## SQL Server 2012 – Step-by-Step – Create the AlwaysOn Availability Group

## Brief

The object of this guide is to outline the steps involved in creating a Windows Server 2012 Failover Cluster specifically for use with a SQL Server 2012 Instance utilizing the Always On Availability Group feature. This will be a wizard install and so will not cover any pre-staged elements; it will also not cover Cluster Shared Storage for Failover Clusters, or SQL Server 2012 Clusters.

## Assumptions

The installation steps assume the following:

- 1. Two identical virtual machines with Windows Server 2012 R2 installed
- 2. Administrative Accounts have been created
  - 1. Domain Administrator to perform install
  - 2. SQL Server Account
  - 3. SQL Agent Account
- 3. Storage has been allocated and assigned as follows:
  - 1. 2 disks for SQL Database storage I drive per server, for Always On AG
  - 2. Both disks should be assigned the same drive letter on both machines
- 4. IP Address reserved for AG Listener
- 5. Temporary File Share accessible by SQL Service Account and both Servers
- 6. Failover Cluster Feature is installed on both machines

Windows Server 2012 R2 Failover Cluster Installation

In Server Manager, Select Tools, Failover Cluster Manager.

In Failover Cluster Manager select Create Cluster.

8	Failover Clust	er Manager		- 0	×
File Action View Help					
ale Failover Cluster Manager	Failover Cluster Manager		-	Actions	
	Create failover clusters, validate hardware for pote configuration changes to your failover clusters.	ntial failover duaters, and perform work together to increase the nodes) are connected by physical node begins to provide services. This	3	Failover Cluster Manager Validate Configuration Create Cluster Connect to Cluster View Refresh Properties Help	,
	Name Name No Berna found.	Role Status			

On the Default Screen click **Next**.

	Create Cluster Wizard
Before Y	ou Begin
Refore You Begin Select Servers Validation Warning Access Point for Administering the Cluster Confirmation Creating New Cluster Summary	This wizard creates a cluster, which is a set of servers that work together to increase the availability of clustered roles. If one of the servers fails, another server begins hosting the clustered roles (a process known as failover).         Before you run this wizard, we strongly recommend that you run the Validate a Configuration Wizard to ensure that your hardware and hardware settings are compatible with failover clustering.         Microsoft supports a cluster solution only if the complete configuration (servers, network, and storage) can 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."         You must be a local administrator 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         Do not show this page again
1 · 18 · 21 AM 17-F	Next > Cancel

Enter the **Server Name** for both Servers to be added to the Cluster and Click **Add**.

Select Se	ervers		
Before You Begin Select Servers Validation Warning	Add the names of all th	e servers that you want to have in the cluster. You must add	at least one server.
Access Point for Administering the	Enter server name:	ClusterNode2	Browse
Cluster	Selected servers:	ClusterNode1 ty local	Add
Confirmation			Remove
Creating New Cluster			
Juning			
		< Previous Next	Cancel

If this is for a production environment select **Yes**, otherwise select **No**. The report can also be run on-demand from the Main page of the Failover Cluster Manager. Click **Next**.

Validation Warning         Before You Begin         Select Servers         Validation Warning         Access Point for         Access Point for         Confirmation         Creating New Cluster         Summary         • Yes. When I click Next, run configuration validation tests, the cluster.         • No. I do not require support from Microsoft for this cluster, validation tests. When I click Next, continue creating the	from cluster configuration validation tests
Before You Begin       Select Servers         Validation Warning       For the servers you selected for this cluster, the report appear to be missing or incomplete. Microsoft support configuration (servers, network and storage) can pass wizard.         Access Point for Administering the Cluster       Do you want to run configuration validation tests before cluster         Confirmation       Pres. When I click Next, run configuration validation tests.         Yes. Vhen I click Next, run configuration validation tests.         No. I do not require support from Microsoft for this cluster, validation tests.	from cluster configuration validation tests
Administering the Custer Confirmation Creating New Cluster Summary	all the tests in the Validate a Configuration
Creating New Cluster Summary  Yes. When I click Next, run configuration validation tests the cluster.  No. I do not require support from Microsoft for this cluster, validation tests. When I click Next, continue creating the	View Report
<ul> <li>No. I do not require support from Microsoft for this cluster, validation tests. When I click Next, continue creating the</li> </ul>	and then return to the process of creating
	and therefore do not want to run the Juster.
More about cluster validation tests	
< P	

Enter a **Cluster Name\*.** This will be the name of the computer object created in Active Directory. Enter the **IP Address** reserved for the Windows Cluster Name Object.

