Deploying System Center Data Protection Manager – Step by Step

Volume 1 – Featuring Version 1801

Dave Kawula - MVP

Cristal Kawula - MVP

Cary Sun – Cisco Champion (CCIE)

Warning and Disclaimer

Every effort has been made to make this manual as complete and as accurate as possible, but no warranty or fitness is implied. The information provided is on an "as is" basis. The authors and the publisher shall have neither liability nor responsibility to any person or entity with respect to any loss or damages arising from the information contained in this book.

Feedback Information

We'd like to hear from you! If you have any comments about how we could improve the quality of this book, please don't hesitate to contact us by visiting www.checkyourlogs.net or sending an email to feedback@mvpdays.com.

Acknowledgements

From Dave

Cristal, you are my rock and my source of inspiration.   For the past 20 + years you have been there with me every step of the way.   Not only are you the "BEST Wife" in the world you are my partner in crime. Christian, Trinity, Keira, Serena, Mickaila and Mackenzie, you kids are so patient with your dear old dad when he locks himself away in the office for yet another book. Taking the time to watch you grow in life, sports, and become little leaders of this new world is incredible to watch.

Thank you, Mom and Dad (Frank and Audry) and my brother Joe. You got me started in this crazy IT world when I was so young.   Brother, you mentored me along the way both coaching me in hockey and helping me learn what you knew about PC's and Servers.   I'll never forget us as teenage kids working the IT Support contract for the local municipal government.   Remember dad had to drive us to site because you weren't old enough to drive ourselves yet.   A great career starts with the support of your family and I'm so lucky because I have all the support one could ever want.

A book like this filled with amazing Canadian MVP's would not be possible without the support from the #1 Microsoft Community Program Manager – Simran Chaudry.   You have guided us along the path and helped us to get better at what we do every day.   Your job is tireless and your passion and commitment make us want to do what we do even more.

Last but not least, the MVPDays volunteers, you have donated your time and expertise and helped us run the event in over 20 cities across North America.   Our latest journey has us expanding the conference worldwide as a virtual conference.   For those of you that will read this book your potential is limitless just expand your horizons and you never know where life will take you.

About the Authors

Dave Kawula - MVP

Dave is a Microsoft Most Valuable Professional (MVP) with over 20 years of experience in the IT industry. His background includes data communications networks within multi-server environments, and he has led architecture teams for virtualization, System Center, Exchange, Active Directory, and Internet gateways. Very active within the Microsoft technical and consulting teams, Dave has provided deep-dive technical knowledge and subject matter expertise on various System Center and operating system topics.

Dave is well-known in the community as an evangelist for Microsoft, 1E, and Veeam technologies. Locating Dave is easy as he speaks at several conferences and sessions each year, including TechEd, Ignite, MVP Days Community Roadshow, and VeeamOn.

Recently Dave has been honored to take on the role of Conference Co-Chair of TechMentor with fellow MVP Sami Laiho.   The lineup of speakers and attendees that have been to this conference over the past 20 years is really amazing. Come down to Redmond or Orlando in 2018 and you can meet him in person.

As the founder and Managing Principal Consultant at TriCon Elite Consulting, Dave is a leading technology expert for both local customers and large international enterprises, providing optimal guidance and methodologies to achieve and maintain an efficient infrastructure.

BLOG: www.checkyourlogs.net

Twitter: @DaveKawula

Cristal Kawula – MVP

Cristal Kawula is the co-founder of MVPDays Community Roadshow and #MVPHour live Twitter Chat.   She is the President of TriCon Elite Consulting where she manages the day to day operations of the field consulting and sales teams.

Cristal is also only the 2nd Woman in the world to receive the prestigious Veeam Vanguard Community excellence award. In July of 2017 she was awarded the designation of Microsoft MVP.

Early in her career Cristal worked as a consultant with Microsoft authoring content for internal SMSGR and GTR teams.   This content was used to train internal support engineers and global escalation engineering teams.

Cristal can be found speaking at Microsoft Ignite, MVPDays, and other local user groups.   She is extremely active in the community and has recently helped publish a book for other Women MVP's called Voices from the Data Platform.

BLOG: http://www.checkyourlogs.net

Twitter: @supercristal1

Cary Sun – CCIE #4531 (Cisco Champion)

Cary Sun is CISCO CERTIFIED INTERNETWORK EXPERT (CCIE No.4531) and MCSE, MCIPT, Citrix CCA with over twenty years in the planning, design, and implementation of network technologies and Management and system integration. Background includes hands-on experience with multi-platform, all LAN/WAN topologies, network administration, E-mail and Internet systems, security products, PCs and Servers environment. Expertise analyzing user's needs and coordinating system designs from concept through implementation. Exceptional analysis, organization, communication, and interpersonal skills. Demonstrated ability to work independently or as an integral part of team to achieve objectives and goals. Specialties: CCIE /CCNA / MCSE / MCITP / MCTS / MCSA / Solution Expert / CCA

Cary's is a very active blogger at checkyourlogs.net and always available online for questions from the community. He passion about technology is contagious and he makes everyone around him better at what they do.

Blog:http://www.checkyourlogs.net

Twitter:@SifuSun

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North American MVPDays Community Roadshow

The purpose of this book is to showcase the amazing expertise of our guest speakers at the North American MVPDays Community Roadshow.   They have so much passion, expertise, and expert knowledge that it only seemed fitting to write it down in a book.

MVPDays was founded by Cristal and Dave Kawula back in 2013. It started as a simple idea; "There's got to be a good way for Microsoft MVPs to reach the IT community and share their vast knowledge and experience in a fun and engaging way" I mean, what is the point in recognizing these bright and inspiring individuals, and not leveraging them to inspire the community that they are a part of.

We often get asked the question "Who should attend MVPDays"?

Anyone that has an interest in technology, is eager to learn, and wants to meet other like-minded individuals.   This Roadshow is not just for Microsoft MVP's it is for anyone in the IT Community.

Make sure you check out the MVPDays website at: www.mvpdays.com. You never know maybe the roadshow will be coming to a city near you.

The goal of this particular book is to bring you real world step-by-step guidance from our expert MVP Authors on the deployment of System Center Data Protection Manager.   It has been written with the most current techniques possible to help with your migrations and learning process.

Sample Files

All sample files for this book can be downloaded from www.checkyourlogs.net and www.github.com/dkawula

Additional Resources

In addition to all tips and tricks provided in this book, you can find extra resources like articles and video recordings on our blog http://www.checkyourlogs.net.

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These are the same experts you come to see in person at the MVPDays Roadshow. This book is written in the format of a Step-by-Step learning guide. We really hope you find some immense value in what we have written.

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Chapter 1

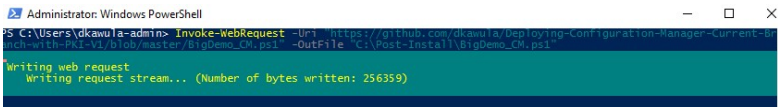# Pre-Requisites

Lab Server Names

The follow table describes the required Virtual Machines to build this lab.   This lab is designed to be built on a Hyper-V Host Server with a minimum of 16 GB of RAM.   An automation script called BigDemo_DPM.PS1 has been used to provision this lab environment.   *A copy of this script can be found in the appendices.*

Hostname	Role	Operating System
DPM01	System Center Data Protection Manager 1081 with SQL Server 2016 SP1 installed locally	Windows Server 2016
SCOM01	System Center Operations Manager 1801	Windows Server 2016
SCVMM	System Center Virtual Machine Manager 1801 – with SQL Server 2016 SP1 installed locally	Windows Server 2016
DC01	Domain Controller running Active Directory Certificate Services as an Enterprise Root	Windows Server 2016
DC01	Domain Controller	Windows Server 2016
S2D1	Storage Spaces Direct – Hyper-V Cluster Node – Server Core	Windows Server 2016
S2D2	Storage Spaces Direct – Hyper-V Cluster Node – Server Core	Windows Server 2016

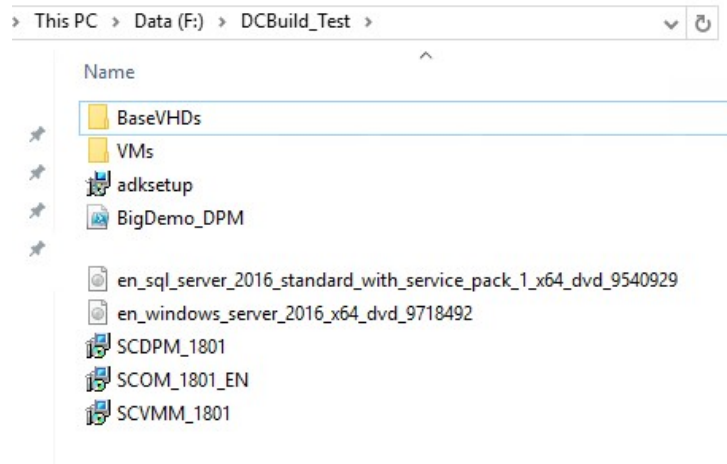| S2D3	Storage Spaces Direct – Hyper-V Cluster Node – Server Core	Windows Server 2016
S2D4	Storage Spaces Direct – Hyper-V Cluster Node – Server Core	Windows Server 2016
Router01	Windows NAT Router for the LAB	Windows Server 2016
DHCP01	DHCP Server for the Lab	Windows Server 2016
Management01	Management01	Windows Server 2016
AZHVHost	DS8 Virtual Machine in Azure running Nested Virtualization and Hyper-V. This will be the host that we run the lab on. This could also be a Laptop or physical server in your environment.	Windows Server 2016

Building the Lab with BigDemo_DPM.PS1

For the purpose of this book we wanted to help you build a lab that you could easily follow along with.   If you have read some of our other books you would have seen a script that we use called BigDemo.   Basically, BigDemo is a PowerShell script that builds a lab environment including: AD, DHCP, Management Servers, Clients, Application Servers, and others.   It is highly customizable and we have created a very special edition just for this book. Follow the instructions below to download the script from our Github Repository and start building your very own lab to follow along with.

Instructions	Screenshot (if applicable)
1. Logon to the AZHVHost machine in Azure as Administrator	
2. Open an administrative PowerShell prompt and type:	`Invoke-WebRequest -Uri "https://raw.githubusercontent.com/dkawula/Deploying-System-Center-Data-Protection-Manager-1801/master/BigDemo_DPM.ps1" -OutFile "C:\Post-Install\BigDemo_DPM.PS1"` Administrator: Windows PowerShell PS C:\Users\dkawula-admin> Invoke-WebRequest -Uri "https://github.com/dkawula/Deploying-Configuration-Manager-Current-Branch-with-PKI-V1/blob/master/BigDemo_CM.ps1" -OutFile "C:\Post-Install\BigDemo_CM.ps1" Writing web request Writing request stream... (Number of bytes written: 256359)
3. Next Download a copy of Windows Server 2016 RTM from the Microsoft Eval Center. For our lab we have a drive on our Hyper-V Host F:\	https://www.microsoft.com/en-us/evalcenter/evaluate-windows-server-2016/

Save the ISO to
F:\DCBuild_Test

4. Next download the following files: ADK1709, SQL Server 2016 w/SP1, SCDPM_1801.exe, SCOM_1801.exe_EN, SCVMM_1801.exe
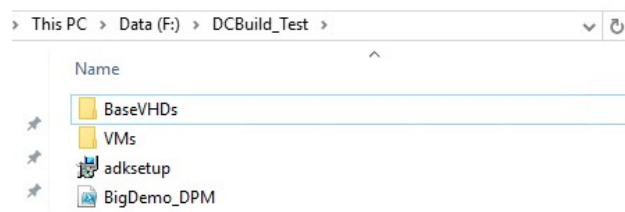
   Save the ISO to
   F:\DCBuild_Test

