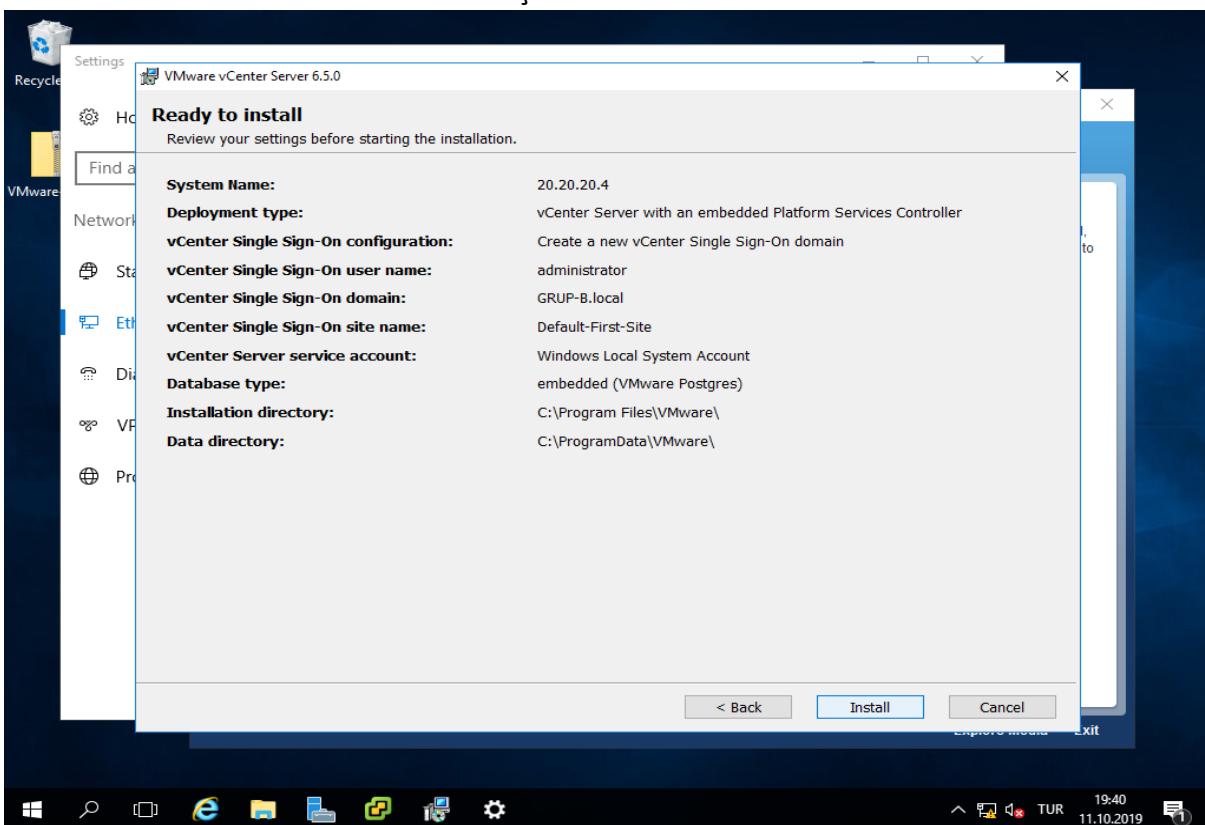
10-Bir değişim yapılmadan devam edilir.



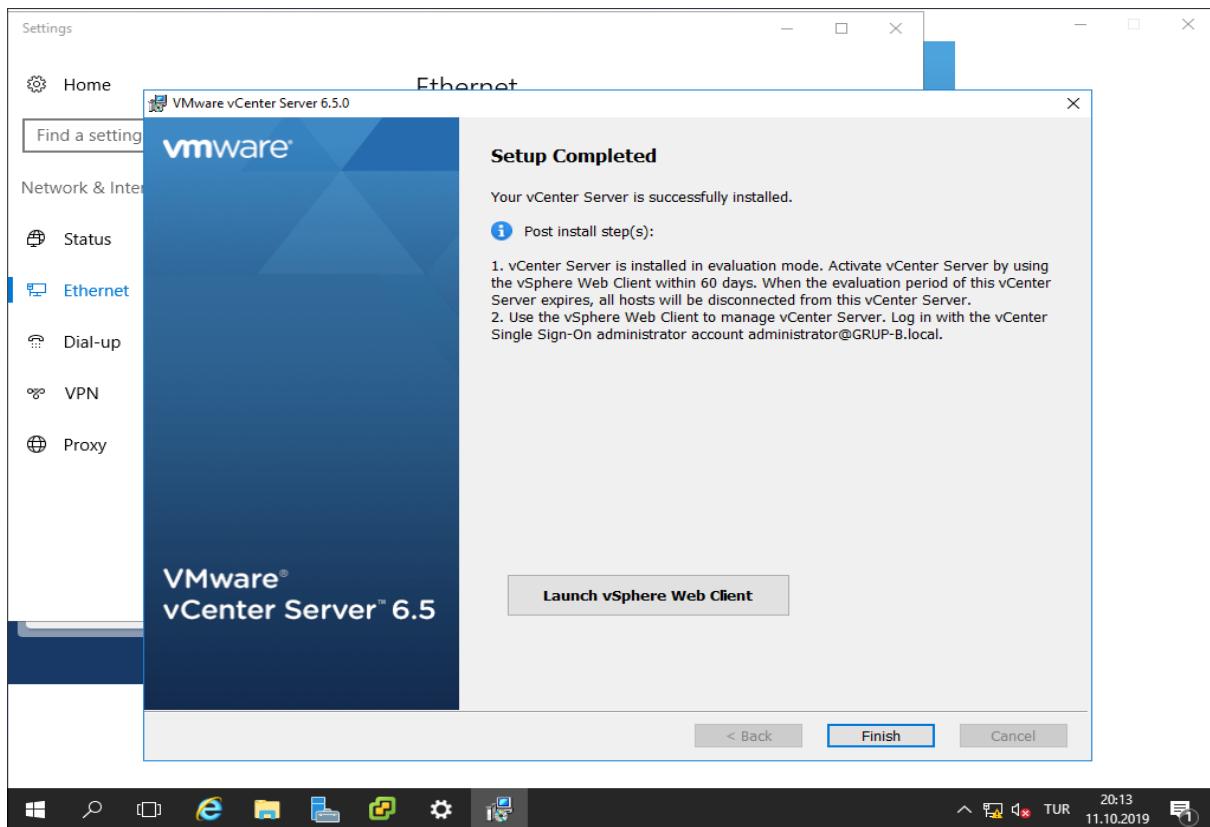
11-Bir değişim yapılmadan devam edilir.



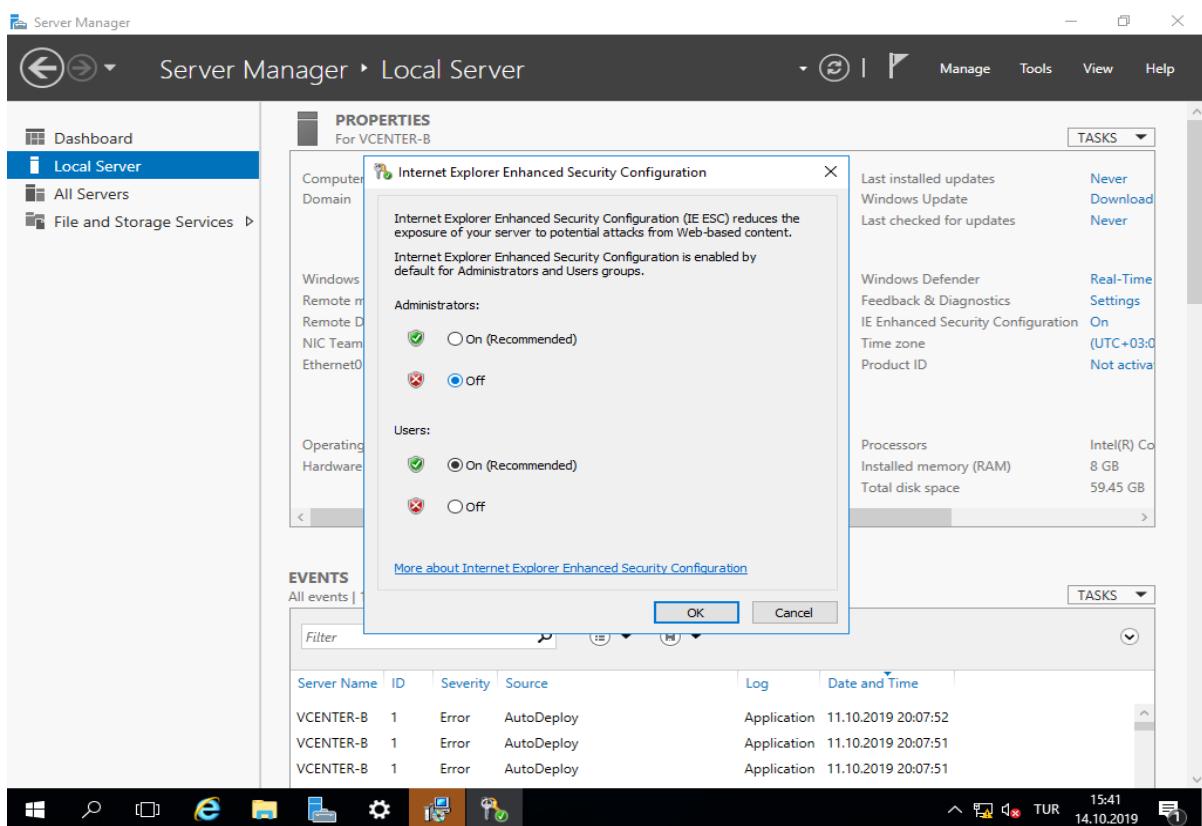
12-Install butonu tıklanarak kurulum başlanır.



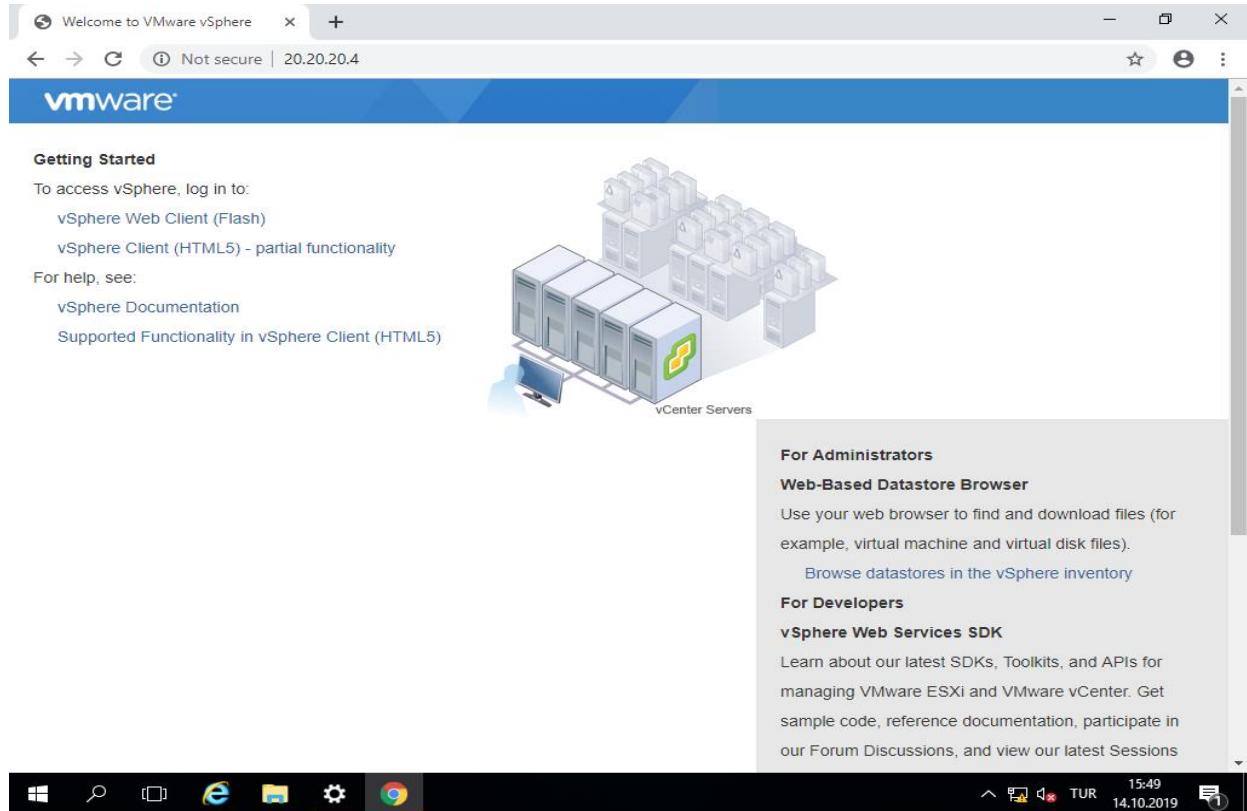
13-Kurulum finish denilerek sonlandırılır.



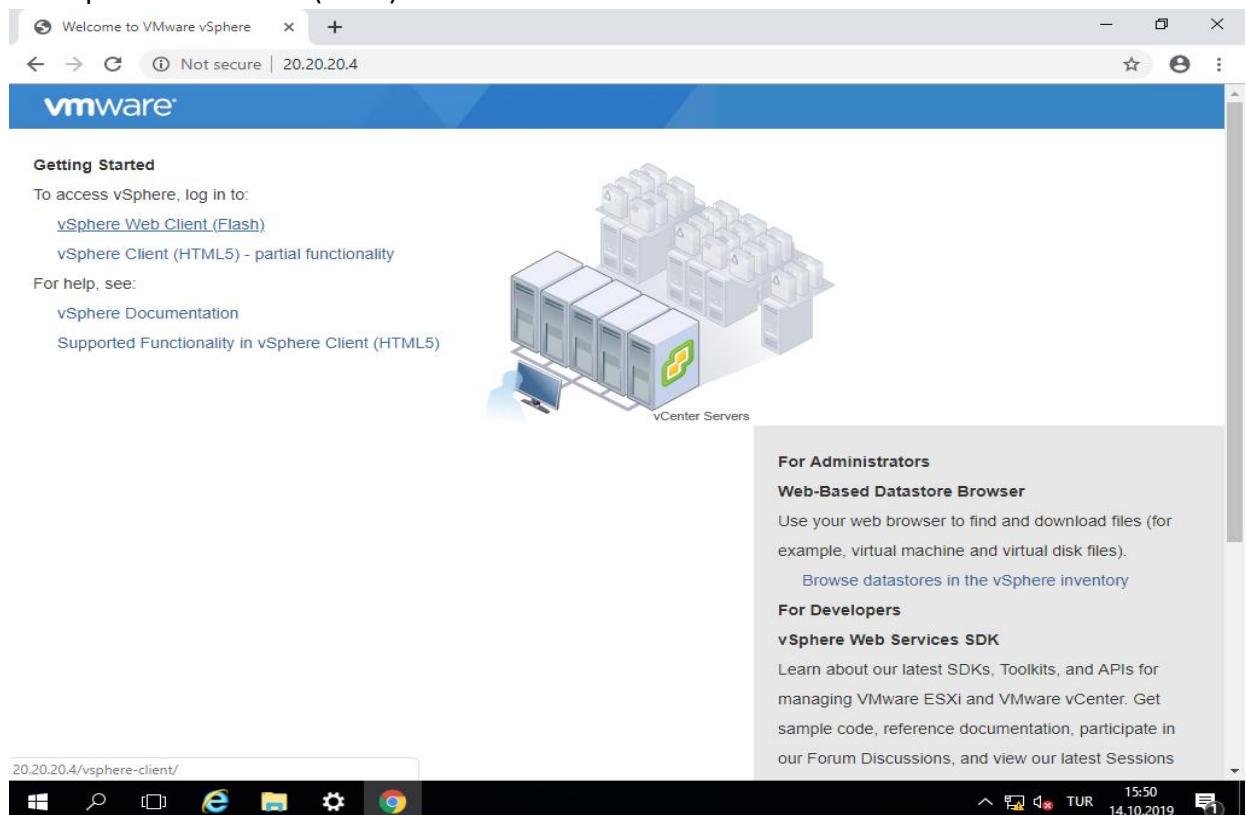
14-İnternet güvenliğine takılmamak için IE Enhanced Security Configuration seçeneğinden off edilir.



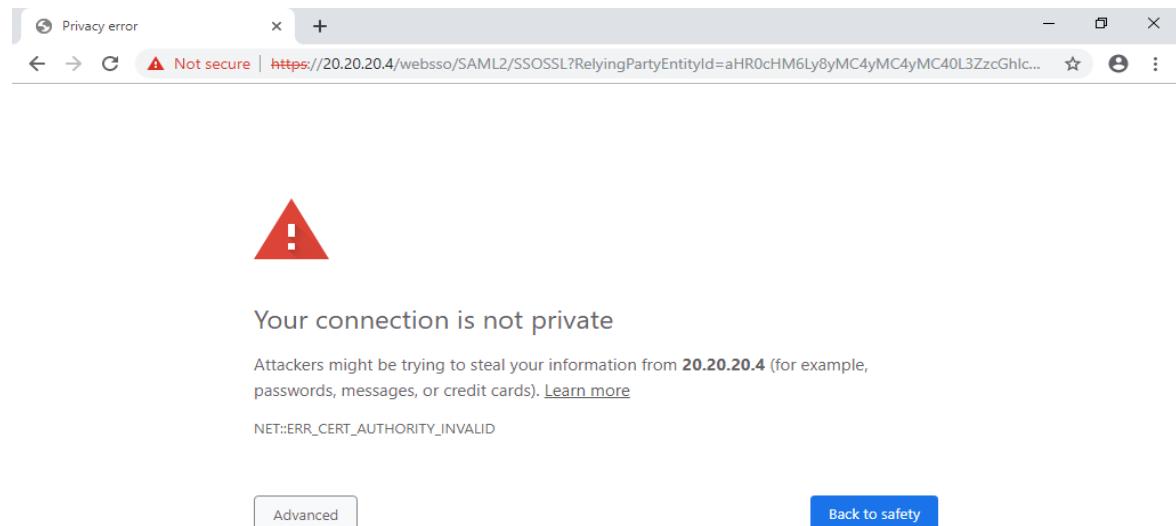
15-internet explorer'da ip adresi girilerek vcenter'a giriş yapılır.



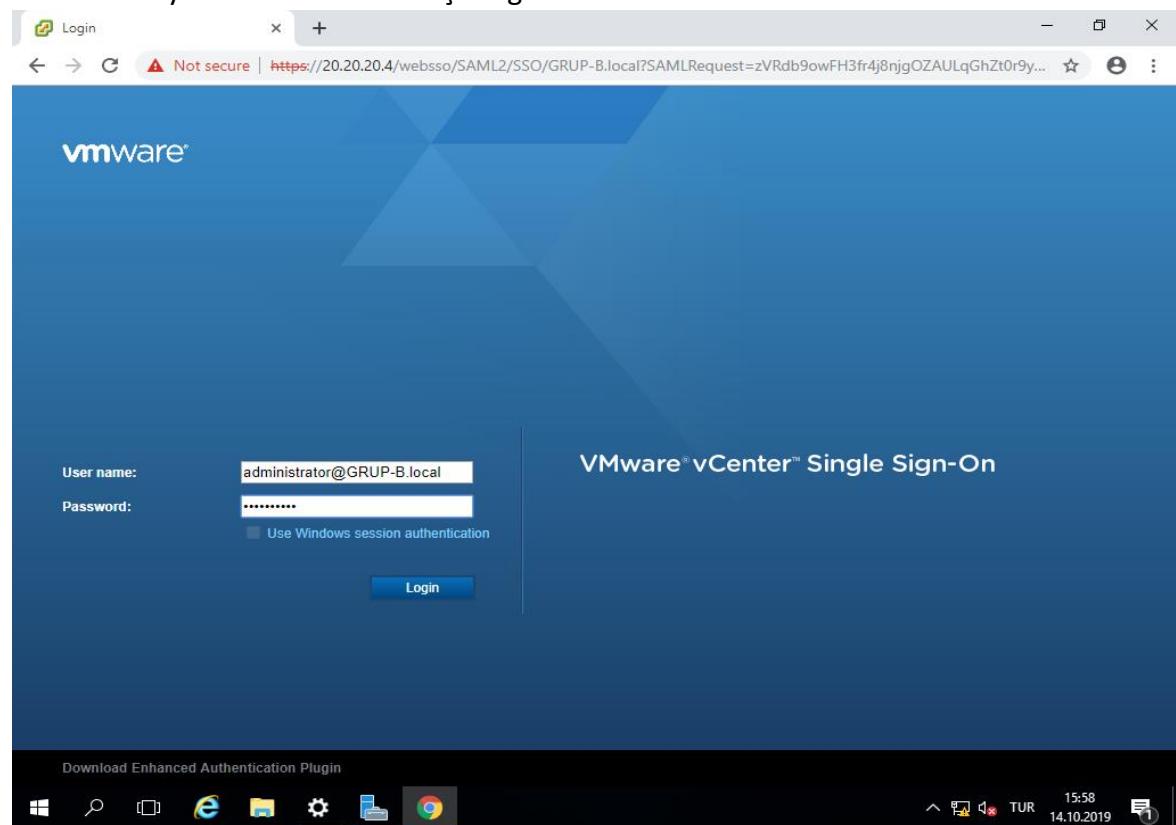
16-VSphere Web Client(Flash) linkine tıklanarak devam edilir.



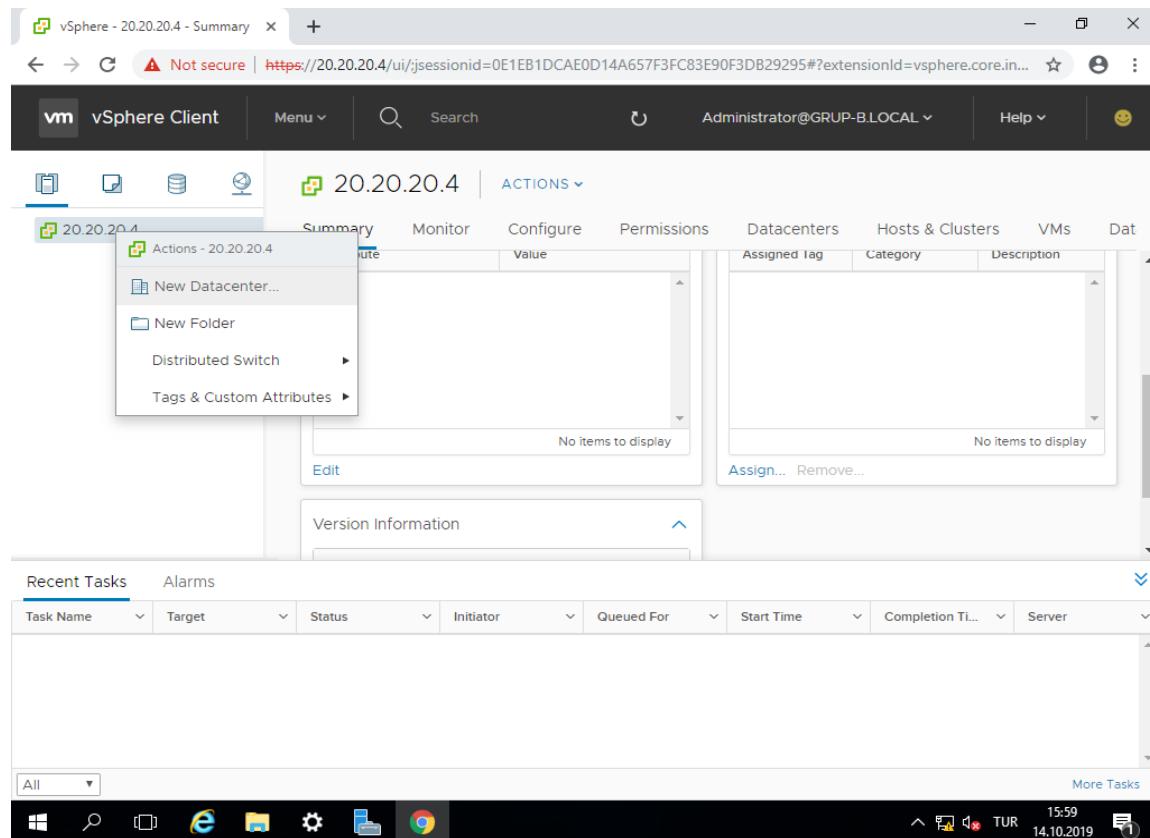
17-Gelen sayfada Advanced seçeneği tıklanır.



18-Gelen sayfada kullanıcı adı ve şifre girilerek devam edilir.

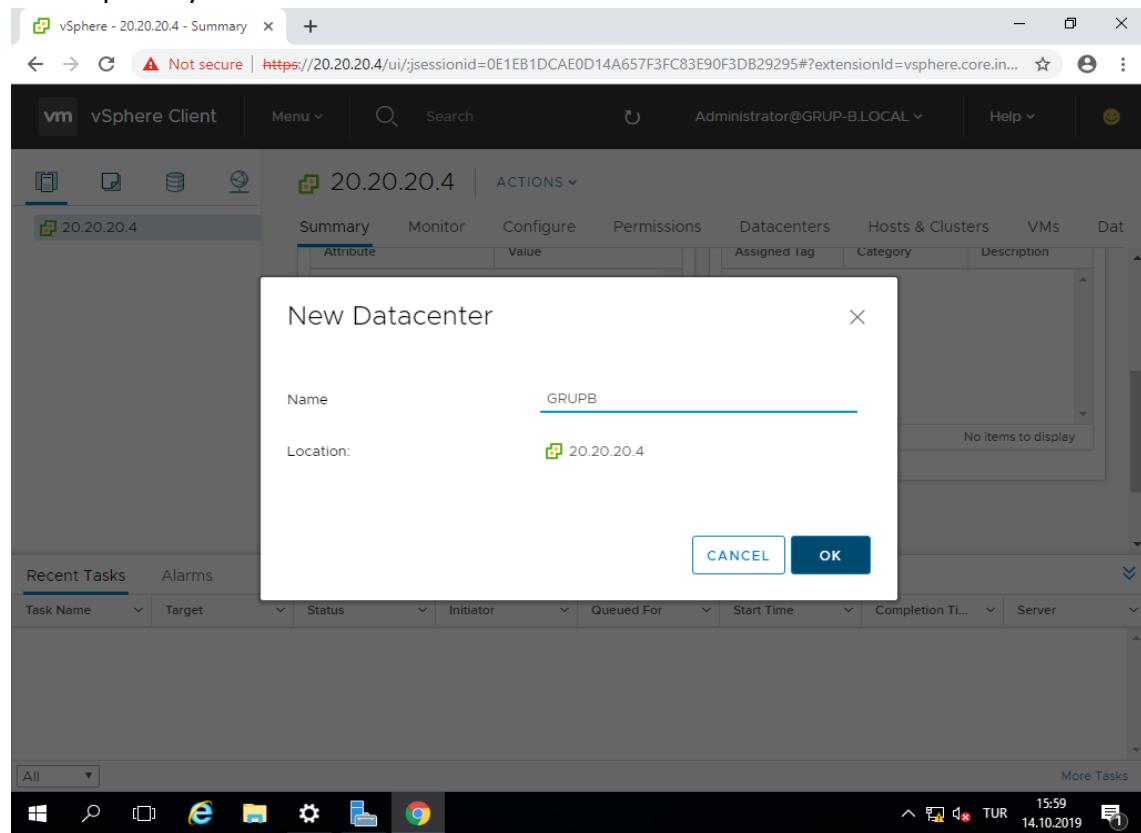


19-Açılan sayfada ip adresine sağ tıklayıp new datacenter kurulumu seçilir.



The screenshot shows the vSphere Client interface. On the left, a sidebar lists hosts: 20.20.20.4, Actions - 20.20.20.4, New Folder, Distributed Switch, and Tags & Custom Attributes. A context menu is open over the host entry, with 'New Datacenter...' highlighted. The main pane displays tabs for Summary, Monitor, Configure, Permissions, Datacenters, Hosts & Clusters, VMs, and Data. The Datacenters tab is selected, showing tables for Assigned Tag, Category, and Description, both of which are empty. Below these tables is an 'Assign...' button. The bottom of the screen shows a taskbar with various icons and the system tray indicating the date and time as 14.10.2019 at 15:59.

20-Grup ismi yazılır.



The screenshot shows the 'New Datacenter' dialog box. It has a title bar 'New Datacenter' with a close button 'X'. Inside, there are two input fields: 'Name' with the value 'GRUPB' and 'Location:' with the value '20.20.20.4'. At the bottom right are two buttons: 'CANCEL' and 'OK'. The background shows the vSphere Client interface with the 'Datacenters' tab selected. The taskbar at the bottom shows the date and time as 14.10.2019 at 15:59.

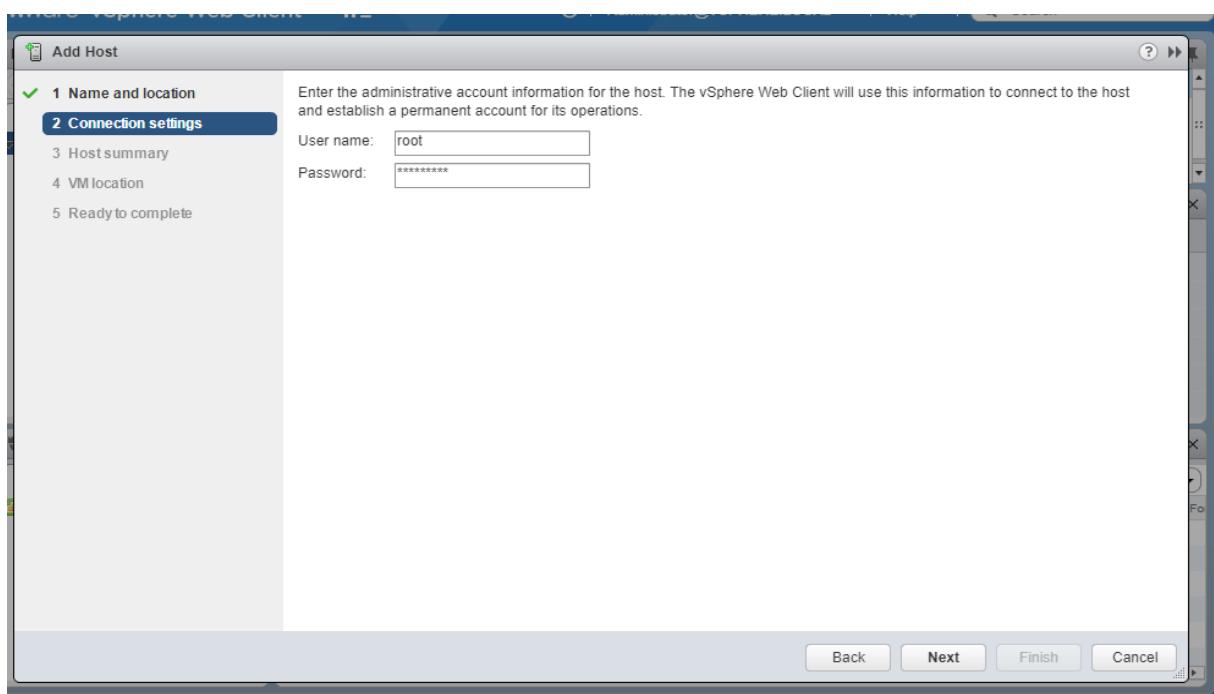
21-Kurulan datacenter'a sağ tıklanıp add host eklenir.