	7	Create Cluster Wizard	d	×
Access P	oint for Administeri	ing the Cluster		
Before You Begin Select Servers Validation Warning	Type the name you want the Cluster Name:	to use when administering the	cluster.	
Access Point for Administering the Cluster	The NetBIOS name is automatically. For ea address.	limited to 15 characters. One ach network to be used, make	or more IPv4 addresses could not be c sure the network is selected, and then	onfigured type an
Confirmation		Networks	Address	
Creating New Cluster		10.10.8.0/24	10 . 10 . 8	. 27
1:23:17AM 17-Fe	њ-2014		< Previous Next >	Cancel

\*If the Cluster Name Object needs to be created in an AD container (OU) that is different from the **Computers** OU, enter the fully qualified name for the object. For example, CN=WinCluster,OU=ClusterObjects, DN=ty, DN=local.

Verify the information for the cluster. In this exercise, no **Storage**\* will be added to the cluster so **Uncheck** the "Add all eligible storage to the cluster" selection box (Red Arrow). Click **Next**.



\*The Always On Availability Group does not use a Cluster Shared Volume. Instead it uses a drive on each server with the same drive letter (i.e. G:\).

The Cluster Creation operation runs.

19 19	Create Cluster Wizard	×
Creating	New Cluster	
Before You Begin Select Servers Validation Warning Access Point for Administering the Cluster	Please wait while the cluster is configured.	
Confirmation Creating New Ouster Summary	Forming cluster WinCluster'.	
		Cancel

The Summary page appears when the creation process completes. Click Finish.



The Roles window will be empty. This is correct.

5		Fi	ailover Cluster Ma	inager			o x
File Action View Help							
Failover Cluster Manager WinCluster.ty.local	Roles (0) Search			P Queries V		Actions	
Roles Nodes Storage Disks Pools Networks	Name	Satus	Type No items found	Owner Node	Phonty	<ul> <li>Configure Role</li> <li>Virtual Machines</li> <li>Create Empty Role</li> <li>View</li> <li>Refresh</li> <li>Help</li> </ul>	

The **Nodes** window will show both servers participating in the Cluster.

		Fa	llover Cluster Mana	iger		-	O X
File Action View Help							
Failover Cluster Manager	Nodes (2) Snarch			P Queries ▼		Actions	
Notes Notes Disks Pools Networks	Name  CusterNode1  CusterNode2  <	Status (a) Up (b) Up III	Assgned Vote 1 1 1	Current Vote 1 0	Horr	Add Node View Refresh Help	,

The **Disks** window will be empty. No **Shared Volumes** will participate in the cluster at this time.

the Action View Help					
Falover Cluster Manager	Disks (0) Search			.2 Queries ▼ LI ▼ V	Actions
Roles Nodes Storage Pools Pools Networks Cluster Events	Name	Satus	Assgred To	Owner Node D	Add Disk Add Disk Move Available Storage View Refresh Help

The **Networks** window will show the one configured IP Address. If more network cards/IP Addresses were configured for this Virtual Machine, more networks could have been added for redundancy and/or performance.

		Fai	lover Cluster Manag	ler	L=1	o x
ile Action View Help						
💠 🔿 🖄 🔝 🖬 📷	Networks (1)				Actions	
WinCluster.ty.local	Search			P Queries V La V	<ul> <li>Networks</li> </ul>	
Nodes	Name	Status	Cluster Use	Information	Live Migration Settings	
J Storage	型 Ouster Network 1	@ Up	Ouster and Client		View	
E Pools					Refresh	
Networks					Help	
TH Couster events						
	c	m			5	
	<u> </u>					
	1					

The Failover Cluster Summary Window.