This PC > Data (F:) > DCBuild_Test >

Name
- BaseVHDs
- VMs
- adksetup
- BigDemo_DPM

- en_sql_server_2016_standard_with_service_pack_1_x64_dvd_9540929
- en_windows_server_2016_x64_dvd_9718492
- SCDPM_1801
- SCOM_1801_EN
- SCVMM_1801

https://www.microsoft.com/en-us/evalcenter/evaluate-system-center-release

https://www.microsoft.com/en-us/evalcenter/evaluate-sql-server-2016

5. Copy **BigDemo_DPM.PS1** from **C:\Post-Install** to **F:\DCBuild_Test**

This PC > Data (F:) > DCBuild_Test >

Name
- BaseVHDs
- VMs
- adksetup
- BigDemo_DPM

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6. Open **BigDemo_DPM.PS1** with the **PowerShell ISE** edit lines 2140 and 2131 putting in **Your Product key received with the EVAL Version of Windows Server 2016** Downloaded above

```
424
425    $WindowsKey = '****' #Dave's Technet KEY Remove for Publishing of Book
426
427  ⊟ $unattendSource = [xml]@"
428    <?xml version="1.0" encoding="utf-8"?>
429    <unattend xmlns="urn:schemas-microsoft-com:unattend">
430        <servicing></servicing>
431        <settings pass="specialize">
432            <component name="Microsoft-Windows-Shell-Setup" processorArchitecture="amd
433                <ComputerName>*</ComputerName>
434                <ProductKey>****</ProductKey>
435                <RegisteredOrganization>Organization</RegisteredOrganization>
436                <RegisteredOwner>Owner</RegisteredOwner>
437                <TimeZone>TZ</TimeZone>
438            </component>
439        </settings>
```

7. Edit line 2127 **$ServerISO** with the actual path and name of your Server ISO Downloaded which should have been downloaded to something like **F:\DCBuild_Test**

Save **BigDemo_DPM.PS1**

```
418    #$ServerISO = "D:\DCBuild\10586.0.151029-1700.TH2_RELEASE_SERVER_OEMRET_X64FRE_EN-US.ISO"
419    #$ServerISO = "d:\DCBuild\14393.0.160808-1702.RS1_Release_srvmedia_SERVER_OEMRET_X64FRE_EN-US.ISO"
420    #ServerISO = 'D:\DCBuild\en_windows_server_2016_technical_preview_5_x64_dvd_8512312.iso'
421    #$ServerISO = 'c:\ClusterStorage\Volume1\DCBuild\en_windows_server_2016_x64_dvd_9327751.iso' #Updated for RTM Build 2016
422    $ServerISO = 'f:\dcbuild_CM\en_windows_server_2016_x64_dvd_9718492.iso' #THIS NEEDS to be Modified for your Lab
423
```

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8. Open an administrative PowerShell prompt. Run **BigDemo_DPM.PS1**

   For this book we have used the following parameters:

   WorkingDir: f:\DCBuild_Test

   Organization: MVPDays Rockstars

   Owner: Dave Kawula

   TimeZone: Mountain Standard Time

   AdminPassword: P@ssw0rd

   DomainName: MVPDays.com

   DomainAdminPassword: P@ssw0rd

   VirtualSwitchName: MVPDays_Test_VSwitch

   Subnet: 172.16.100.
   VirtualNATSwitchName: InternalNATSwitch5

```
PS F:\dcbuild_test> .\BigDemo_DPM.ps1

cmdlet BigDemo_DPM.ps1 at command pipeline position 1
Supply values for the following parameters:
WorkingDir: f:\dcbuild_test
Organization: MVPDays Rockstars
Owner: MVPDays RockStars
Timezone: Mountain Standard Time
adminPassword: P@ssw0rd
domainName: MVPDays.com
domainAdminPassword: P@ssw0rd
virtualSwitchName: MVPDays_Test_Vswitch
Subnet: 172.16.100.
virtualNATSwitchName: InternalNATSwitch5
ExtraLabfilesSource: c:\
4:44 PM - [Host]::Getting started...
4:44 PM - [Host]::Building Base Images
4:44 PM - [Host]::Downloading January 2018 CU for Windows Server 2016
4:44 PM - [DC01]::Removing old VM
4:44 PM - [DC01]::Creating new differencing disk
4:44 PM - [DC01]::Creating virtual machine
4:44 PM - [DC01]::Starting virtual machine
4:44 PM - [DC02]::Removing old VM
4:44 PM - [DC02]::Creating new differencing disk
4:44 PM - [DC02]::Creating virtual machine
4:45 PM - [DC02]::Starting virtual machine
4:45 PM - [DHCP01]::Removing old VM
4:45 PM - [DHCP01]::Creating new differencing disk
4:45 PM - [DHCP01]::Creating virtual machine
4:45 PM - [DHCP01]::Starting virtual machine
4:45 PM - [Management01]::Removing old VM
4:45 PM - [Management01]::Creating new differencing disk
4:45 PM - [Management01]::Creating virtual machine
4:45 PM - [Management01]::Starting virtual machine
4:45 PM - [Router01]::Removing old VM
4:45 PM - [Router01]::Creating new differencing disk
4:45 PM - [Router01]::Creating virtual machine
4:45 PM - [Router01]::Starting virtual machine
4:45 PM - [VMM01]::Removing old VM
4:45 PM - [VMM01]::Creating new differencing disk
4:45 PM - [VMM01]::Creating virtual machine
4:45 PM - [VMM01]::Starting virtual machine
4:45 PM - [SCOM01]::Removing old VM
4:45 PM - [SCOM01]::Creating new differencing disk
4:45 PM - [SCOM01]::Creating virtual machine
4:45 PM - [SCOM01]::Starting virtual machine
4:45 PM - [DPM01]::Removing old VM
4:45 PM - [DPM01]::Creating new differencing disk
4:45 PM - [DPM01]::Creating virtual machine
4:45 PM - [DPM01]::Starting virtual machine
4:45 PM - [DC01]::Waiting for PowerShell Direct (using Administrator)
[DC01]:: Setting IP Address to 172.16.100.1
[DC01]:: Setting DNS Address
[DC01]:: Renaming OS to "DC01"
WARNING: The changes will take effect after you restart the computer THOMAS-8AKIE270.
[DC01]:: Configuring WSMAN Trusted hosts

4:49 PM - [DC01]::Rebooting
4:49 PM - [DC01]::Waiting for PowerShell Direct (using Administrator)
#text
```

ExtraLabFiles: C:

9. It will take
   approximately 2
   hours to build the Lab
   Environment
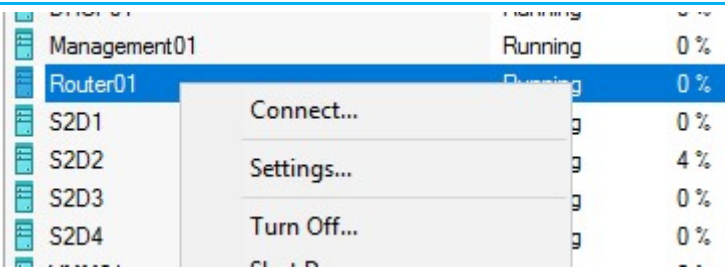
DC01	Running	0 %	4096 MB
DHCP01	Running	0 %	4096 MB
Management01	Running	0 %	4096 MB
Router01	Running	0 %	4096 MB
S2D1	Running	6 %	4096 MB
S2D2	Running	3 %	4096 MB
S2D3	Running	6 %	4096 MB
S2D4	Running	6 %	4096 MB
VMM01	Running	0 %	4096 MB

> This PC > Data (F:) > DCBuild_Insider > VMs >

Name	Date modified	Type
DC01	2/1/2018 8:38 PM	File fol
DHCP01	2/1/2018 8:38 PM	File fol
Management01	2/1/2018 8:38 PM	File fol
Router01	2/1/2018 8:38 PM	File fol
S2D1	2/1/2018 8:57 PM	File fol
S2D2	2/1/2018 8:57 PM	File fol
S2D3	2/1/2018 8:57 PM	File fol
S2D4	2/1/2018 8:58 PM	File fol
VMM01	2/1/2018 8:38 PM	File fol
DC01	2/1/2018 10:51 PM	Hard D
DHCP01	2/1/2018 10:50 PM	Hard D
Management01	2/1/2018 10:50 PM	Hard D
Router01	2/1/2018 10:50 PM	Hard D
S2D1 - Data 1	2/1/2018 9:03 PM	Hard D
S2D1 - Data 2	2/1/2018 9:03 PM	Hard D
S2D1	2/1/2018 10:50 PM	Hard D
S2D2 - Data 1	2/1/2018 9:06 PM	Hard D
S2D2 - Data 2	2/1/2018 9:06 PM	Hard D
S2D2	2/1/2018 10:50 PM	Hard D

Enable Routing in the Lab

This step-by-step lab guide requires access to the Internet for configurations.   To enable access to the internet from the Nested Hyper-V Host running in Azure run the following.   This will create a Gateway IP Address of 192.168.0.1 which will be used by the Router VM to get out to the Internet.   After the NAT Switch is created you will modify the DHCP Scope in the Lab to point to the IP Address of the Router and then configure Windows Routing and Remote Access on the Router VM.

These steps are documented for the purposed of learning in this book.   All of these steps have been updated in the lab build script with a custom function called Install-RRAS.PS1 which will be discussed in the next section of this book.   These steps are not required if you used BigDemo_DPM.PS1 to build your lab.

Instructions	Screenshot (if applicable)
1. Logon to the AZHVHost machine in Azure as Administrator	

2. Open an administrative PowerShell prompt	`New-VMSwitch -SwitchName "InternalNATSwitch" -SwitchType Internal`
	`Get-NetAdapter`
	`New-NetIPAddress 192.168.0.1 -PrefixLength 24 -InterfaceIndex 23`
	`New-NetNat -Name "InternalNat" -InternalIPInterfaceAddressPrefix 192.168.0.0/24`

3. Open the Hyper-V Management Console, Right-Click on **Router01,** and click **Settings**	

4. Click on **Add Hardware**, **Network Adapter,** click **Add**
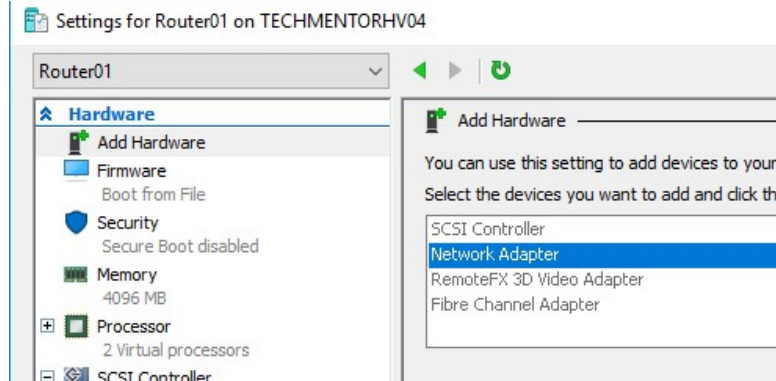
5. Click the newly added Network Adapter, Click on **Virtual Switch**, and Select **Internal Nat Switch¸** and click **OK**
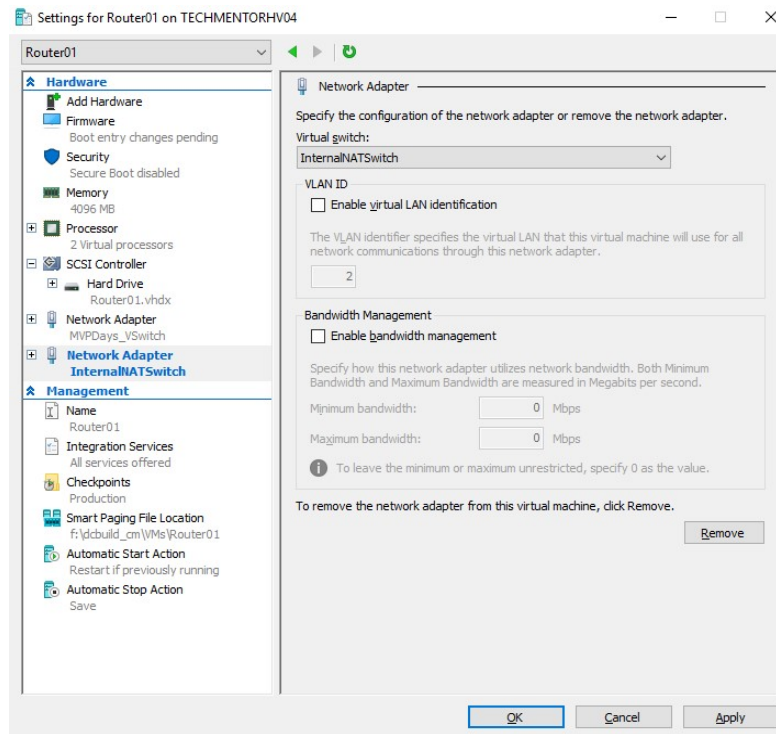
6. Logon to **Router01** with using **Administrator** and a password of **P@ssw0rd**