The screenshot shows the vSphere Client interface. A context menu is open over a datacenter named 'GRUPB'. The 'Add Host...' option is highlighted. The main pane displays the 'Summary' tab for the selected host '20.20.20.4'. On the right, there are tabs for 'Datacenters', 'Hosts & Clusters', 'VMs', and 'Data'. Below the tabs, there are sections for 'Assigned Tag', 'Category', and 'Description'. A table shows recent tasks, and a log table is visible at the bottom. The taskbar at the bottom includes icons for File, Search, Task View, Start, Task Manager, Control Panel, Settings, File Explorer, and Google Chrome. The system tray shows the date and time as 14.10.2019 15:59.

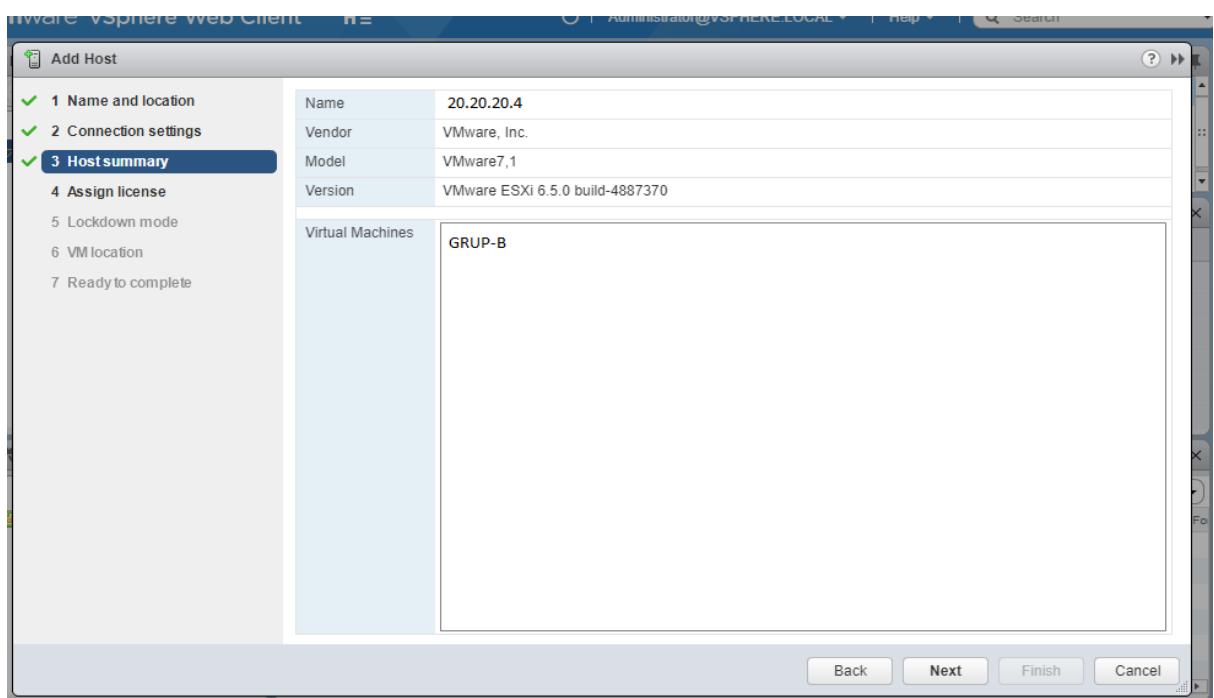
22-Esxı'nın ip adresi girilir.

The screenshot shows the 'Add Host' wizard in progress. The first step, 'Name and location', is active. It prompts for the host name or IP address, which is filled with '20.20.20.5'. It also asks for a location, which is set to 'GRUPB'. To the left, a vertical navigation bar lists steps from 1 to 7. At the bottom, there are 'CANCEL', 'BACK', and 'NEXT' buttons. The taskbar and system tray are visible at the bottom.

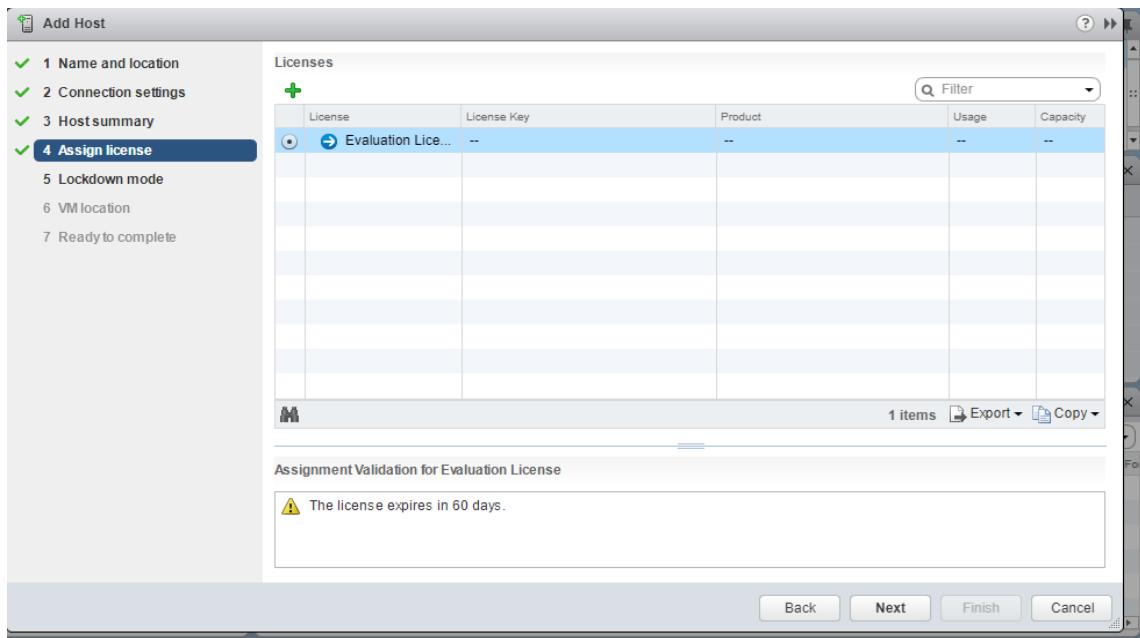
23-User name olarak root ile giriş yapılır.



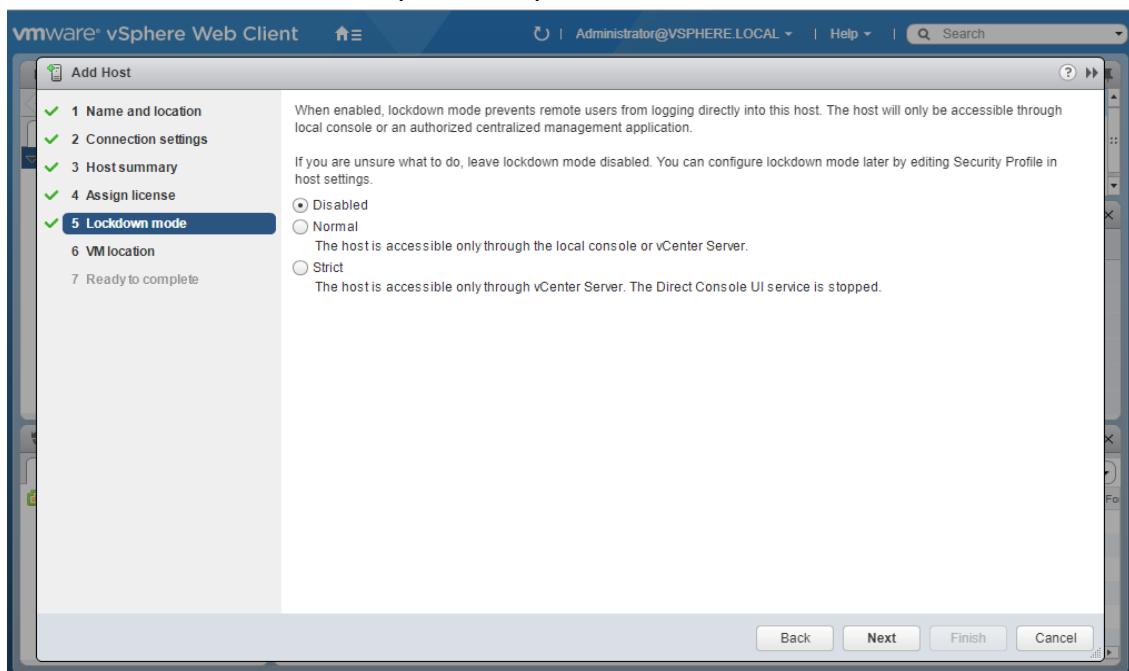
24-Kurulumu özet olarak görürüz.



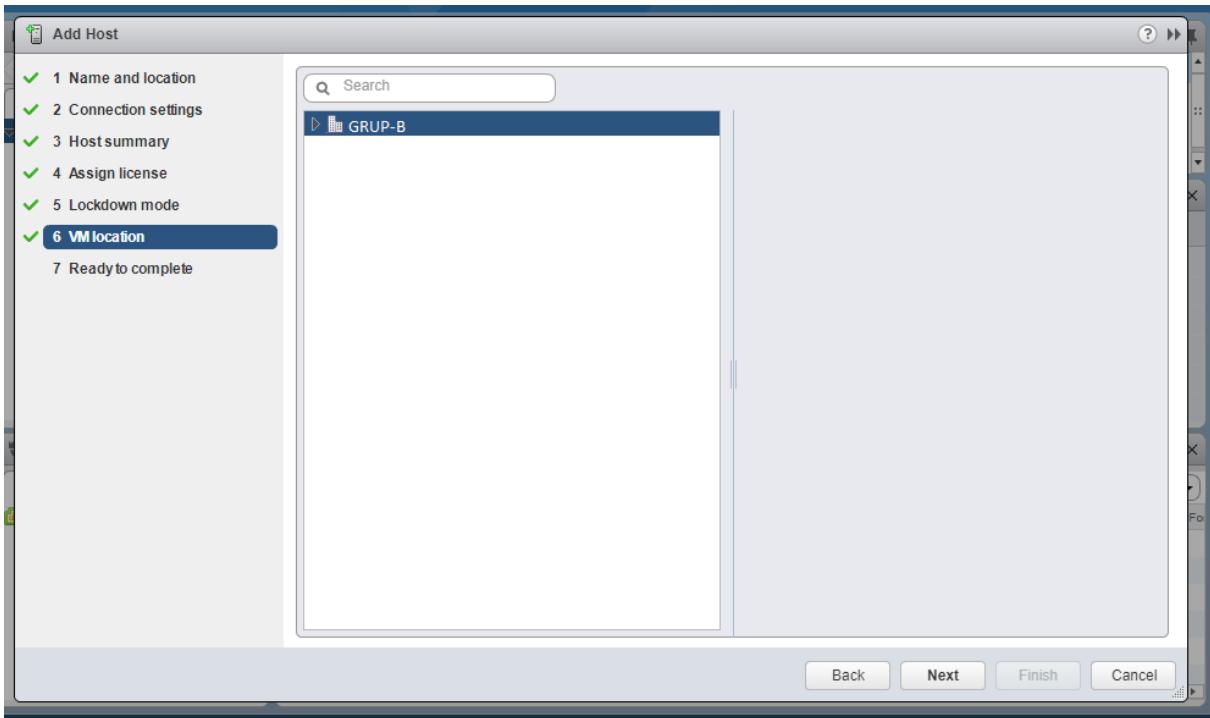
25-Lisans bilgisini next diyerek geçiyoruz.



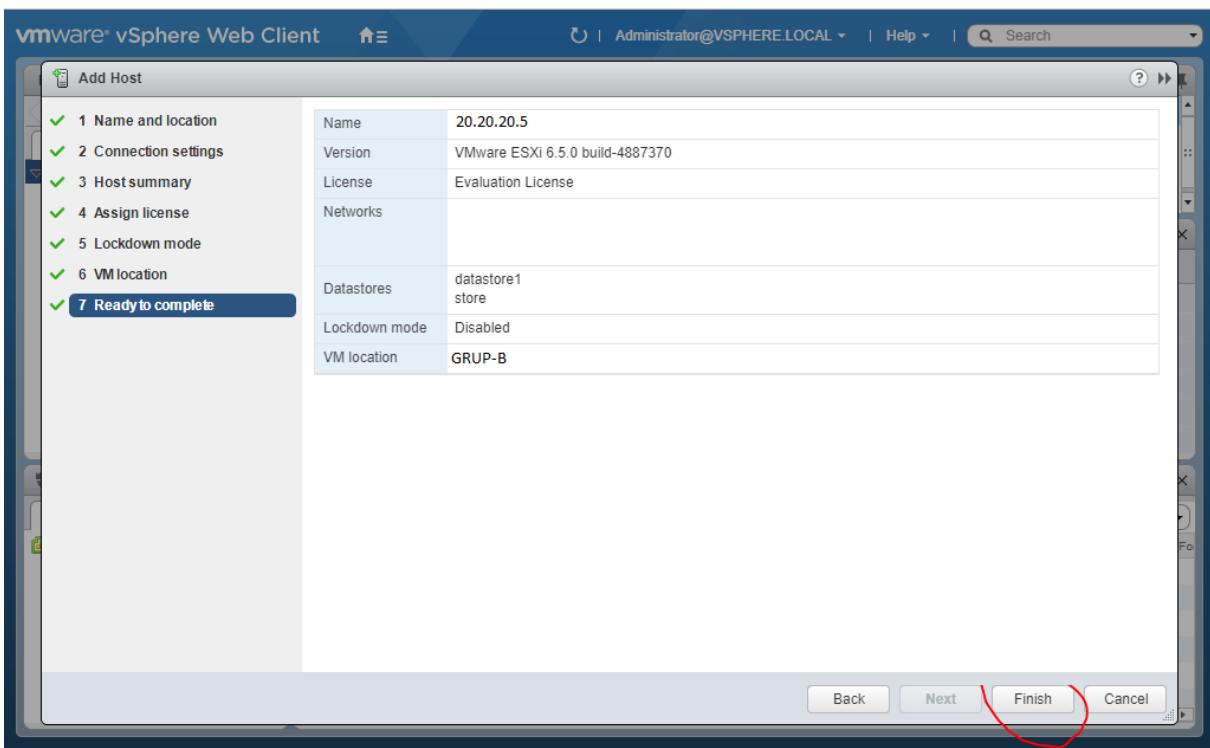
26-Lockdown modu disable diyerek ilerliyoruz.



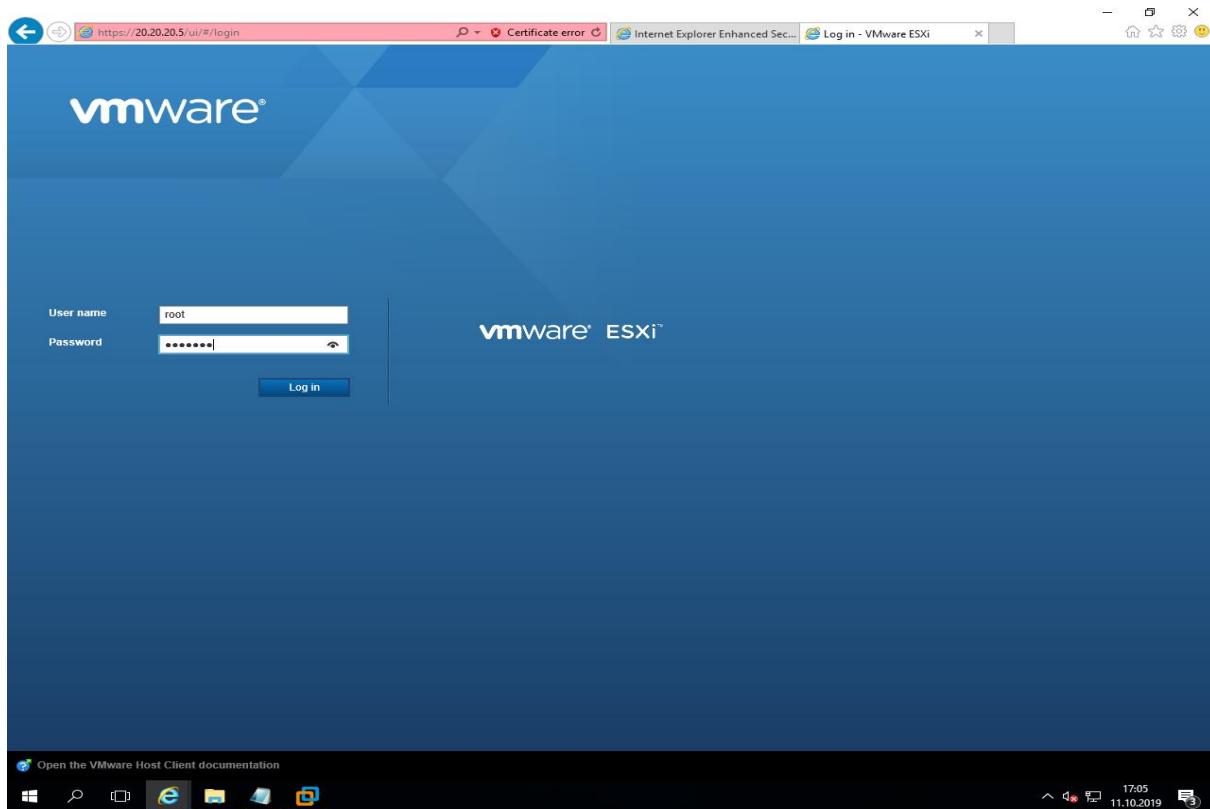
27-Location bilgisini next dierek ilerliyoruz.



28-Finish dierek kurulum tamamlanır.



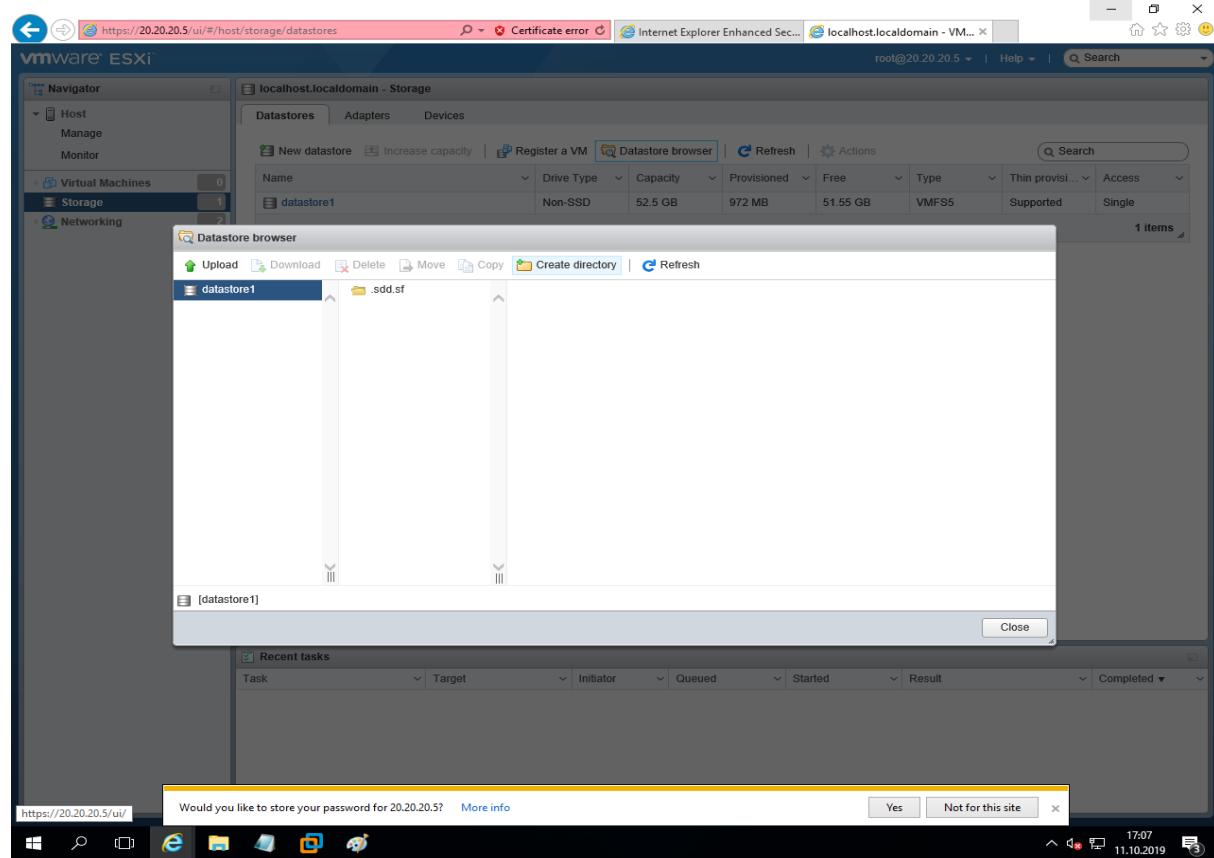
29- Url yerine //20.20.20.5 ip adresi yazılarak giriş işlemi başlatıldı. Root ve şifre girildi.



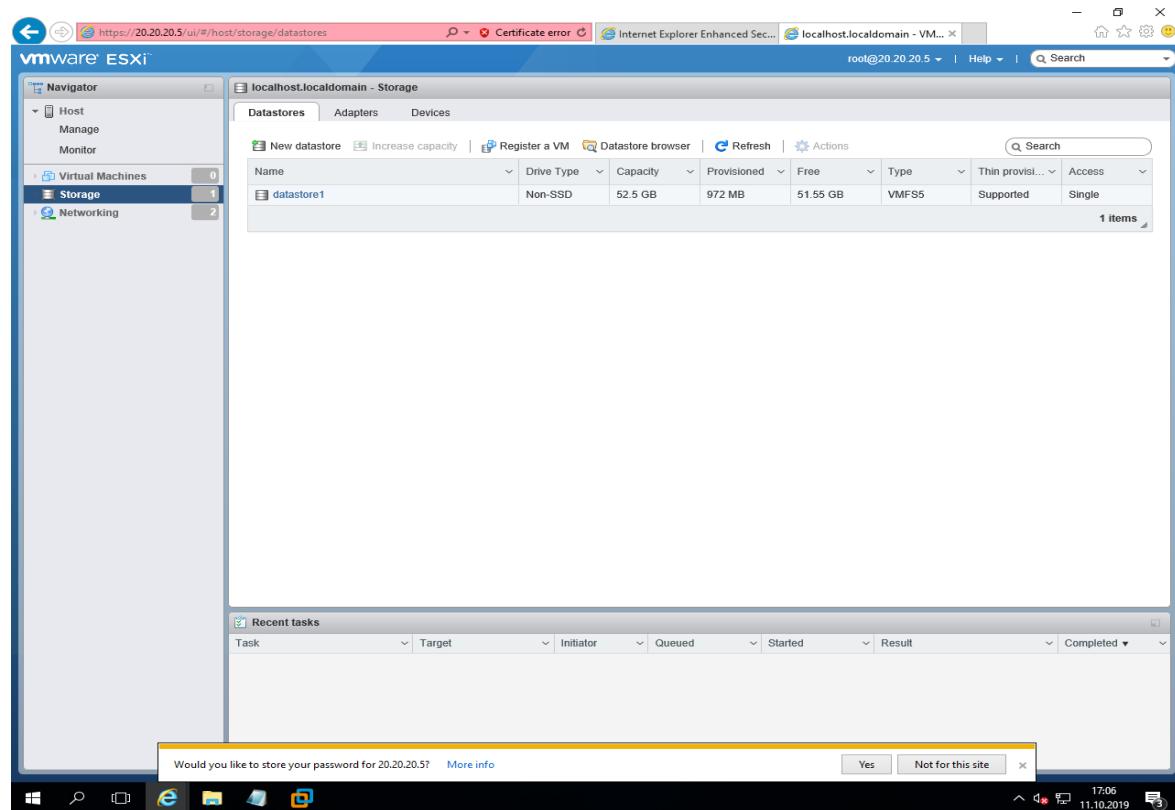
30- Giriş sayfası incelendi ve hangi parametreler olduğu görüldü.

The screenshot shows the VMware ESXi host interface. The left sidebar has sections for Host, Virtual Machines, Storage, and Networking. The main pane is titled 'localhost.localdomain' and shows a summary of the host's resources: CPU (3 CPUs x Intel(R) Core(TM) i5-3470S @ 2.90GHz), Memory (11.32 GB), and Storage (51.65 GB). It also lists IP addresses (1. vmk0: 20.20.20.5, 2. vmk0: fe80::20c:29ff.fe07:4612), DNS servers (1. 192.168.122.1), Default gateway (20.20.20.1), and IPv6 enabled (Yes). There are sections for Configuration and System Information. A message at the bottom says 'You are currently using ESXi in evaluation mode. This license will expire in 60 days.' A dialog at the bottom asks 'Would you like to store your password for 20.20.20.5?' with 'Yes' and 'Not for this site' options.

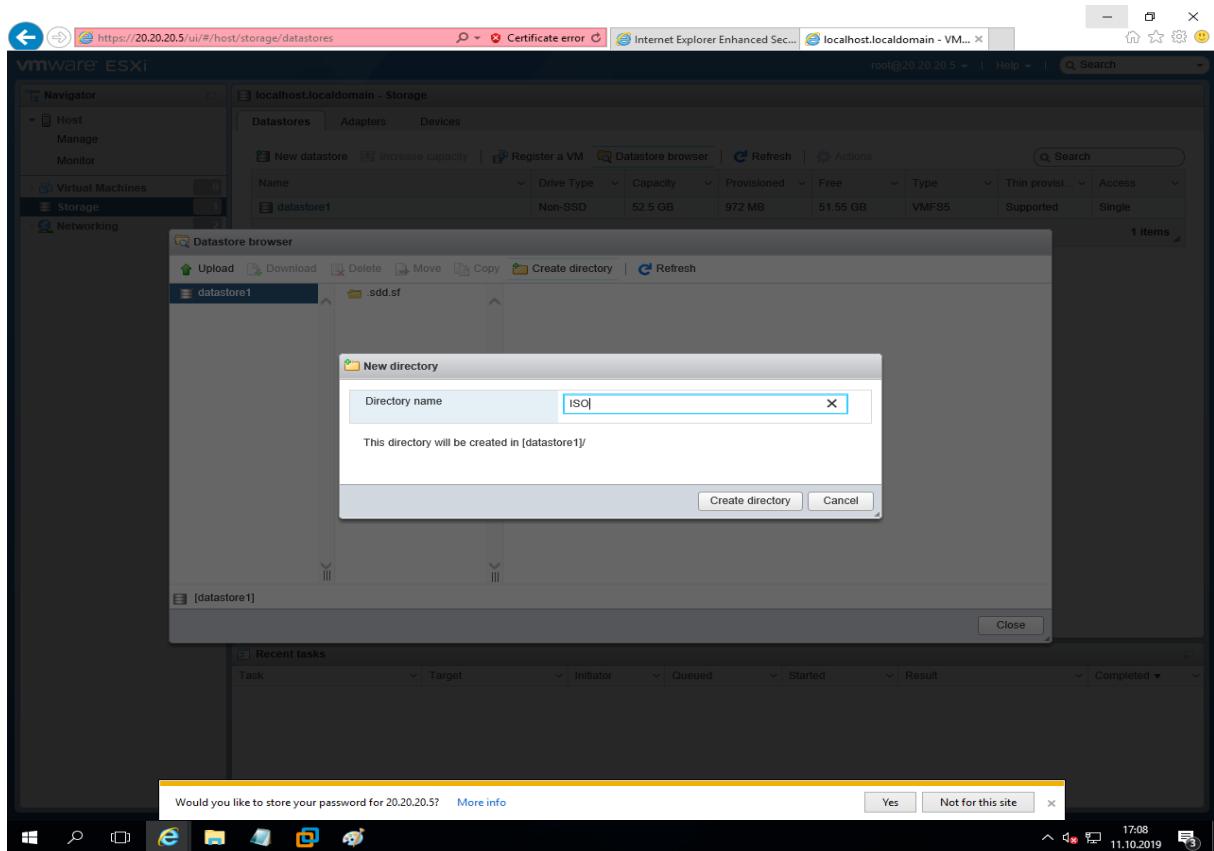
31- Storage kısmından datastore browser a tıklandı. Açılan pencerede create directory tıklandı.



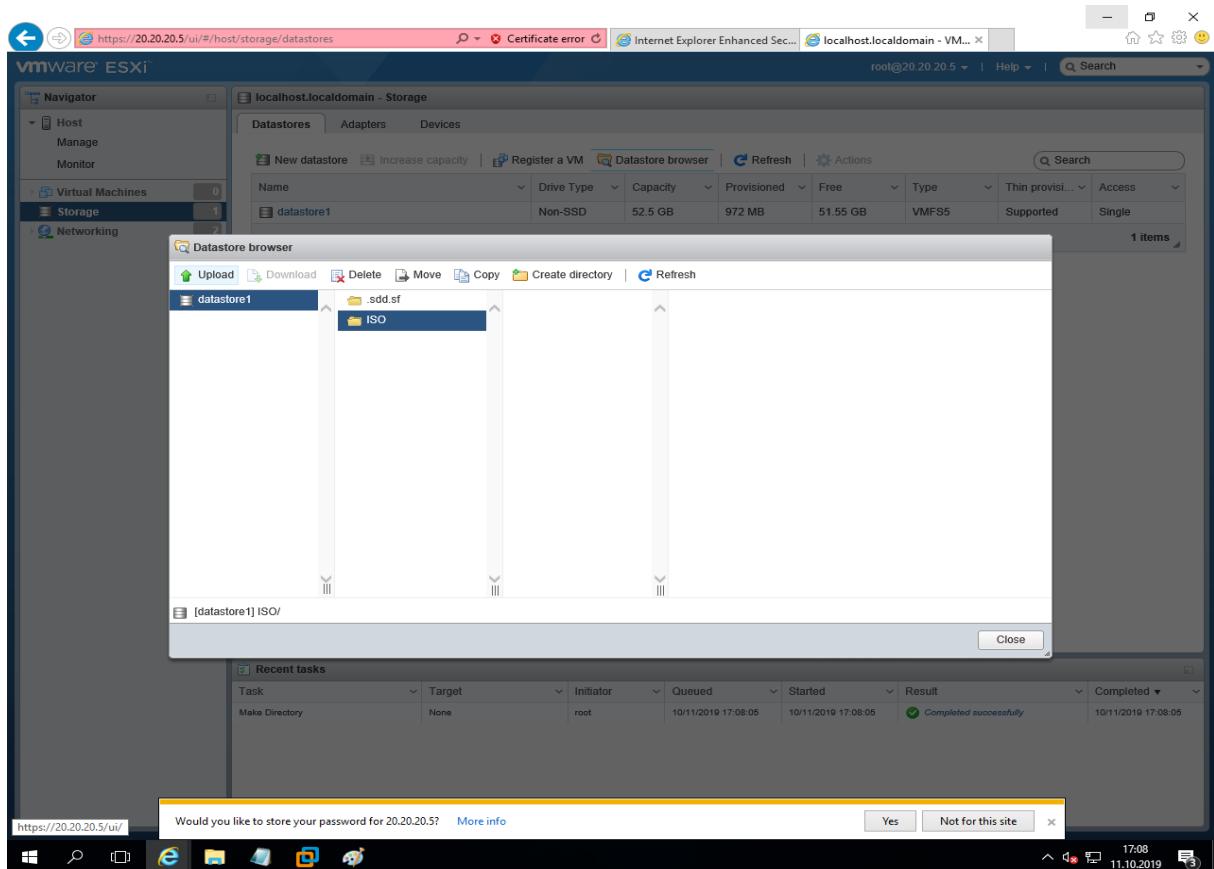
32- Oluşturulacak klasör sadece datastore1 52,5 GB boyutundaki diskimiz seçildi.