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電 Failover Cluster Manager 》 蜀 WinCluster ty-local	Cleater WinChitsterty.local  Summary of Cluster WinCluster WinChitsterty.local  WinChitsterty.local Name: Viewer: Cluster Events: Nore in the last hour Waterss: Nore  Name: Configure Configure Configure high availability for a specific dustered role, add one or more servers (nodes), or copy roles from a cluster running Windows Server 2012 R2. Windows Server 2012, or Windows Server 2008 R2 Name: Windows Cluster: Docs on the Web Name: Configure high availability for a specific dustered role, add one or more servers (nodes), or copy roles from a cluster running Windows Server 2012 R2. Windows Server 2012, or Windows Server 2008 R2 Name: Configure high availability for a specific dustered role, add one or more servers (nodes), or copy roles from a cluster running Windows Server 2012 R2. Windows Server 2012, or Windows Server 2008 R2 Name: Configure high availability for a specific dustered role, add one or more servers (nodes), or copy roles from a cluster running Windows Server 2012 R2. Windows Server 2012, or Windows Server 2008 R2 Nater. Navigate Name: Configure high availability for a specific dustered role in the last hour Navigate Navigate Name: Name: Name: Nav		Actions WinCluster.ty.local Configure Role Validate Cluster View Validation Report Add Node Close Connection Reset Recent Events More Actions. View Refeash Properties Help
	(C) Maraan (C) Netwoka		

The **Failover Cluster** preparation process creates a **DNS entry** using the Cluster Name Object's Name.

DNS DCO1 DCO1 Forward Lookup Zones Sources Sources Sources Reverse Lookup Zones Frust Points Conditional Forwarders Global Logs	Name  I grind a grind	Type Start of Authority (SOA) Name Server (NS) Host (A) Host (A) Host (A) Host (A) Host (A) Host (A) Host (A) Host (A) Host (A) Host (A)	Data [258], dc01.ty.local., host dc01.ty.local. 10.10.8.8 10.10.8.25 10.10.8.26 10.10.8.26 10.10.8.20 10.10.8.20 10.10.8.21 10.10.8.21 10.10.8.22 10.10.8.22	Timestamp static static 2/17/2014 10:00:00 static static static 1/5/2014 1:00:00 P 1/5/2014 1:00:00 P 2/17/2014 11:00:00 P
	2			

Based on the installation screens above, the **Cluster Name Object** was created in the default **Computers OU** in Active Directory.

0	Active Directory User	s and Compute	rs	×
File Action View Help				
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Active Directory Users and Com  Active Directory Users and Com  Builtin  Computers  Directory Controllers  Directory Controllers  Directory Security Principal:  Directory Security Princi	Name CLUSTERNODE1 CLUSTERNODE2 SPF2013 SPS2010 SPS2013 SPS2013 SPS2013 SPS2013	Type Computer Computer Computer Computer Computer	Description	
CostAndFound CostAndFound Managed Service Accour Program Data System System Users Vers TPM Devices TPM Devices	WINCLUSTER	Computer	Failover cluster virtual n.	
11:30:49AM 17-Feb-2014				

## SQL Server 2012 Availability Group Configuration

In this series of steps, a very basic SQL Server 2012 installation will be performed with a Named Instance, and an Always On Availability Group will be created.

Run Setup from the SQL Server 2012 Installation Media, File share, ISO, etc.

Select Installation, then "New SQL Server stand-alone installation ... "



Setup Support Rules Checker will run. Click OK.

8		SQL Server 2012 Setup	_ 0 X			
Setup Support Rule Setup Support Rules iden corrected before Setup ca	es tify problem in continue.	s that might occur when you install SQL Server Setup support file	s. Failures must be			
Setup Support Rules	Ope	ration completed. Passed: 8. Failed 0. Warning 0. Skipped 0.				
	Hie	Hide details << R				
		Rule Status				
	0	Setup administrator	Passed			
	0	Setup account privileges	Passed			
	0	Restart computer	Passed			
	3	Windows Management Instrumentation (WMI) service	Passed			
	0	Consistency validation for SQL Server registry keys	Passed			
	0	Long path names to files on SQL Server installation media	Passed			
	0	SQL Server Setup Product Incompatibility	Passed			
	0	.NET 2.0 and .NET 3.5 Service Pack 1 update for Windows 2008	Passed			
			OK Cancel			

The product is pre-pidded so just Click Next.

