(/tutorials/)

Configure a SQL 2014 AlwaysOn Availability **Group Cluster**

by baldwin (/users/profile/baldwin) on Dec 04, 2014

Advanced

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Introduction

Before jumping into this tutorial you will want to have first completed the following pre-requisite tutorials:

Setting Up Windows 2012 R2 Active Directory Using the DCD (/tutorials/setting-up-windows-2012-r2-activedirectory-using-the-dcd/)

Setup DCD for a Two Node Cluster (/tutorials/setup-dcd-for-two-node-cluster/)

Create a Windows 2012 R2 Failover Cluster on ProfitBricks (/tutorials/create-a-windows-2012-r2-failover-clusteron-profitbricks/)

We will be leveraging the Active Directory domain you created in the first tutorial and the DCD cluster you brought online in the second. By the end of this tutorial you will have a SQL cluster deployed in your datacenter. We will be using AlwasyOn Availability Groups with non-shared storage.

SQL 2014 Edition Differences

Microsoft provides a great overview of the differences between SQL editions here (http://msdn.microsoft.com/en-us /library/cc645993.aspx). This page breaks down the features in SQL and the edition in which they are available.

For the features we're using in this tutorial you will need to use Enterprise Edition. We plan on covering how to setup a cluster using AlwaysOn Failover Cluster Instances, which is available for Enterprise, Business Intelligence, and Standard editions, in a later tutorial.

AlwaysOn Availability Groups

One of the more exciting additions to SQL in the past few versions has been the introduction of AlwaysOn Availability Groups. An AlwaysOn Availability Group cluster uses and requires Windows Server Failover Clustering (WSFC). The concept is very similar to Exchange's DAG technology in that an Availability Group encompasses and supports failover of a discrete set of databases. These databases are known as your availability databases. What this means is that in the event of a failure all databases associated with a given availability group will failover to a secondary replica.

One node in a cluster will act as a primary replica with support for one to eight secondary replicas. Connections to the cluster are managed by WSFC. Clients connect to an availability group listener which determines the correct replica to send the request.

Networking

You did most of the network setup in the tutorial on how to create the environment within the DCD. The remaining steps that you will need to do before moving forward with installing SQL and configuring the cluster are:

- 1. Configure the private interfaces on both SQL nodes to use the Domain Controllers as the DNS servers.
- 2. Clear the DNS server settings for the public interface to ensure you can resolve the AD domain without issue. Any public lookups would happen via referrals on the AD DNS servers.
- 3. Join the AD domain. This can be done by using the following PowerShell command:

You would run:

Add-Computer -DomainName YOURDOMAIN

This will prompt you for credentials. Use the username and password for the domain administrator. Once finished you should get a response from PowerShell that indicates the changes won't take affect until you reboot.

Let's not reboot at the moment, but continue onto Windows Update which might require a reboot depending on the type of updates that are outstanding.

Windows Update

As a best practice -- and especially with cloud server instances -- I always like to run Windows Update before starting anything major. Once we're done with the SQL installation we will re-run Windows Update to ensure we capture any additional SQL updates that may need to be installed.

Go ahead and run Windows Update at this time if you want. Reboot once all updates have been installed. If there are no updates to install go ahead and reboot to commit the domain join change.

Disk Volumes

Log onto both nodes and initialize the volumes you will be using for storing your databases and transaction logs. If you followed our tutorial on provisioning a two-node cluster in the DCD then you should have three volumes total:

- a volume for the system
- · a volume for the SQL databases
- · a volume for the SQL transaction logs

This would be done by bringing up the Disk Management interface.