7. Open an administrative PowerShell prompt and run the command

This will install the Routing and Remote Access Feature

```
Add-WindowsFeature -Name RemoteAccess,Routing,RSAT-
RemoteAccess-Mgmt -verbose
```

8. Right-Click **Start**, click **Run,** type **ncpa.cpl**
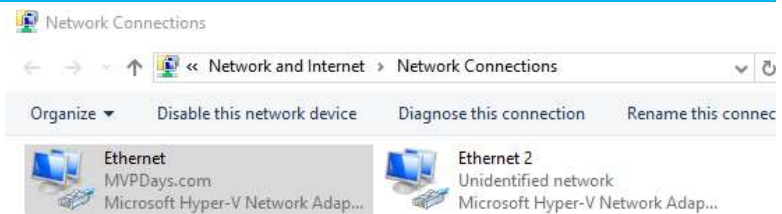
Rename the Adapters:
Ethernet to **Corpnet**
Ethernet 2 to **Internet**

9. Configure the following IP Address settings:

CorpNet:
IP = 172.16.100.254
Subnet = 255.255.255.0
Gateway = Blank
DNS = 172.16.100.1

Internet: 192.168.0.254
Subnet = 255.255.255.0
Gateway = 192.168.0.1

10. Open an Administrative Command Prompt, try to ping 4.2.2.2

    Ensure that the Router01 VM can ping the internet address by IP prior to continuing.

    This validates that the NAT Switch is working properly.

```
Administrator: Command Prompt

C:\Windows\system32>ping 4.2.2.2

Pinging 4.2.2.2 with 32 bytes of data:
Reply from 4.2.2.2: bytes=32 time=15ms TTL=52
Reply from 4.2.2.2: bytes=32 time=15ms TTL=52
Reply from 4.2.2.2: bytes=32 time=14ms TTL=52
Reply from 4.2.2.2: bytes=32 time=15ms TTL=52

Ping statistics for 4.2.2.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 14ms, Maximum = 15ms, Average = 14ms

C:\Windows\system32>
```

11. Open the **Routing and Remote Access** Management Console

    Print Management
    Remote Access Management
    Resource Monitor
    Routing and Remote Access
    Server Manager

12. Right-Click on **Router01** and click, **Configure and Enable Routing and Remote Access**

    Routing and Remote Access
    File   Action   View   Help

    Routing and Remote Access   ROUTER01 (local)
      Server Status
      ROUTER01 (local)

      Configure and Enable Routing and Remote Access
      Disable Routing and Remote Access

      All Tasks
      View
      Delete
      Refresh

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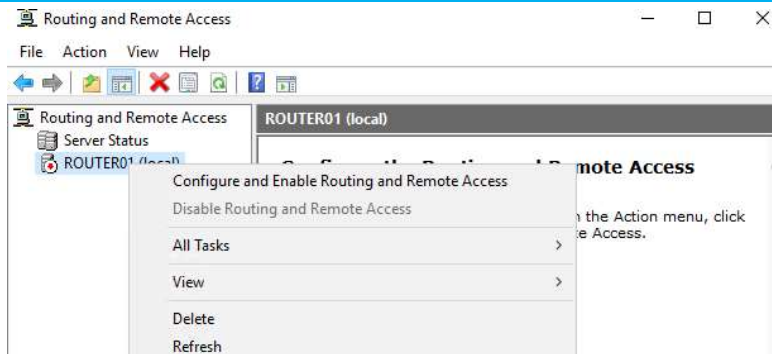
13. On the **Routing and Remote Access Server Setup Wizard** page select **Custom Configuration** and click **Next**

Routing and Remote Access Server Setup Wizard

Configuration
You can enable any of the following combinations of services, or you can customize this server.

○ Remote access (dial-up or VPN)
Allow remote clients to connect to this server through either a dial-up connection or a secure virtual private network (VPN) Internet connection.

○ Network address translation (NAT)
Allow internal clients to connect to the Internet using one public IP address.

○ Virtual private network (VPN) access and NAT
Allow remote clients to connect to this server through the Internet and local clients to connect to the Internet using a single public IP address.

○ Secure connection between two private networks
Connect this network to a remote network, such as a branch office.

● Custom configuration
Select any combination of the features available in Routing and Remote Access.

< Back   Next >   Cancel

14. On the **Custom Configuration** Page Select **NAT** and click **Next**

Routing and Remote Access Server Setup Wizard

Custom Configuration
When this wizard closes, you can configure the selected services in the Routing and Remote Access console.

Select the services that you want to enable on this server.
☐ VPN access
☐ Dial-up access
☐ Demand-dial connections (used for branch office routing)
☑ NAT
☐ LAN routing