6	SQL Server 2012 Setup	×
Product Key Specify the edition of	SQL Server 2012 to install.	
Product Key License Terms Product Updates Install Setup Files	Validate this instance of SQL Server 2012 by entering the 25-character key from the Microsoft certificate of authenticity or product packaging. You can also specify a free edition of SQL Server, such as Evaluation or Express. Evaluation has the largest set of SQL Server features, as documented in SQL Server Books Online, and is activated with a 180-day expiration. To upgrade from one edition to another, run the Edition Upgrade Wizard. <ul> <li>Specify a free edition:         <ul> <li>Evaluation</li> <li>Evaluation</li> <li>Enter the product key:                 </li> <li>748RB-X4T6B-MRM7V-RTVFF-CHC8H</li> </ul> </li> </ul>	м ()
1:43:20AM 17-Feb-20	< Back Next > Cancel	

Accept the license terms and Click **Next**.

5	SQL Server 2012 Setup		×
License Terms To install SQL Server 2012,	you must accept the Microsoft Software License Terms.		
Product Key License Terms Product Updates Install Setup Files	MICROSOFT SOFTWARE LICENSE TERMS MICROSOFT SQL SERVER 2012 ENTERPRISE SERVER/CAL EDITION These license terms are an agreement between Microsoft Corporation live, one of its affiliates) and you. Please read them. They apply to the which includes the media on which you received it, if any. The terms al • updates, • supplements, • Internet-based services, and	(or based on software nam iso apply to an	where you led above, ny Microsoft
4	I accept the license terms. Send feature usage data to Microsoft. Feature usage data includes inform configuration and how you use SQL Server and its components. See the Microsoft SQL Server 2012 Privacy Statement for more information. Kend Kender Statement for more information.	ation about yo	Copy Print

Click **Install** to run the Installer Setup Files Installer.

18	SQL Server 2	2012 Setup	- 0 X
Install Setup Files SQL Server Setup will no update will also be insta	ow be installed. If an update for SQL Server Se lled.	tup is found and specified to be included, the	
Product Key License Terms Product Updates	SQL Server Setup files are being inst	elled on the system.	-
Install Setup Files	Task	Status	
	Install Setup files	In Progress	1
1:46:24AM 17-Feb-2014	4	< Back Instal	Cancel

The Setup Support Rules Checker will run. Click Next.

5	SQL Server 2012 Setup	- • ×
Setup Support Rules Setup Support Rules identify ( corrected before Setup can co	woblems that might occur when you install SQL Server Setup support file ntinue.	s. Failures must be
Setup Support Rules Setup Role Feature Selection Installation Rules Disk Space Requirements	Operation completed. Passed: 6. Failed 0. Warning 1. Skipped 0. Hide details << View details recort	Re-run
Disk Space Requirements Error Reporting Installation Configuration Rules Ready to Install Installation Progress Complete	Rule         Image: Second Se	Status Passed Passed Passed Passed Passed Warning
	Windows Firewall	Passed
48-054M 17-Feb-2014	< Back Next >	Cancel Help

Select SQL Server Feature Installation and Click Next.

8	SQL Server 2012 Setup	- 0 ×
Setup Role Click the SQL Server Feature In feature role to install a specific	stallation option to individually select which feature components to install, or click a configuration.	
Setup Support Rules Setup Role Feature Selection	<ul> <li>SQL Server Feature Installation Install SQL Server Database Engine Services, Analysis Services, Reporting Servic and other features.</li> </ul>	es, Integration Services,
Feature Selection Installation Rules Disk Space Requirements Error Reporting Installation Configuration Rules Ready to Install Installation Progress Complete	<ul> <li>SQL Server PowerPivot for SharePoint</li> <li>Install PowerPivot for SharePoint on a new or existing SharePoint server to sup access in the farm. Optionally, add the SQL Server relational database engine to database server.</li> <li>Add SQL Server Database Relational Engine Services to this installation.</li> <li>All Features With Defaults</li> <li>Install all features using default values for the service accounts.</li> </ul>	port PowerPivot data a use as the new farm's
48 44AM 17-Feb-2014	< Back Next > Ca	ncel Help

Select **Database Engine Services**, then scroll down and select **Management Tools**, then click **Next**.