Setup SQL User and Groups

First, we need to create some Managed Service Accounts. These will be used for each SQL node we add to the cluster. We create three accounts per node in the cluster and associate those service accounts to the node. This can be simplified using PowerShell like so:

```
New-ADServiceAccount -Name SQL01SVCACC -Description "SQL01 Service Account" -Path "OU=ClusterObje
cts,DC=yourdomain,DC=local"
New-ADServiceAccount -Name SQL01AGTACC -Description "SQL01 Agent Account" -Path "OU=ClusterObject
s,DC=vourdomain,DC=local"
New-ADServiceAccount -Name SQL01SBWACC -Description "SQL01 Browser Service Account" -Path "OU=Clu
sterObjects,DC=yourdomain,DC=local"
New-ADServiceAccount -Name SQL02SVCACC -Description "SQL02 Service Account" -Path "OU=ClusterObje
cts,DC=yourdomain,DC=local"
New-ADServiceAccount -Name SQL02AGTACC -Description "SQL02 Agent Account" -Path "OU=ClusterObject
s,DC=yourdomain,DC=local"
New-ADServiceAccount -Name SQL02BWACC -Description "SQL02 Browser Service Account" -Path "OU=Clus
terObjects,DC=yourdomain,DC=local"
```

You will next need to associate each account with the SQL node to which it belongs.

Add-ADComputerServiceAccount -Identity SQL01 -ServiceAccount SQL01SVCACC, SQL01AGTACC, SQL01SBWACC Add-ADComputerServiceAccount -Identity SQL02 -ServiceAccount SQL02SVCACC, SQL012AGTACC, SQL02SBWACC The above should be ran from a server that has the AD PowerShell tools installed. We recommend installing these tools on each of the nodes using the following command.

Install-WindowsFeature RSAT-AD-PowerShell

Now it's time to install these newly created service accounts on each node. It is important that you are logged into the node when running these.

Get-ADComputerServiceAccount -Identity SQL01 | Install-ADServiceAccount

From the second node:

Get-ADComputerServiceAccount -Identity SQL02 | Install-ADServiceAccount

It is also handy to create a SqlServerAdministrators group at this time. This will be assigned during the SQL installation. Ensure that the user you are going to use to enable AlwaysOn and configure a DB is a member of this group. This includes your domain administrator if you're using that user.

Install SQL on the First Node

Since we're installing a test cluster we will be using the evaluation version of SQL 2014. You will need to ensure you have the appropriate license for the version of SQL you will be using.

You can download the evaluation version here (http://www.microsoft.com/en-us/evalcenter/evaluate-sql-server-2014). This gives you a 180-day license of SQL 2014. This is sufficient to get a feel for AlwaysOn Availability Groups. You will also need to download the latest cumulative update here (http://support.microsoft.com/kb/2772858 /en-us) and extract it to a location on disk.

Ensure that the Windows Firewall is not protecting the heartbeat or private networks.

Log onto the first node and either mount or download your SQL binaries.

You will then need to run this at the command line:

C:\sql\setup\file\path\setup.exe /action=install /updateenabled=true /updatesource="C:\path\to\up date"

Once the wizard comes up:

- 1. Input your product key and click next.
- 2. Accept the terms, next.
- 3. Choose SQL Server Feature Installation
- 4. You will be installing these features:
- 5. Database Engine Services
- 6. Full-Text Search
- 7. Management Tools -- Complete