< Back   Next >   Cancel

15. On the **Completing the Routing and Remote Access Server Setup Wizard** page click **Finish**
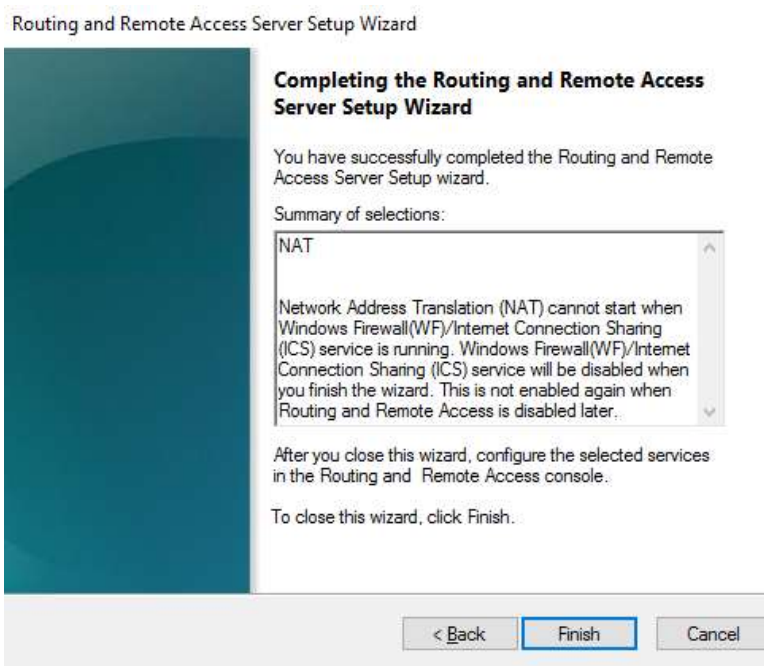
16. When prompted click **Start Service**
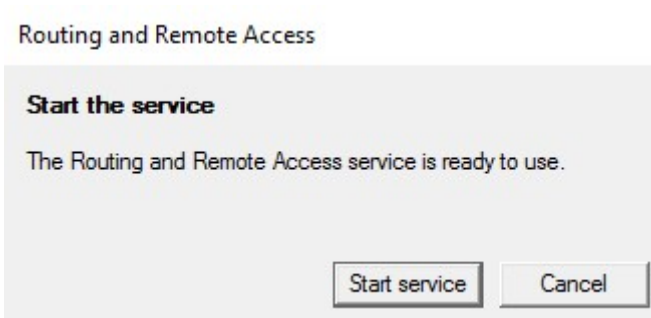
17. In the **Routing and Remote Access** management console, expand **Router01**, **IPv4, NAT**. Then Right-Click **NAT** and click **New Interface…**
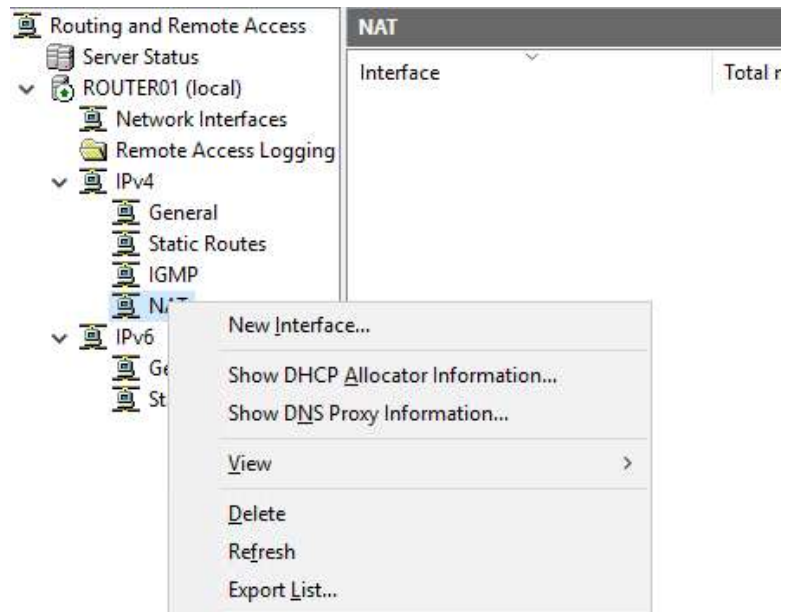
18. Select **CorpNet** and click **OK**
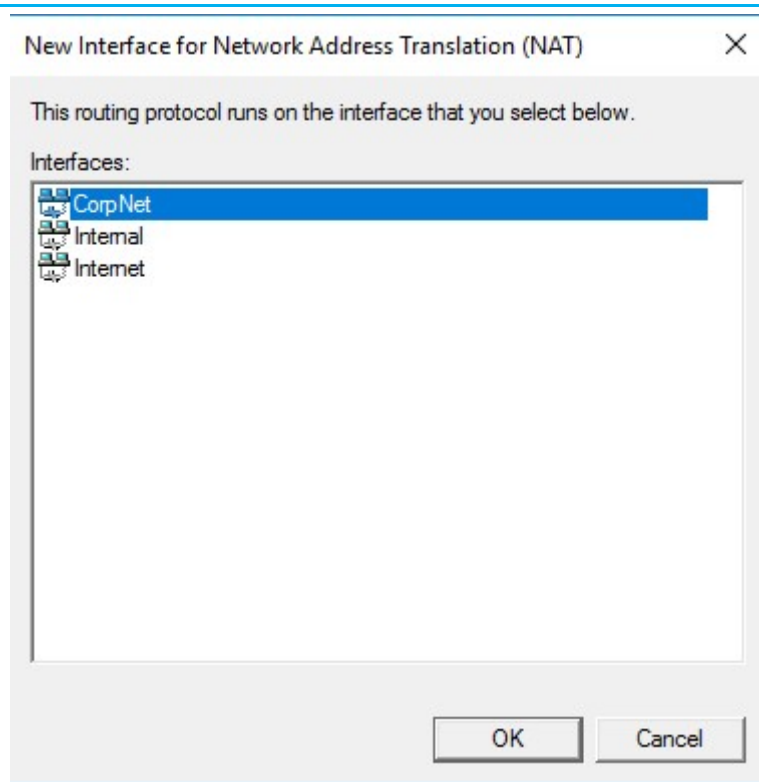
19. On the **Nat** page ensure **Private interface connected to the private network** is selected and click **OK**
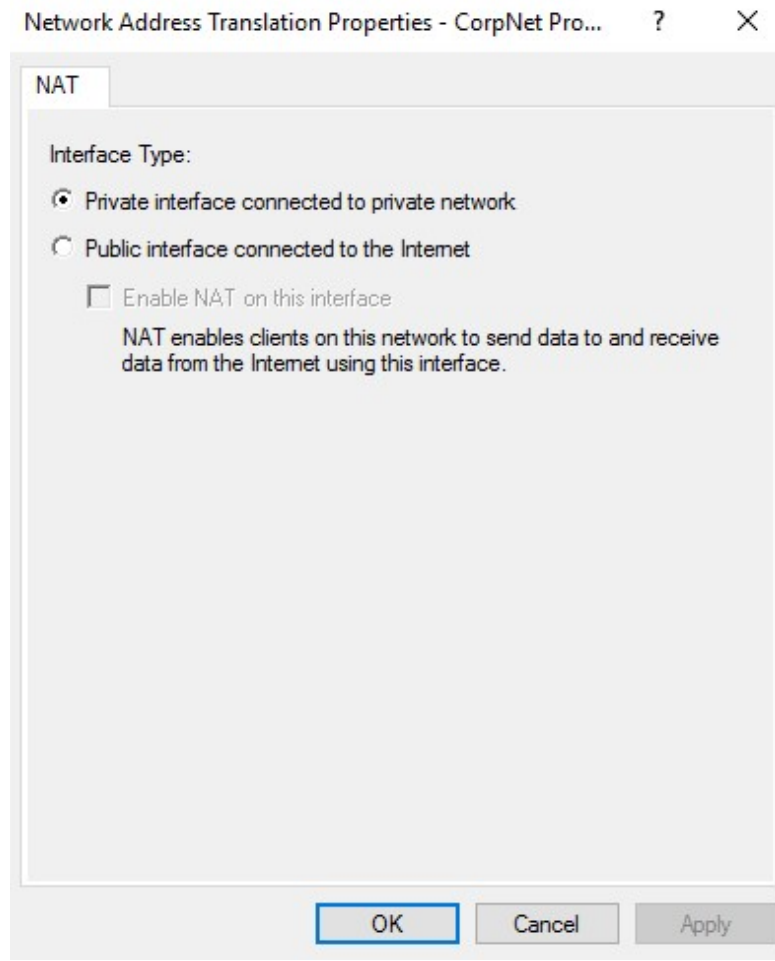
20. In the **Routing and Remote Access** management console, expand **Router01**, **IPv4, NAT**.   Then Right-Click **NAT** and click **New Interface…**
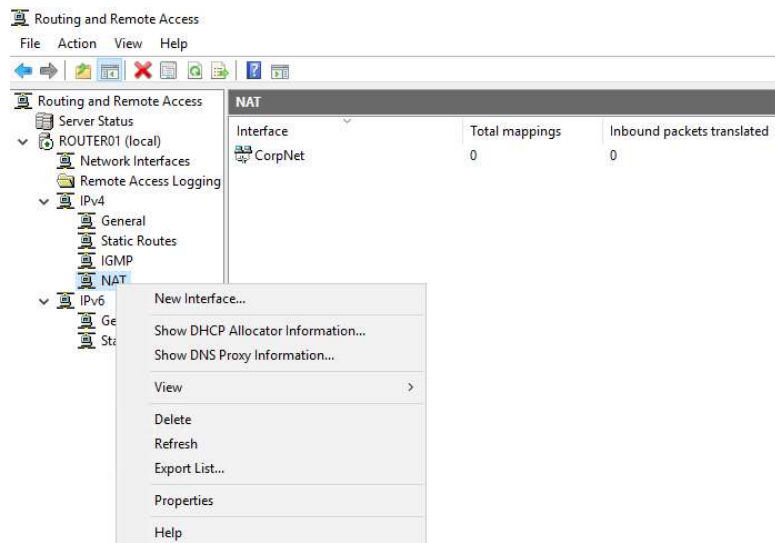
21. Select **Internet** and click **OK**
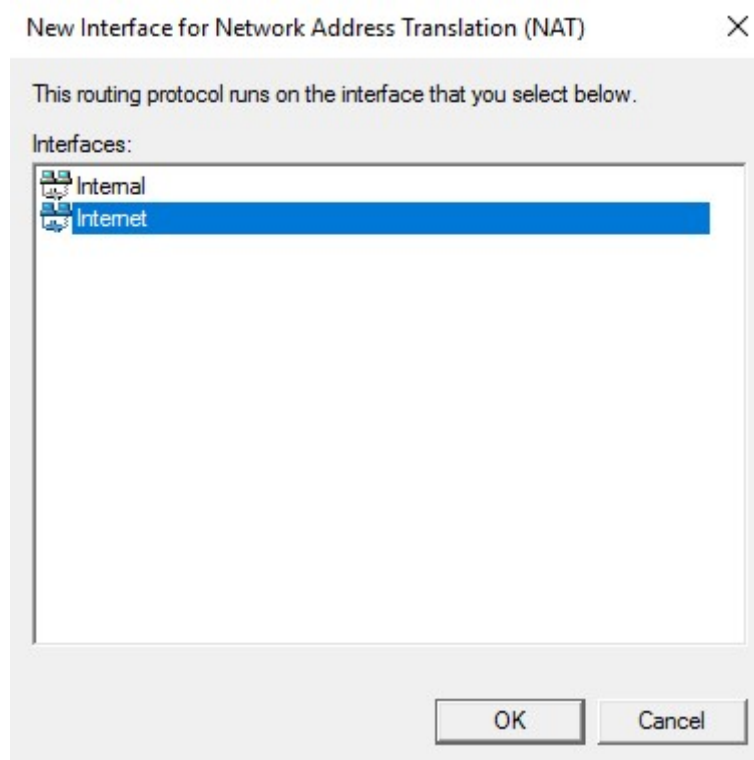
22. On the **Nat** page select **Public Interface connected to the Internet** and select **Enable NAT on this Interface** and click **OK**
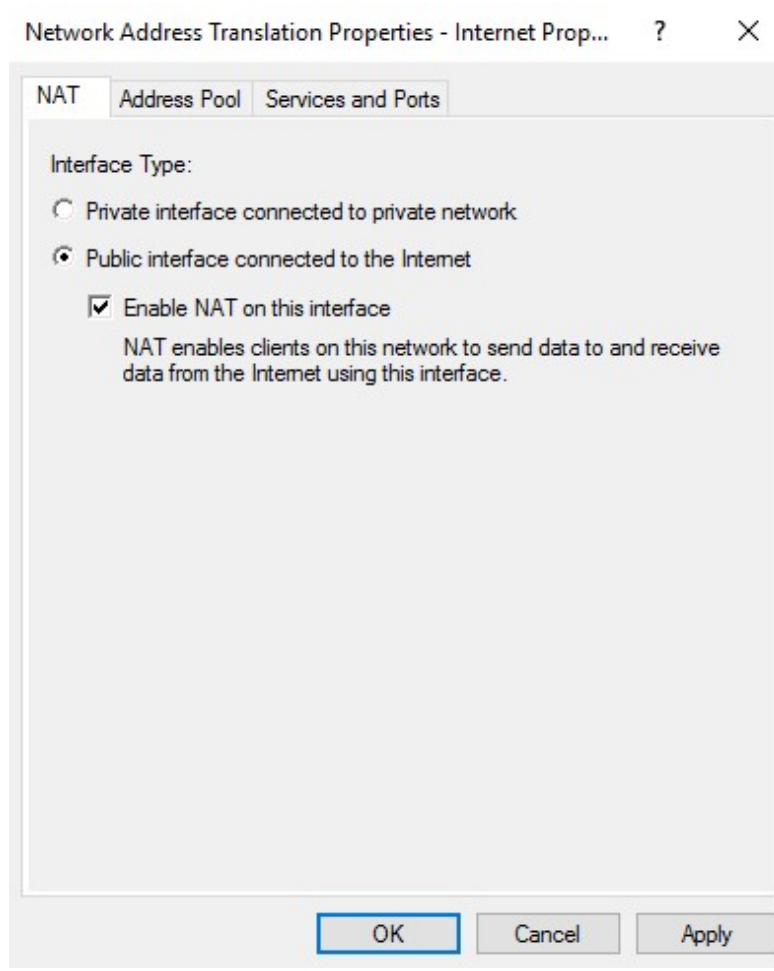
23. Logon to **DHCP01** as **MVPdays\Administrator**
24. Open the Network Control Panel (**NCPA.CPL**) and add a default gateway on the **Ethernet** adapter of 172.16.100.254

Internet Protocol Version 4 (TCP/IPv4) Properties ✕

General

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

○ Obtain an IP address automatically

◉ Use the following IP address:

IP address:	172 . 16 . 100 . 3
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	172 . 16 . 100 . 254

○ Obtain DNS server address automatically

◉ Use the following DNS server addresses:

Preferred DNS server:	172 . 16 . 100 . 1
Alternate DNS server:	. . .

☐ Validate settings upon exit

Advanced...

OK   Cancel

25. Open the **DHCP Management Console** (**DHCPMGMT.MSC**)
26. Expand **DHCP01, IPv4, Scope (172.16.100.0), Scope Options**
27. Right-Click on **Scope Options** and click **Configure Options**

Option Name	Vendor	Value
006 DNS Servers	Standard	172.16.100.1

DHCP
∨ dhcp01.mvpdays.com
  ∨ IPv4
    ∨ Scope [172.16.100.0] IPv4 Netwo
      Address Pool
      Address Leases
      > Reservations
      Scope Options
      Policies
    Server Option
    Policies
    > Filters
  > IPv6

Configure Options...
View   >
Refresh
Export List...
Help
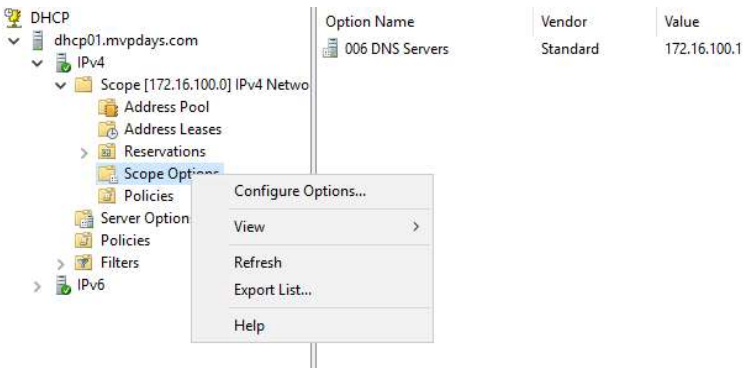
28. Select **003 Router** and in **IP Address** type **172.16.100.254** and click **Add** then click **OK**

29. Logon to **DC01** as **MVPDays\Administrator** and add a **Gateway of** 172.16.100.254 to the **Ethernet Adapter**

Internet Protocol Version 4 (TCP/IPv4) Properties   ✕

General

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

○ Obtain an IP address automatically

◉ Use the following IP address:

IP address:	172 . 16 . 100 . 1
Subnet mask:	255 . 255 . 255 . 0
Default gateway:	172 . 16 . 100 . 254

○ Obtain DNS server address automatically

◉ Use the following DNS server addresses:

| Preferred DNS server: | 127 . 0 . 0 . 1 |
| Alternate DNS server: | .   .   . |

☐ Validate settings upon exit

Advanced...

