Failover Cluster Configuration

Prerequisites:

- 1. Minimum two (2) Servers required for configuring Failover Cluster.
- 2. Install Failover Cluster Manager Role from Server Manager \rightarrow Add Roles and Features.

Γ	ħ	Add Roles and Features Wizard	_ D X
	Select features Before You Begin Installation Type Server Selection Server Roles Confirmation Results	Select one or more features to install on the selected server. Features	DESTINATION SERVER COUDSOLOT.coudiload
		< Previous Next >	Install Cancel

3. A Virtual Disk (Quorum.vhdx) mounted on both the servers

2		D	isk Managem	ent			x		2		E	isk Managem	ient		-		×
File Action V	iew Help							File Action View Help									
♦ ♦	🗖 🗟 🗙 🖬	f 🖻 🍳 🛛	5						(+ +) 🖬 👔	🖬 🗟 🗙	🗳 🖻 🖉	10					
Volume	Layout	Туре	File System	Status	Capacity	Free Spa	% F	1	Volume	Layout	Туре	File System	Status	Capacity	Free	Spa	% F
•	Simple	Basic		Healthy (R	300 MB	300 MB	100		•	Simple	Basic		Healthy (R	300 MB	300	MB	100
•	Simple	Basic		Healthy (E	100 MB	100 MB	100		•	Simple	Basic		Healthy (E	100 MB	100	MB	100
🖙 (C:)	Simple	Basic	NTFS	Healthy (B	59.48 GB	47.33 GB	80		💷 (C:)	Simple	Basic	NTFS	Healthy (B	59.48 GB	47.3	3 GB	80
🖙 Quorum (Q:)	Simple	Basic	NTFS	Healthy (P	990 MB	966 MB	98		Quorum (Q:)	Simple	Basic	NTFS	Healthy (P	990 MB	966	MB	98
								1	SQLServer (D:)	Simple	Basic	CDFS	Healthy (P	3.74 GB	0 M	В	0 %
C Disk 1 Basic 992 MB Online	Quorum (Q;) 990 MB NTFS Healthy (Prima	y Partition)	111				>		Circle Contraction	Quorum (Q: 990 MB NTFS Healthy (Prim	ary Partition)	11					> < =
CD-ROM 0 DVD (D:) Unallocated	Primary partition						~		CD-ROM 0 DVD Unallocated	SOI Server (Primary partitio	וי ח סח						~

CLOUDSQL01

CLOUDSQL02

Below are the scripts that are using to create **Quorum.vhdx** file in the "Scale-Out File Server Share" and attaching it to both the Virtual Machines (CLOUDSQL01 and CLOUDSQL02).

To create a new .vhd

New-VHD -Path \\cloudsofscap\FabricManagement\hyper-v\CLOUDCLUSTER04\Quorum.vhdx -Dynamic -SizeBytes 1GB - PhysicalSectorSizeBytes 4096 -LogicalSectorSizeBytes 4096

Attaching .vhdx to servers.

Add-VMHardDiskDrive -VMName CLOUDSQL01 -Path \\cloudsofscap\FabricManagement\hyper-v\CLOUDCLUSTER04\Quorum.vhdx - SupportPersistentReservations

Add-VMHardDiskDrive -VMName CLOUDSQL02 -Path \\cloudsofscap\FabricManagement\hyper-v\CLOUDCLUSTER04\Quorum.vhdx - SupportPersistentReservations

Steps to create Failover Cluster

1. Open Server Manager \rightarrow Tools \rightarrow Failover Over Cluster Manager

槛		Failover Cluster Manager				
File Action View Help						
(m 🔿 📰 🖬 🖬						
🝓 Failover Cluster Manager	Failover Cluster Manager			()	Actions	
	Create failover clusters, valid	date hardware for potential failover clusters, and perf	form configuration changes to		Failover Cluster Manag	jer 🔺
	your failover clusters.				Validate Configuration	
					Create Cluster	
	 Overview 				Connect to Cluster	
	A failover cluster is a set of indeper clustered servers (called nodes) ar	ndent computers that work together to increase the a e connected by physical cables and by software. If o	availability of server roles. The ne of the nodes fails, another		View	•
	node begins to provide services. T	his process is known as failover.			Refresh	
					Properties	
	 Clusters 				? Help	
	Name	Role Status	Node Status	≡		
	Management To begin to use failover clustering, steps are complex you can man unring Vindows Server 2012 F2. Wil Video confraction	<i>No tems found</i> . first validate your hardware configuration, and then ge the cluster. Managing a cluster can include coopi Windows Server 2012, or Windows Server 2008 R2	create a cluster. After these ng roles to it from a cluster			
	Create Cluster Connect to Cluster			~	Activate Windo Go to System in Con Windows.)WS itrol Pane