Peature Selection Product Key Licens Terms Global Aules Product Key Licens Terms Global Aules Product Updates Install Seup Files Install Reup Files Instance Configuration Server Reging Services - SharePoint Reporting Services - SharePoint Ready to Install Installed from media: Output the Report Connectivity	1		SQL Server 2014 Setup	, – – ×
Product Key Estures: Feature description: License Terms Instance Features Includes the Search engine that supports full-Text Extraction for Apphases Global Rules SQL Sever Replication Includes the Search engine that supports full-Text Extraction for Apphases Install Rules SQL Sever Replication Includes the Search engine that supports full-Text Extraction for Apphases Install Rules SQL Sever Replication Includes the Search engine that supports full-Text Extraction for Apphases Install Rules Sate Deta Quality Services Includes the Search engine that supports full-Text Extraction for Apphases Install Rules Data Quality Services Includes the Search engine that supports full-Text Extraction for Apphases Install Rules Data Quality Services Includes the Search engine that supports full-Text Extraction for Apphases Instance Configuration Deat Quality Services Perequisites for selected features: Already installed Internet Tools Bockwards Compatibility Internet Teamework 3.5 Deta time tools Declorangitation Progress Management Tools - Complete Dirk Cost onfort Suido 2010 Seill Optimized Replay Client Optimized Replay Client Dirk Space Requirements Dirk Space Required, 28843 MB availabite Maragement Field/Microsoft SQL Serv	Feature Selection Select the Evaluation features	to install.		
License Terms Global Rules Product Updates Instance Features Product Updates Install Rules Sol Server Replication Data Quality Services Campione Configuration Patters Edection Feature Rules Instance Configuration Data Sou Server Replication Reporting Services - Native Shared Features Instance Configuration Data Quality Services Complete Distributed Replay Controller Distributed Re	Product Key	<u>F</u> eatures:		Feature description:
Select All Unselect All Instance goot directory: CAProgram Files\Microsoft SQL Server\ Shared feature directory: CAProgram Files\Microsoft SQL Server\ Shared feature directory (286): CAProgram Files (x80)\Microsoft SQL Server\	License Terms Global Rules Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete	Instance Features	in ic Extractions for Search ve ePoint n for SharePoint Products Compatibility nents ic Complete oller SDK	Includes the Search engine that supports Full-Text Extraction for fast text search as well as Semantic Extraction for key phrases (likely tags) and similarity search on content stored in SQL Server. Prerequisites for selected features: Already installed: Windows PowerShell 2.0 Microsoft .NET Framework 4.0 To be installed from media: Microsoft Visual Studio 2010 Redistributables Microsoft Visual Studio 2010 Redistributables Disk Space Requirements Drive C: 2652 MB required, 28843 MB available
Shared feature directory (<u>x86</u>): C:\Program Files (x86)\Microsoft SQL Server\		Select All Unselect All Instance goot directory: Shared feature directory:	C:\Program Files\Microsoft C:\Program Files\Microsoft	SQL Server\
V MARKEN MARKAN HARA		Shared feature directory (½86):	C:\Program Files (x86)\Micr	osoft SQL Server

5. Choose named instance and set its name to something other than the default. You can also change your instance path at this time.

1		SQL Server 2	2014 Setup		X
Instance Configuration	n te ID for the instance of Si	QL Server. Instance ID becom	es part of the installation pat	th.	
Product Key () License Terms () Global Rules Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules	Default instance Named instance: Instance [D: SQL Server directory: Installed instances:	CLUSTERDEMO	SQL Server\MSSQL12.CLUST	ERDEMO	
Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete	Instance Name	Instance ID	Features	Edition	Version
			< <u>B</u> ack	< <u>N</u> ext > C	ancel Help

6. Set the Account Name for each of the service accounts.

| Service | Account Name | Startup Type | | ---- | ---- | | SQL Server Agent | YOURDOMAIN\SQL01AgtAcc\$ | Default | | SQL Server Database Engine | YOURDOMAIN\SQL01SvcAcc\$ | Default |

1	S	QL Server 2014 Setup		_ 0	x
Server Configuration Specify the service accounts and	d collation configuration.				
Product Key License Terms Global Rules	Service Accounts Collat	ion s that you use a separate account for eacl	n SQL Server service.		
Product Updates	Service	Account Name	Password	Startup Type	
Install Setup Files	SQL Server Agent	YOURDOMAIN\SQL01AGTACC\$		Manual	~
Install Rules	SQL Server Database	YOURDOMAIN\SQL01SVCACC\$		Automatic	×
Setup Role	SQL Full-text Filter D	NT Service\MSSQLFDLauncher\$CLUS		Manual	
Setup Role Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete					
		< Back	<u>N</u> ext >	Cancel Help)

7. Choose your authentication mode. Best practices say you'd leave the default, but turning on mixed mode gives you a way into SQL when all else fails. You will also need to add the SqlServerAdministrators group as an defined SQL Server Administrator.