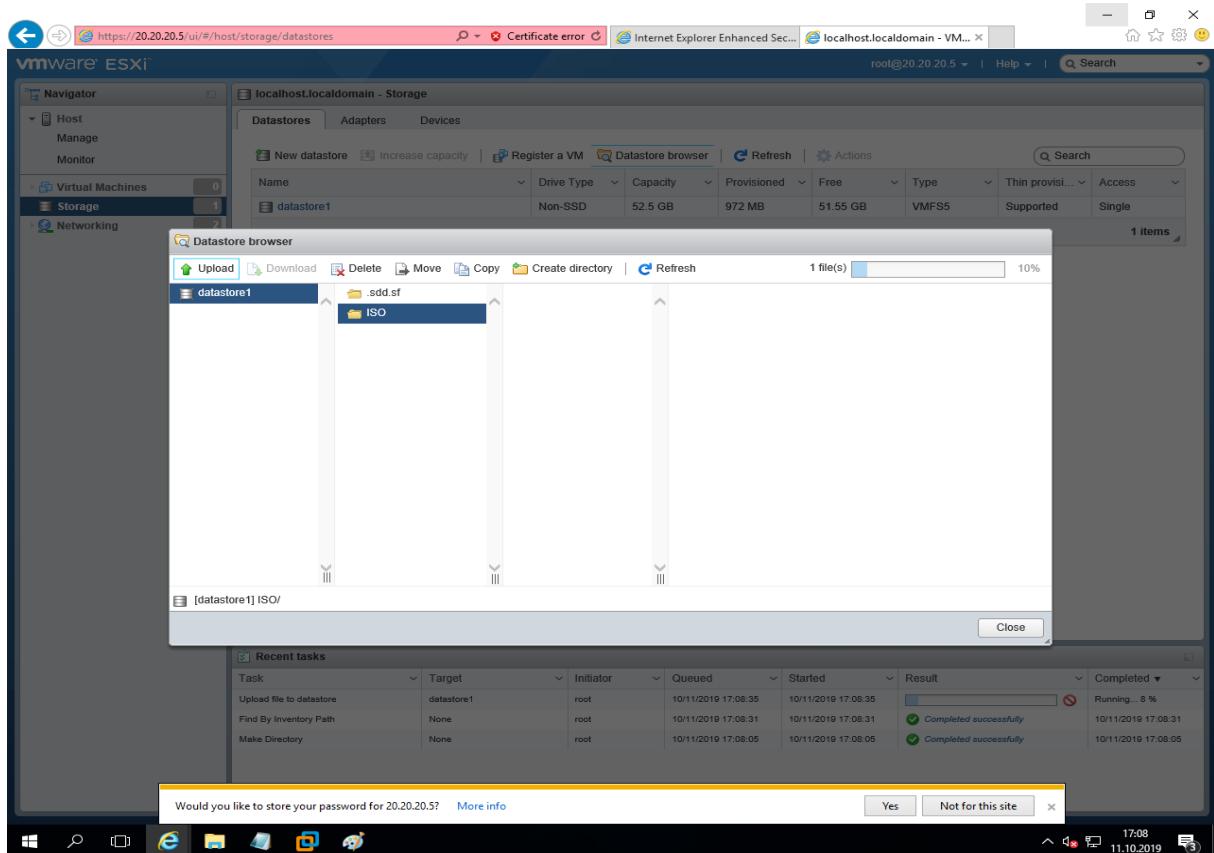
33- Dosya adı olarak ISO verildi.



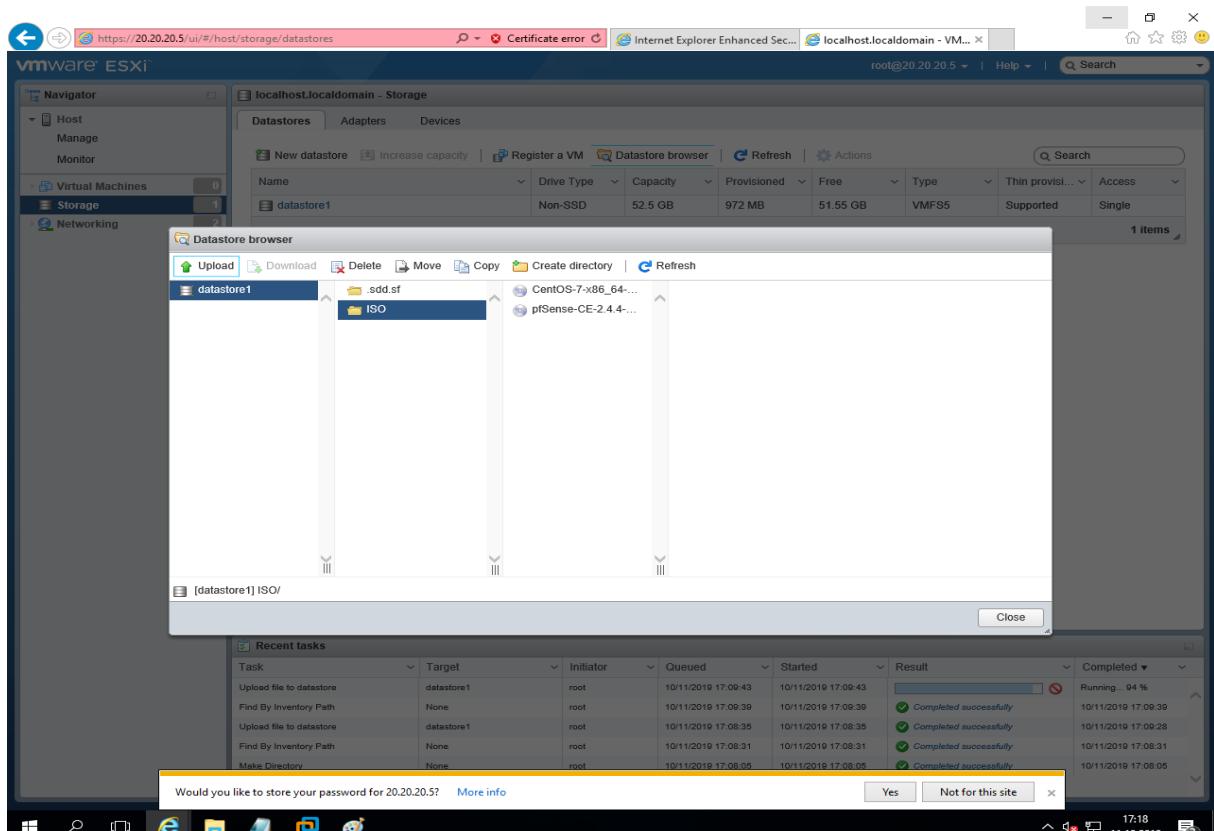
34-Oluşturulan klasöre de Upload tıklanarak Pfsense ISO dosyası Upload edildi.



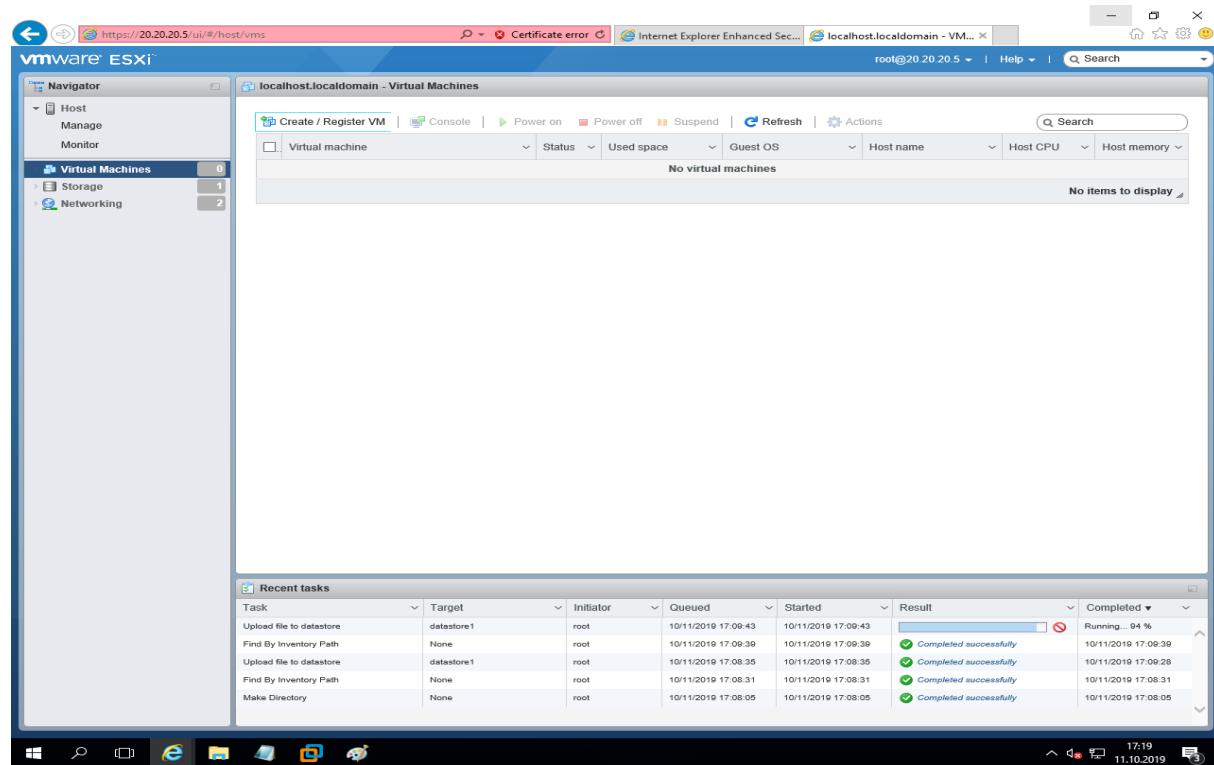
35- Sağ üstte Upload işlemi için yüklenmesini bekliyoruz.



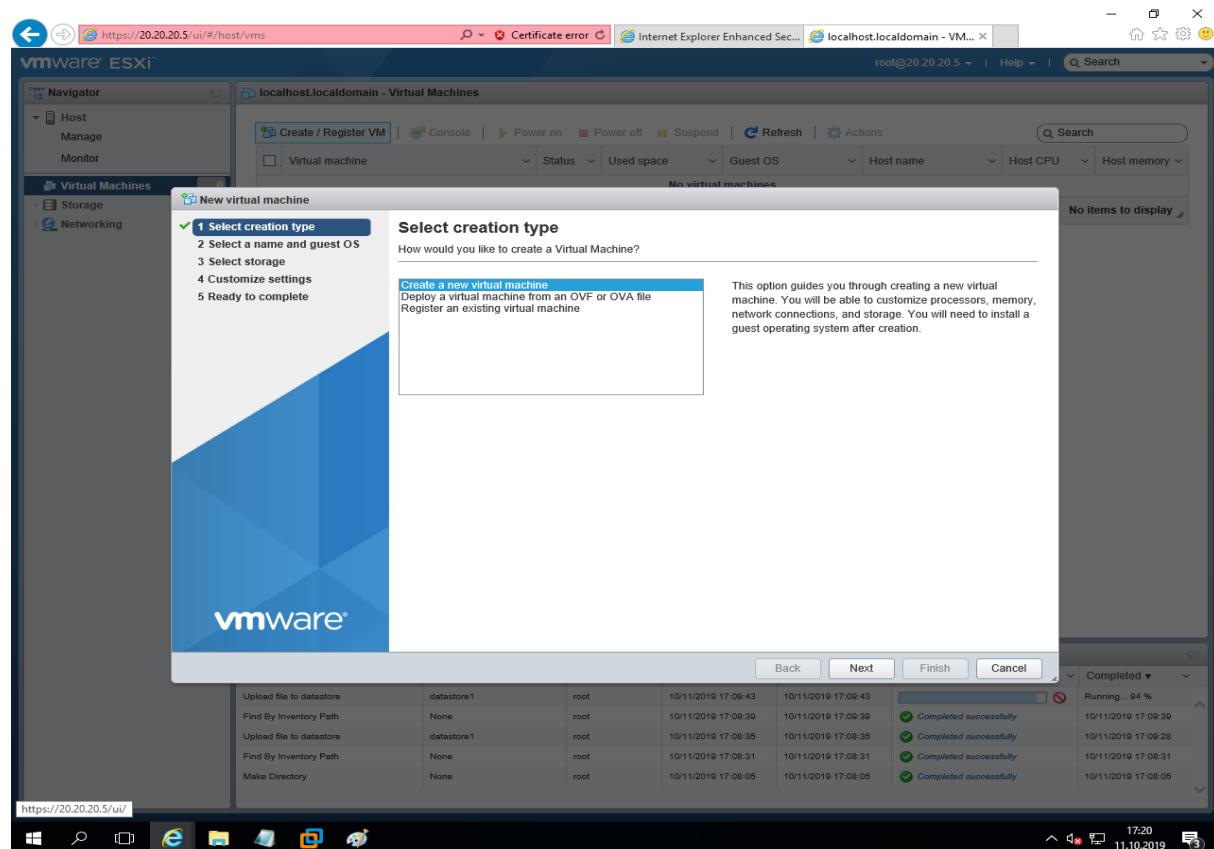
36-Centos ve Pfsense Uploadları yüklü şekilde gözükmektedir.



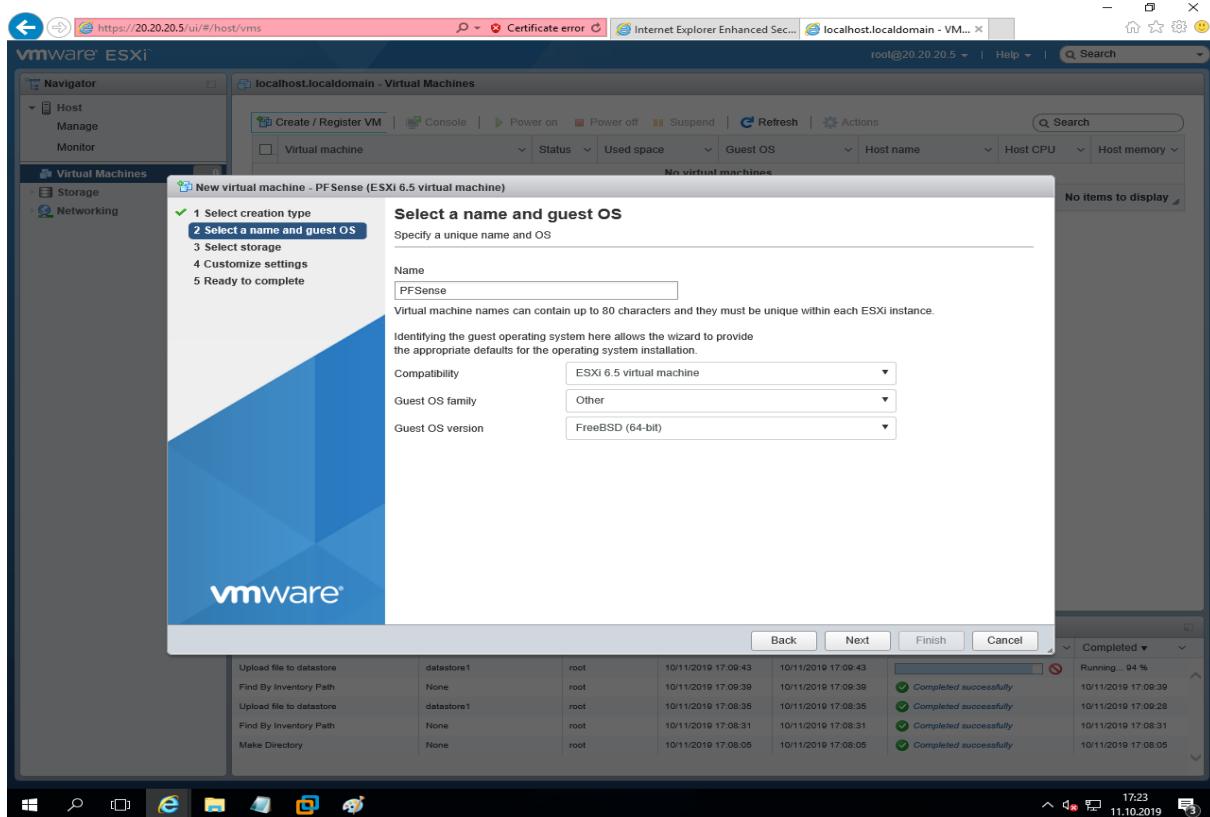
37- Virtual Machine tıklandı. Daha sonra açılan pencerede Create / register VM tıklandı.



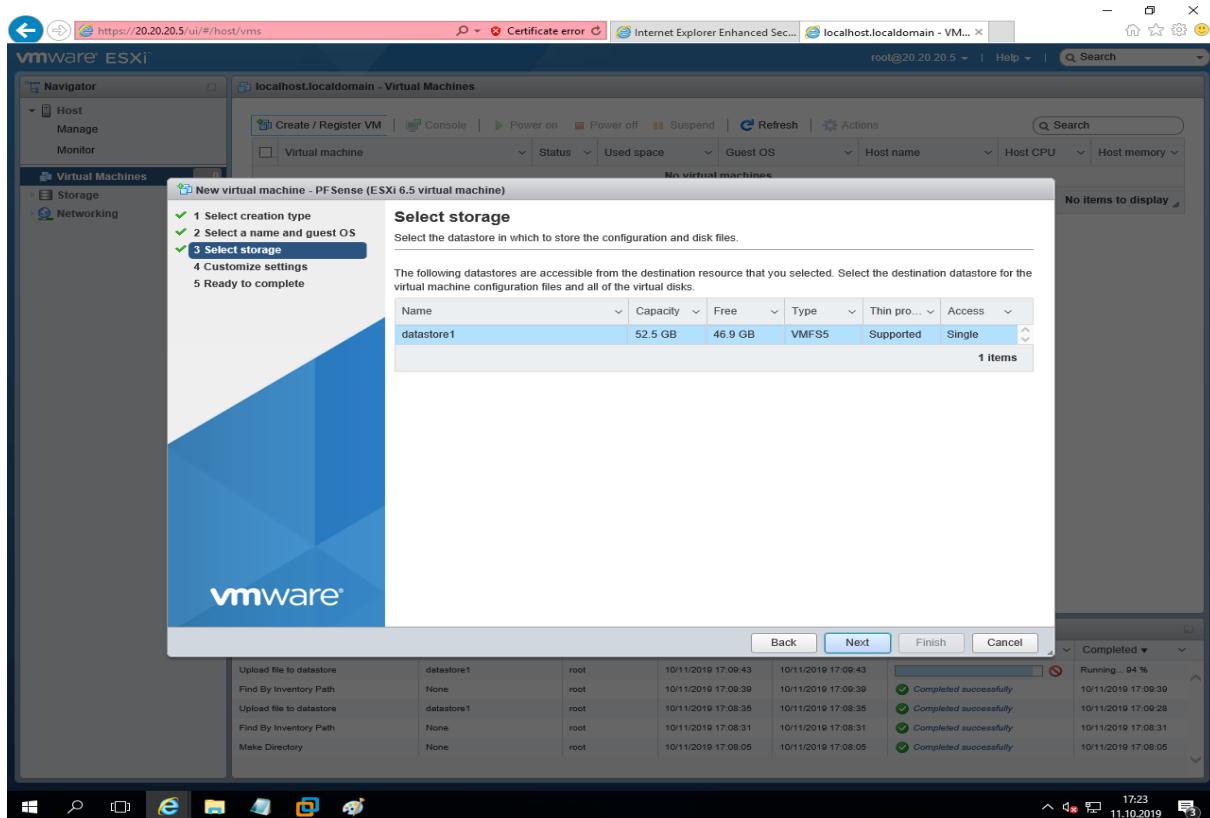
38- Create a New virtual machines tıklandı.



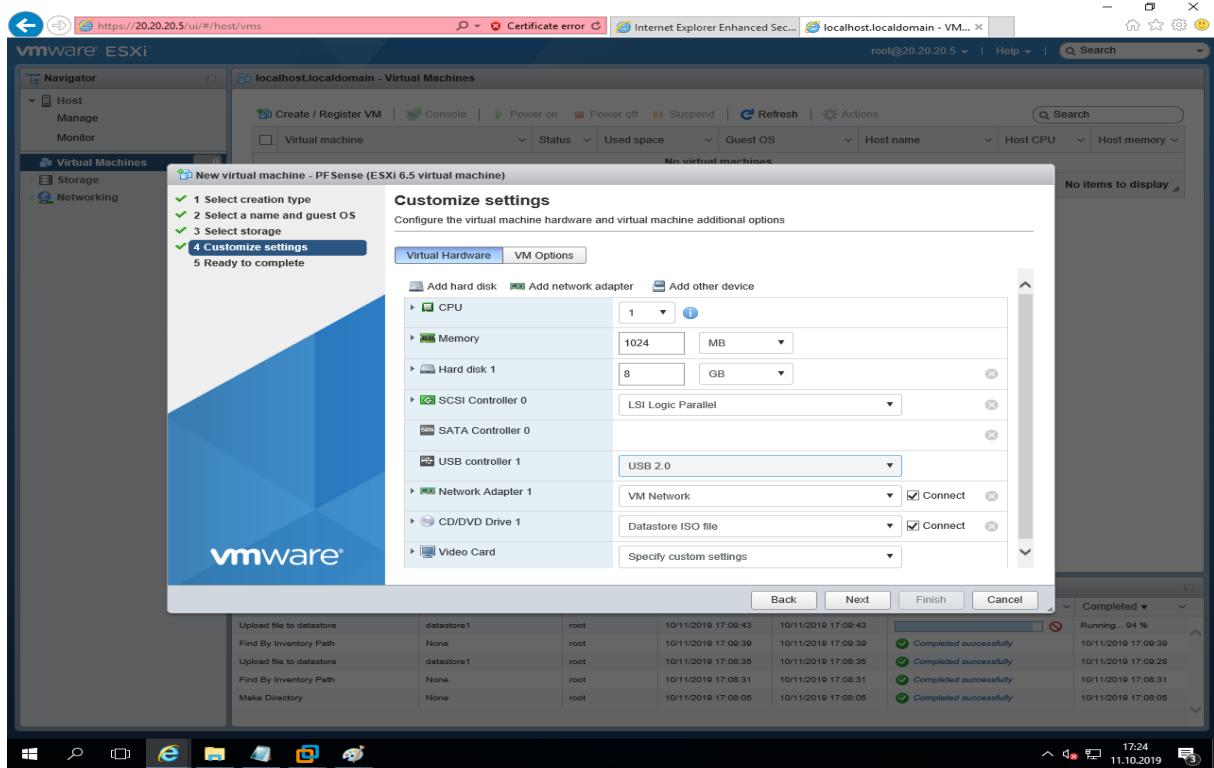
39- PfSense Virtual için isim verildi.



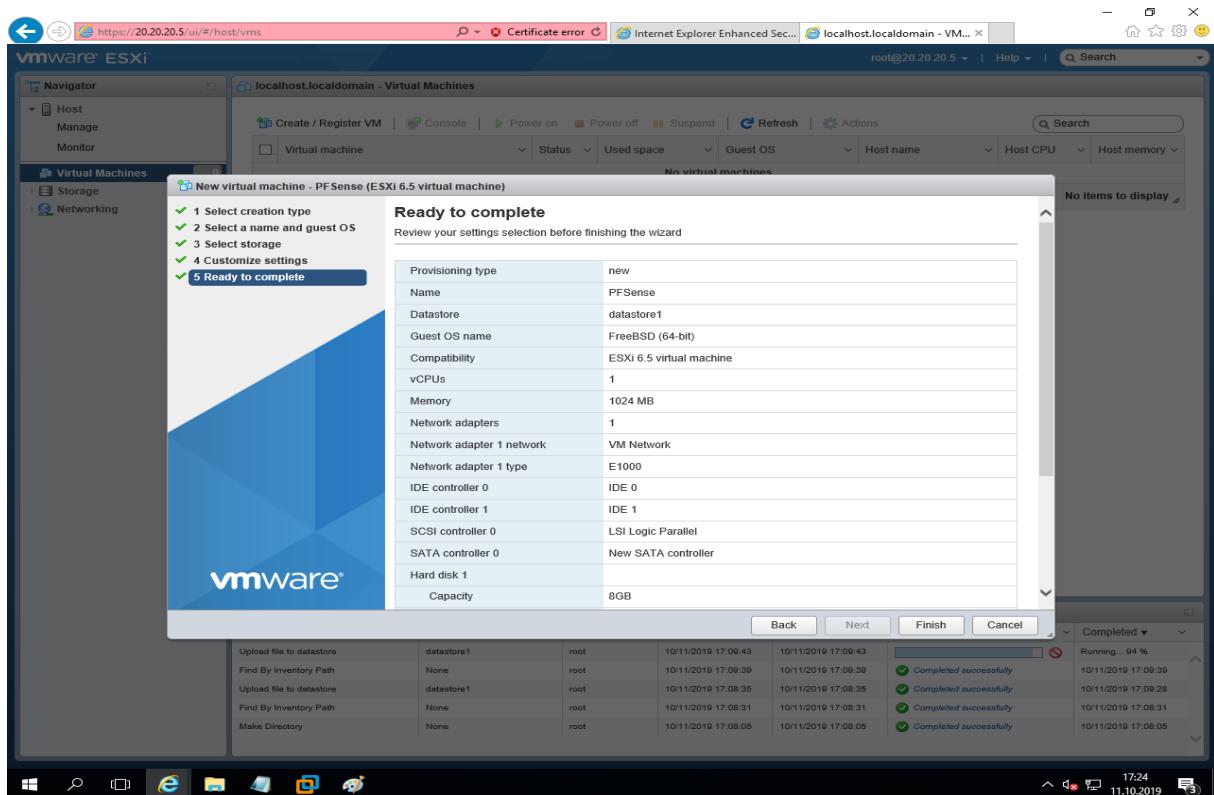
40- Sadece datastore1 52,5GB var. Bu yüzden tekrardan o seçildi.



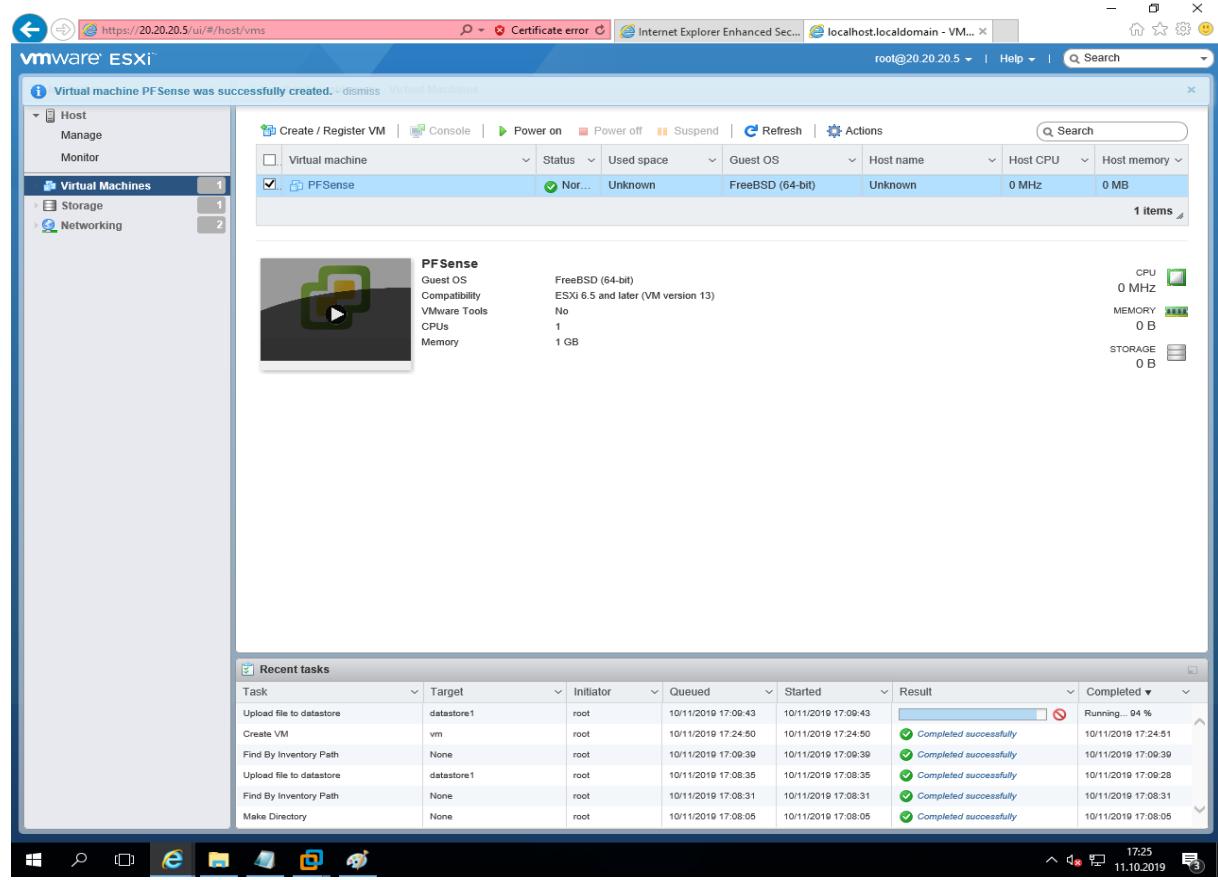
41- PfSense için hardware ayarları yapıldı. Cpu, memory, harddisk vb...