2. Right click on Failover Over Cluster Manager and Click Create Cluster and click Next

4 <mark>9</mark>	Create Cluster Wizard	x					
Before Yo	pu Begin						
Before You Beain	This wizard creates a cluster which is a set of servers that work together to increase the availability of						
Select Servers	clustered roles. If one of the servers fails, another servers that work togetien to inclease the availability of known as failover).						
Validation Warning	Refere you put this without we strongly recommend that you put the Validate a Configuration Without to						
Access Point for	ensure that your hardware and hardware settings are compatible with failover clustering.						
Cluster	Microsoft supports a cluster solution only if the complete configuration (servers, network, and storage) can						
Confirmation	pass all tests in the Validate a Configuration Wizard. In addition, all hardware components in the cluster solution must be "Certified for Windows Server 2012 R2."						
Creating New Cluster							
Summary	The must be a local duministrator on each of the servers that you want to include in the cluster.						
	To continue, click Next.						
	More about Microsoft support of cluster solutions that have passed validation tests						
	Next > Cancel]					

3. Select Servers that you would like to Add in the Failover Cluster and click **Next**.

49 		Create Cluster Wizard		x
Select Se	ervers			
Before You Begin	Add the names of all the	servers that you want to have in th	e cluster. You must add at least	one server.
Select Servers				
Validation Warning				
Access Point for Administering the	Enter server name:			Browse
Cluster	Selected servers:	CLOUDSQL01.cloud.local		Add
Confirmation				Remove
Creating New Cluster				
Summary				
				1
		_		
		<	Previous Next >	Cancel

4. On the Validation Warning page, select **Yes** to run the Validation Test and click **Next**.

4 1	Create Cluster Wizard
Validation	n Warning
Before You Begin Select Servers Validation Warning	For the servers you selected for this cluster, the reports from cluster configuration validation tests appear to be missing or incomplete. Microsoft supports a cluster solution only if the complete configuration (servers, network and storage) can pass all the tests in the Validate a Configuration wizard.
Access Point for Administering the Cluster	Do you want to run configuration validation tests before continuing?
Confirmation	
Creating New Cluster	Yes When I click Next nin configuration validation tests and then return to the process of creating.
Summary	the cluster.
	No. I do not require support from Microsoft for this cluster, and therefore do not want to run the validation tests. When I click Next, continue creating the cluster. More about cluster validation tests.
	< Previous Next > Cancel

5. On the Validate a Configuration Wizard click **Next**.

Ø	Validate a Configuration Wizard					
Before Y	'ou Begin					
Before You Begin Testing Options Confirmation Validating Summary	This wizard runs validation tests to determine whether this configuration of servers and attached storage is set up correctly to support falover. A cluster solution is supported by Microsoft only if the complete configuration (servers, network, and storage) passes all tests in this wizard. In addition, all hardware components in the cluster solution must be "Certified for Windows Server 2012 R2". You must be a local administrator on each of the servers that you want to validate. To continue, click Next.	5				
	Next > Cancel					

6. On Testing Options page, select **Run all tests (recommended)** and click **Next**.

- 44	Validate a Configuration Wizard							
Testing C	Dptions							
Before You Begin	Choose between running all tests or running selected tests.							
Confirmation	System Configuration.							
Validating	Microsoft supports a cluster solution only if the complete configuration (servers, network, and storage) can pass all tests in this wizard. In addition, all hardware components in the cluster solution must be "Certified							
Summary	Fun all tests (recommended) Run and tests (second tests)							
	More about cluster validation tests							
	< Previous Next > Cancel							

7. On the Validation Confirmation page click Next.

Ø	Validate a Configuration	Wizard	x
	ation		
Before You Begin Testing Options	You are ready to start validation. Please confirm that the following settings are correct:		
Confirmation	Servers to Test		
Validating	CLOUDSQL01.cloud.local		-
Summary	CLOUDSQL02.cloud.local		
	Tests Selected by the User	Category	
	List Fibre Channel Host Bus Adapters	Inventory	
	List iSCSI Host Bus Adapters	Inventory	
	List SAS Host Bus Adapters	Inventory	
	List BIOS Information	Inventory	~
	List Environment Variables	Inventory	_
	To continue, click Next.		
		< Previous Next > C	ancel

8. Validation will start and if the entire requirement for the cluster is available it will finish successfully.

樹		Validate a Configuration Wizard		
Validating				
Before You Begin Testing Options	The following v amount of time	alidation tests are running. Depending on the test selection	n, this may take a signific	cant
Casting	Progress	Test	Result	^
Contilmation		Validate Disk Failover	Pending	
Validating		Validate File System	Pending	
Summary	100%	Validate Microsoft MPIO-based disks	The test passed.	
		Validate Multiple Arbitration	Pending	
	100%	Validate SCSI device Vital Product Data (VPD)	The test passed.	
	100%	Validate SCSI-3 Persistent Reservation	The test passed.	=
		Validate Simultaneous Failover	Pending	
	0%	Validate Storage Spaces Persistent Reser	Issuing Persistent	Res
	<	Validata Activo Diractory Configuration	Pondina	>
	Test is currently	running.		
		-		
				àncel

9. In the **Summary, Validation** has **Completed Successfully**, click on View Report to know more details and click **Finish**.