	SQL Server 2014 Setup		- 1	⊐ ×	
Database Engine Config Specify Database Engine auther	guration tication security mode, administrators and data directories.				
License Terms Global Rules Product Updates Install Setup Files Install Rules Setup Role Feature Selection Feature Rules Instance Configuration Server Configuration Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete	Server Configuration Data Directories FILESTREAM Specify the authentication mode and administrators for the Database Engine. Authentication Mode Windows authentication mode Mixed Mode (SQL Server authentication and Windows authentication) Specify the password for the SQL Server system administrator (sa) account. Enter password: Confirm password: Specify SQL Server administrators YOURDOMAIN\SqlServerAdministrators (SqlServerAdministrators) Add <u>Current User</u> Add Remove 	SQL Server admin have unrestricted the Database Eng	nistratoi 1 access	sto	
	< <u>B</u> ack <u>N</u> ext >	Cancel	н	elp	

8. You will then want to update your directories so that your databases are on the second volume you've attached to your server and the transaction logs are on the third. At this time, if you choose to, you can create a fourth volume and use that as your backup location.

It is also very important to note that to use Availability Groups the database and transaction log paths need to remain identical. You will need to adjust the default paths to reflect the same path on both nodes.

1	SQL S	erver 2014 Setup
Database Engine Confi Specify Database Engine auther	guration ntication security mode, administr	ators and data directories.
Product Key	Server Configuration Data Dir	ectories FILESTREAM
License Terms Global Rules Product Updates Install Setup Files	<u>D</u> ata root directory: System database directory:	C:\Program Files\Microsoft SQL Server\
Install Rules Setup Role	User database directory:	D:\Program Files\Microsoft SQL Server\MSSQL12.CLUSTERDEMO\MSSQ
Feature Selection Feature Rules	<u>T</u> emp DB directory:	C:\Program Files\Microsoft SQL Server\MSSQL12.CLUSTERDEMO\MSSQ
Server Configuration	T <u>e</u> mp DB log directory:	C:\Program Files\Microsoft SQL Server\MSSQL12.CLUSTERDEMO\MSSQ
Database Engine Configuration Feature Configuration Rules Ready to Install Installation Progress Complete	Bac <u>k</u> up directory:	C:\Program File\$\Microsoft SQL Server\MSSQL12.CLUSTERDEMO\MSSQ
		< Back Next > Cancel Help

9. Click through to complete the setup.

At this point your first node should be online.

1	SQL Server 2014 Setup		x
Complete			
Your SQL Server 2014 Installati	on completed successfully with product updates.		
Product Key License Terms	Information about the Setup operation or possible ne	xt steps:	
Clabel Pulse	Feature	Status	^
Global Rules	Management Tools - Complete	Succeeded	
Product Updates	Management Tools - Basic	Succeeded	Ξ
Install Setup Files	Database Engine Services	Succeeded	
Install Rules	Full-Text and Semantic Extractions for Search	Succeeded	
Setup Role	SQL Browser	Succeeded	
Feature Selection	SOL Writer	Succeeded	•
Feature Rules			
Instance Configuration	Details:		
Server Configuration		(Merce)	_
Database Engine Configuration	Viewing Product Documentation for SQL Sei	ver	â
	Only the components that you use to view and m	anage the documentation for SQL Server have been	-
Feature Configuration Rules	installed. By default, the Help Viewer component	uses the online library. After installing SQL Server,	
Ready to Install	you can use the Help Library Manager componer	t to download documentation to your local computer.	
Installation Progress	For more information, see Use Microsoft Books (Dnline for SQL Server	
Complete	(Shitp.//gu.microsoft.com//wilnk//LinkiD=2995/6	2J.	~
	Summary log file has been saved to the following loca	ation:	
	<u>C:\Program Files\Microsoft SQL Server\120\Setup Bo</u> \Summary SQL01 20141119 233254.bd	otstrap\Log\20141119 233254	
	I	Close Help	

Install SQL on the Second Node

You will want to repeat the above steps on each node of your cluster. It might be handy to generate an INI or script out the installation if you're going to be doing this numerous times.

Configure SQL Networking

SQL needs to be configured for static ports. The following steps will need to be done on each cluster.

Bring up the Sql Server Configuration Manager.