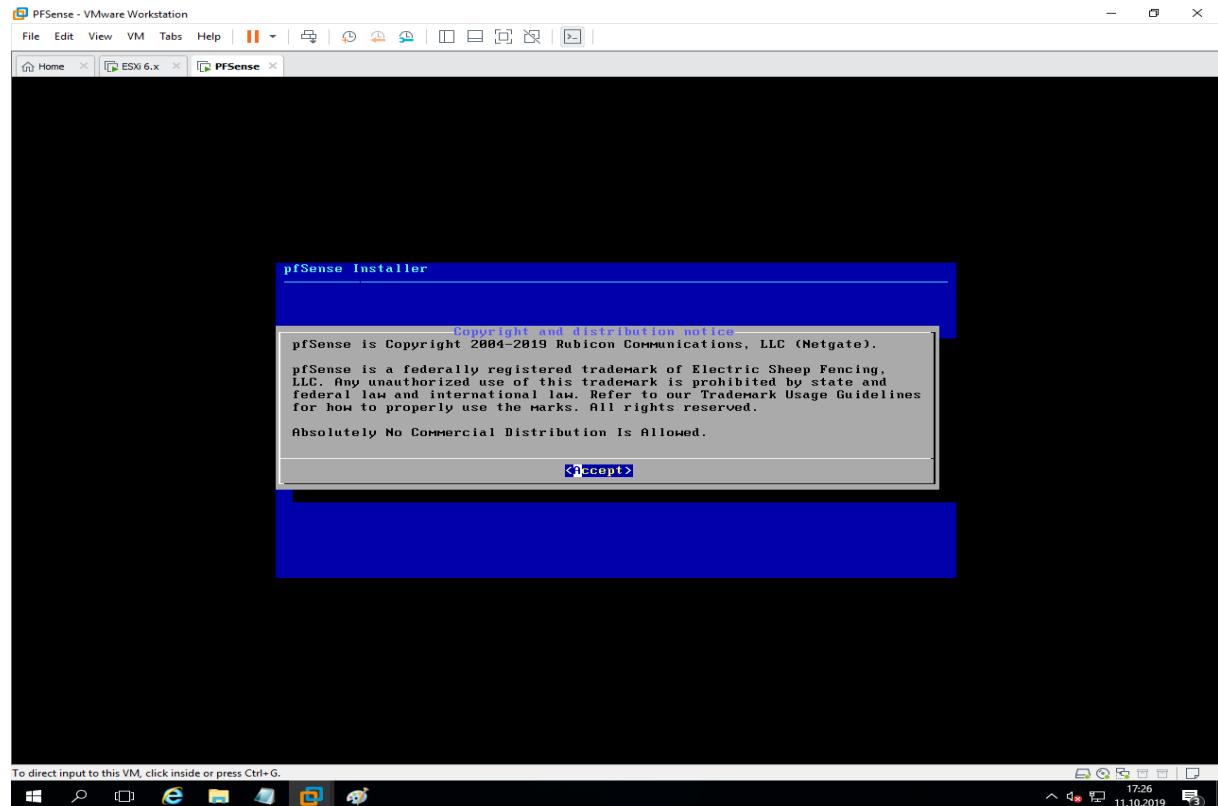
42- Özellik kontrolleri yapıldı.



43- PfSense Esxi kısmı tamamlandı. Start verildi.



44- Açıldığında accept diyoruz. Kurulurken biz Centos kurulumuna geçilir.



45- Networke gelerek virtual switches seçilir.

localhost.localdomain - Networking

Name	Port groups	Uplinks	Type
vSwitch0	2	1	Standard vSwitch

Recent tasks

Task	Target	Initiator	Queued	Started	Result	Completed
Upload file to datastore	datastore1	root	10/11/2019 17:09:43	10/11/2019 17:09:43	Completed successfully	Running... 04 %
Power On VM	PFsense	root	10/11/2019 17:25:20	10/11/2019 17:25:20	Completed successfully	10/11/2019 17:25:21
Create VM	vm	root	10/11/2019 17:24:50	10/11/2019 17:24:50	Completed successfully	10/11/2019 17:24:51
Find By Inventory Path	None	root	10/11/2019 17:09:39	10/11/2019 17:09:39	Completed successfully	10/11/2019 17:09:39
Upload file to datastore	datastore1	root	10/11/2019 17:08:35	10/11/2019 17:08:35	Completed successfully	10/11/2019 17:09:28
Find By Inventory Path	None	root	10/11/2019 17:08:31	10/11/2019 17:08:31	Completed successfully	10/11/2019 17:08:31

46- Daha sonra Add standart Virtual Switch seçildi. İsim yazıldı. Accept ler işaretlendi.

Add port group - Centos Vlan6

Name	Centos Vlan6
VLAN ID	6
Virtual switch	vSwitch0

Promiscuous mode: Accept Reject Inherit from vSwitch

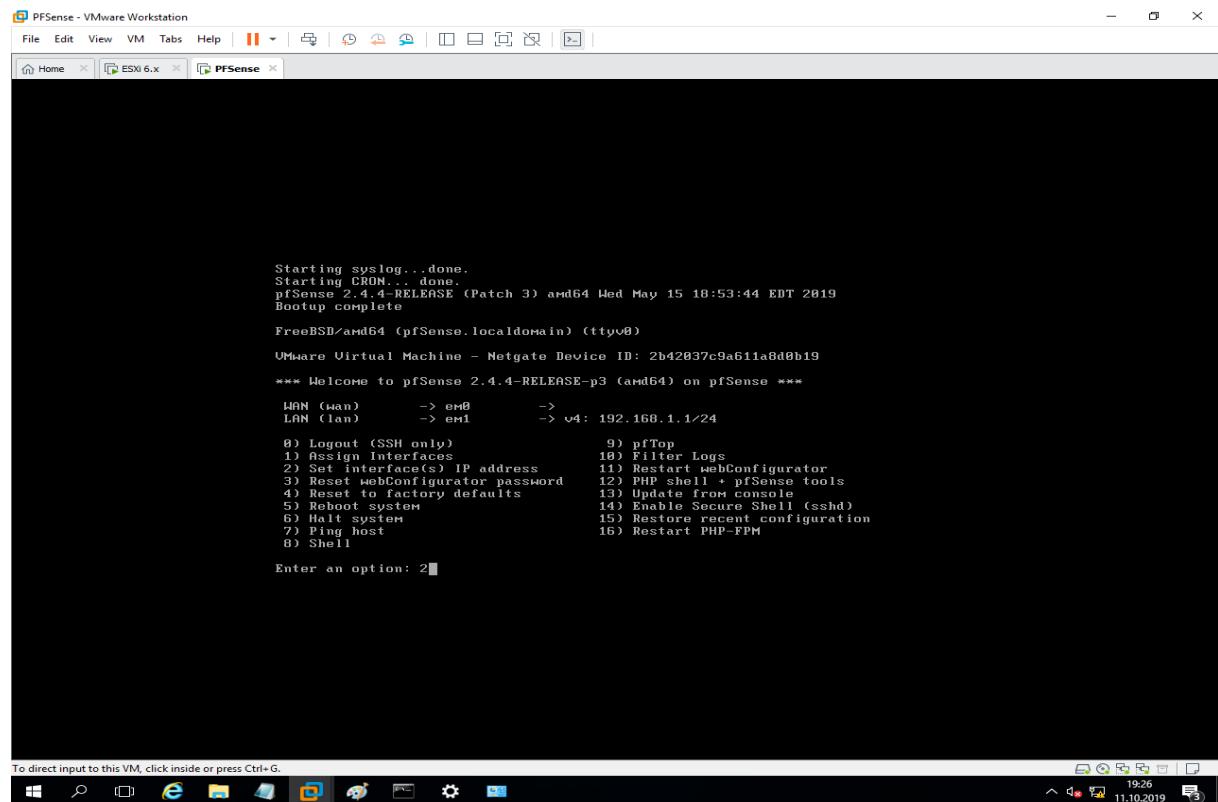
MAC address changes: Accept Reject Inherit from vSwitch

Forged transmits: Accept Reject Inherit from vSwitch

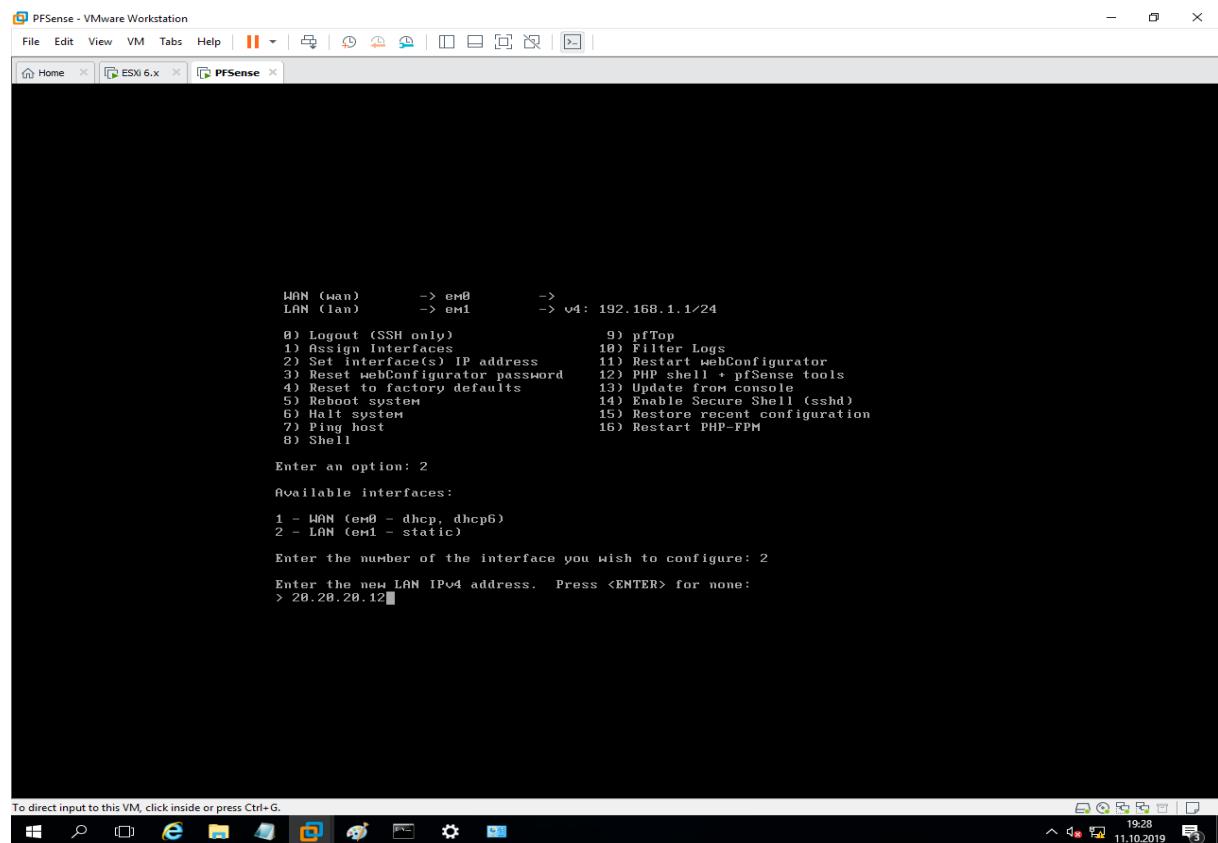
Recent tasks

Task	Target	Initiator	Queued	Started	Result	Completed
Reconfig VM	PFsense	root	10/11/2019 19:20:14	10/11/2019 19:20:14	Completed successfully	10/11/2019 19:20:14
Update Network Config	localhost.localdomain	root	10/11/2019 19:18:57	10/11/2019 19:18:57	Completed successfully	10/11/2019 19:18:57
Refresh Network System	localhost.localdomain	root	10/11/2019 19:18:57	10/11/2019 19:18:57	Completed successfully	10/11/2019 19:18:57
Power On VM	PFsense	root	10/11/2019 19:20:20	10/11/2019 19:20:20	Completed successfully	10/11/2019 19:20:20

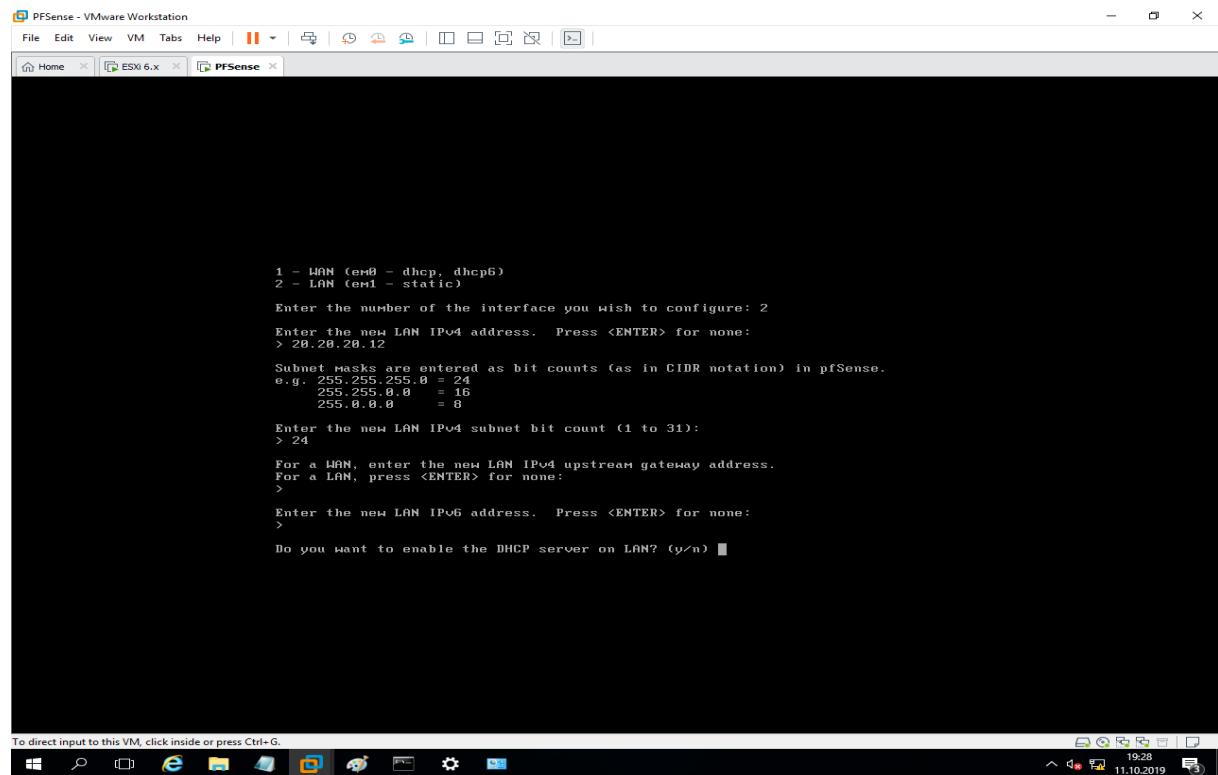
47-Pfsense açıldığında 2yi seçip Enter denilir.



48- WAN 1 numara LAN 2 numaradır. 2 seçilerek Enter denildi. 20.20.20.12 IP girildi.



49- Subnet Mask seçeneklerinden 24 seçildi. No ipv6 ve enable yes denildi.



```
1 - WAN (em0 - dhcp, dhcp6)
2 - LAN (em1 - static)

Enter the number of the interface you wish to configure: 2
Enter the new LAN IPv4 address. Press <ENTER> for none:
> 20.20.20.12

Subnet masks are entered as bit counts (as in CIDR notation) in pfSense.
e.g. 255.255.255.0 = 24
      255.255.0.0   = 16
      255.0.0.0     = 8

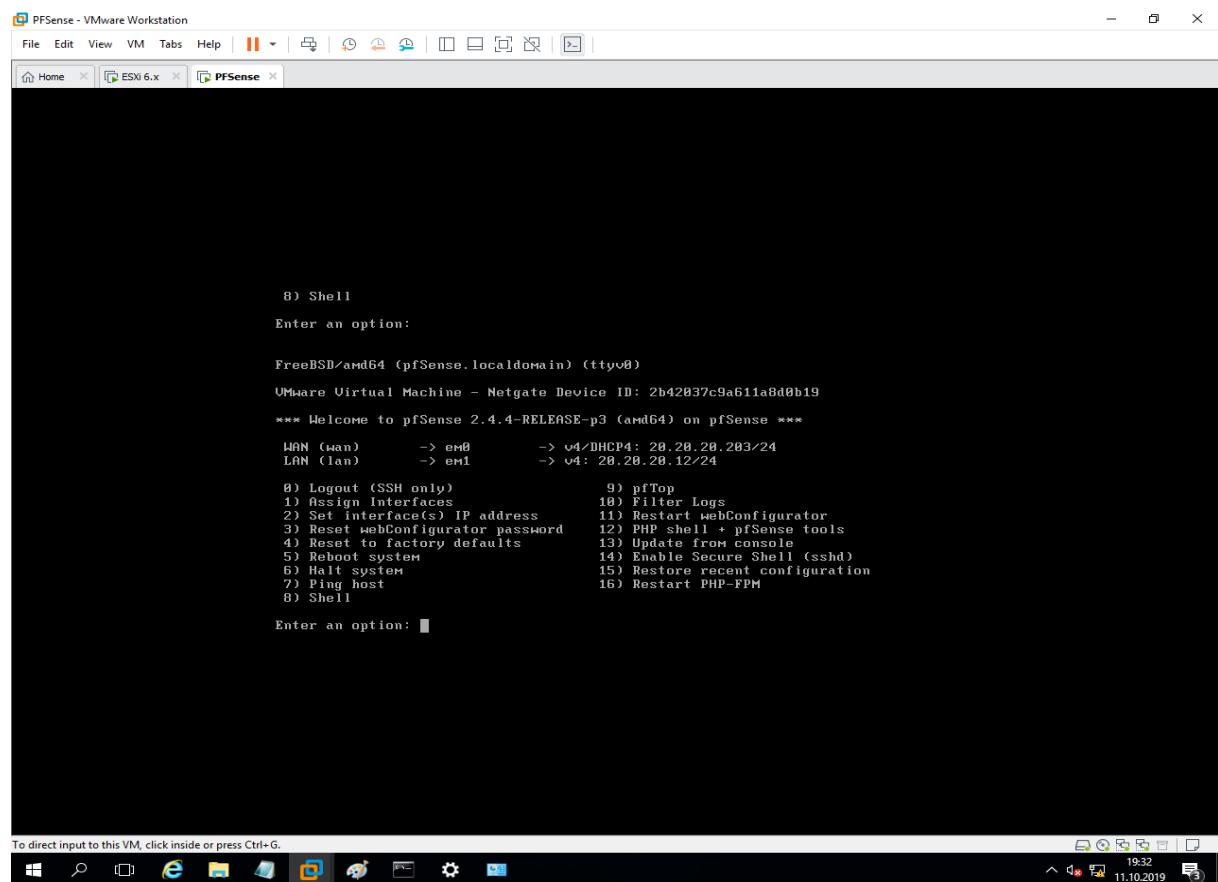
Enter the new LAN IPv4 subnet bit count (1 to 31):
> 24

For a WAN, enter the new LAN IPv4 upstream gateway address.
For a LAN, press <ENTER> for none:
>

Enter the new LAN IPv6 address. Press <ENTER> for none:
>

Do you want to enable the DHCP server on LAN? (y/n) ■
```

50-Aynı mantıkla düşünürsek WAN için de DHCP den alması sağlandı.



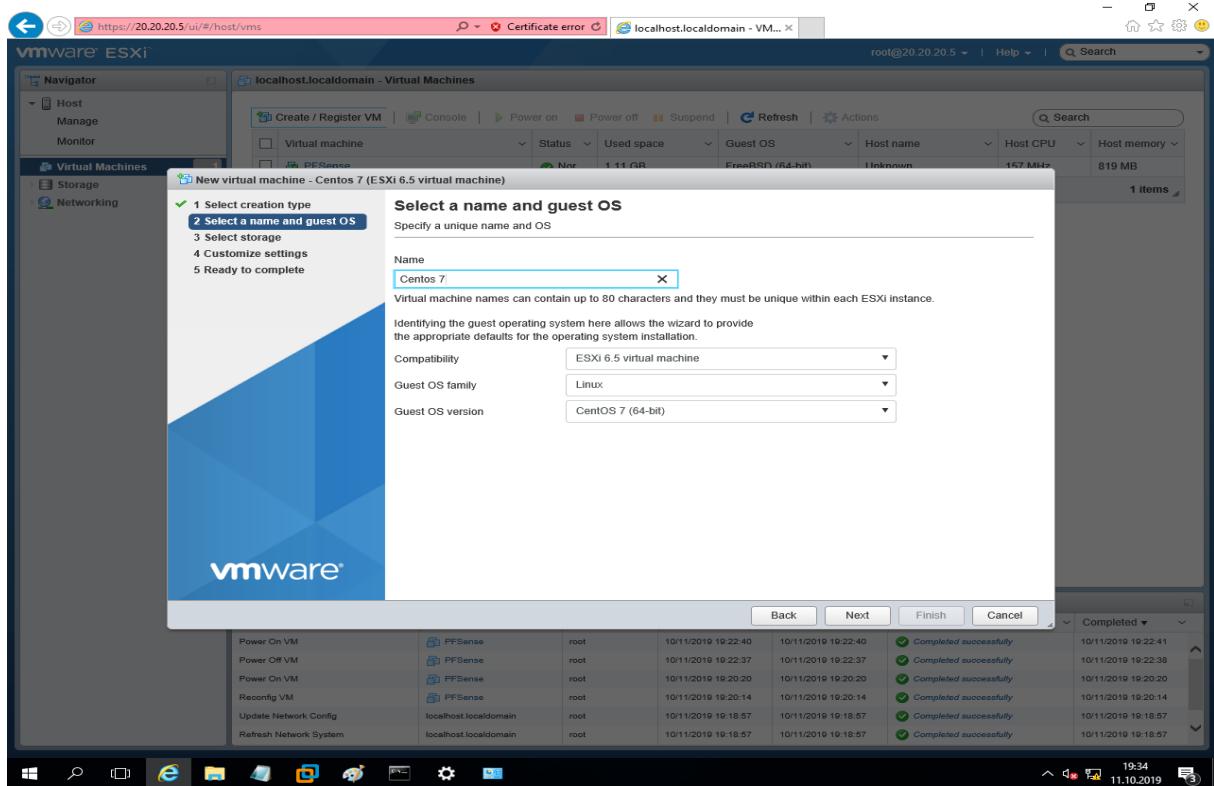
```
8) Shell
Enter an option:

FreeBSD/amd64 (pfSense.localdomain) (ttyv0)
VMware Virtual Machine - Netgate Device ID: 2b42037c9a611a8d0b19
*** Welcome to pfSense 2.4.4-RELEASE-p3 (amd64) on pfSense ***
WAN (wan)      -> em0      -> v4/DHCP4: 20.20.20.203/24
LAN (lan)      -> em1      -> v4: 20.20.20.12/24

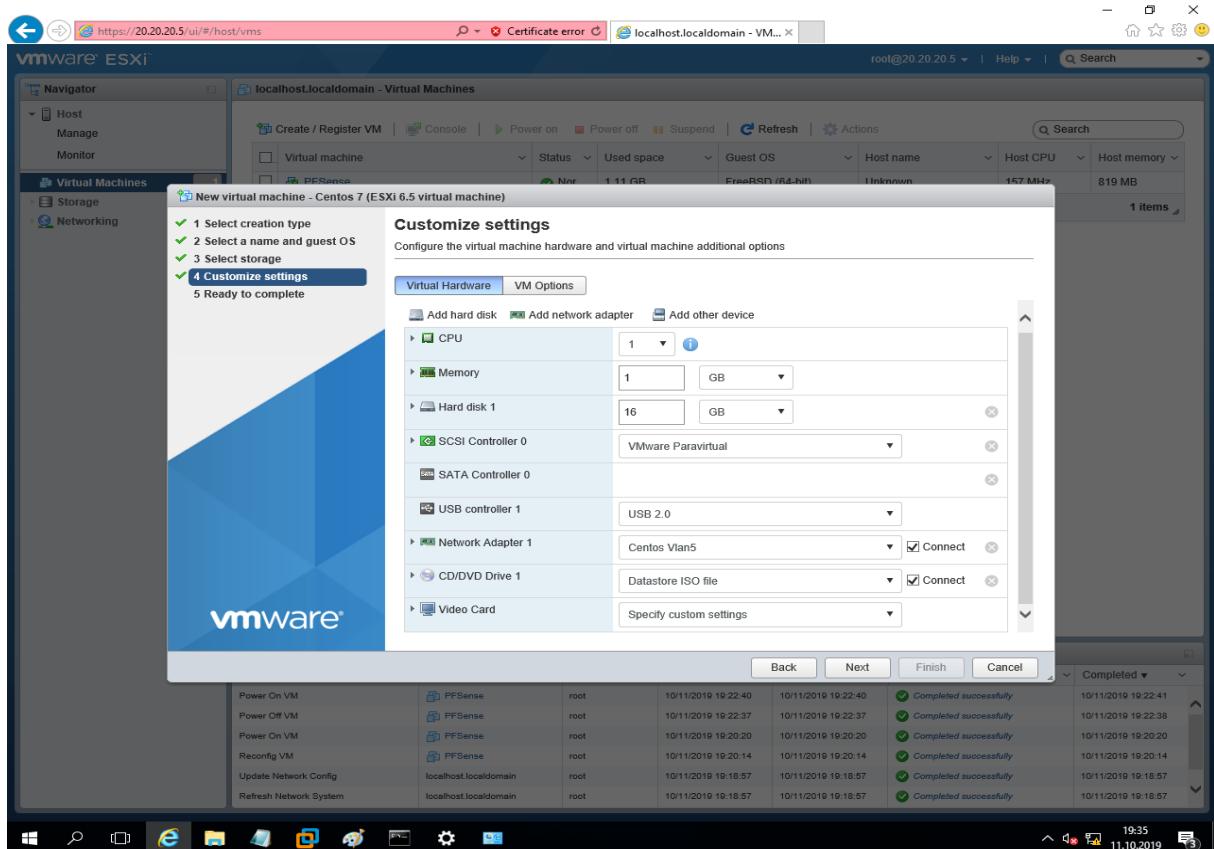
0) Logout (SSH only)          9) pfTop
1) Assign Interfaces           10) Filter Logs
2) Set interface(s) IP address 11) Restart webConfigurator
3) Reset webConfigurator password 12) PHP shell + pfSense tools
4) Reset to factory defaults   13) Update from console
5) Reboot system               14) Enable Secure Shell (sshd)
6) Halt system                 15) Restore recent configuration
7) Ping host                   16) Restart PHP-FPM

Enter an option: ■
```

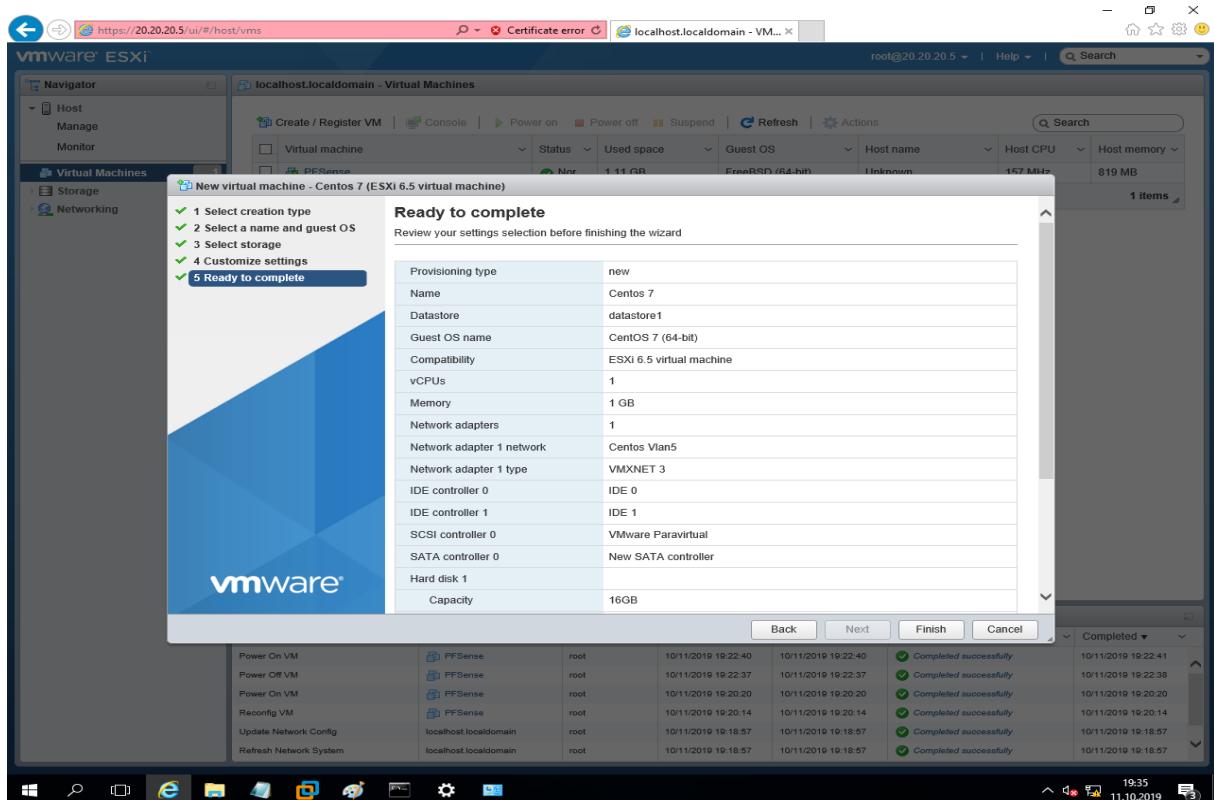
51- CentOS7 kurulumu için tekrar Esxi'ye dönüyoruz.



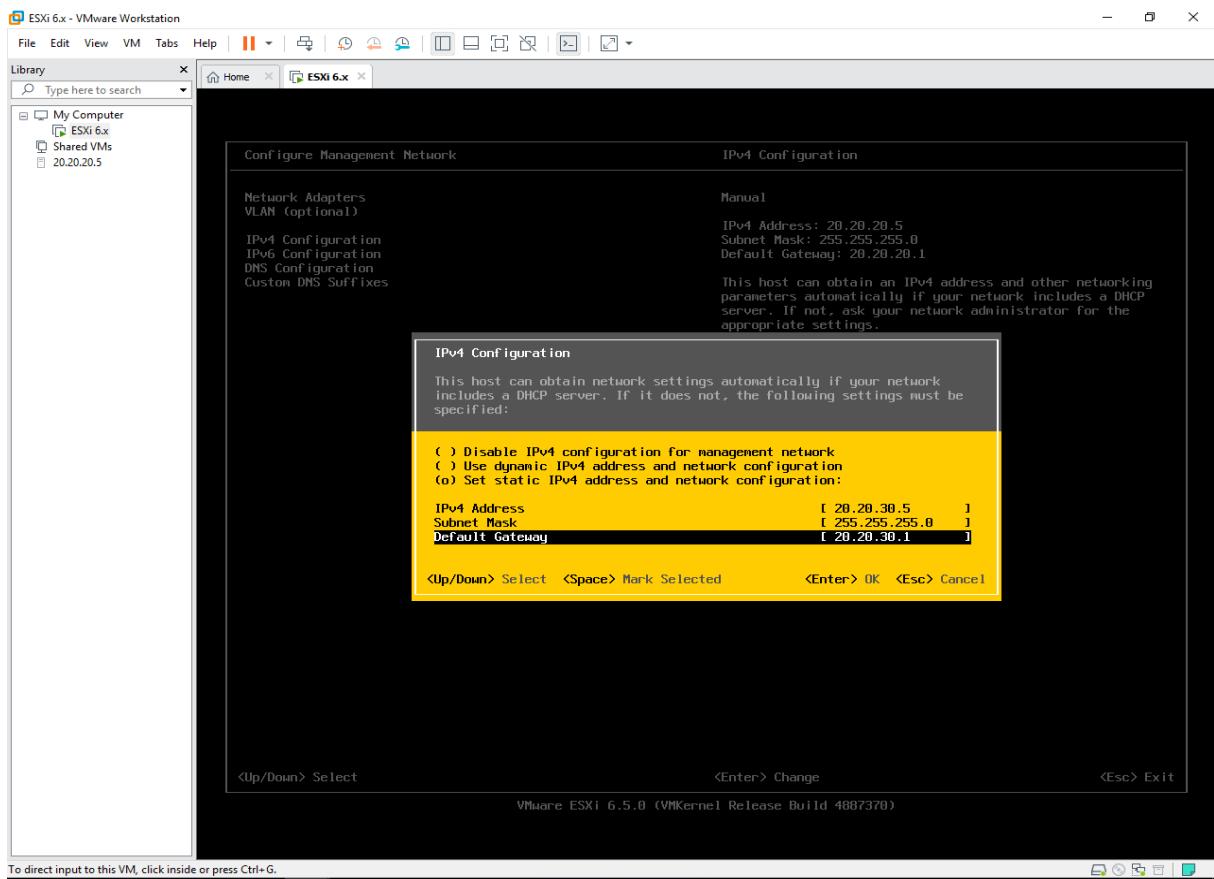
52- Pfsense için yapılan hardware ayarlamaları gerçekleştirildi.