OK   Cancel

30. Open an Administrative command prompt and try pinging: 4.2.2.2 and www.google.com

```
Administrator: C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>ping 4.2.2.2

Pinging 4.2.2.2 with 32 bytes of data:
Reply from 4.2.2.2: bytes=32 time=15ms TTL=51
Reply from 4.2.2.2: bytes=32 time=23ms TTL=51
Reply from 4.2.2.2: bytes=32 time=15ms TTL=51
Reply from 4.2.2.2: bytes=32 time=15ms TTL=51

Ping statistics for 4.2.2.2:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 15ms, Maximum = 23ms, Average = 17ms

C:\Users\Administrator>ping www.google.com

Pinging www.google.com [216.58.216.132] with 32 bytes of data:
Reply from 216.58.216.132: bytes=32 time=68ms TTL=40
Reply from 216.58.216.132: bytes=32 time=69ms TTL=40
Reply from 216.58.216.132: bytes=32 time=69ms TTL=40
Reply from 216.58.216.132: bytes=32 time=68ms TTL=40

Ping statistics for 216.58.216.132:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
    Minimum = 68ms, Maximum = 69ms, Average = 68ms
```

31. Restart the following VM's:
    S2D1-S2D4
    Management01
    DPM01

    This will ensure that they all get updated IP Addresses from the **DHCP01** Server

Install-NetNat.PS1

As previously discussed in the step-by-step process for enabling routing for this lab a custom module has been written for this and included in the BigDemo_DPM.PS1 script.   For the purposes of learning in this book we have included both a link to the script and the script itself.

A link to this module can be found at: https://raw.githubusercontent.com/dkawula/Deploying-System-Center-Data-Protection-Manager-1801/master/Install-NetNat.PS1

```
Function Install-NetNat {

   param

  (

    [string]$VMName,

    [string]$GuestOSName

  )


    Write-Output -InputObject "[$($VMName)]:: Configuring NAT on the
Hyper-V Internal Switch `"$($env:computername)`""

    $CheckNATSwitch = get-vmswitch | where Name -eq $virtualNATSwitchName
| Select Name


    If ($CheckNATSwitch -ne $null) {

    write-Host "Internal NAT Switch Found"}

    Else {


    write-Host "Not Found"

    Write-Host "Creating NAT Switch"


    New-VMSwitch -SwitchName $virtualNATSwitchName -SwitchType Internal
```

```
    $ifindex = Get-NetAdapter | Where Name -like *$virtualNATSwitchName*
|   New-NetIPAddress 192.168.10.1 -PrefixLength 24



    Get-Netnat | Remove-NetNat -confirm:$false

    New-NetNat -Name $virtualNATSwitchName -
InternalIPInterfaceAddressPrefix 192.168.10.0/24



    }

    }
```

Install-RRAS.PS1

As previously discussed in the step-by-step process for enabling routing for this lab a custom module has been written for this and included in the BigDemo_DPM.PS1 script.   For the purposes of learning in this book we have included both a link to the script and the script itself.

A link to this module can be found at: https://raw.githubusercontent.com/dkawula/Deploying-System-Center-Data-Protection-Manager-1801/master/Install-RRAS.ps1

```
Function Install-RRAS{

    param

    (

        [string] $VMName,

        [string] $GuestOSName,

        [string] $IPAddress

    )


    Add-VMNetworkAdapter  -VMName $VMName -SwitchName
$virtualNATSwitchName


    Invoke-Command -VMName $VMName -Credential $domainCred {

    Write-Output -InputObject "[$($VMName)]:: Setting InternetIP Address
to 192.168.10.254"




    $null = New-NetIPAddress -IPAddress "192.168.10.254" -InterfaceAlias
'Ethernet 2' -PrefixLength 24
```

```
    $newroute = '192.168.10.1'

    Write-Output -InputObject "[$($VMName)]:: Configuring Default
Gateway"

    $null = Get-Netroute | Where DestinationPrefix -eq "0.0.0.0/0" |
Remove-NetRoute -Confirm:$False

    #$null = Test-NetConnection localhost

    new-netroute -InterfaceAlias "Ethernet 2" -NextHop $newroute  -
DestinationPrefix '0.0.0.0/0' -verbose

    $null = Get-NetAdapter | where name -EQ "Ethernet" | Rename-
NetAdapter -NewName CorpNet

    $null = Get-NetAdapter | where name -EQ "Ethernet 2" | Rename-
NetAdapter -NewName Internet

    Write-Output -InputObject "[$($VMName)]:: Installing RRAS"

    $null = Install-WindowsFeature -Name RemoteAccess,Routing,RSAT-
RemoteAccess-Mgmt

    #$null =  Stop-Service -Name WDSServer -ErrorAction SilentlyContinue

    #$null = Set-Service -Name WDSServer -StartupType Disabled -
ErrorAction SilentlyContinue


    $ExternalInterface="Internet"

    $InternalInterface="CorpNet"

    Write-Output -InputObject "[$($VMName)]:: Coniguring RRAS - Adding
Internal and External Adapters"

    $null = Start-Process -Wait:$true -FilePath "netsh" -ArgumentList
"ras set conf ENABLED"

    $null = Set-Service -Name RemoteAccess -StartupType Automatic

    $null = Start-Service -Name RemoteAccess


     Write-Output -InputObject "[$($VMName)]:: Configuring NAT - Lab is
now Internet Enabled"

    $null = Start-Process -Wait:$true -FilePath "netsh" -ArgumentList
"routing ip nat install"
```

```
    $null = Start-Process -Wait:$true -FilePath "netsh" -ArgumentList
"routing ip nat add interface ""CorpNet"""

    $null = Test-NetConnection 192.168.10.1

    $null = Test-NetConnection 4.2.2.2

    $null = cmd.exe /c "netsh routing ip nat add interface
$externalinterface"

    $null = cmd.exe /c "netsh routing ip nat set interface
$externalinterface mode=full"

    $null = Test-NetConnection 192.168.10.1

  # $null = Test-NetConnection $($Subnet)1

    $null = Test-NetConnection 4.2.2.2

     Write-Output -InputObject "[$($VMName)]:: Disable FireWall"

    $null = cmd.exe /c "netsh firewall set opmode disable"




    }
```

for the purposed of learning in this book.   All of these steps have been updated in the lab build script with a custom function called Install-RRAS.PS1 which will be discussed in the next section of this book.   These steps are not required if you used BigDemo_DPM.PS1 to build your lab.

Software Requirements

The following table provides a summary of the Microsoft software that is used in this guide.

Software	Additional Information
System Center Data Protection Manager Technical Preview 1801 https://www.microsoft.com/en-us/evalcenter/evaluate-system-center-release System Center Operations Manager 1801 System Center Data Protection Manager 1801 System Center Virtual Machine Manager 1801	
SQL 2016 SP1 Evaluation Media https://www.microsoft.com/en-us/evalcenter/evaluate-sql-server-2016	Standard Edition
ADK 1709	

Data Protection Manager Accounts Required for Build

The following accounts have automatically been created in Active Directory with the BigDemo_DPM.PS1 Script.   These are the only accounts required for the base installation in our lab for this book.

Service Account / Groups	Scope
svc_SQL	SQL Server Agent / SQL Server Database Engine / SQL Server Reporting Services are running from this account
SVC_DPM	SCDPM Service Account used for the SCDPM Services locally installed
MVPDays-Admin	Domain Admin Account that will be used for the RunAS Account in SCDPM. You cannot use the SCDPM Service account for this.
SCOM and VMM Service Accounts	These have been automatically added as part of the lab build. They can be found in the BigDemo_DPM.PS1 Script. We didn't document them as part of this book because the focus is on Data Protection Manager and not Virtual Machine Manager or Operations Manager.

Virtual Machine Manager Service Accounts for MVPDays Domain

The Computer Accounts as they have been joined to the MVPDays Domain

Add a 2 VHDx drives to the DPM Server for the SQL Install

The following steps will add an additional Virtual Hard Disk to the DPM Server that will be used to host the installation and site server components (SQL and DPM binaries).

Instructions	Screenshot (if applicable)
1. Logon to the **Hyper-V Host Server** and open **Hyper-V Manager** Right-Click on **DPM01** and click **Settings**	
2. Click on **SCSI Controller**, click **Hard Drive** and click **Add**	
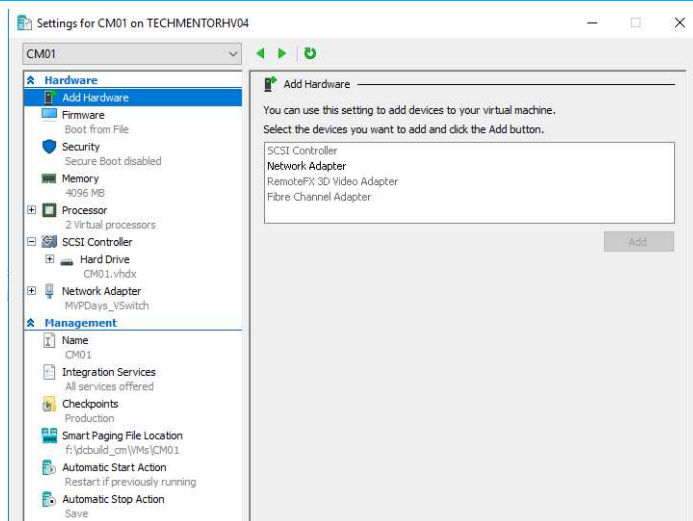
3. Click **New**

by editing the associated file. Specify the full path to the file.

⦿ Virtual hard disk:

[   ]

New   Edit   Inspect   Browse...
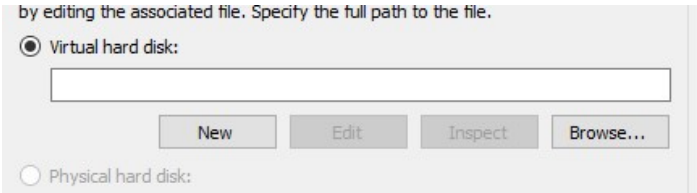
○ Physical hard disk:

4. In the **New Virtual Hard Disk Wizard before you begin** page click **Next**

New Virtual Hard Disk Wizard   ✕

Before You Begin

Before You Begin
Choose Disk Type
Specify Name and Location
Configure Disk
Summary

This wizard helps you create a new virtual hard disk. Virtual hard disks provide storage for virtual machines and are stored on physical media as .vhdx files.

☐ Do not show this page again

< Previous   Next >   Finish   Cancel
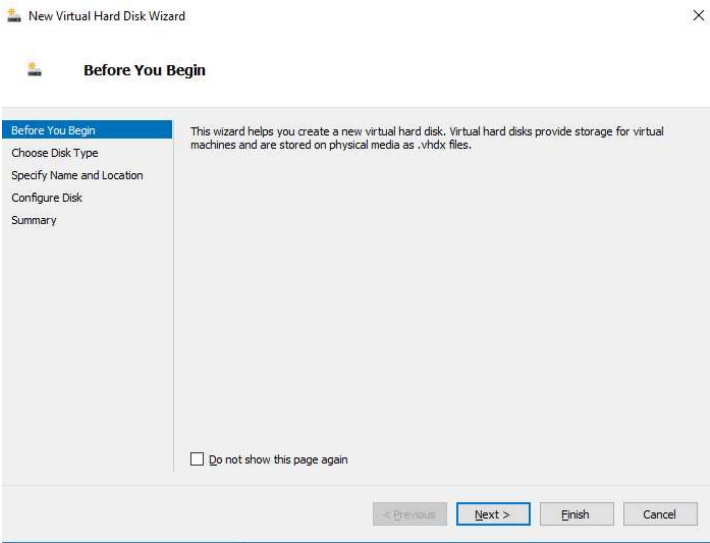
5. On the **Choose Disk Type** page select **Dynamically Expanding** and click **Next**

New Virtual Hard Disk Wizard   ✕

Choose Disk Type

Before You Begin
Choose Disk Type
Specify Name and Location
Configure Disk
Summary

What type of virtual hard disk do you want to create?