File Action View Help Sol. Server Configuration Manager (Local) Sol. Server Services Tabled Sol. Server Network Configuration (Zbit) Thaned Pipes Disabled J. Sol. Server Network Configuration (Zbit) Thaned Pipes Disabled Sol. Native Client 11.0 Configuration TCP/IP Enabled		Sql	Server Configuration Manager	×
Image: SQL Server Configuration Manager (Local) Protocol Name Status SQL Server Network Configuration (32ht) Thated Memory Enabled SQL Server Network Configuration (32ht) TCP/IP Enabled Potocol S for CLUSTERDEMO Enabled SQL Server Client 11.0 Configuration TCP/IP	File Action View Help			
SQL Server Configuration Manager (Local) Protocol Name Status SQL Server Network Configuration (321) The Manager (Local) The Manager (Local) SQL Server Network Configuration (321) The Manager (Local) The Manager (Local) SQL Server Network Configuration (321) The Manager (Local) The Manager (Local) SQL Server Network Configuration (321) The Manager (Local) The Manager (Local) SQL Server Network Configuration (321) The Manager (Local) The Manager (Local) SQL Native Client 11.0 Configuration The Manager (Local) The Manager (Local) SQL Native Client 11.0 Configuration The Manager (Local) The Manager (Local) SQL Native Client 11.0 Configuration The Manager (Local) The Manager (Local) SQL Native Client 11.0 Configuration The Manager (Local) The Manager (Local) SQL Native Client 11.0 Configuration The Manager (Local) The Manager (Local)	Þ 🐟 🙍 🗐 🖓			
SQL Server Setvorks Total Server Network Configuration (32) SQL Native Client 11.0 Configuration Total Server Network Configuration SQL Server Network Configuration Total Server Network Configuration SQL Native Client 11.0 Configuration Total Server Network Configuration SQL Server Network Configuration Total Server Network Configuration SQL Native Client 11.0 Configuration Total Server Network Configuration	SQL Server Configuration Manager (Local)	Protocol Name	Status	
× m >	SQL Server Services SQL Server Network Configuration (32bit SQL Server Network Configuration (32l SQL Server Network Configuration Protocols for CLUSTERDEMO SQL Native Client 11.0 Configuration	Shared Memory Named Pipes TCP/IP	Enabled Disabled Enabled	
< III >				

You will want to drill down to SQL Server Network Configuration --> Protocols for YOURINSTANCENAME.

You will need to remove the "TCP Dynamic Ports" value 0 for all IP nodes (IP1, IP2, IP3, etc.). This can be done by simply highlighting and deleting it.

Protocol	IP Addresses		
TCP	Dynamic Ports		^
TCP	Port		
🖾 IB8			
Activ	ve	Yes	
Enal	bled	No	
IP A	ddress	169.254.2.129	
TCP	Dynamic Ports		
TCP	Port		
🖾 IP9			
Activ	ve	Yes	
Enal	bled	No	
IP A	ddress	::1	
TCP	Dynamic Ports		
TCP	Port		
	1		
TCP	Dynamic Ports		=
TCP	Port	2020	~
TCP Po	et.		
TCP no	at .		
ici po			

Clear the TCP Dynamic Ports value under IPALL.

Enter your desired static port in the TCP Port field. This will need to be the same port across all nodes. You can make this whatever you want. In our example we're using 2020.

Restart SQL services.

Enabling AlwaysOn

Finally, you're ready to enable AlwaysOn using PowerShell:

Enable-SqlAlwaysOn -ServerInstance "SQLSERVER\SQLINSTANCE" -Force

Replace SQLSERVER with the name of your server and SQLINSTANCE with the instance named you used. Perform this step on each node. You will also need to restart your the SQL Server service.

Configure AlwaysOn for Your Database

Now that your nodes are built out, networking is configured, and AlwaysOn is enabled it is time to configure a database for redundancy. This can be done from with the SQL Management Studio.

Before you start you will already need to either create a database or attach a database to the SQL instance. You will also need to perform a full backup of the database.

We will only create a single AlwaysOn Availability Group. We will name this availability group: AODEMO.

Log onto SQL01 and bring up the SQL Management Studio.

Right-click on Availability Groups and select New Availability Group Wizard.



Name your AG.

6	New Availability Group	- • ×
Specify Availab	ility Group Name	
Introduction		🙆 Help
Specify Name	Specify an availability group name.	
Select Databases	Availability group name:	
Specify Replicas	AODEMO	
Select Data Synchronization		
Validation		
Summary		
Results		
	< Previous Next >	Cancel

Choose your database.