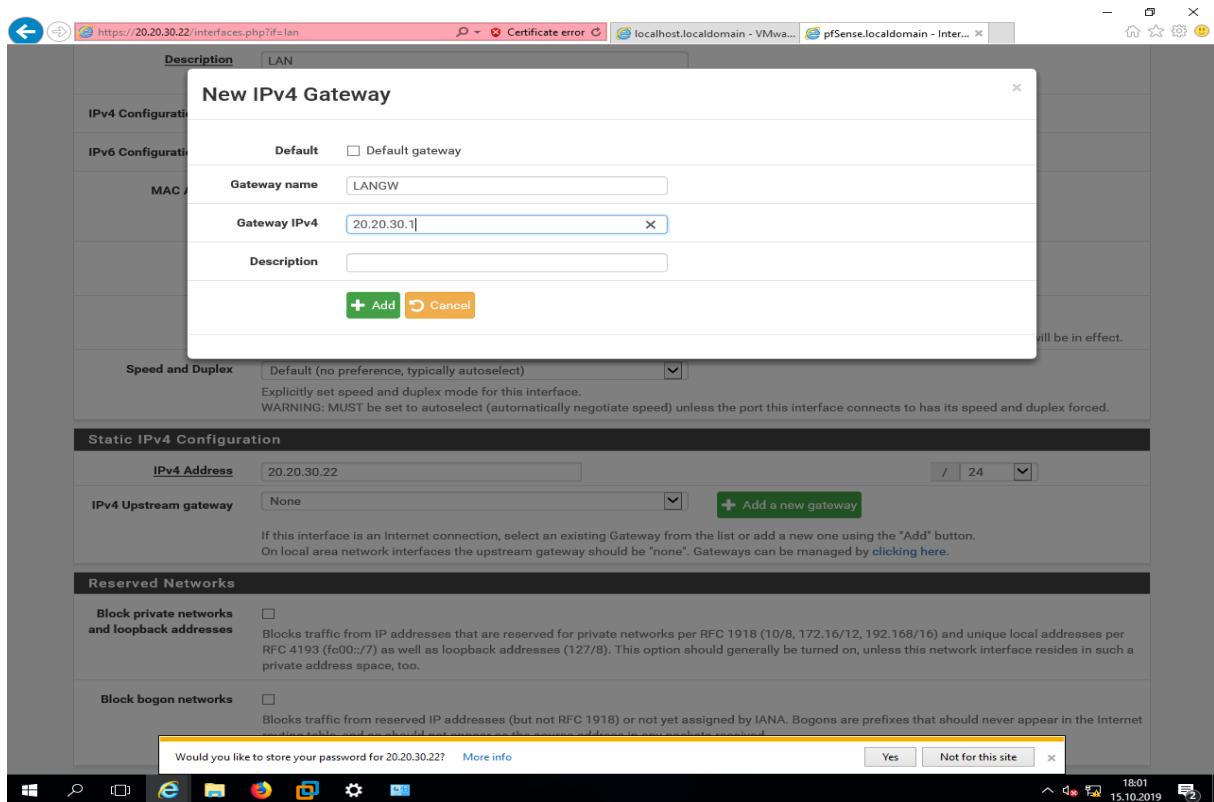
53- Son kontroller yapıldı. Finish butonuna basıldı.



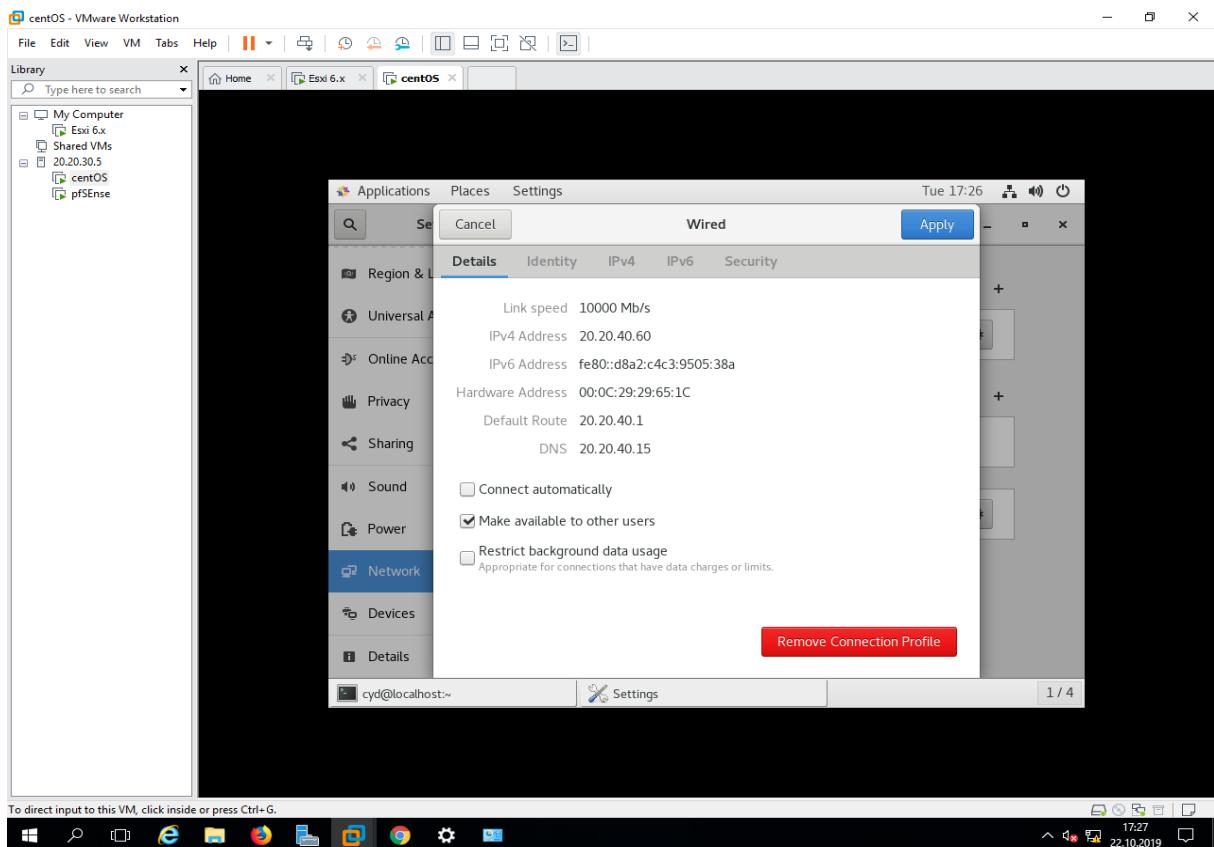
54- Vmware üzerinden Esxinin Ip ve Gatewayleri girildi.



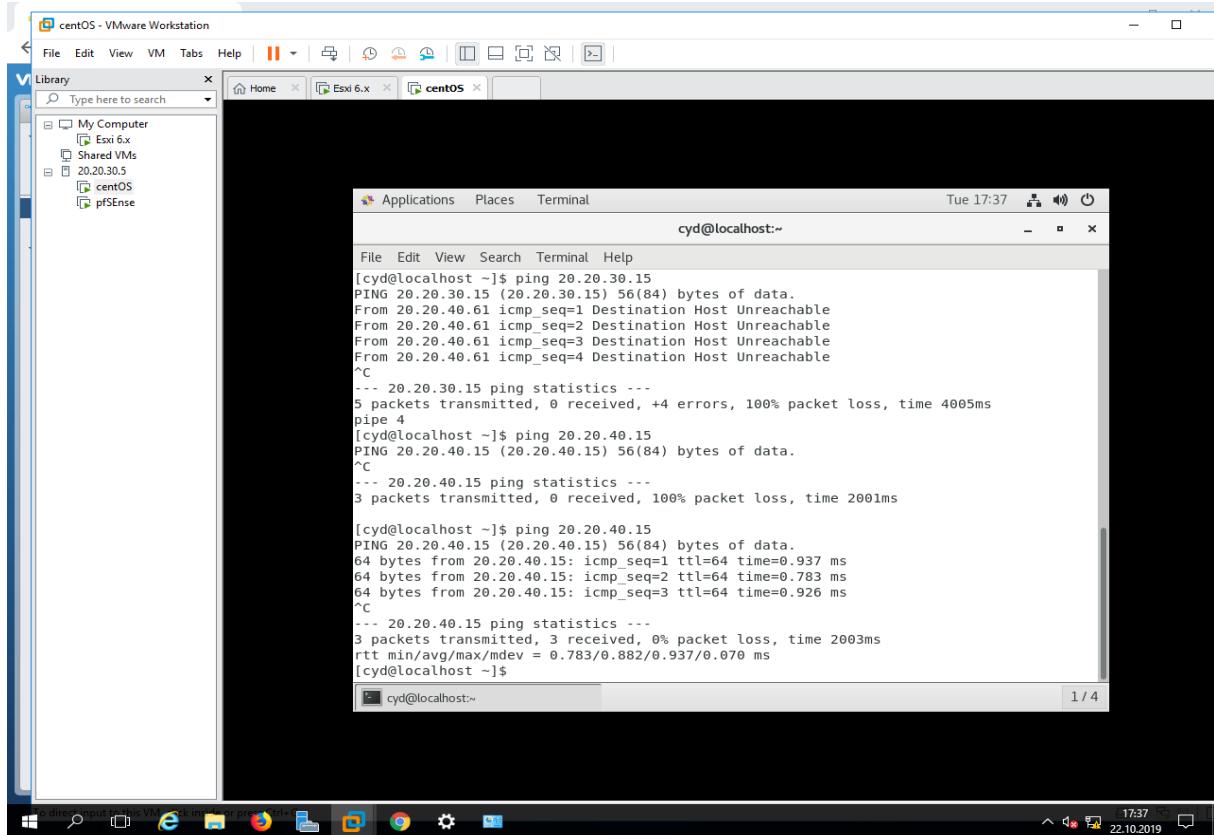
55- 20.20.30.22 ye de 20.20.30.1 gatewayi vermemiz gereki̇inden işlemler yapıldı.



56- Centosa 20.20.40.60 ipsi için 20.20.40.1 gatewayi verildi.

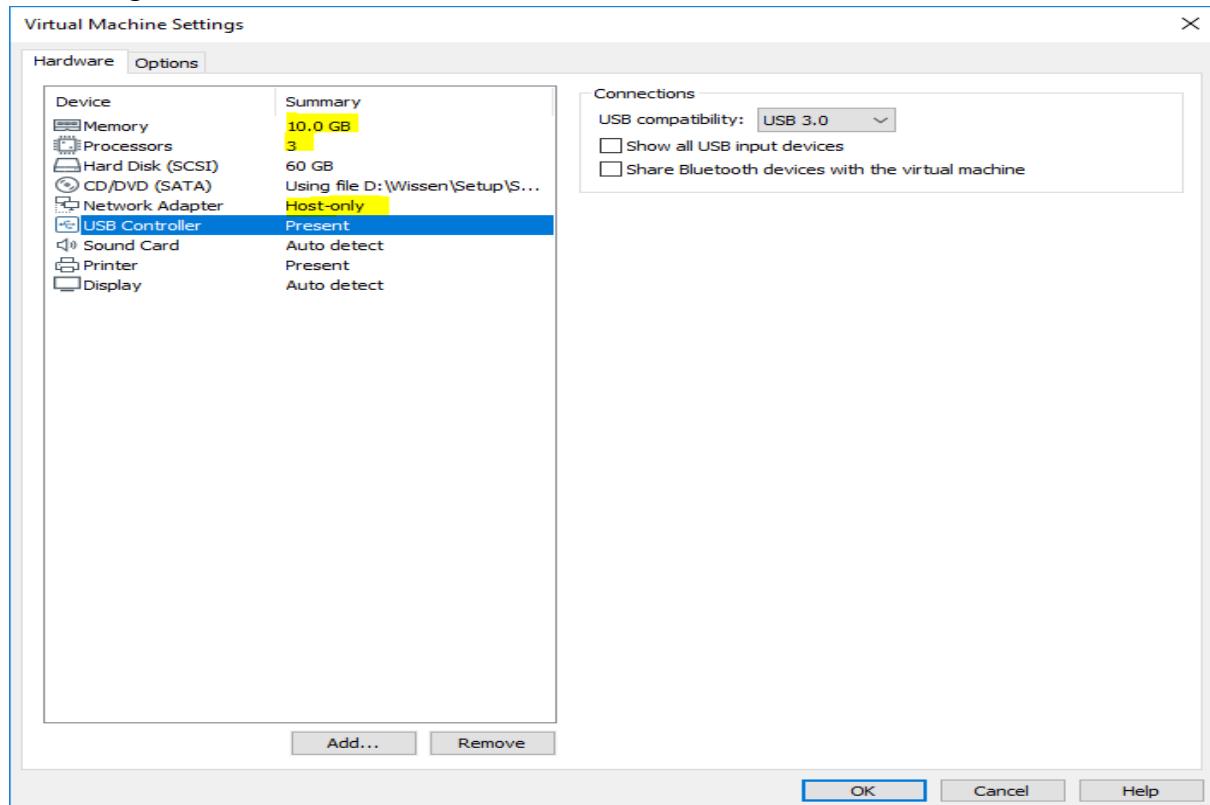


57- Ping denemeleri yapıldı. İşlem başarılı bir şekilde gerçekleşti.

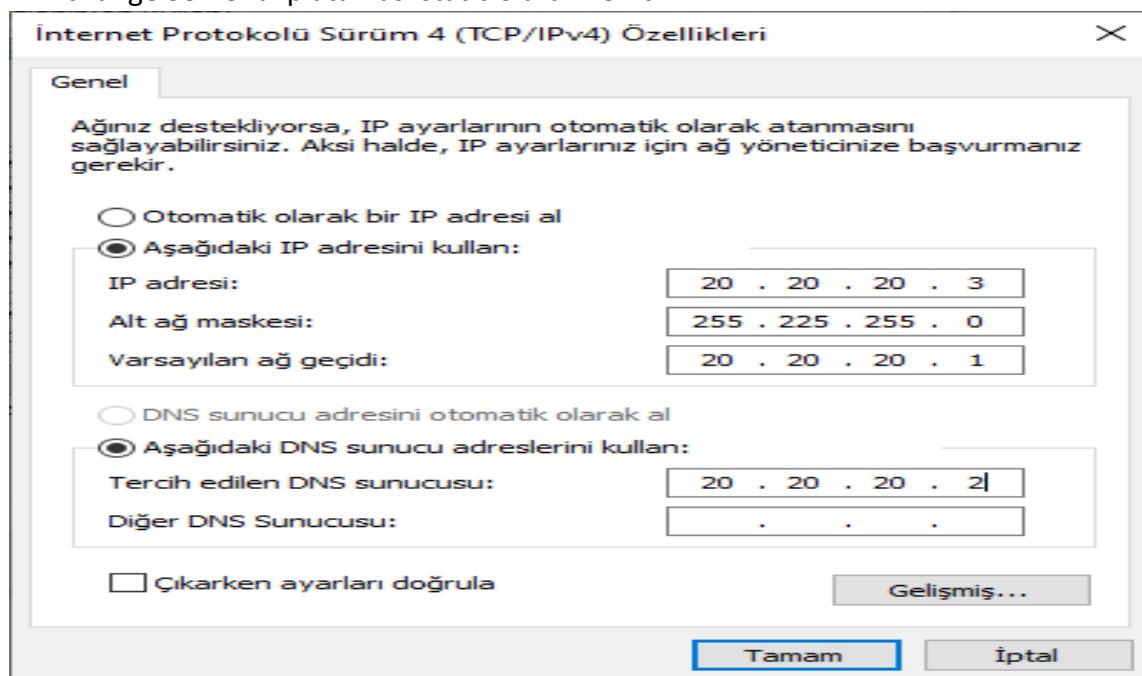


EXCHANGE SERVER ADIMLARI

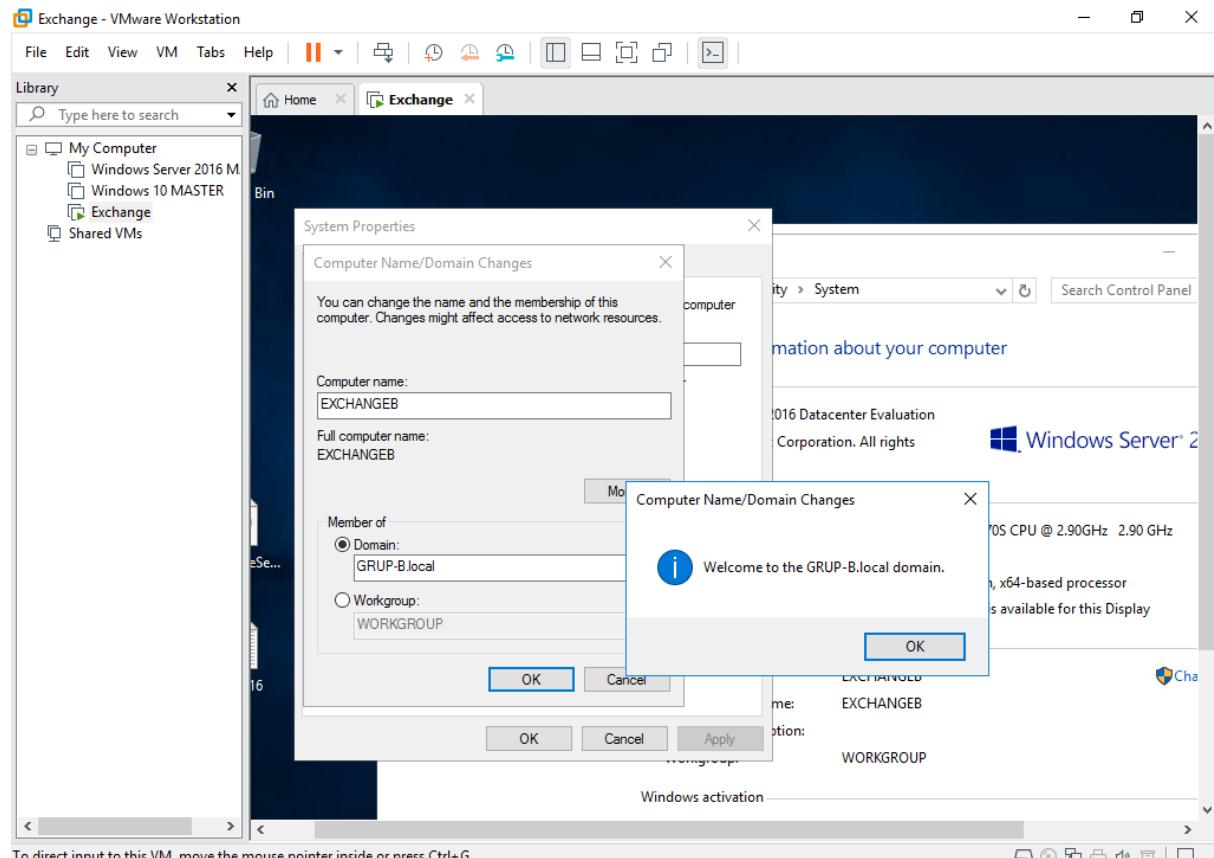
1-Exchange Serverinin özellikleri belirlendi.



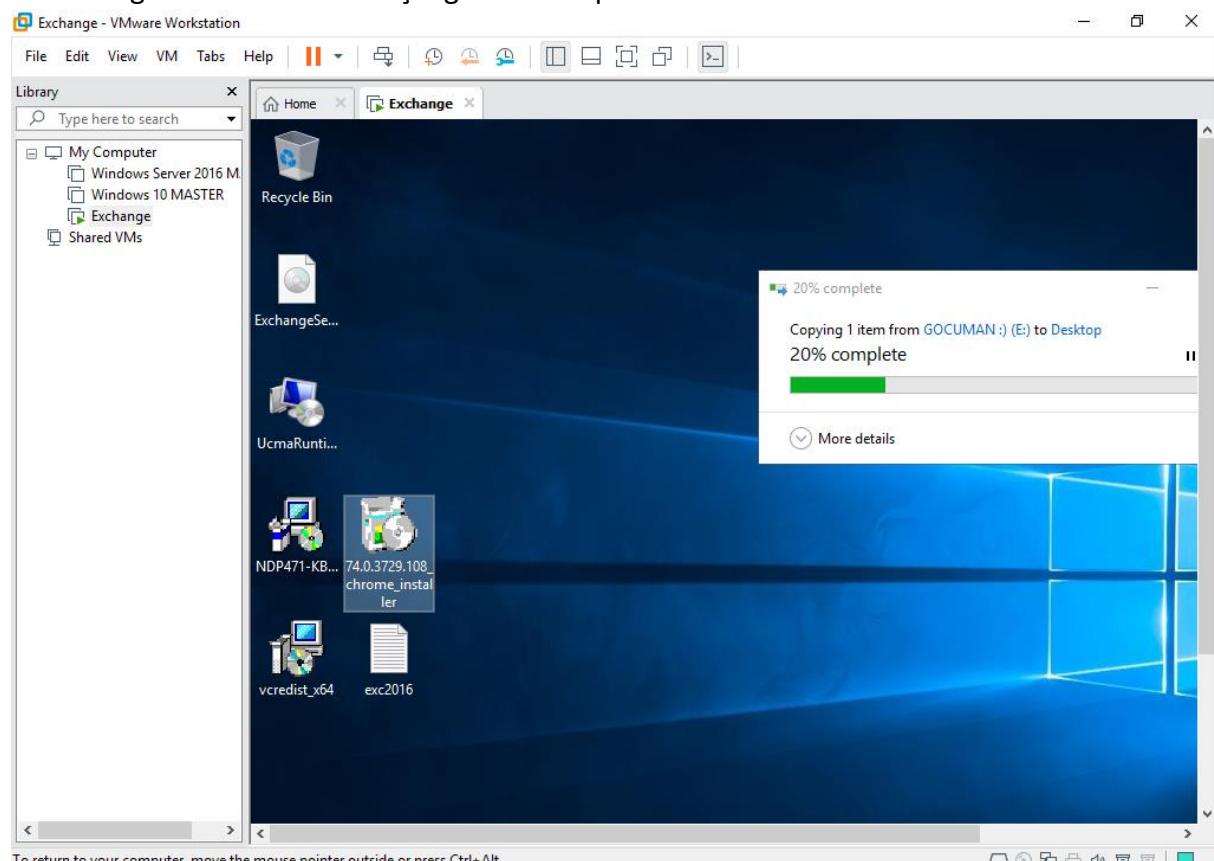
2-Exchange Server'a ip ataması static olarak verildi.



3-Exchange Server domaine join edildi.



4-Exchange Server kurulumu için gerekli setuplar kuruldu.



5-Exchange Server için gerekli olan komutlar Powershell'de yazıldı.

```
Windows PowerShell
Copyright (C) 2016 Microsoft Corporation. All rights reserved.

PS C:\Users\Administrator.GRUP-B> Install-WindowsFeature NET-Framework-45-Features, RSAT-Clustering-CmdInterface, RSAT-Clustering-Mgmt, RSAT-Clustering-PowerShell, Web-Asp-Net45, Web-Basic-Auth, Web-Client-Auth, Web-Digest-Auth, Web-Dir-Browsing, Web-Http-Logging, Web-Http-Redirect, Web-Http-Tracing, Web-ISAPI-Ext, Web-ISAPI-Filters, Web-Mgmt-Console, Web-Mgmt-Service, Web-Net-Ext45, Web-Request-Monitor, Web-Server-Content, Web-Windows-Auth, Web-WMI, Windows-Identity-Foundation, RSAT-ADDS

Success Restart Needed Exit Code Feature Result
----- ----- ----- -----
True No Success {Message Queuing, Message Queuing Server, ...}

UcmaRui
PS C:\Users\Administrator.GRUP-B>
PS C:\Users\Administrator.GRUP-B> Install-WindowsFeature RSAT-ADDS

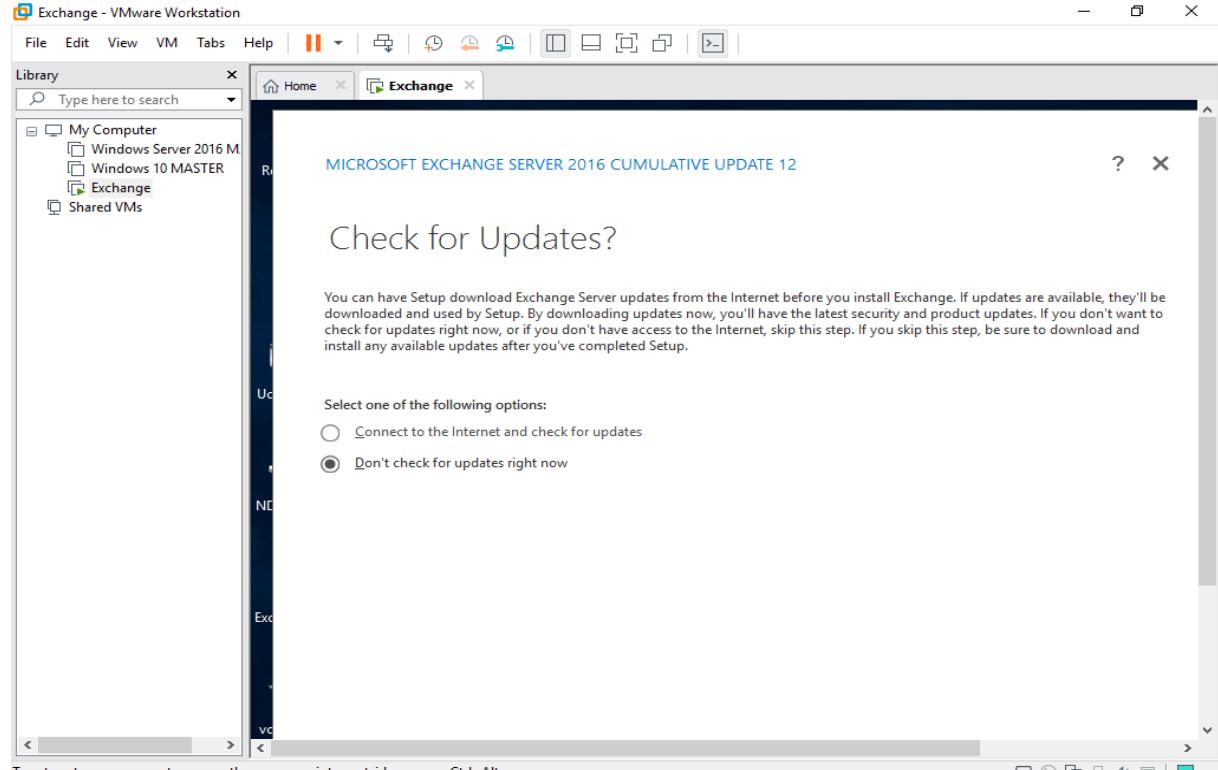
Success Restart Needed Exit Code Feature Result
----- ----- ----- -----
True No NoChangeNeeded {}

NDP471- PS C:\Users\Administrator.GRUP-B>
```

To return to your computer, move the mouse pointer outside or press Ctrl+Alt.

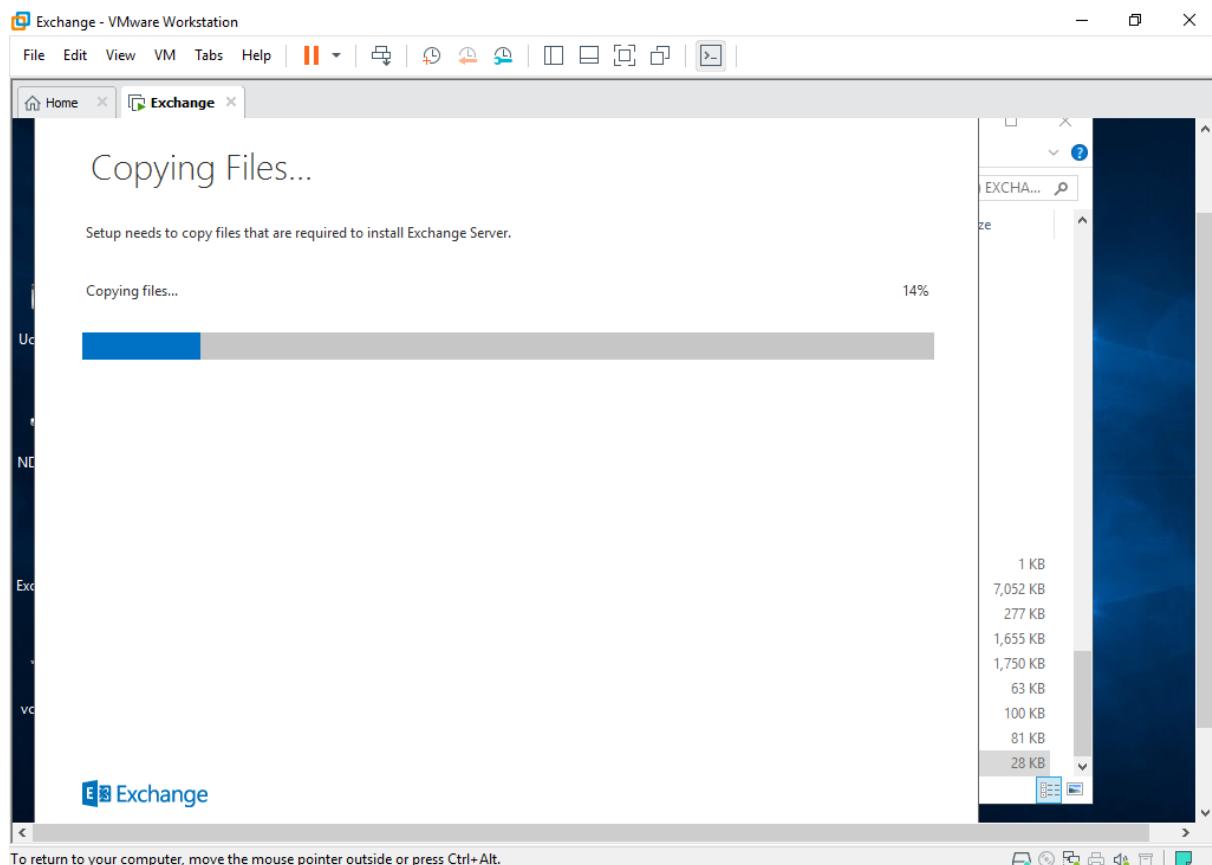
6-Bu adıma kadar yapılan işlemler Exchange için gerekli ön ayar ve setup işlemleriydı. Bu adımda birlikte Exchange kurulumuna başlıyoruz.