○ Fixed size

This type of disk provides better performance and is recommended for servers running applications with high levels of disk activity. The virtual hard disk file that is created initially uses the size of the virtual hard disk and does not change when data is deleted or added.

⦿ Dynamically expanding

This type of disk provides better use of physical storage space and is recommended for servers running applications that are not disk intensive. The virtual hard disk file that is created is small initially and changes as data is added.

○ Differencing

This type of disk is associated in a parent-child relationship with another disk that you want to leave intact. You can make changes to the data or operating system without affecting the parent disk, so that you can revert the changes easily. All children must have the same virtual hard disk format as the parent (VHD or VHDX).

< Previous   Next >   Finish   Cancel

6. On the **Specify Name and Location** page type:

    Name: **DPM01-D.VHDX**
    Location: **F:\DCBuild_Test\VMs**

    and then click **Next**
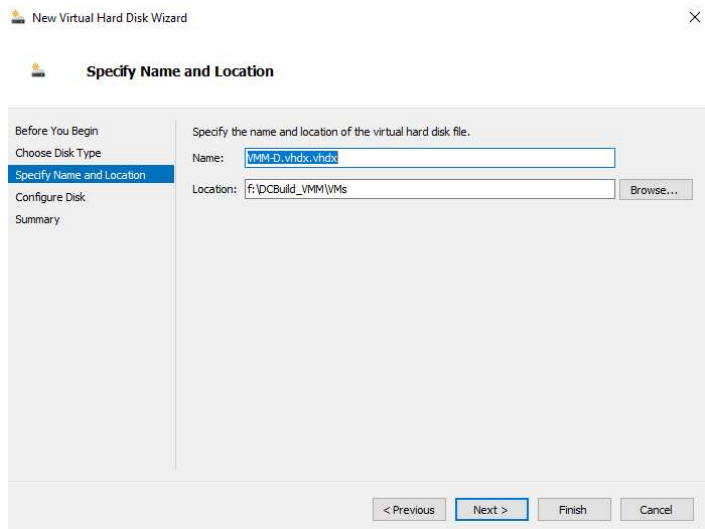
7. On the **Configure Disk** page change the size to **400 GB**
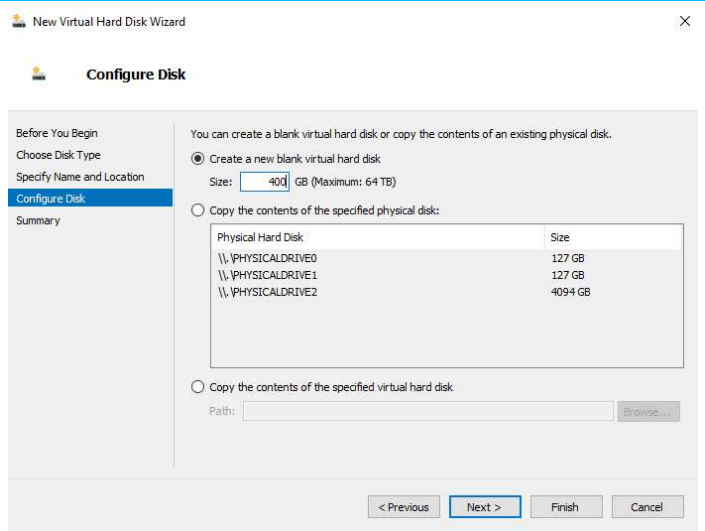
8. On the **Summary** page click **Finish**

9. Click **Apply**
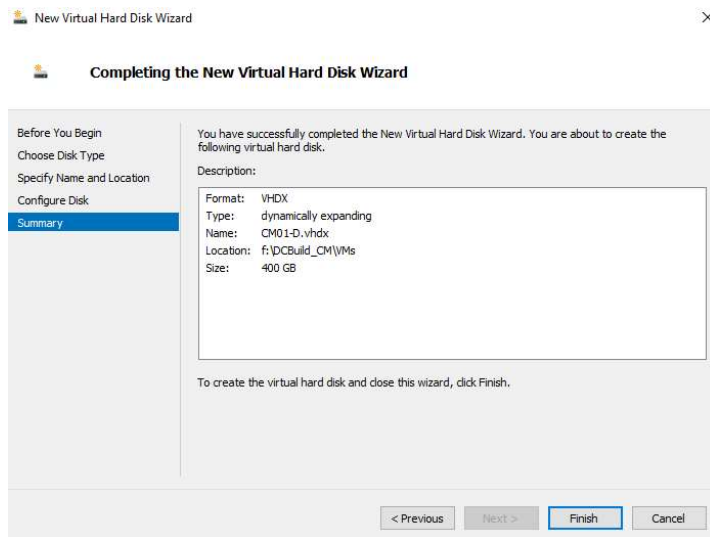
10. On the **Hyper-V Settings** Page for **DPM01** click **OK**
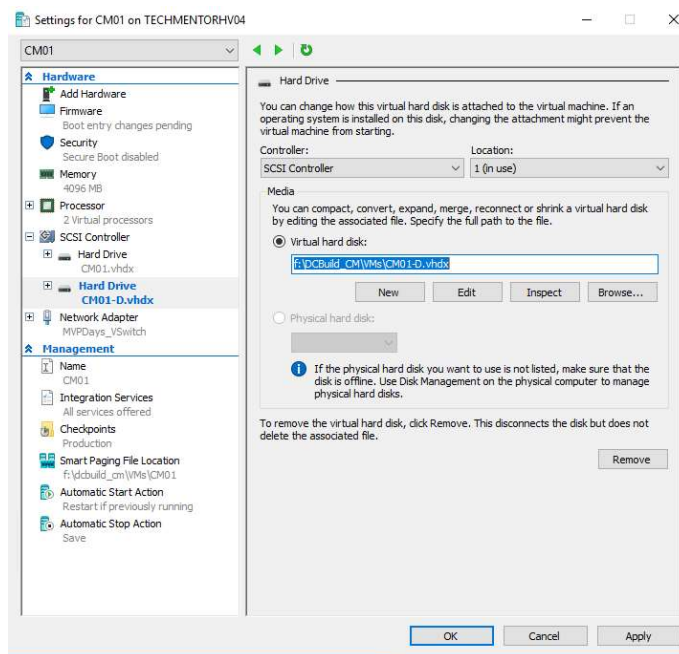
11. Return the **DPM01** and
    open **Diskmgmt.msc,**
    rick click on **Disk 1** and
    click **Online**
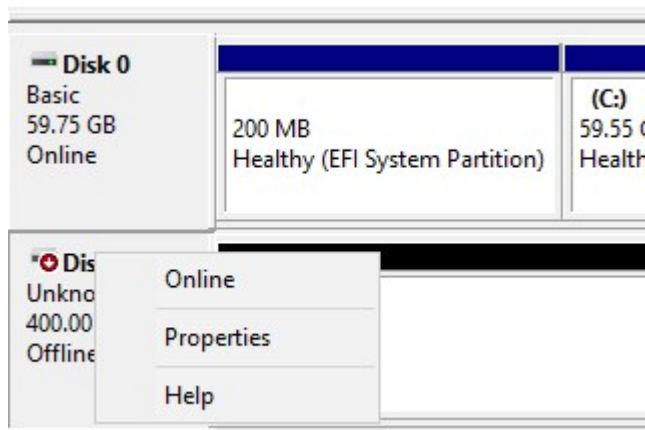
12. Right-Click on **Disk 1**
    and click **Initialize Disk**
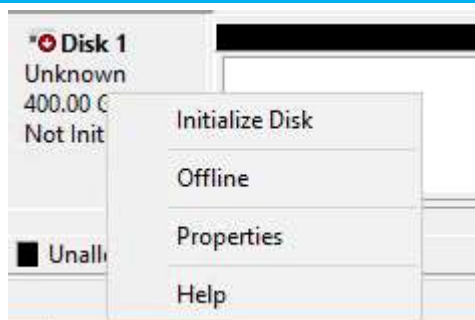
13. On the **Initialize Disk**
    page click **Ok**
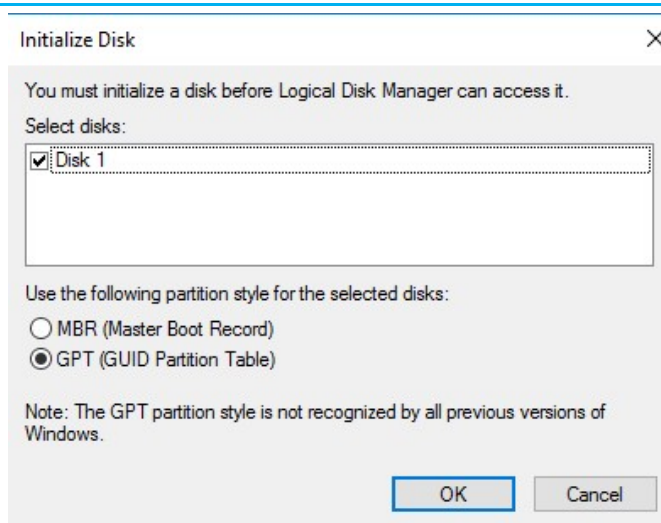
14. Right-Click on **Disk 1's** unallocated space and click **New Simple Volume**
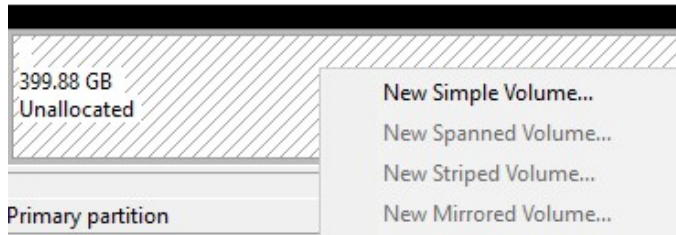
15. In the **Welcome to the New Simple Volume Wizard Page** click **Next**
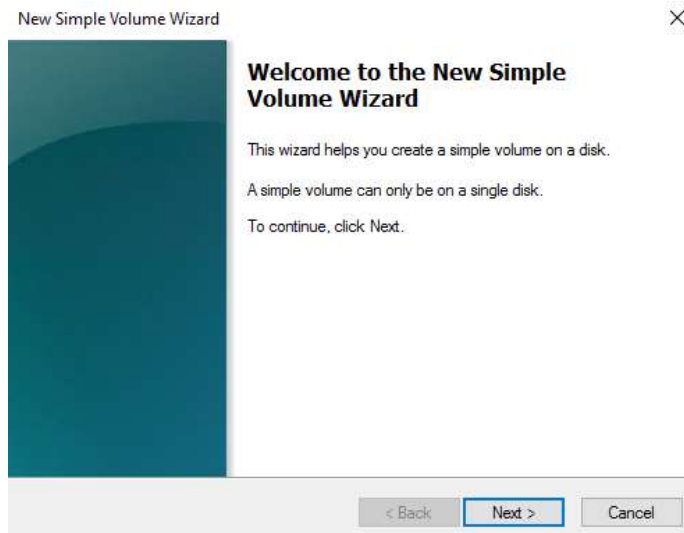
16. On the **Specify Volume Size** page click **Next**

New Simple Volume Wizard   ✕

Specify Volume Size
Choose a volume size that is between the maximum and minimum sizes.

Maximum disk space in MB: 409470

Minimum disk space in MB: 8

Simple volume size in MB: 409470

< Back   Next >   Cancel

17. On the **Assign Drive Letter or Path** page click **Next**

New Simple Volume Wizard   ✕

Assign Drive Letter or Path
For easier access, you can assign a drive letter or drive path to your partition.

◉ Assign the following drive letter: D

○ Mount in the following empty NTFS folder:
                                                    Browse...