1	New Av	ailability Group) 1	×
Select Database	5			
Introduction				🙆 Help
Specify Name	Select user databases f	or the availability	group.	
Select Databases	User databases on this ir	istance of SQL Serv	/er:	
Specify Replicas	Name	Size	Status	
Select Data Synchronization	AGDEMODB	4.0 MB	Meets prerequisites	
Validation				
Summary				
Reculto				
Resoluts				
	1			
				Refresh
			< Previous Nex	t> Cancel

Click "Add Replica".

	Replicas	Endpoints B	ackup Prefere	ences List	ener			
pecify Replicas	Availabil	ity Replicas:						
elect Data Synchronization	Server Ir	nstance	Initial Role	Automati Failover (2)	ic Up to	Synchronous Commit (Up to 3)	Readable Secondary	
ummary	SQL01\C	LUSTERDEMO	Primary		1		No	
575-5507F (
	Add R	eplica	Add Azure Re	plica	Remo	ve Replica		

Connect to your second node. In our case this is SQL02.

You will want to enable the following:

- Automatic Failover
- Synchronous Commit
- Readable Secondary

6		New	Availabil	ity Gro	up		×
Specify Replica	35						
Introduction Specify Name Select Databases	Specify an instance of S	QL Server to	host a se	condary	replica.		🔞 Help
Part Parts	Replicas Endpoints E	ackup Prefer	ences Lis	tener			
specity Replicas	Availability Replicas:						
Select Data Synchronization Validation	Server Instance	Initial Role	Automa Failover 2)	tic (Up to	Synchronous Commit (Up to 3)	Readable Secondary	
Summary	SQL01\CLUSTERDEMO	Primary		/	~	Yes	~
Results	SQL02\SQL02	Secondary	E	/	~	Yes	~
	Add Replica Summary for the replik Replica mode: Synchro This replica will use synch Readable secondary: In the secondary role, this	Add Azure Ro ca hosted by prous commit ronous-commit Yes availability repl	eplica SQL02\S with automat availability ica will allow	Remo GQL02 ic failover mode and v all conn	ove Replica , support both automa ections for read acce	tic failover and manual failover. ss, including connections running wi	ith older clients, .

Click the Endpoints tab and configure your endpoints. We will be using the heartbeat network we created for node to node communication. This will serve as our replica network, too.

4			New Availa	ability Group	9			×
Specify Replicas								
Introduction								🛞 Help
Specify Name	Specify a	n instance of S	QL Server to host a	a secondary rep	olica.			
Select Databases	Replicas	Endpoints E	Backup Preferences	Listener				
Specify Replicas	Endpoir	nt values:						
Select Data Synchronization	Endpoi	int URL			Port Number	Endpoint Name	Encrypt Data	SQL Server Service Account
Validation	TCP://1	10.10.11.10:5022	2		5022	Hadr_endpoint	~	YOURDOMAIN\SQL
Summary	TCP://1	10.10.11.11 5022	2		5022	Hadr_endpoint	~	YOURDOMAIN\SQL
Results.								
	<							
	Status	s						Refresh

Click the Listener tab and configure the listener. You'll notice we're using the port we defined when configuring the networking.

Replicas	Endpoints	Backup Preferences	Listener				
Specify ye	our preferen	ce for an availability g	group listener that will provide a client connection point:				
Do no You ca Create	et create an a n create the an availabi	availability group list listener later using th lity group listener	t ener now ne Add Availability Group Listener dialog.				
specity	y your listene	er preferences for this	references for this availability group.				
Listener DNS Name:		AODEMO-Liste	AODEMO-Listener 2020				
Port:	2020						
Netwo	rk Mode:	Static IP	Static IP				
Subne	ŧ	IP Address					
10.10.1	10.0/24	10.10.10.55					
-							

You will need to configure a data synchronization method. We recommend using full. You will need to ensure that your nodes are setup identically and that the database and log path are the same on all nodes. We used the file paths:

- D:\databases\
- E:\transaction_logs\

You can obviously make these paths different. The only requirement is they must be identical across all nodes in the cluster so the default paths will not work.

The default will attempt to use \SQL01 (the node you're currently on). One option is to create a DFS location for your shared content. This goes beyond the scope of this article but will be covered in the future.