İlk penrecede update istediyip istemediğimizi soruyor. Biz update olmadan kurulum istiyoruz.

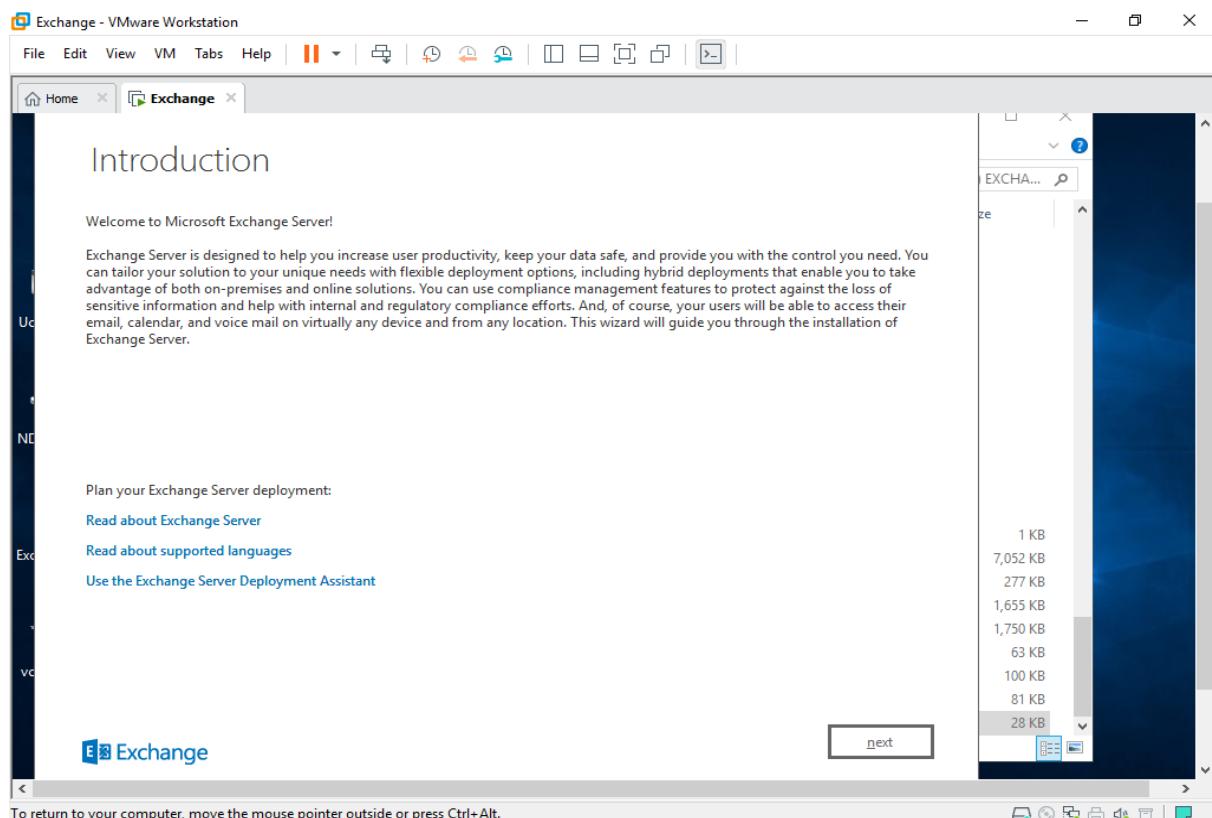


To return to your computer, move the mouse pointer outside or press Ctrl+Alt.

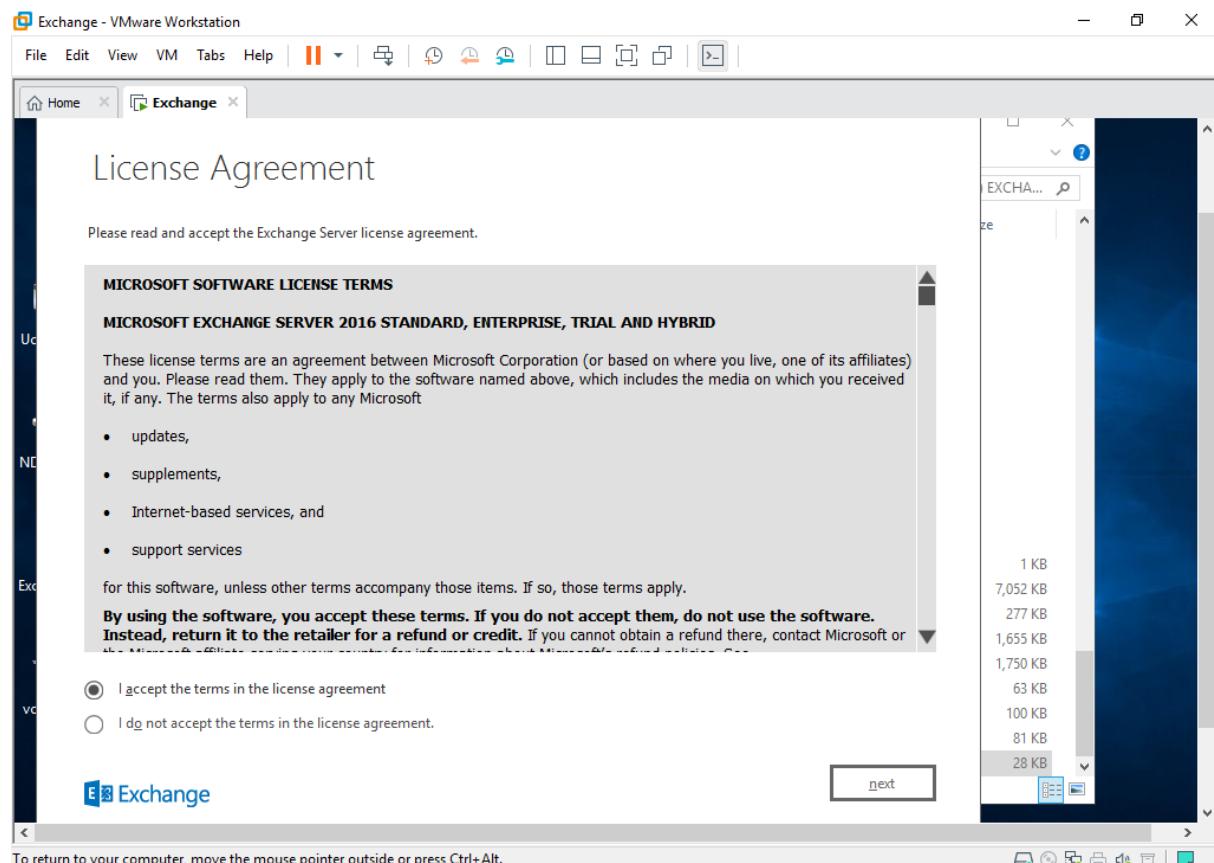
7-



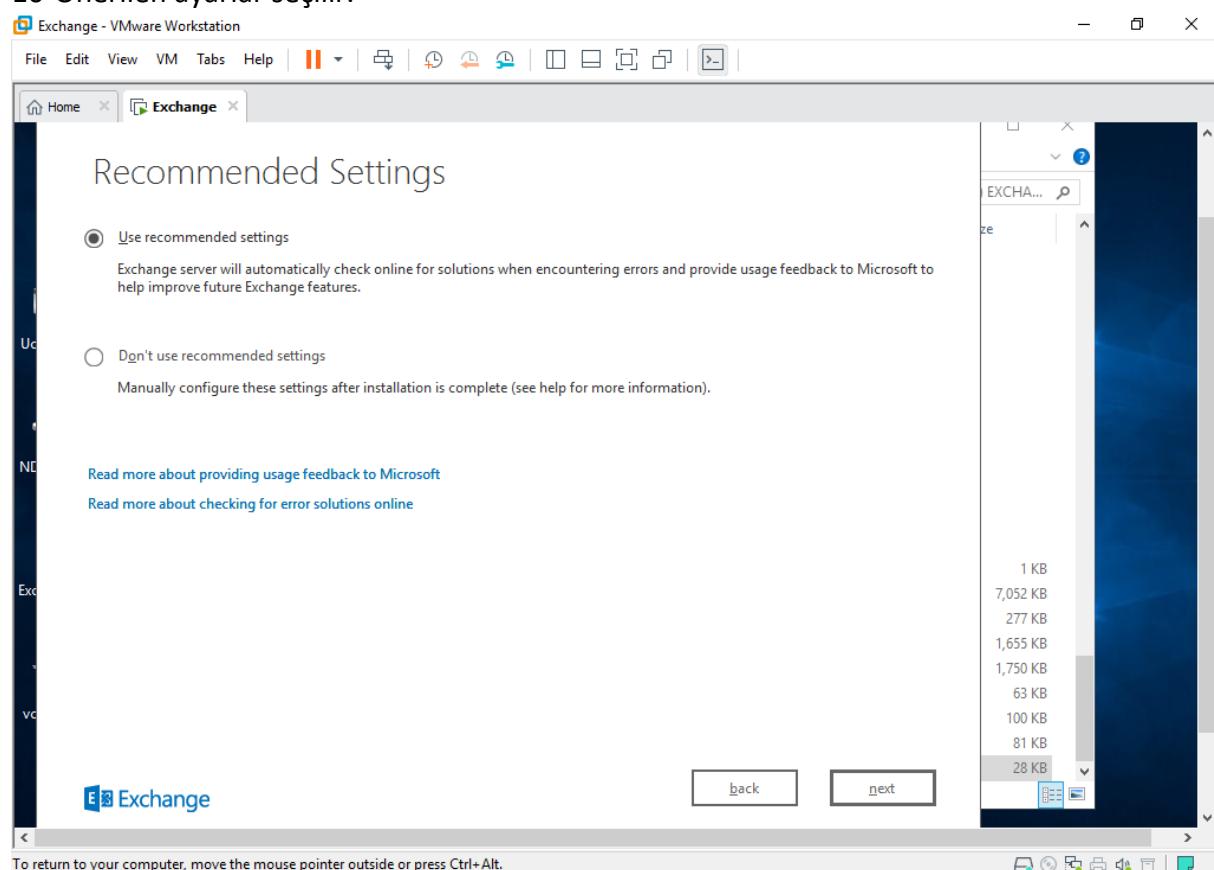
8-"Next" seçiyoruz.



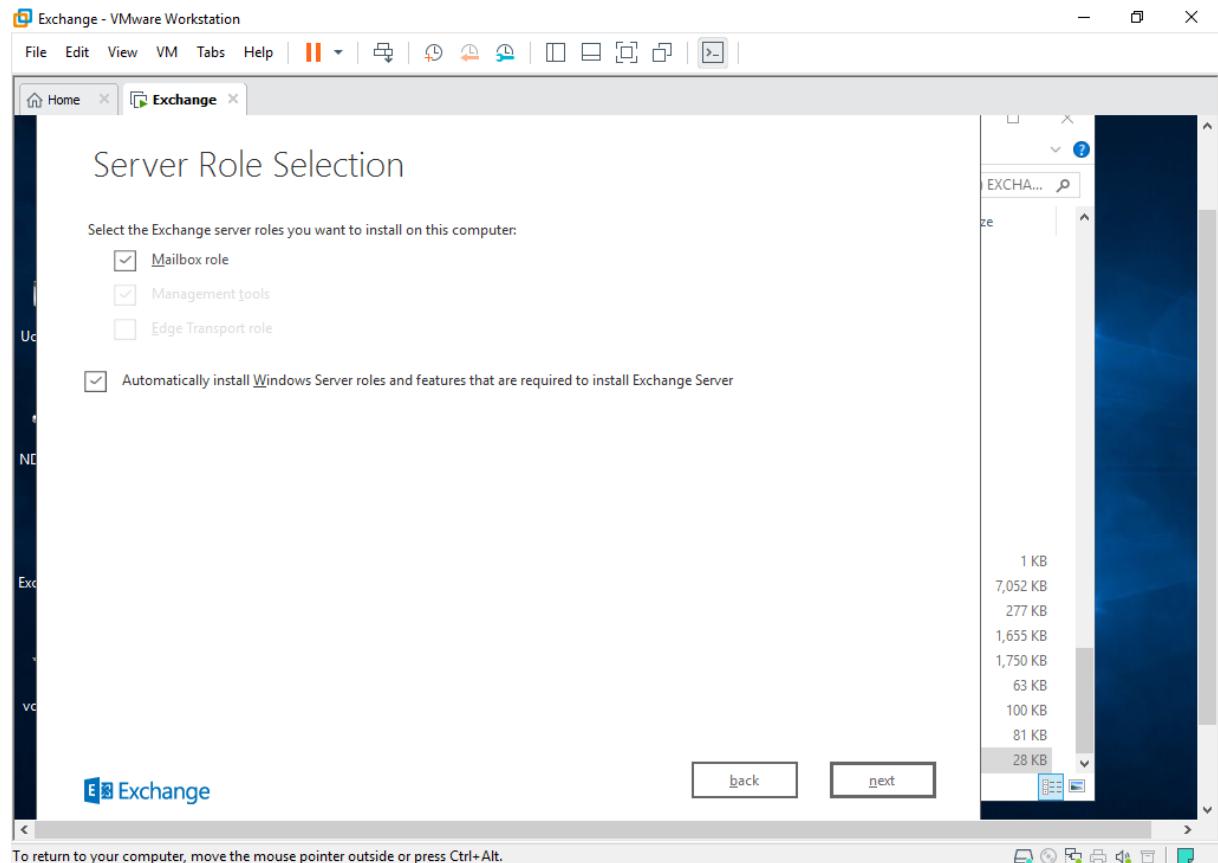
9-Lisans sözleşmesini onaylanır.



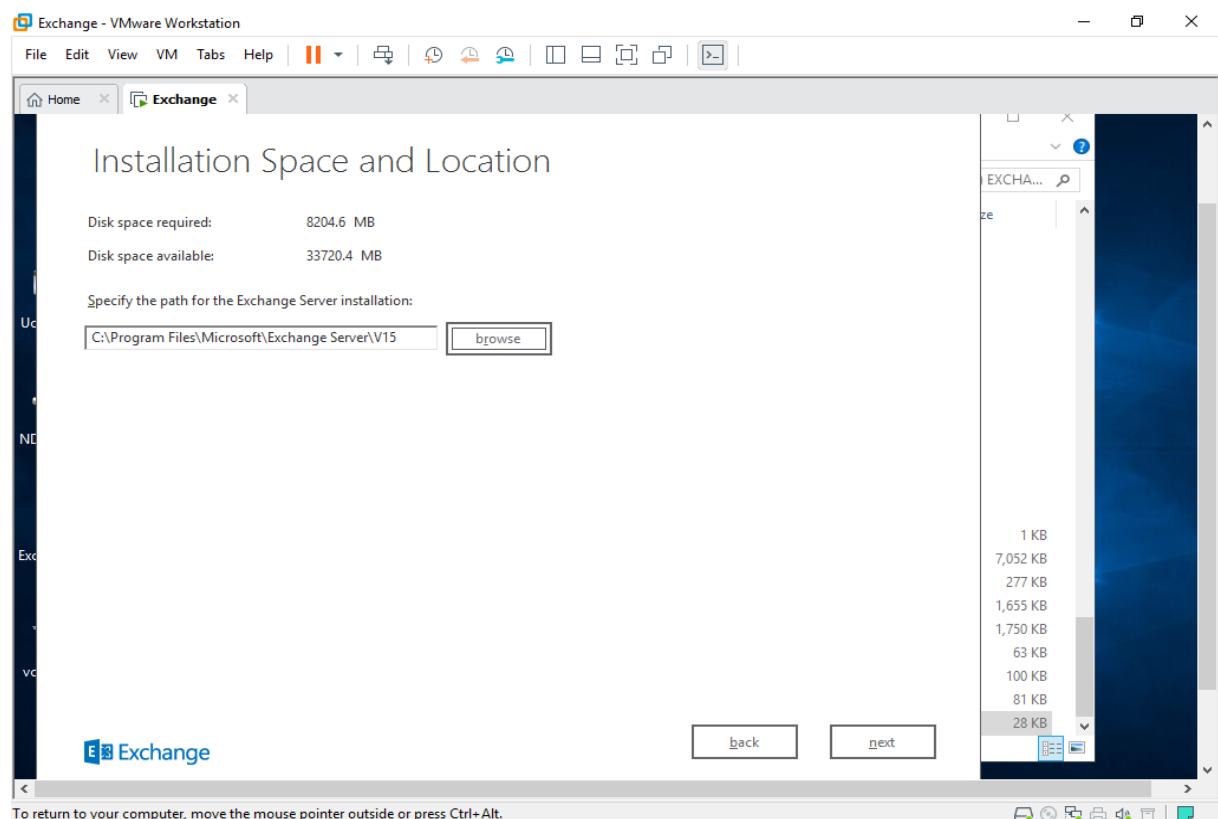
10-Önerilen ayarlar seçilir.



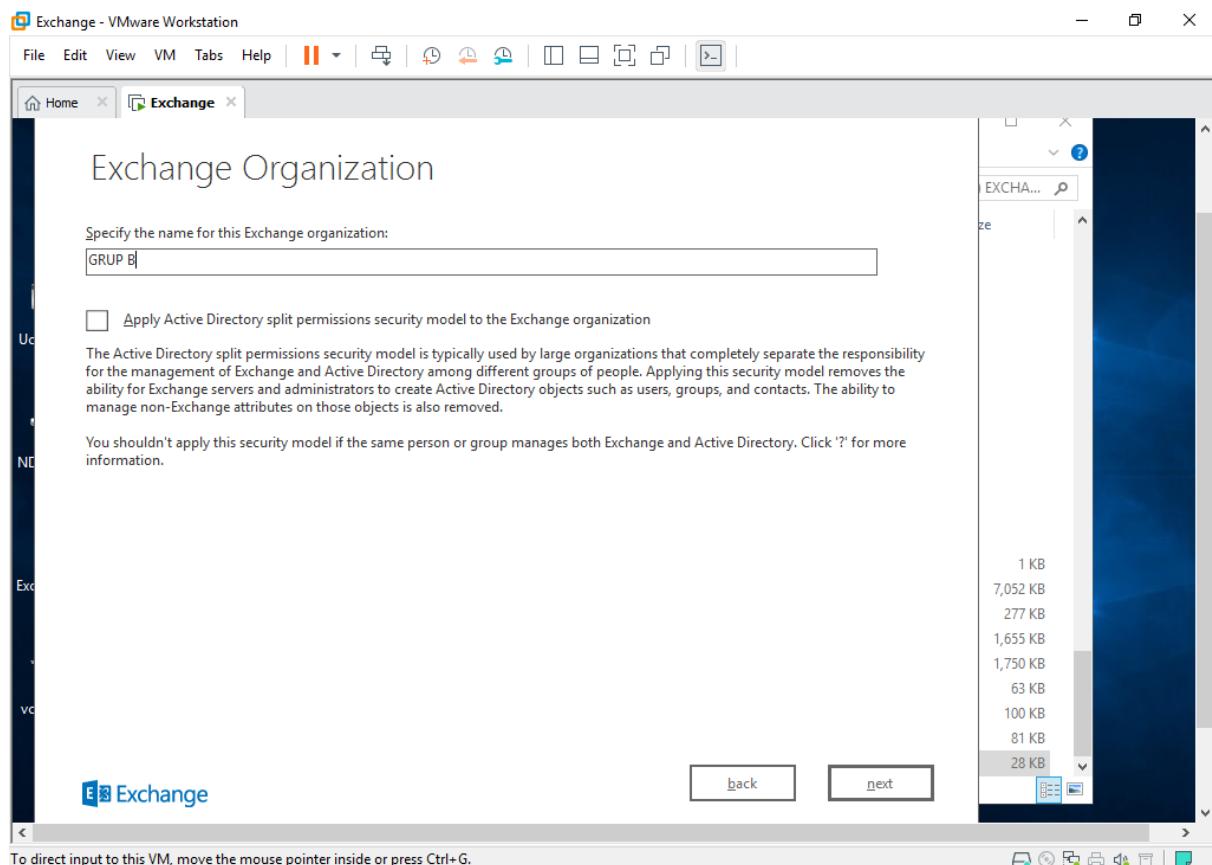
11-Exchange Serverımızı Mailbox rolünde ve otomatik rol ve özellikleri yükleme seçeneklerini tıklayıp, diğer adıma geçilir.



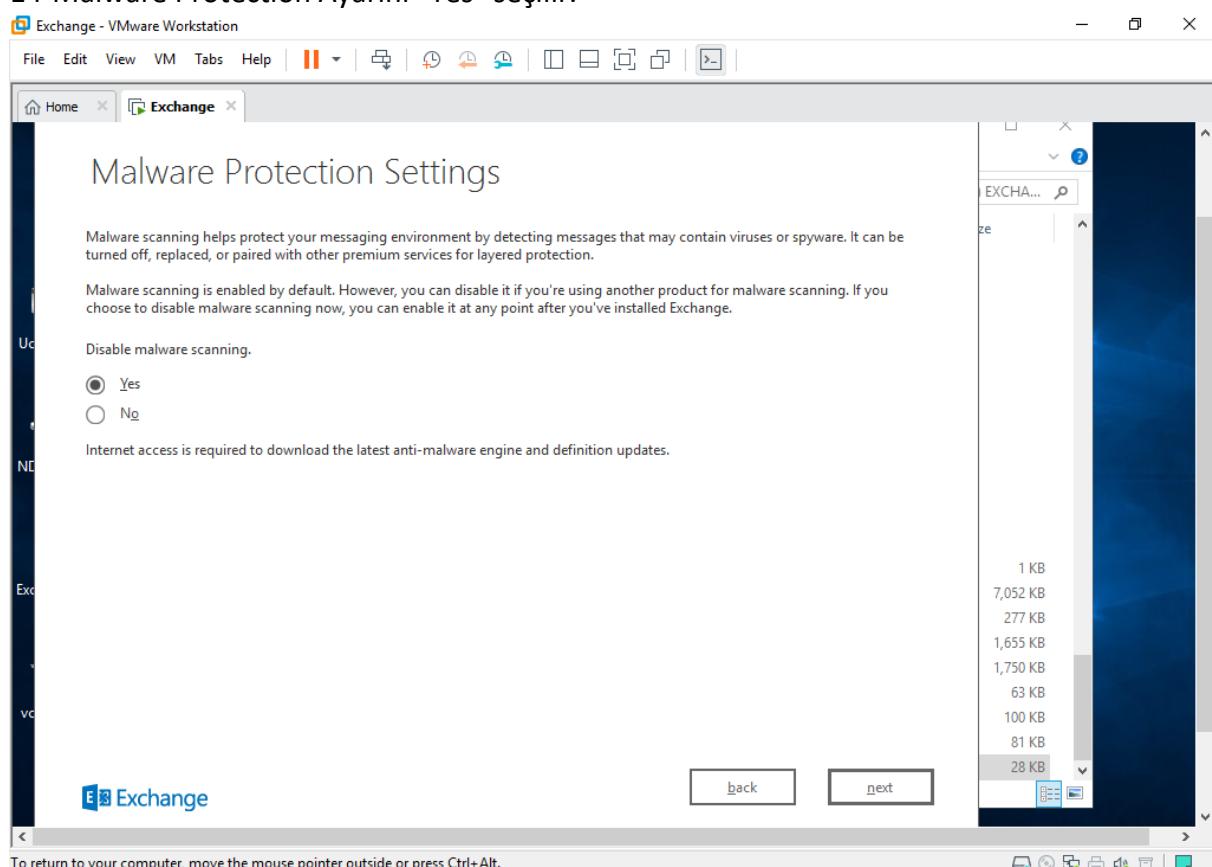
12-Exchange Server yükleme yerlerini doğrulanır.



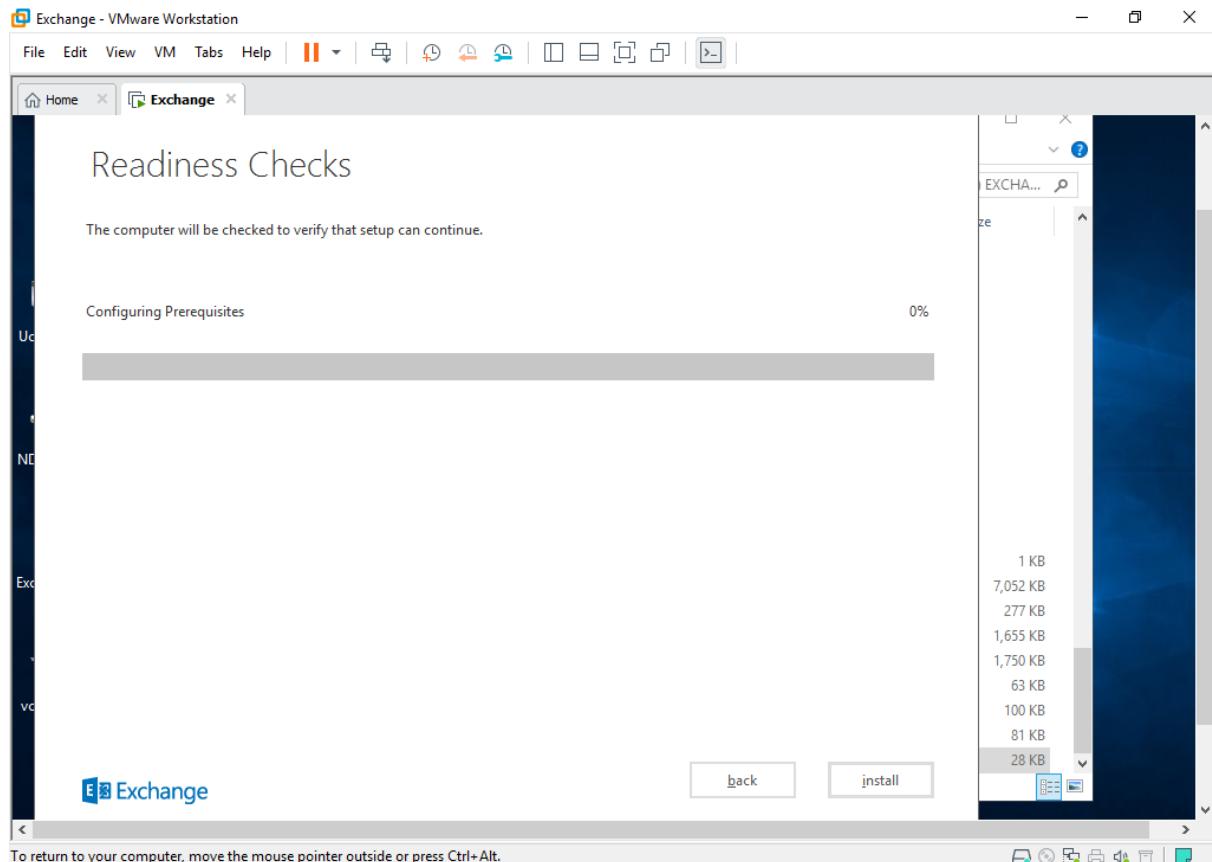
13-Exchange Server name tanımlanır.



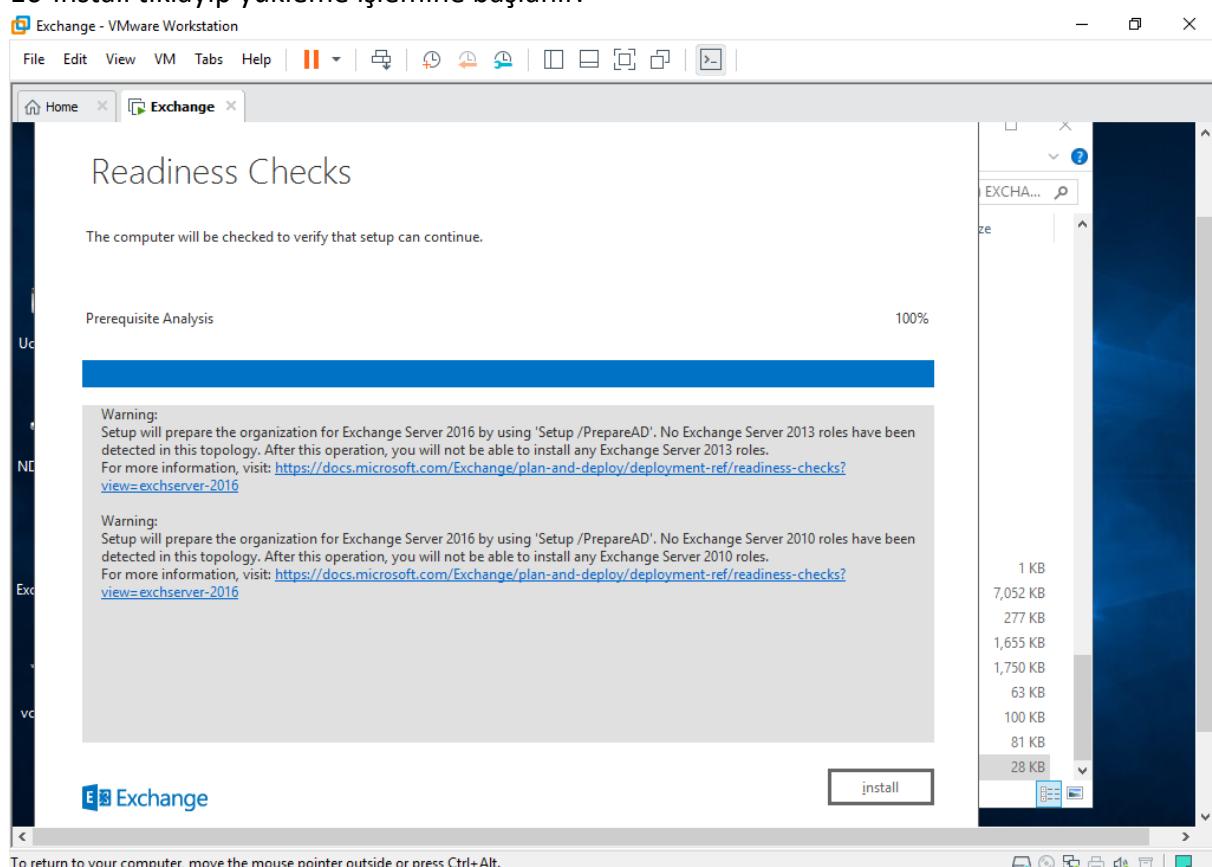
14-Malware Protection Ayarını "Yes" seçilir.