○ Do not assign a drive letter or drive path

< Back   Next >   Cancel

18. On the **Format Partition** page change the **Volume Label** to **DPM** and click **Next**
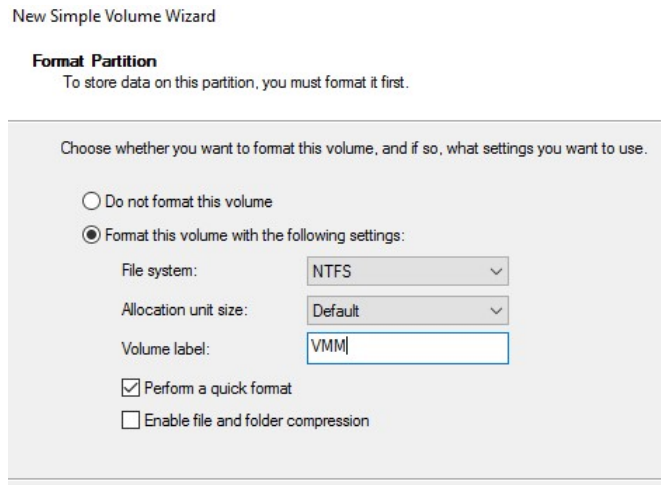
19. On the **Completing the New Simple Volume Wizard** page click **Finish**

20. Repeat the steps above to add another Disk for the SQL Installation.   As the SQL Installation will be on the Same Server as the DPM Server and will require a difference block size we will add another disk.   Create the F: with 200 GB size format as NTFS with a Block Size of 64KB
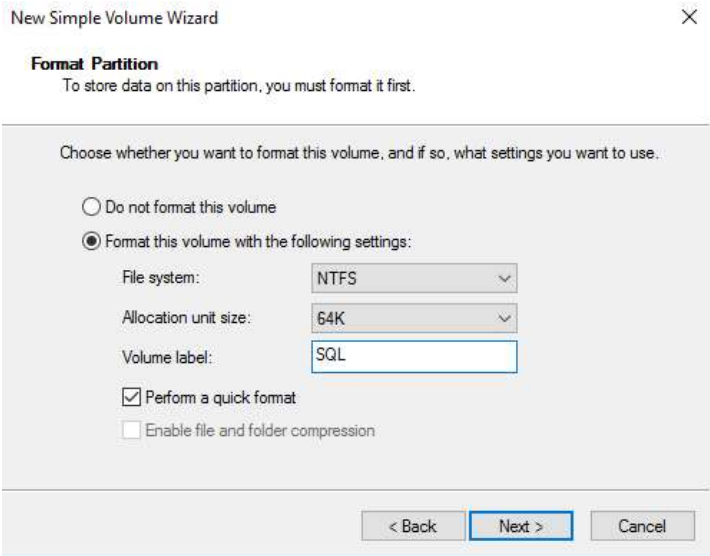
21. The end result should look like the screen shot here.
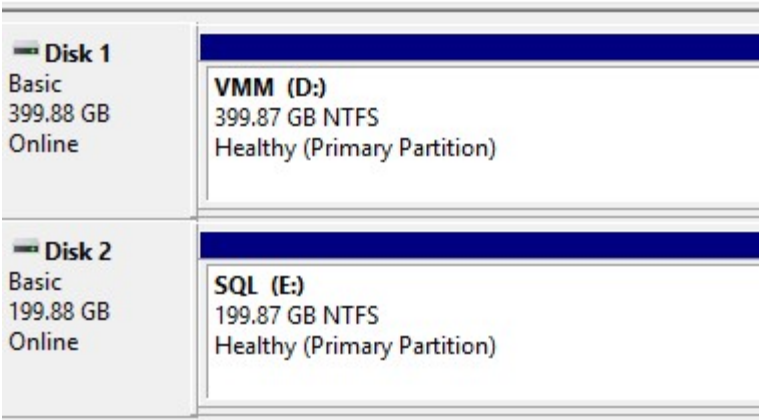
Prep-DPM1801SQL.PS1

For the installation of DPM for this book we have elected to run SQL Server 2016 SP1 as a local instance.   There are some specific steps that must run in a particular order prior to deploying SQL Server for DPM. These have all been mapped out in this custom script.

The Script can be automated as a fully functional DPM SQL Installer where SQL Will automatically be installed.   Instead of we will show both the unattended installation and attended installation of SQL in Chapter 2.   These steps will just prep the DPM01 VM for the SQL Installation.

There is also a pre-requisite of having the SQL Server Management Studio version 16.5 installed on the DPM Server. Chapter 2 covers everything step by step.   If you wanted to skip chapter 2 you could simple un-comment the install steps and automate the SQL Install.

Here is a link to the script: https://raw.githubusercontent.com/dkawula/Deploying-System-Center-Data-Protection-Manager-1801/master/Prep-DPM1801SQL.PS1

Here is the script:

```
    <#
Created:     2018-02-01
Version:     1.0
Author       Dave Kawula MVP
Homepage:    http://www.checkyourlogs.net

Disclaimer:
This script is provided "AS IS" with no warranties, confers no rights and
is not supported by the authors or CheckyourLogs or MVPDays Publishing

Author - Dave Kawula
    Twitter: @DaveKawula
    Blog   : http://www.checkyourlogs.net


    .Synopsis
    Deploys System Center SQL Server 2016 Instance to  a Hyper-V Lab VM
    .DESCRIPTION
    This Script was part of my BIGDemo series and I have broken it out into a
standalone function

    You will need to have a SVC_SQL Pre-Created and SQL 2016 Media for this lab
to work
    The Script will prompt for the path of the Files Required
```

```
    The Script will prompt for an Admin Account which will be used in
$DomainCred
    If your File names are different than mine adjust accordingly.

    We will use PowerShell Direct to setup the Veeam Server in Hyper-V

    The Source Hyper-V Virtual Machine needs to be Windows Server 2016

    .EXAMPLE
    TODO: Dave, add something more meaningful in here
    .PARAMETER WorkingDir
    Transactional directory for files to be staged and written
    .PARAMETER VMname
    The name of the Virtual Machine
    .PARAMETER VMPath
    The Path to the VM Working Folder - We create a new VHDx for the DPM Install
    .PARAMETER GuestOSName
    Name of the Guest Operating System Name


    Usage: Install-DPM -Vmname YOURVM -GuestOS VEEAMSERVER -VMpath f:\VMs\SCVMM
-WorkingDir f:\Temp
#>
  #Installs SCVMM 1801 for your lab

 Function Install-SQLDPM{

 param
  (
    [string]$VMName,
    [string]$GuestOSName,
    [string]$VMPath


  )


    #Ask for DPM EXE

        [reflection.assembly]::loadwithpartialname("System.Windows.Forms")
        $openFile = New-Object System.Windows.Forms.OpenFileDialog -Property @{
            Title="Please SQL Server ISO"
        }
        $openFile.Filter = "iso files (*.iso)|*.iso|All files (*.*)|*.*"
        If($openFile.ShowDialog() -eq "OK")
        {
              Write-Host "File $($openfile.FileName) selected"
        }
        if (!$openFile.FileName){
              WriteErrorAndExit  "Iso was not selected... Exitting"
            }
            $SQLISO = $openfile.FileName


    #Ask for SSMS EXE

        [reflection.assembly]::loadwithpartialname("System.Windows.Forms")
        $openFile = New-Object System.Windows.Forms.OpenFileDialog -Property @{
```

```
             Title="Please Select the SQL Server Management Studio SSMS .exe
Version 16.5 ONLY!!!"
        }
        $openFile.Filter = "exe files (*.exe)|*.exe|All files (*.*)|*.*"
        If($openFile.ShowDialog() -eq "OK")
        {
            Write-Host "File $($openfile.FileName) selected"
        }
        if (!$openFile.FileName){
            WriteErrorAndExit  "Iso was not selected... Exitting"
        }
        $SSMSEXE = $openfile.FileName


    #Ask for Windows Server ISO

        [reflection.assembly]::loadwithpartialname("System.Windows.Forms")
        $openFile = New-Object System.Windows.Forms.OpenFileDialog -Property @{
            Title="Please Select the Windows Server 2016 ISO"
        }
        $openFile.Filter = "ISO files (*.ISO)|*.ISO|All files (*.*)|*.*"
        If($openFile.ShowDialog() -eq "OK")
        {
            Write-Host "File $($openfile.FileName) selected"
        }
        if (!$openFile.FileName){
            WriteErrorAndExit  "Iso was not selected... Exitting"
        }
        $WS2016ISO = $openfile.FileName



    $DomainCred = Get-Credential
    #$VMName = 'DPM01'
    #$GuestOSname = 'DPM01'
    #$VMPath = 'f:\dcbuild_Test\VMs'
    #$SQL = 'VMM01\MSSQLSERVER'
    #$SCOMDrive = 'd:'




    Write-Output -InputObject "[$($VMName)]:: Adding Drive for DPM Install"

    New-VHD -Path "$($VMPath)\$($GuestOSName) - SQL Data 2.vhdx" -Dynamic -
SizeBytes 50GB
    Mount-VHD -Path "$($VMPath)\$($GuestOSName) - SQL Data 2.vhdx"
    $DiskNumber = (Get-Diskimage -ImagePath "$($VMPath)\$($GuestOSName) - SQL
Data 2.vhdx").Number
    Initialize-Disk -Number $DiskNumber -PartitionStyle GPT
    Get-Disk -Number $DiskNumber | New-Partition -UseMaximumSize -
AssignDriveLetter | Format-Volume -FileSystem NTFS -NewFileSystemLabel "SQL" -
Confirm:$False
    $Driveletter = get-wmiobject -class "Win32_Volume" -namespace "root\cimv2" |
where-object {$_.Label -like "SQL*"}
    $SQLDriveLetter = $DriveLetter.DriveLetter
    Write-Output -InputObject "[$($VMName)]:: Copying SQL ISO to the new VHDx"
```

```
    Copy-Item -Path $SQLISO -Destination
"$($SQLDriveLetter)\en_sql_server_2016_standard_with_service_pack_1_x64_dvd_9540
929.iso" -Force
    Write-Output -InputObject "[$($VMName)]:: Copying SSMS EXE to the new VHDx"
    Copy-Item -Path $SSMSEXE -Destination "$($SQLDriveLetter)\SSMS-Setup-
ENU.exe" -Force
    Write-Output -InputObject "[$($VMName)]:: Copying WS 2016 ISO to the new
VHDx"
    Copy-Item -Path $WS2016ISO -Destination
"$($SQLDriveLetter)\en_windows_server_2016_x64_dvd_9718492.iso" -Force
    Dismount-VHD -Path "$($VMPath)\$($GuestOSName) - SQL Data 2.vhdx"
    Add-VMHardDiskDrive -VMName $VMName -Path "$($VMPath)\$($GuestOSName) - SQL
Data 2.vhdx" -ControllerType SCSI



    icm -VMName $VMName -Credential $domainCred {

    Write-Output -InputObject "[$($VMName)]:: Adding the new VHDx for the SQL
Install"
    Get-Disk | Where OperationalStatus -EQ "Offline" | Set-Disk -IsOffline
$False
    Get-Disk | Where Number -NE "0" |  Set-Disk -IsReadOnly $False
    $Driveletter = get-wmiobject -class "Win32_Volume" -namespace "root\cimv2" |
where-object {$_.Label -like "SQL*"}
    $SQLDrive = $Driveletter.DriveLetter
    $SQLDrive
    Write-Output -InputObject "[$($VMName)]:: Mounting SQL ISO"

    $iso = Get-ChildItem -Path
"$($SQLDrive)\en_sql_server_2016_standard_with_service_pack_1_x64_dvd_9540929.is
o"  #CHANGE THIS!

    Mount-DiskImage $iso.FullName

    $setup = $(Get-DiskImage -ImagePath $iso.FullName | Get-Volume).DriveLetter
+':'
    $setup

    Write-Output -InputObject "[$($VMName)]:: Mounting WS2016 ISO"

    $iso = Get-ChildItem -Path
"$($SQLDrive)\en_windows_server_2016_x64_dvd_9718492.iso"  #CHANGE THIS!

    Mount-DiskImage $iso.FullName

    $setup1 = $(Get-DiskImage -ImagePath $iso.FullName | Get-Volume).DriveLetter
+':'
    $setup1


     Write-Output -InputObject "[$($VMName)]:: Configure DPM Service Account as
a Local Admin"

   # Add-LocalGroupMember -Group Administrators -Member $DPMServiceAcct


    Write-Output -InputObject "[$($VMName)]:: Enable .Net Framework 3.5"
```

```powershell
    Dism.exe /Online /Enable-Feature /FeatureName:NetFx3 /All
/Source:d:\sources\sxs

}


    Restart-DemoVM -VMName $VMname
    Wait-PSDirect -VMName $VMName -cred $DomainCred
}

 function Wait-PSDirect {
    param
    (
        [string]
        $VMName,

        [Object]
        $cred
    )

    Write-Log $VMName "Waiting for PowerShell Direct (using $($cred.username))"
    while ((Invoke-Command -VMName $VMName -Credential $cred {
                'Test'
    } -ea SilentlyContinue) -ne 'Test')
    {
        Start-Sleep -Seconds 1
    }
}

 function Restart-DemoVM {
    param
    (
        [string]
        $VMName
    )

    Write-Log $VMName 'Rebooting'
    stop-vm $VMName
    start-vm $VMName
}

 function Write-Log {
    param
    (
        [string]$systemName,
        [string]$message
    )

    Write-Host -Object (Get-Date).ToShortTimeString() -ForegroundColor Cyan -
NoNewline
    Write-Host -Object ' - [' -ForegroundColor White -NoNewline
    Write-Host -Object $systemName -ForegroundColor Yellow -NoNewline
    Write-Host -Object "]::$($message)" -ForegroundColor White
}
```
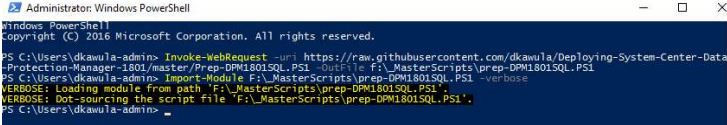
Running Prep-DPM1801.PS1