You'll notice that we're using a share available on our node to node communication network, what we called the heartbeat network.

(Sec)	Full
	Starts data synchronization by performing full database and log backups for each selected database. These databases are restored to each secondary an joined to the availability group.
	Specify a shared network location accessible by all replicas:
	\\10.10.11.10\\dbshare Browse
0	Join only
	Starts data synchronization where you have already restored database and log backups to each secondary server. The selected databases are joined to the availability group on each secondary. This action will be skipped for Azure replicas.
	Skip initial data synchronization
0	Ship milli shi Shim Shi Shi

Ensure all validation checks are green.

a l	New Availability Group	X
Validation		
Introduction		🔞 Help
Specify Name	Results of availability group validation.	
Select Databases	Name	Result
Specify Replicas	Checking whether the endpoint is encrypted using a compatible algorithm	Success
Select Data Sunchronization	Checking shared network location	Success
Select Data Synchronization	Checking for free disk space on the server instance that hosts secondary replica SQL02\SQL02	Success
Validation	Checking if the selected databases already exist on the server instance that hosts secondary replica SQL02\SQL02	Success
Summary	Checking for compatibility of the database file locations on the server instance that hosts secondary replica SQL02\SQL02	Success
Results	Checking for the existence of the database files on the server instance that hosts secondary replica SQL02\SQL02	Success
	Checking the listener configuration	Success
	Checking the availability mode compatibility between the primary and secondary replicas	Success

Click next and then finish. This will configure endpoints and perform various other tasks. You should see a results page like this.

Name	Result
Creating logins on 'SQL01\CLUSTERDEMO'.	Succes
Creating logins on 'SQL02\SQL02'.	Succe
Onfiguring endpoints.	Succe
Starting the 'AlwaysOn_health' XEvent session on 'SQL01\CLUSTERDEMO'.	Succe
Starting the 'AlwaysOn_health' XEvent session on 'sql02\sql02'.	Succe
Creating availability group 'AODEMO'.	Succe
Waiting for availability group 'AODEMO' to come online.	Succe
Create Availability Group Listener 'AODemo-Listener'.	Succe
Joining secondary replicas to availability group 'AODEMO'.	Succe
Validating WSFC quorum vote configuration.	Succe
Creating a full backup for 'AGDEMODB'.	Succe
Restoring 'AGDEMODB' on 'SQL02\SQL02'.	Succe
Backing up log for 'AGDEMODB'.	Succe
Restoring 'AGDEMODB' log on 'SQL02\SQL02'.	Succe
Joining 'AGDEMODB' to availability group 'AODEMO' on 'SQL02\SQL02'.	Succe

Validation

Exploring the new Availability Group in SQL Server Management Studio you should see that there's an Availability Group named AODEMO. Under Availability Replicas you should see your nodes with your first node being the primary and the other node as your secondary. There should be a single Availability Database named, in our case, AGDEMODB. Finally you should see your listener. If you were to check AD DNS this listener will be registered with the internal IP you provided.



Log onto your secondary node and bring up the SQL Server Management Studio. You should see that you have the database there as well.

🖃 🚺 SQL02\SQL02 (SQL Server 12.0.2000 -🖃 🦲 Databases 🗄 🚞 System Databases \pm 🧰 Database Snapshots

AGDEMODB (Synchronized)

Conclusion

Congratulations! At this point you should now have a database using AlwaysOn Availability Groups.

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- Getting Started with a Multi-node Kubernetes Cluster on Ubuntu (https://devops.profitbricks.com/tutorials /getting-started-with-a-multi-node-kubernetes-cluster-on-ubuntu/)

lanhleo147 (/users/profile/lanhleo147/) on Jan 13, 2017 commented, Hi, I have 03 servers in there, 02 servers installed SQL Database (SQLDB1 and SQLDB2) and 01 server installed witness. - SQLBD1 is node 1 - SQLDB2 is node 2

I have question: 1- if 01 server SQLDB1 and server witness are failed. So, does database mirroring continues functioning without interruption, except that automatic failover is not possible?

2- if it can work. How can i configure in this case?

Thanks

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