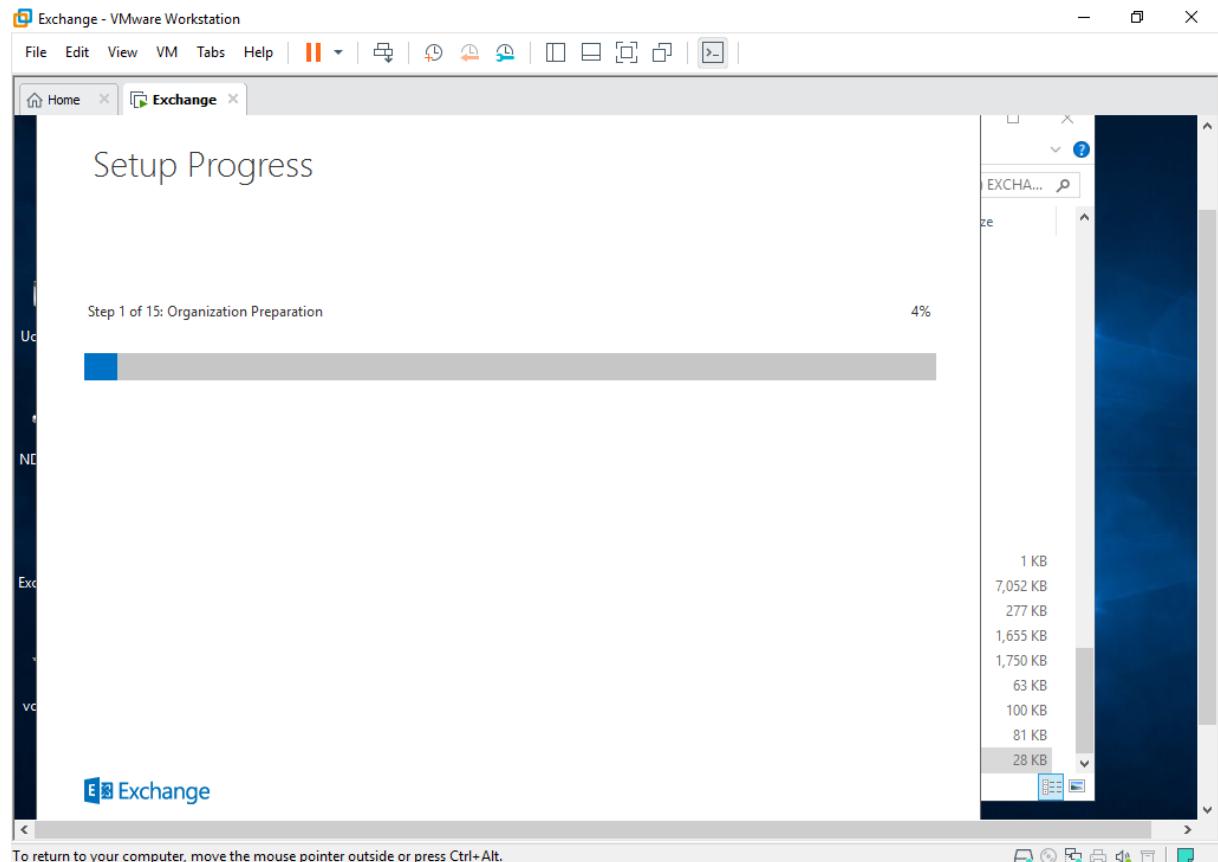
15-



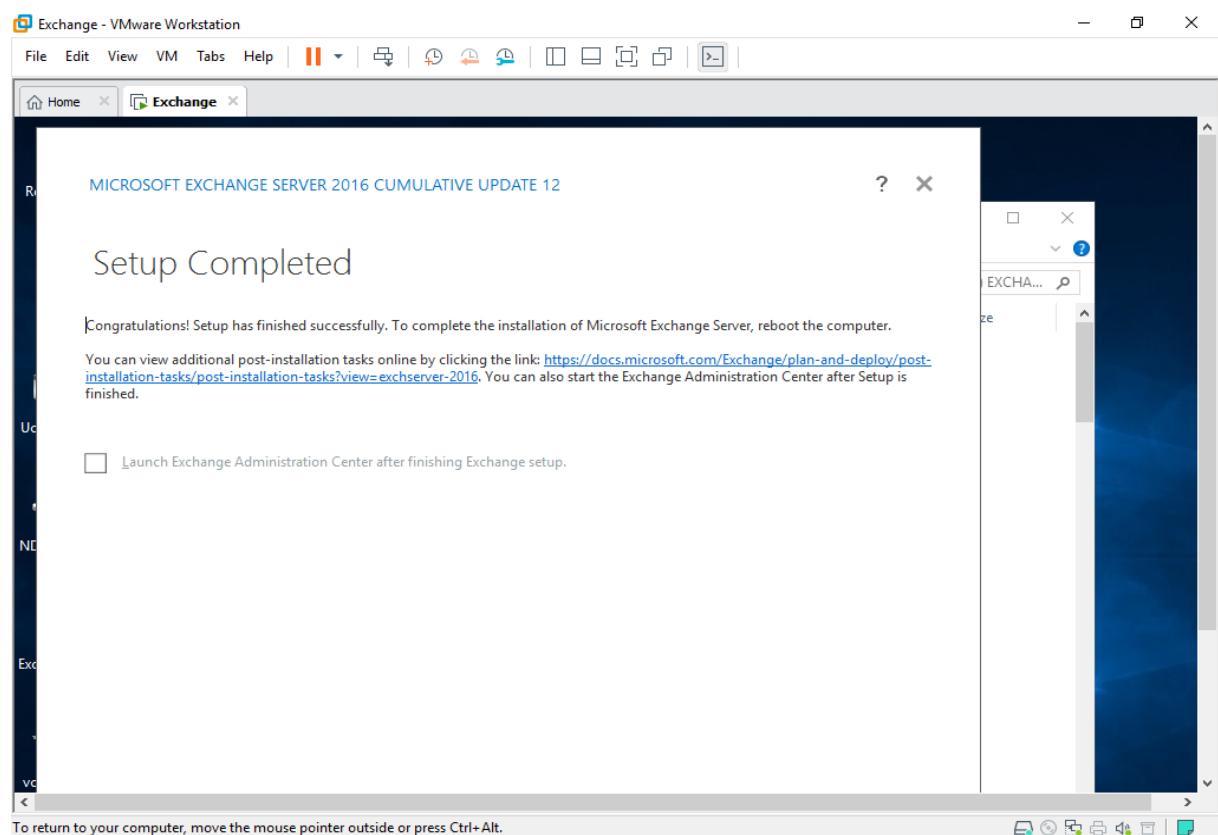
16-Install tıklayıp yükleme işleminine başlanır.



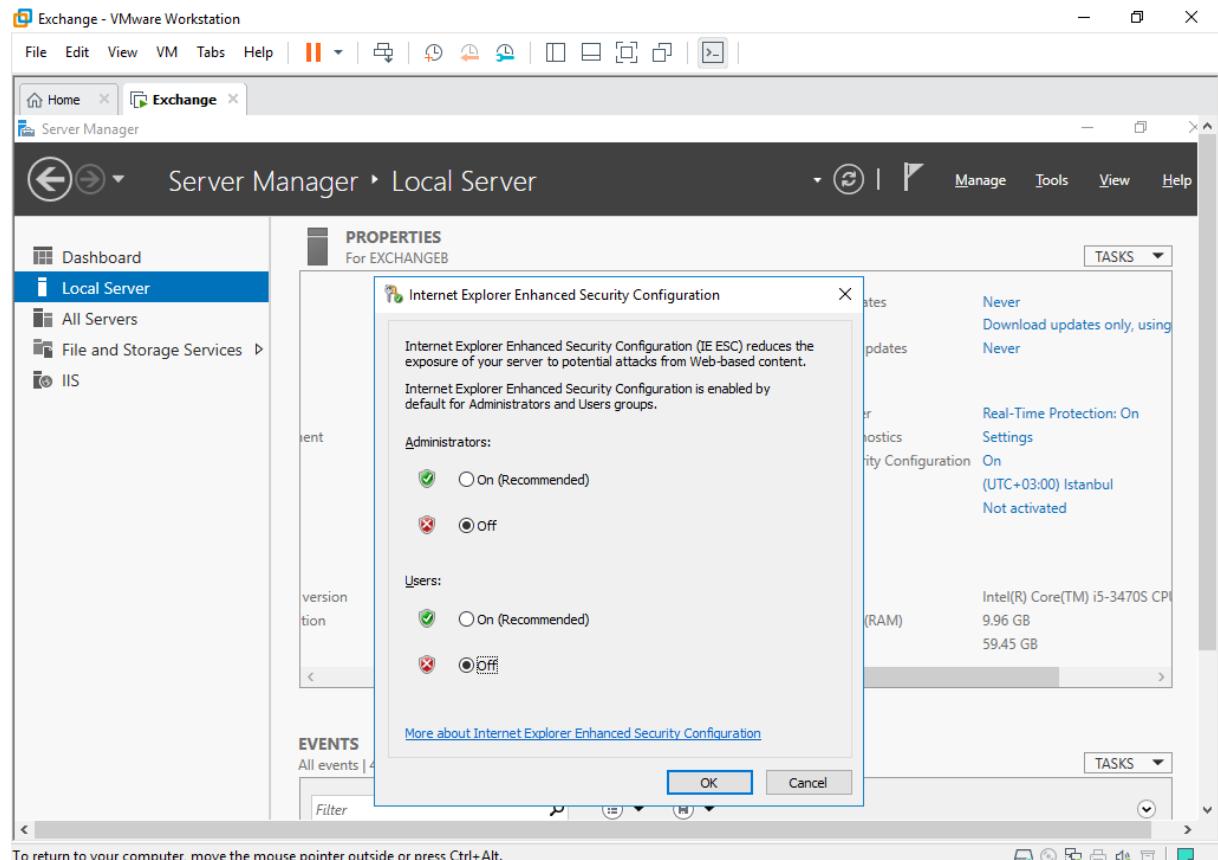
17-Yükleme işlemi başlamıştır.



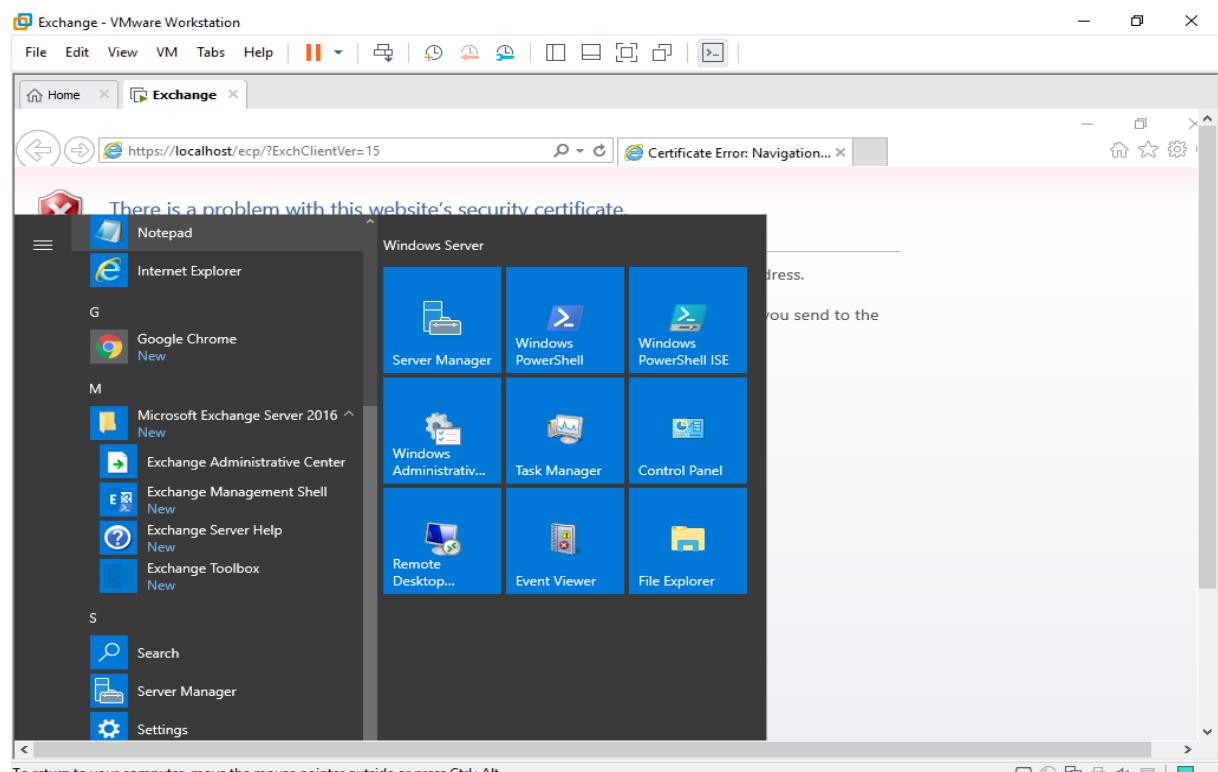
18-Yükleme işlemi başarılı bir şekilde bitmiştir.



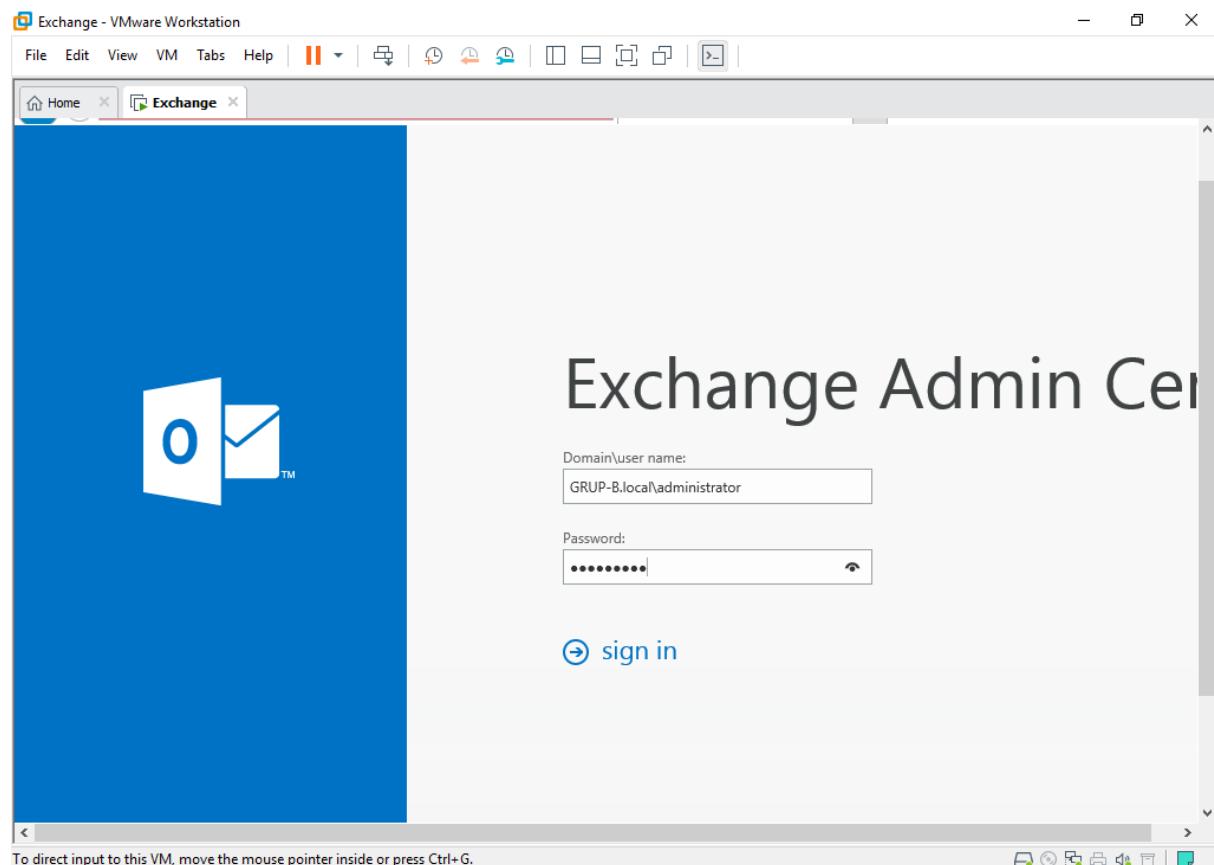
19-Internet Explorer Browserda hata almamak için Local Serverdan iki ayar da "Off" haline getirilir.



20-



21-Exchange Admin Center giriş adımları gerçekleştirilir.



22-Exchange Server'a daha önce DC'de eklediğimiz kullanıcılar eklenir.

A screenshot of the Exchange Admin Center Mailboxes page. The title bar says "Exchange - VMware Workstation". The left navigation menu includes "recipients", "mailboxes" (which is selected), "groups", "resources", "contacts", "shared", and "migration". The main content area shows a table of mailboxes. One row is highlighted, showing "User mailbox" under MAILBOX TYPE and "Administrator@grup-b.local" under EMAIL ADDRESS. To the right of the table, detailed information is displayed for the selected user: "Administrator", "User mailbox", "Administrator@grup-b.local", "Title:", "Office:", "Work phone:", "Phone and Voice Features", "Unified Messaging: Disabled", "Enable", "Mobile Devices", and "Disable Exchange ActiveSync". The bottom of the window shows a message "To return to your computer, move the mouse pointer outside or press Ctrl+Alt." and a toolbar with various icons.

23-Listedeki kullanıcıları eklenir.

The screenshot shows the Exchange admin center interface. On the left, the 'recipients' section is selected. In the center, a modal window titled 'Select User - Entire Forest - Internet Explorer' displays a list of users. The user 'usera1' is selected. On the right, the properties of the selected user 'Administrator' are shown, including fields for User mailbox, Title, Office, and Work phone. A note at the bottom left says 'To return to your computer, move the mouse pointer outside or press Ctrl+Alt.'

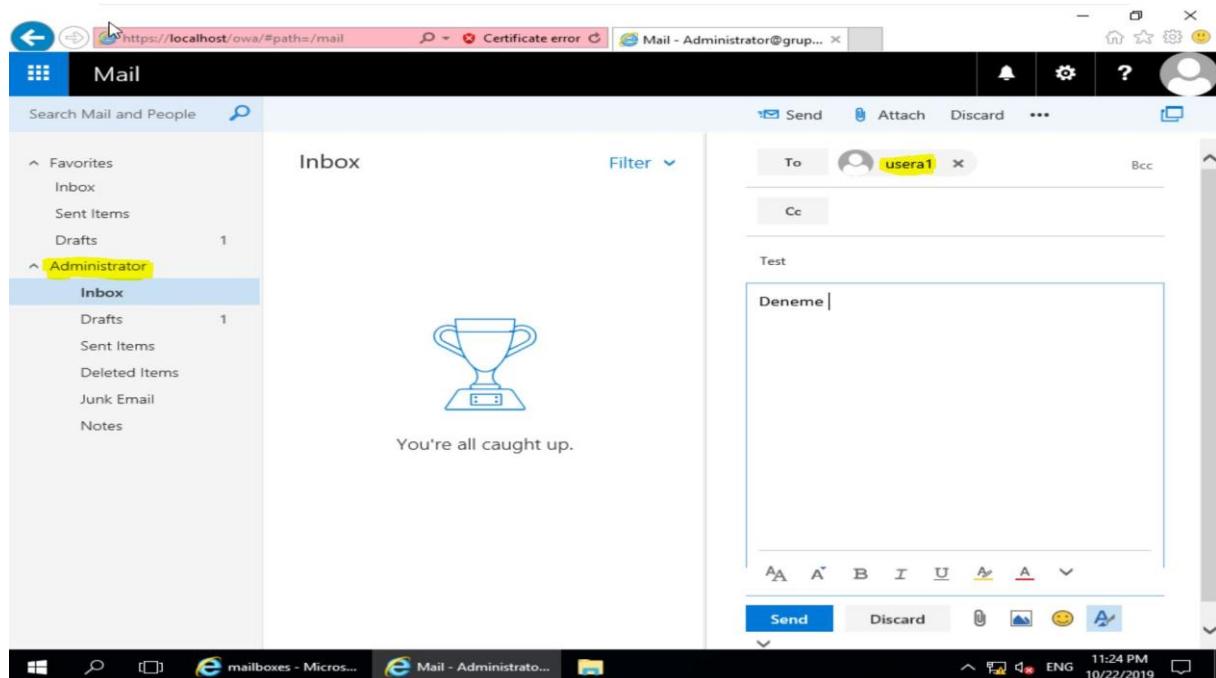
NAME	ORGANIZATIONAL UNIT
usera1	grup-b.local/GRUPB/Ankara
usera2	grup-b.local/GRUPB/Ankara
usera3	grup-b.local/GRUPB/Ankara
usera4	grup-b.local/GRUPB/Ankara
userb1	grup-b.local/GRUPB/Istanbul
userb2	grup-b.local/GRUPB/Istanbul
userb3	grup-b.local/GRUPB/Istanbul
userb4	grup-b.local/GRUPB/Istanbul

24-

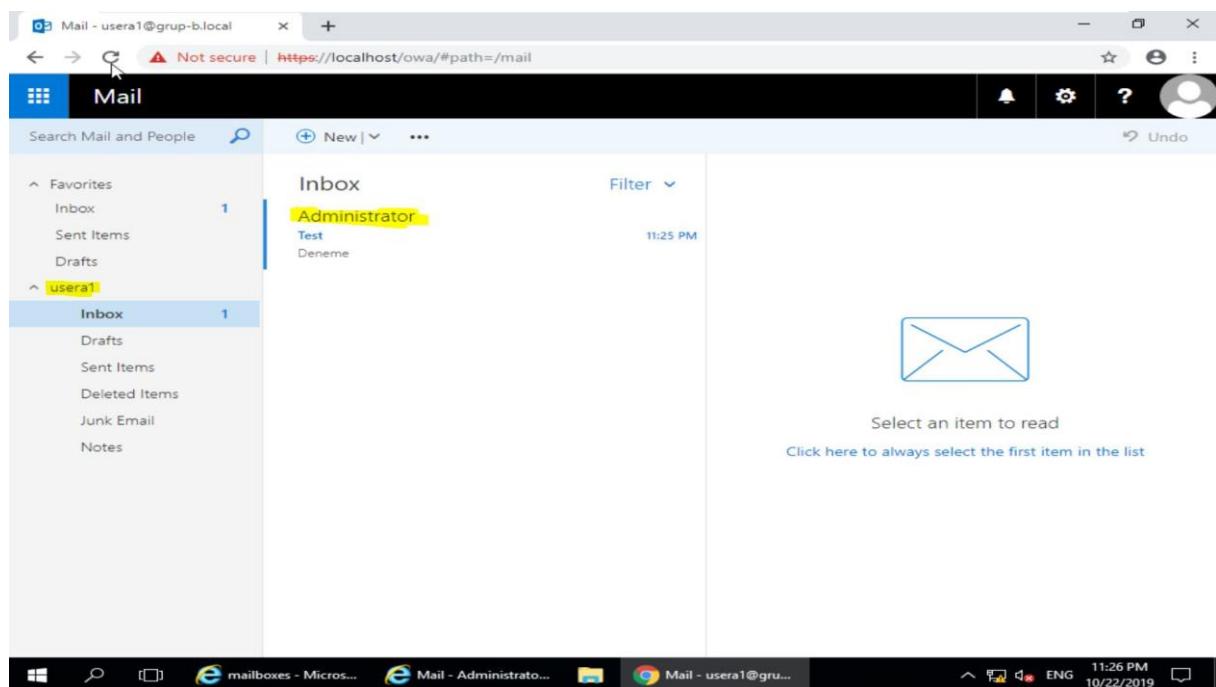
The screenshot shows the Exchange admin center interface with the 'mailboxes' tab selected. The left sidebar shows the 'recipients' section. The main area displays a list of mailboxes. The mailbox for 'usera1' is selected, showing its details on the right side. The status bar at the bottom indicates '1 selected of 9 total'.

DISPLAY NAME	MAILBOX TYPE	EMAIL ADDRESS
Administrator	User	Administrator@grup-b.local
usera1	User	usera1@grup-b.local
usera2	User	usera2@grup-b.local
usera3	User	usera3@grup-b.local
usera4	User	usera4@grup-b.local
userb1	User	userb1@grup-b.local
userb2	User	userb2@grup-b.local
userb3	User	userb3@grup-b.local
userb4	User	userb4@grup-b.local

25-Administradan bir kullanıcıya mail atma.



26-Mail atma işlemi başarılı bir şekilde gerçekleşti.



27-Exchange Server'a yeni bir mail domaini ekleme.

The screenshot shows the Exchange admin center interface. On the left, there's a navigation menu with 'mail flow' selected. In the center, under 'accepted domains', a table lists one domain: 'GRUP-B.local' (Authoritative). The right pane displays details for this domain, including its fully qualified name and domain type. At the bottom, it says '1 selected of 1 total'.

28-Yeni mailin name ve domaini yazıyoruz.

The screenshot shows the 'Accepted Domain - Internet Explorer' dialog. It's titled 'new accepted domain'. It asks for the name and accepted domain, both set to 'TCS.local'. A tooltip provides instructions on specifying an SMTP domain or domain with subdomains. Below, it asks if the domain is authoritative, internal relay, or external relay, with 'Authoritative' selected. At the bottom are 'Save' and 'Cancel' buttons.

29-Yeni mail domaini eklendi.

The screenshot shows the Exchange admin center interface. On the left, there's a navigation menu with sections like recipients, permissions, compliance management, organization, protection, mail flow, mobile, public folders, unified messaging, servers, and hybrid. The 'mail flow' section is currently selected. In the main content area, there's a table titled 'accepted domains'. The table has columns for NAME, ACCEPTED DOMAIN, and DOMAIN TYPE. A row is selected, showing 'TCS.local' in the NAME column, 'TCS.local' in the ACCEPTED DOMAIN column, and 'Authoritative' in the DOMAIN TYPE column. To the right of the table, there's a summary box with the text 'Fully qualified domain name: TCS.local' and 'Domain type: Authoritative'. At the bottom of the table, it says '1 selected of 2 total'. The status bar at the bottom right shows '11:33 PM 10/22/2019'.

30-Bir kullanıcıya 2. bir mail adresi ekleme yapıldı.

The screenshot shows the Exchange admin center interface. The left navigation menu is identical to the previous one. The 'mailboxes' section is selected in the main content area. There's a table listing mailboxes. The first row is selected, showing 'usera1' in the DISPLAY NAME column, 'User' in the MAILBOX TYPE column, and 'usera1@grup-b.local' in the EMAIL ADDRESS column. To the right of the table, there's a detailed view of the selected mailbox. It shows the email address 'usera1@grup-b.local', the title 'User', the office 'usera1@grup-b.local', and the work phone number. Below this, there are sections for 'Phone and Voice Features' (Unified Messaging: Disabled, Enable), 'Mobile Devices' (Disable Exchange ActiveSync, Disable OWA for Devices), and a 'View details' link. At the bottom of the table, it says '1 selected of 9 total'. The status bar at the bottom right shows '11:34 PM 10/22/2019'.

31-

The screenshot shows the Microsoft Exchange Admin Center interface. On the left, there's a navigation menu with categories like recipients, organization, and mail flow. The main area is titled 'Edit User Mailbox - Internet Explorer' for usera1. Under the 'Email address' section, it says: 'Each email address type has one default reply address. The default reply address is displayed in bold. To change the default reply address, select the email address that you want to set as the default, and then double-click to edit it.' A table shows one entry: TYPE: SMTP, EMAIL ADDRESS: **usera1@grup-b.local**. There's also a checkbox for 'Automatically update email addresses based' and buttons for 'Save' and 'Cancel'. The status bar at the bottom shows the date and time as 10/22/2019 11:35 PM.

32-Email tipini ve adresini yapıyoruz.

This screenshot shows the 'Email Address -- Webpage Dialog' window. It has a title 'Edit User Mailbox - Internet Explorer' and a sub-section 'Email Address -- Webpage Dialog'. The 'Email address type:' section has three options: 'SMTP' (radio button selected), 'EUM' (radio button unselected), and 'enter a custom address type' (checkbox unselected). Below this, a note says: 'The address can be EX, X.500, X.400, MSMail, CcMail, Lotus Notes, NovellGroupWise, EUM Proxy address, and free text. Learn more'. An input field labeled '*Email address:' contains the value 'usera1@TCS.local'. At the bottom are 'OK' and 'Cancel' buttons. The status bar at the bottom shows the date and time as 10/22/2019 11:35 PM.

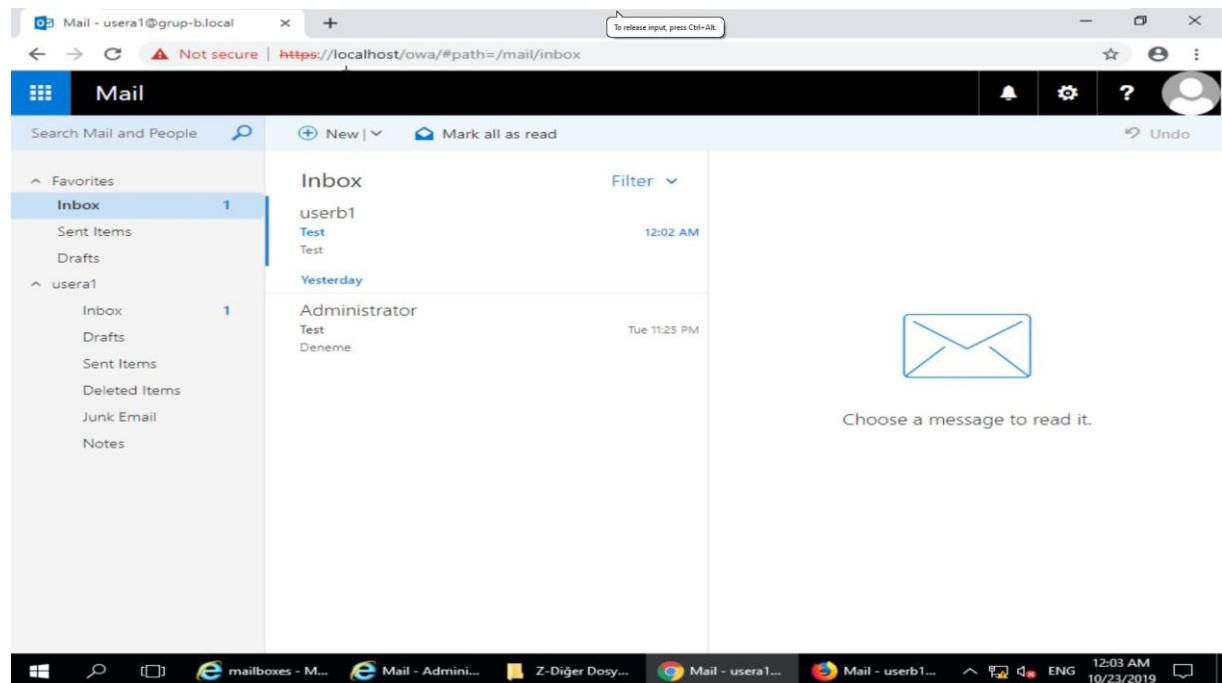
33-Kullanıcının yeni mail adresi eklendi.

The screenshot shows the 'Edit User Mailbox' interface in the Microsoft Exchange Admin Center. On the left, a sidebar lists various management categories like permissions, compliance management, organization, protection, mail flow, mobile, public folders, unified messaging, servers, and hybrid. The main pane is titled 'Edit User Mailbox - Internet Explorer' and shows the 'usera1' recipient. Under the 'Email address' section, there is a table with columns 'TYPE' and 'EMAIL ADDRESS'. It contains two entries: 'SMTP' followed by 'usera1@grup-b.local' (which is bolded) and 'smtp' followed by 'usera1@TCS.local'. A tooltip on the right side of the table area states: 'You can add, change, or delete an email address associated with the user. The user's primary email address is displayed in bold type, but they'll receive email sent to any address in this list.' At the bottom of the pane, there are 'Save' and 'Cancel' buttons, and a note about automatically updating email addresses based on changes in Active Directory.