Instructions	Screenshot (if applicable)
1. Logon to the **Hyper-V Host Server** as **Administrator**	
2. Download the script from GitHub by running the following from an **Administrative PowerShell Prompt**	`Invoke-WebRequest -uri https://raw.githubusercontent.com/dkawula/Deploying-System-Center-Data-Protection-Manager-1801/master/Prep-DPM1801SQL.PS1 -OutFile f:\_MasterScripts\prep-DPM1801SQL.PS1`
3. Import the Prep-DPM1801SQL.PS1 Module	`Import-Module F:\_MasterScripts\prep-DPM1801SQL.PS1 -verbose`
4. Run Install-SQLDPM → remember we have just commented out the actual SQL Installation and SSMS installation as part of this updated script.	`Install-SQLDPM -VMName DPM01 -GuestOSName DPM01 -VMPath F:\dcbuild_test\VMs`

5. When Prompted select the SQL Server ISO
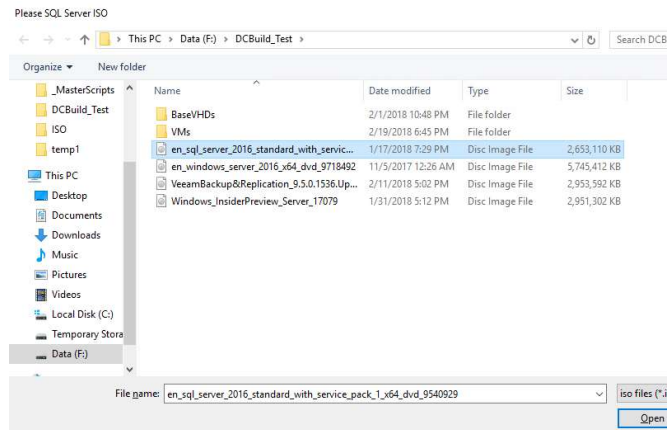
6. When Prompted Select the SQL Server Management Studio 16.5 Installer
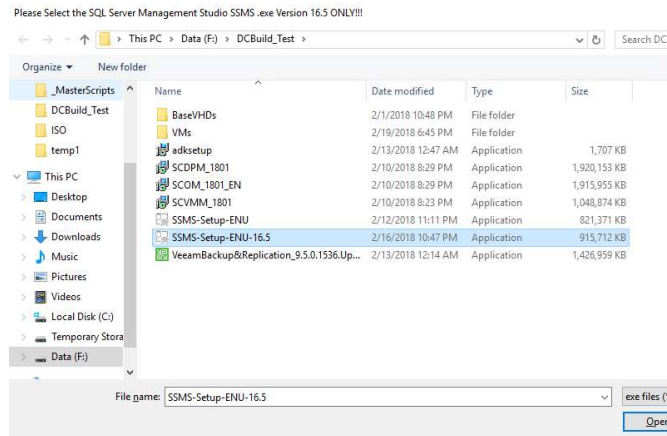
7. When prompted select the Windows Server 2016 ISO
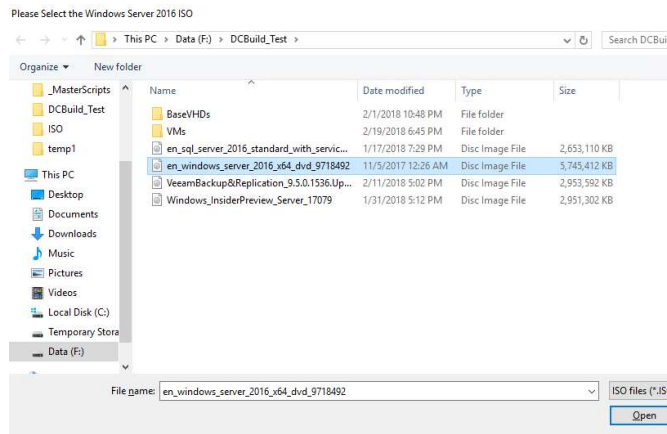
8. When prompted type MVPDays\Administrator with a password of P@ssw0rd

Windows PowerShell credential request   ?   ✕

Enter your credentials.

User name: 👤 MVPDays\Administrator   ∨   ...

Password: ••••••••

OK   Cancel
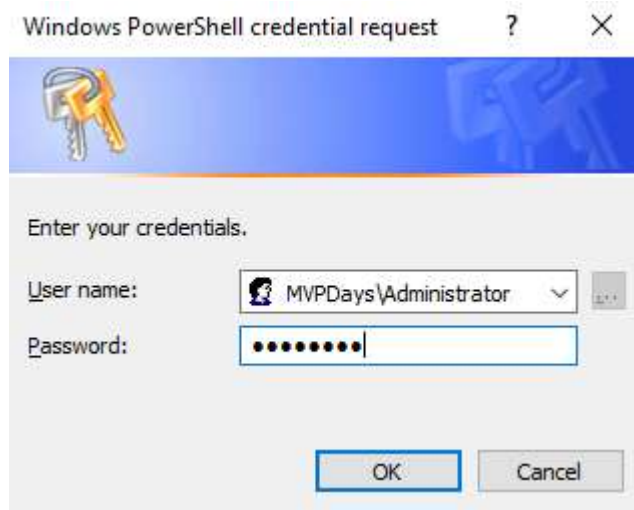
9.

Here is the output from the script execution:

```
PS C:\Users\dkawula-admin> Install-SQLDPM -VMName DPM01 -GuestOSName
DPM01 -VMPath f:\dcbuild_test\vms


GAC     Version        Location

---     -------        --------

True    v4.0.30319
C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Windows.Forms\v4.0_4.0.
0.0__b77a5c561934e089...

File
F:\DCBuild_Test\en_sql_server_2016_standard_with_service_pack_1_x64_dvd_9
540929.iso selected

True    v4.0.30319
C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Windows.Forms\v4.0_4.0.
0.0__b77a5c561934e089...

File F:\DCBuild_Test\SSMS-Setup-ENU-16.5.exe selected
```

```
True    v4.0.30319
C:\Windows\Microsoft.Net\assembly\GAC_MSIL\System.Windows.Forms\v4.0_4.0.
0.0__b77a5c561934e089...

File F:\DCBuild_Test\en_windows_server_2016_x64_dvd_9718492.iso selected


cmdlet Get-Credential at command pipeline position 1

Supply values for the following parameters:

Credential

[DPM01]:: Adding Drive for DPM Install


ComputerName              : TECHMENTORHV04

Path                      : f:\dcbuild_test\vms\DPM01 - SQL Data 2.vhdx

VhdFormat                 : VHDX

VhdType                   : Dynamic

FileSize                  : 4194304

Size                      : 53687091200

MinimumSize               :

LogicalSectorSize         : 512

PhysicalSectorSize        : 4096

BlockSize                 : 33554432

ParentPath                :

DiskIdentifier            : 99ED252E-7252-4909-9CF0-7B5A54764750

FragmentationPercentage   : 0

Alignment                 : 1

Attached                  : False

DiskNumber                :

Number                    :
```

```
ObjectId              :
{1}\\TECHMENTORHV04\root/Microsoft/Windows/Storage/Providers_v2\WSP_Volum
e.ObjectId="{14e75eea-c

                      7ee-11e7-a942-
806e6f6e6963}:VO:\\?\Volume{c9f8e274-255c-4f3c-8e04-7f838a01188d}\"

PassThroughClass      :

PassThroughIds        :

PassThroughNamespace  :

PassThroughServer     :

UniqueId              : \\?\Volume{c9f8e274-255c-4f3c-8e04-7f838a01188d}\

AllocationUnitSize    : 4096

DedupMode             : NotAvailable

DriveLetter           : E

DriveType             : Fixed

FileSystem            : NTFS

FileSystemLabel       : SQL

FileSystemType        : NTFS

HealthStatus          : Healthy

OperationalStatus     : OK

Path                  : \\?\Volume{c9f8e274-255c-4f3c-8e04-7f838a01188d}\

Size                  : 53550772224

SizeRemaining         : 53445619712

PSComputerName        :


[DPM01]:: Copying SQL ISO to the new VHDx

[DPM01]:: Copying SSMS EXE to the new VHDx

[DPM01]:: Copying WS 2016 ISO to the new VHDx

[]:: Adding the new VHDx for the SQL Install

[]:: Mounting SQL ISO
```

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```
E:

[]:: Mounting WS2016 ISO

[]:: Configure DPM Service Account as a Local Admin

[]:: Enable .Net Framework 3.5


Deployment Image Servicing and Management tool

Version: 10.0.14393.0


Image Version: 10.0.14393.0


Enabling feature(s)


[                              0.1%                              ]


[                              1.1%                              ]


[======                       10.9%                              ]


[=======                      12.7%                              ]


[========                     14.5%                              ]


[=========                    16.3%                              ]


[==========                   18.1%                              ]


[===========                  20.0%                              ]
```

```
[============                  21.8%                              ]


[=============                 23.6%                              ]


[==============                25.4%                              ]


[===============               27.2%                              ]


[===============               29.0%                              ]


[================              30.0%                              ]


[=================             31.2%                              ]


[==================            32.5%                              ]


[========================100.0%=========================]
The operation completed successfully.
11:13 PM - [DPM01]::Rebooting
11:13 PM - [DPM01]::Waiting for PowerShell Direct (using
MVPDays\Administrator)



PS C:\Users\dkawula-admin>
```

Note: The script captures one very important step and that is to have the .NET Framework 3.5 installed prior to SQL Server.   It also copies the required media for the lab in the book into the