10. Assign the **Cluster Name** and **IP Address** for the Cluster and click **Next**.

- 1	Create Cluster Wizard						x	
Access Point for Administering the Cluster								
Before You Begin	Type the name you w	ant to	use when administering the cluster.					
Select Servers Validation Warning	Cluster Name:	CLOU	IDCLUSTER04]
Access Point for Administering the Cluster	The NetBIOS nam automatically. Fo address.	ne is lin or each	nited to 15 characters. One or more IPv4 n network to be used, make sure the netw	addresse ork is sele	s could n ected, an	not be cor nd then ty	nfigured pe an	
Confirmation			Networks	Address				1
Creating New Cluster			192.168.236.0/24	192	168	. 236 .	54	
Summary			< Previous	N	ext >		ancel]
I								

11. On the Confirmation page, "Add all eligible storage to the cluster" is checked and click Next.

		Create Cluster Wizard	×
Confirma	tion		
Before You Begin Select Servers	You are ready to create a The wizard will create you	cluster. Ir cluster with the following settings:	
Validation Warning Access Point for Administering the Cluster	Cluster: Node: Node:	CLOUDCLUSTER04 CLOUDSQL01.cloud.local CLOUDSQL02.cloud.local	^
Confirmation	IP Address:	192.168.236.54	
Creating New Cluster			
Summary			~
	Add all eligible storage	to the cluster.	
	To continue, click Next.		
		< Previous Next >	Cancel

12. Creating New Cluster.

4	Create Cluster Wizard						
Creating	New Cluster						
Before You Begin Select Servers Validation Warning Access Point for Administering the Cluster Confirmation Creating New Cluster Summary	Please wait while the cluster is configured. Waiting for notification that Cluster service on node CLOUDSQL01.cloud.local has started.	-					
	Cancel						

13. On Summary Page it shows Cluster is created successfully click **Finish**.

- 4 9	Create Cluster Wizard						
Summary	,						
Before You Begin Select Servers Validation Warning	You have suc	cessfully completed the Create Cluster Wizard.					
Access Point for Administering the Cluster		Create Cluster	^				
Confirmation Creating New Cluster Summary	Cluster: Node: Node: Quorum: IP Address:	CLOUDCLUSTER04 CLOUDSQL01.cloud.local CLOUDSQL02.cloud.local Node and Disk Majority (Cluster Disk 1) 192.168.236.54	~				
	To view the report created by the wizard, click View Report. To close this wizard, click Finish.		View Report				
			Finish				

14. Expand the Failover Cluster Manager and to preview the configuration.

趨	Failover Cluster Manager							
File Action View Help								
🧇 🏟 🖄 🖬 👔								
📲 Failover Cluster Manager	Nodes (2)					Act	tions	
▲ P CLOUDCLUSTER04.cloud.lo	Search				👂 Queries 🔻 🔛 👻	No	odes 🔺	
Nodes	Name	Status	Assigned Vote	Current Vote	Information	1	Add Node	
A 🛃 Storage	CLOUDSQL01	(Up	1	1		1	View •	
Disks	CLOUDSQL02	🕑 Up	1	1			Refresh	
Pools							Hele	
Reliver Events						Ľ	nop	
						CL	OUDSQL01	
						B	Pause •	
							Resume 🕨	
	🗸 🎩 cioupso	01				•	Remote Desktop	
							Information Details	
	Status:	Up					Show Critical Events	
	Node ID: 1						More Actions	
	Uptime:	11:34:18 15.0 CB Australia, 10.07	CD T-1-1			2	Help	
	Memory: Processore:	(4) Intel(P) Xeon(P) CPU	26 10tal E5.2690 v2 @ 2.60GH			1		
	CPU Usage: 0%							
	Operating System:	Microsoft Windows Serve	er 2012 R2 Standard					
	Version:	6.3.9600						
	Service Pack:	No Service Pack Installe	d					
	System Type:	x64-based PC						
	Manuracturer:	Virtual Machine						
	- House						Activate Windows	
							Go to System in Control Pane	
< III >	Summary Network C	onnections Roles Disl	ks Pools				Windows.	
Nodes: CLOUDSQL01								

趨			Failover Cluster Manag	er					x
File Action View Help									
🗢 🔿 🙎 📰 🛛 🖬									
Failover Cluster Manager	Disks (1)					Actions			
Roles	Search Dueries V 🔛 V 🔍						Disks		
Modes	Name	Status	Assigned To	Owner Node	Disk Number C	3	Add Disk		
⊿ 🤮 Storage	📇 Cluster Disk 1	Online	Disk Witness in Quorum	CLOUDSQL01	1	3	Move Available S	torage	•
Pools							View		•
Metworks						Q	Refresh		
図 Cluster Events						?	Help		
						Clu	uster Disk 1		•
							Bring Online		
						1	Take Offline		
						8	Information Deta	ils	
						8	Show Critical Eve	ents	
							More Actions		•
	<	Ш			>		Properties		
	👻 🧾 Cluster Disk	1				?	Help		
	Volumes (1)								
	Quorum (Q:)	ee of 990 MB							
							Activate W	indow	s
	1						Go to System i Windows.		ol Pane
Disks: Cluster Disk 1	11								