34-Bir kullanıcından yeni eklediğimiz mail adresine mail atma.

The screenshot shows the Microsoft Outlook Web App (OWA) interface. The top navigation bar includes links for 'mailboxes - M...', 'Mail - Administra...', 'Z-Diğer Dosy...', 'Mail - usera1...', and 'Mail - userb1...'. The main area is titled 'Mail' and shows the 'Inbox' folder. On the left, a sidebar shows the user's inbox, sent items, drafts, and a folder named 'userb1' which contains an 'Inbox' folder with one item. The main workspace displays an email message being composed. The 'To' field is populated with 'usera1@TCS.local'. The message body contains the word 'Test'. The bottom of the screen shows standard OWA controls for 'Send', 'Discard', and various message formatting options.

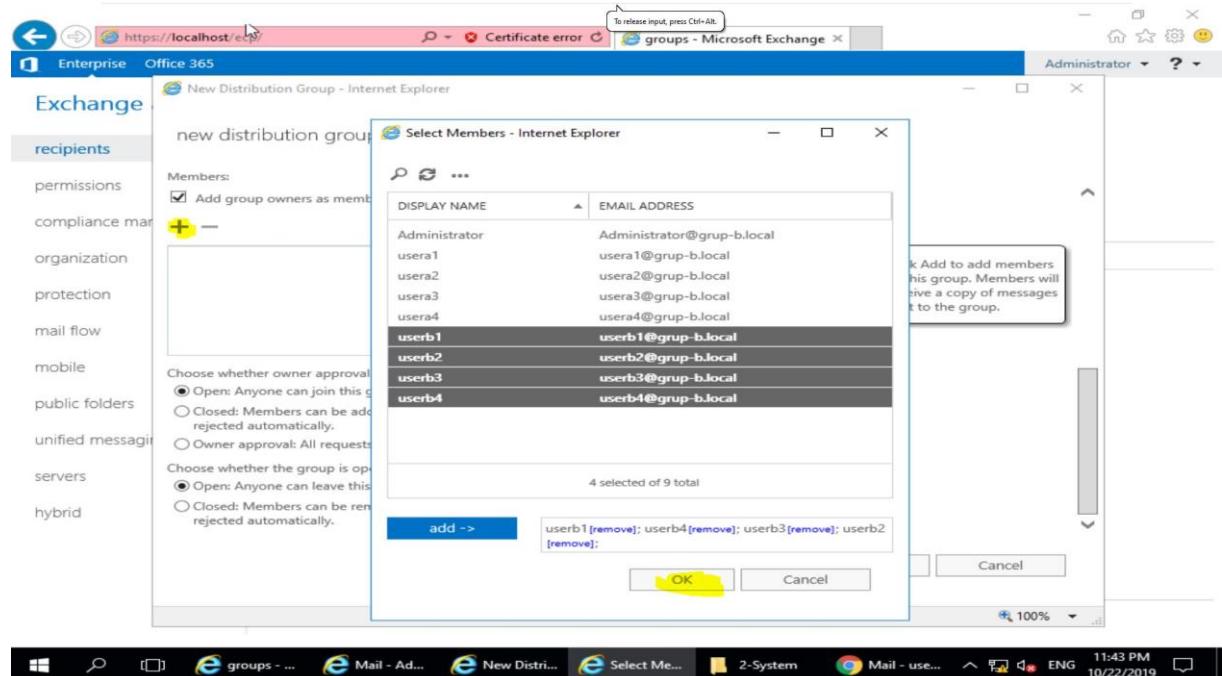
35-Mail domainde bulunan mail adresine gelebilme.



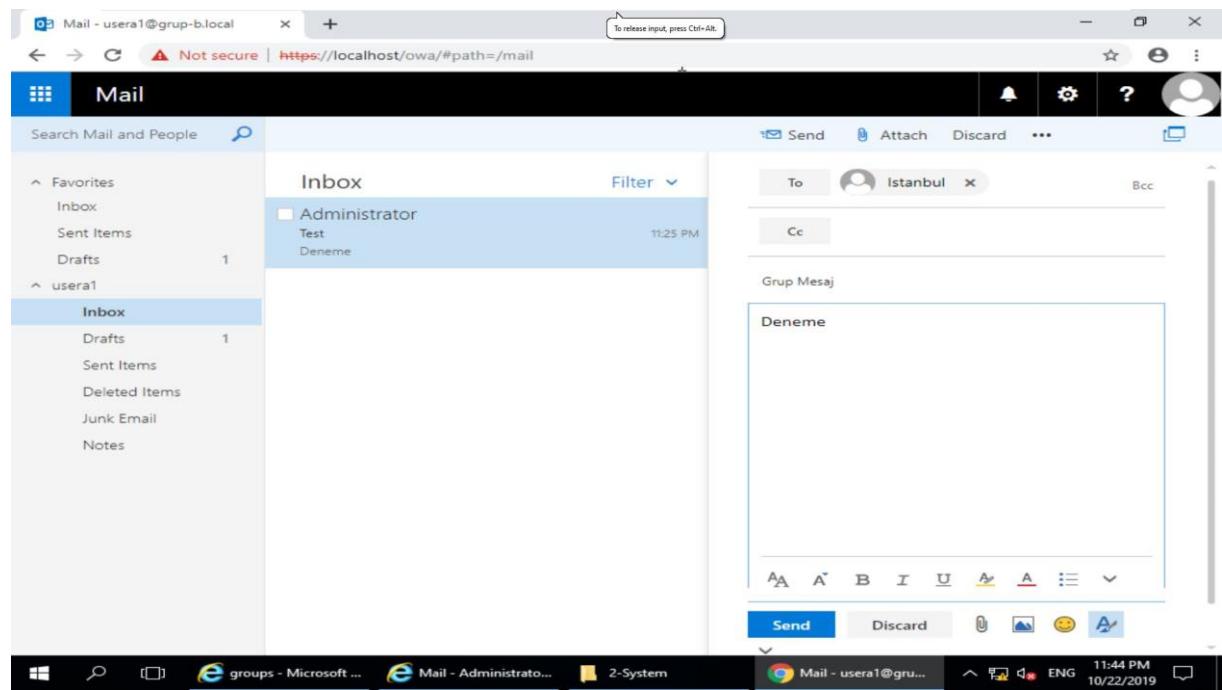
36-Exchangede toplu mail atmak için grup oluşturmadan önce gerekli olan "Distribution Group" seçilir.

The screenshot shows the Exchange Admin Center interface. The left sidebar has links for recipients, mailboxes, groups (which is selected), resources, contacts, shared, and migration. The main content area has a table with columns for TYPE and EMAIL ADDRESS. The table shows two items: 'Security group' and 'Dynamic distribution group'. Below the table, a message says 'There are no items to show in this view.' At the bottom, it says '0 selected of 0 total'. The taskbar at the bottom shows various browser tabs and system status.

37-Gruba kullanıcılar eklenir.



38-Bir kullanıcıdan gruba mail atılır.



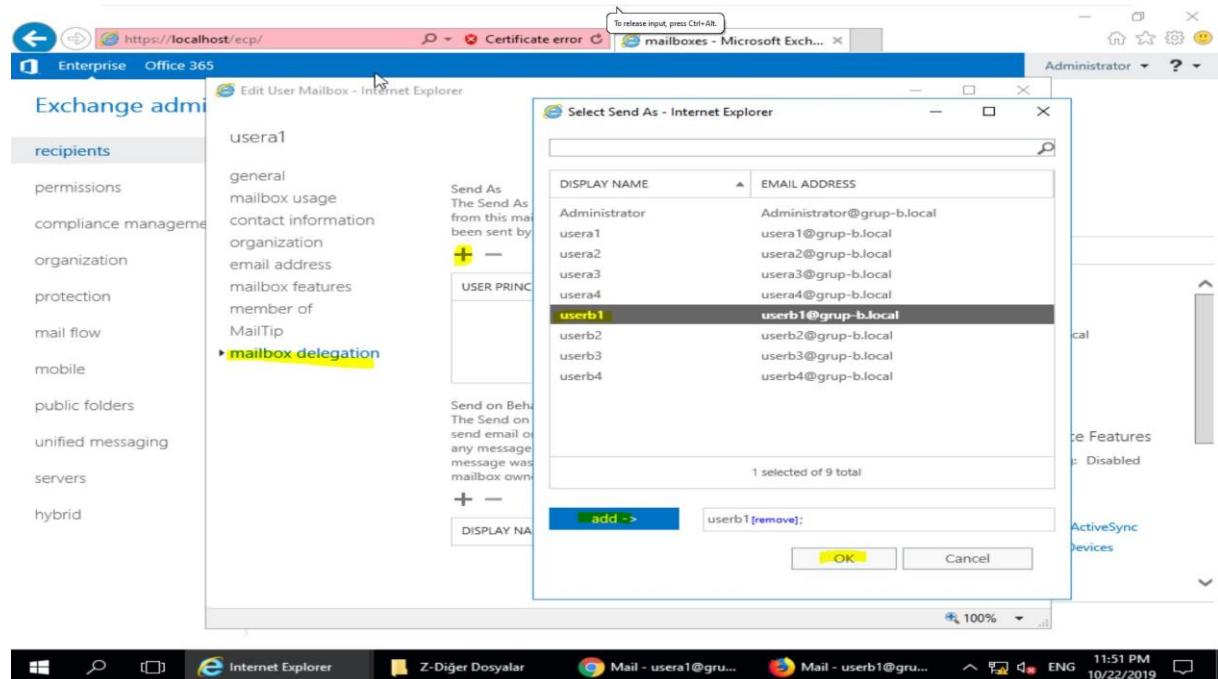
39-Grupta bulunan bir kullanıcıya mail ulaşmıştır.

The screenshot shows the Microsoft Outlook Web App (OWA) interface. The left sidebar shows navigation options like Favorites, usera1, and userb1. Under userb1, the 'Inbox' folder is selected, showing 1 item. The main pane displays an email from 'usera1' with the subject 'Grup Mesaj' and body 'Deneme'. A large blue envelope icon is centered, with the text 'Select an item to read' and 'Click here to always select the first item in the list' below it. The status bar at the bottom shows the date and time as 10/22/2019 11:48 PM.

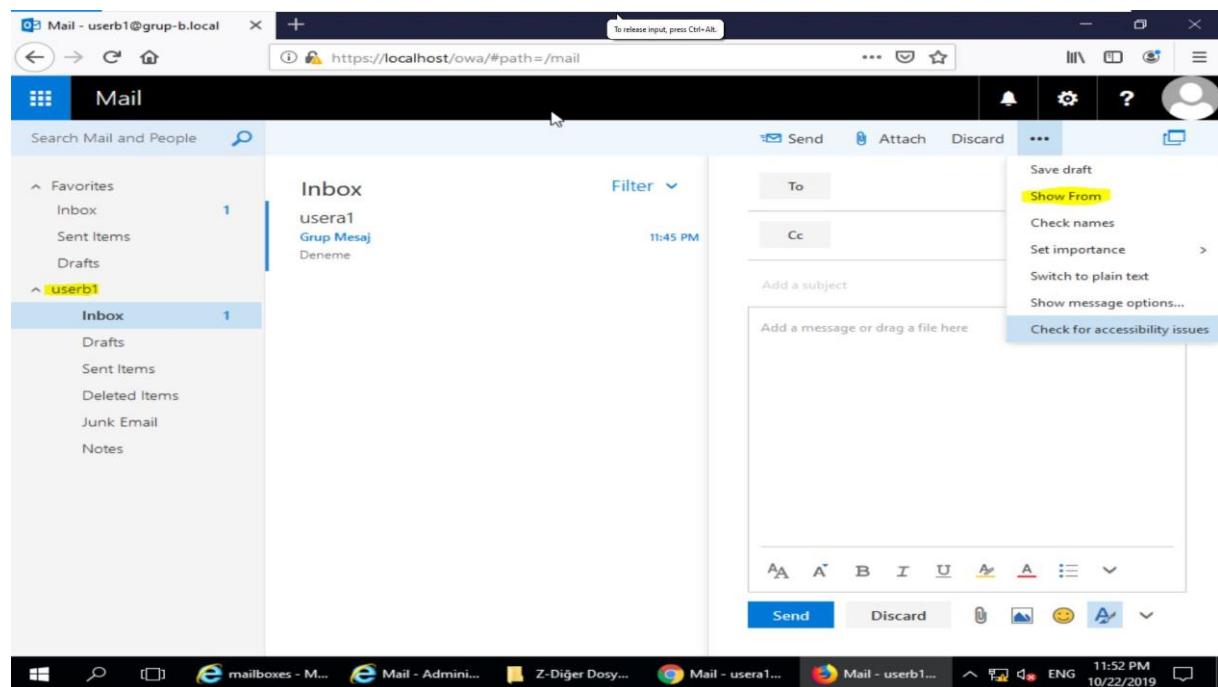
40-Exchange sayesinde bir başkasının yerine mail atmamız mümkün. Bunun için kullanıcıyı seçilir.

The screenshot shows the Exchange Admin Center (EAC) interface. The left sidebar has sections for recipients, mailboxes, groups, resources, contacts, shared, and migration. Under recipients, 'public folders' is selected. The main pane shows the 'mailboxes' list. A table lists users: Administrator (User, Administrator@grup-b.local), usera1 (User, usera1@grup-b.local), usera2 (User, usera2@grup-b.local), usera3 (User, usera3@grup-b.local), usera4 (User, usera4@grup-b.local), userb1 (User, userb1@grup-b.local), userb2 (User, userb2@grup-b.local), userb3 (User, userb3@grup-b.local), and userb4 (User, userb4@grup-b.local). The row for 'usera1' is highlighted. On the right, detailed information for 'usera1' is shown: Display Name 'usera1', Email Address 'usera1@grup-b.local', Title 'User mailbox', Office 'usera1@grup-b.local', Work phone 'usera1@grup-b.local', and Phone and Voice Features. It also shows 'Unified Messaging: Disabled' and 'Mobile Devices' settings. The status bar at the bottom shows the date and time as 10/22/2019 11:51 PM.

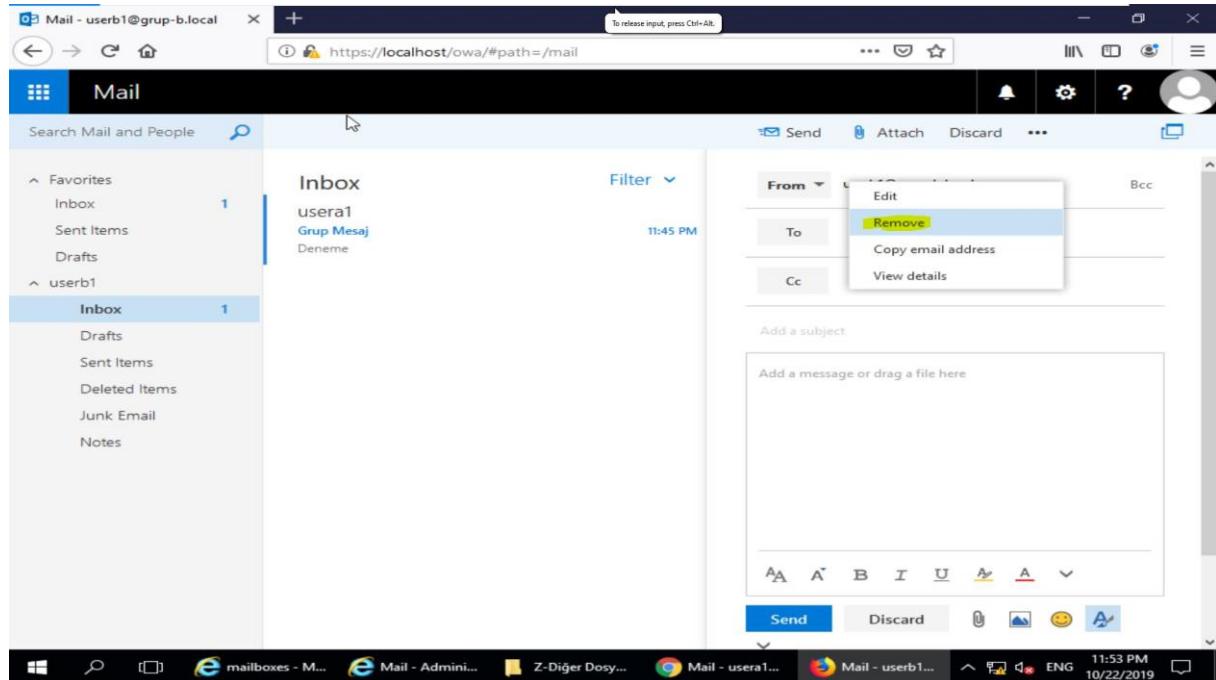
41- Seçtiğimiz kullanıcının özelliklerine girip “Mailbox delegation” seçiyoruz. Send As’dan kim mail atacaksa o kullanıcıyı seçiyoruz. “Send As” direkt kullanıcı adına mail attığını gösterir.



42-İzin verdiğimiz kullanıcıya maile girip “Show From” tıklıyoruz.

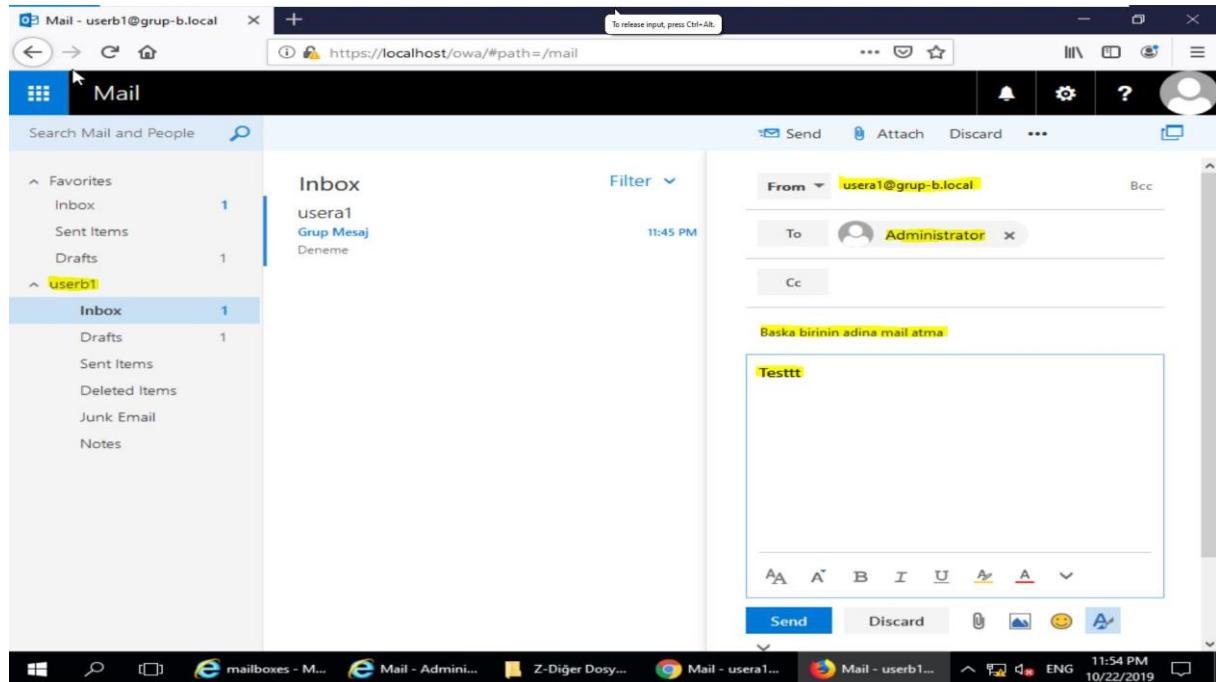


43-Fromda çıkan mail kaldırılır.

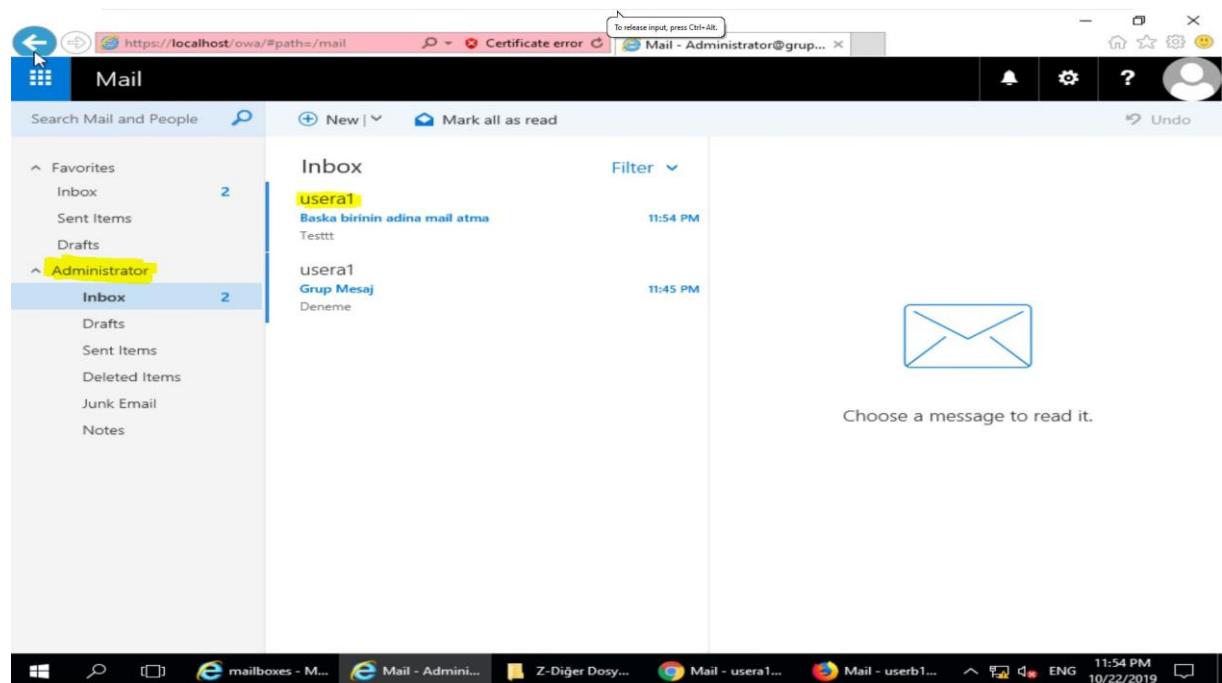


44-Kaldırılan mail yerine kimin adına mail atacaksa onun mail adresi yazılır ve "To"

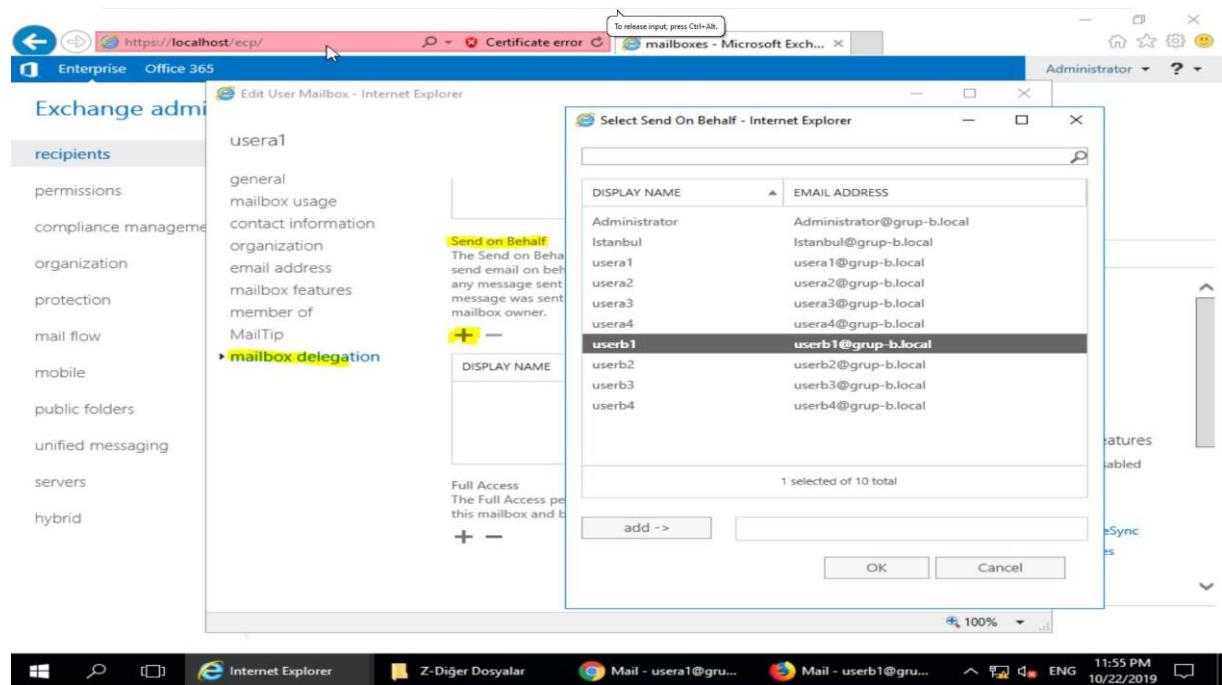
kime mail atacaksa eklenir.



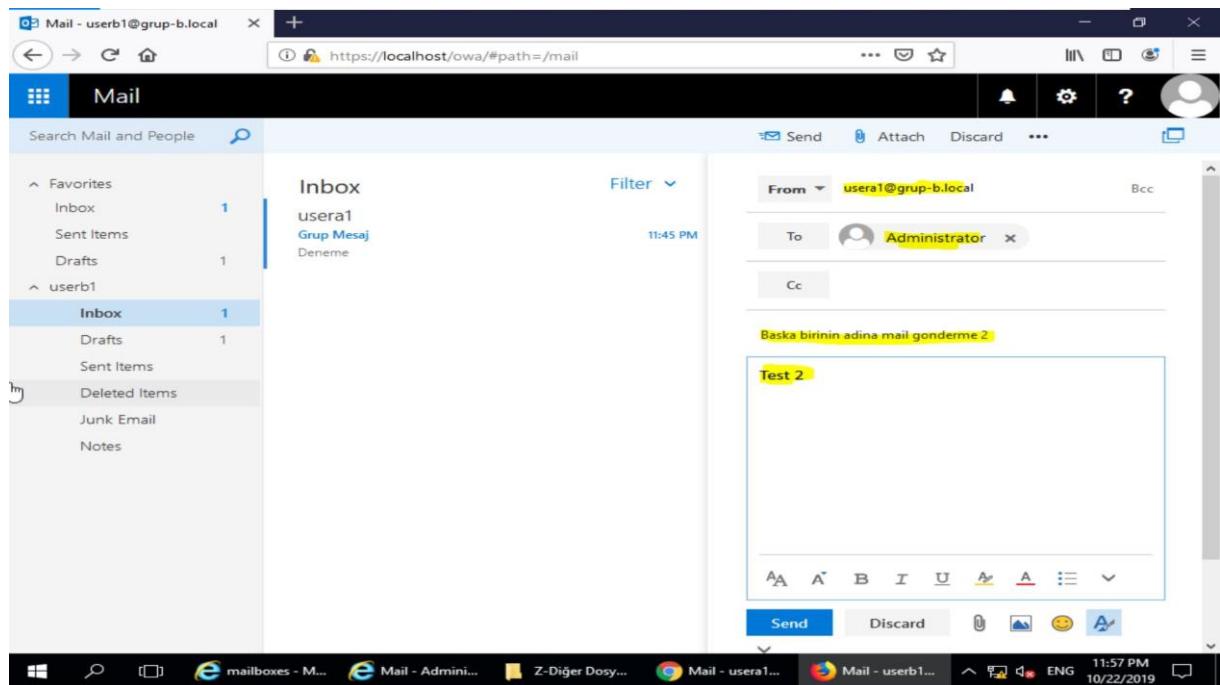
45-Mailimiz başarılı bir şekilde gerçekleşti.



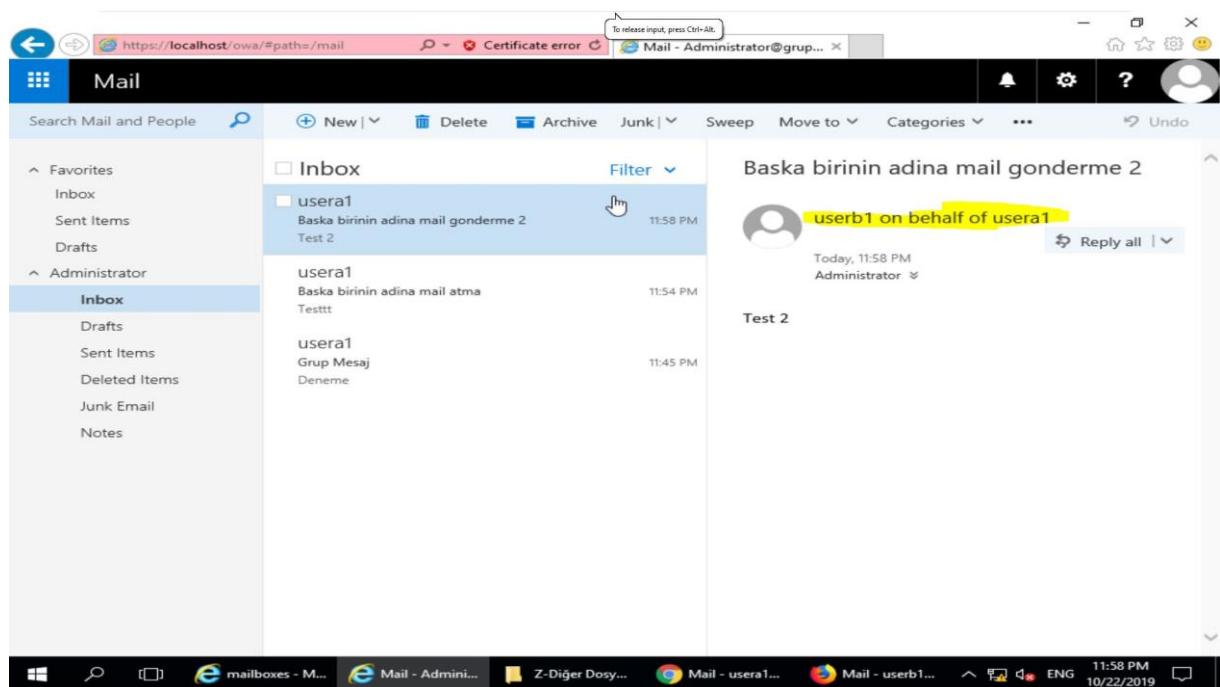
46-Bir başkasının yerine mail atmanın bir diğer yolu da “Send on Behalf”tır. “Send on Behalf” in “Send As” dan farkı kim izin verdiyse onun adına mail atıyorumdur.



47-Aynı şekilde kim adına ve kime mail atacağımız yazılır ve gönderilir.



48-Göründüğü gibi Administrator'a userb1'den usera1 adına mail atıldı.



SONUÇ

Sonuç olarak; Bu projede iki farklı domain arasında trust ilişkisi kurulurak dosya paylaşımı,DNS ayarlarıyla exchangeden mail alışverişi ve kontrolü yapıldı.ESXI Serverdaki sanal makinelerimizi PfSense ile güvenliğini gerçekleştirdik.Vcenter ile projedeki ESXI Serverların kontrolü ve yönetimi gerçekleştirildi.