Feature Selection Select the Enterprise features t	SQL Serv o install.	er 2012 Setup	1		
Sefect the Enterprise features to Setup Support Rules Setup Role Feature Selection Installation Rules Instance Configuration Disk Space Requirements Server Configuration Database Engine Configuration Error Reporting Installation Configuration Rules Ready to Install Installation Progress Consolete	Features: Instance Features SQL Server Replication Guality Services Analysis Services Reporting Services - Native Shared Features Reporting Services - SharePoint Reporting Services - SharePoint Reporting Services - SharePoint Substance SharePoint SQL Server Data Tools Client Tools Connectivity		rc II du	Feature description:         Includes the Database Engine, the core service for storing, processing and securing data. The Database Engine provides controlled access and rapid transaction processing and also provides rich support for sustaining high availability. The Database Engine also provides support for the utility control point in the SQL Server Utility. Only         Prerequisites for selected features:         Already installed:         Microsoft .NET Framework 4.0         Windows PowerShell 2.0         Microsoft Visual Studio 2010 Shell	
	Select All				
	Shared feature directory:	C:\Program Files\M	icros	oft SQL Server\	
	Shared feature directory (x86):	CAProgram Files (x)	M,/(8	Next > Cancel Help	

More Rules will be checked. Click Next.

8	SQL Server 2012 Setup	×
Installation Rules Setup is running rules to dete	mine if the installation process will be blocked. For more information, cli	ick Help.
Setup Support Rules Setup Role Feature Selection I <b>nstallation Rules</b> Instance Configuration	Operation completed. Passed: 3. Failed 0. Warning 0. Skipped 0. Hide details << <u>View detailed report</u>	Re-run
Josk Space Requirements Server Configuration Database Engine Configuration Error Reporting Installation Configuration Rules Ready to Install Installation Progress Complete	Rule         Prior Visual Studio 2010 instances requiring update.         Product Update Language Compatibility         Microsoft .NET Framework 3.5 is installed on Windows 8 or hig	Status Passed Passed Passed
52:40AM 17-Feb-2014	< Back Next >	Cancel Help

Enter a **Name** for the Named Instance that the Databases and Availability Group will use. The Name is automatically entered in the Instance ID: text box. Enter the path where the database files will be stored\*. Click **Next**.

5		SQL Server 201	2 Setup		×
Instance Configuratio	<b>n</b> e ID for the instance of	SQL Server. Instance	ID becomes part of t	he installation path.	
Setup Support Rules	O Default instance		_		
Setup Role Feature Selection Installation Rules	Named instance	ALWAYSON			
Instance Configuration	Instance ID:	ALWAYSON			
Disk Space Requirements Server Configuration	Instance root direct	ory: J:\Program File	es\Microsoft SQL Serv	er	
Error Reporting Installation Configuration Rules Ready to Install	SQL Server directory	n Ji\Program File	s\Microsoft SQL Serv	er/MSSQL11.ALWAYS	ON
installation Progress	Instance Name	Instance ID	Features	Edition	Version
			< Back	Next > Car	Help

\*Use the browse button or type in the drive letter created in the Failover Cluster Installation section. This is the drive with the same drive letter on both Servers.

Verify Disk Space Requirements and Click Next.

1	SQL Server 2012 Setup
Disk Space Requirem	ents ny for the SQL Server features you selected.
Setup Support Rules Setup Role Feature Selection Installation Rules Instance Configuration <b>Disk Space Requirements</b> Server Configuration Database Engine Configuration Error Reporting Installation Configuration Rules Ready to Install Installation Progress Complete	Disk Usage Summary: Prive C: 1814 MB required, 77611 MB available System Drive (C:\): 1008 MB required Shared Install Directory (C:\Program Files\Microsoft SQL Server\): 806 MB required Prive J: 864 MB required, 9352 MB available Instance Directory (J:\Program Files\Microsoft SQL Server): 864 MB required
2 10 46PM 17 Feb 2014	< Back Next > Cancel Help

Accept defaults, or enter a SQL Server Agent domain account/password and SQL Server Database Engine domain account/password. Click **Next**.

Server Configuration Specify the service accounts an	SQL Server 2	012 Setup			
Setup Support Rules Setup Role Feature Selection	Service Accounts Collation Microsoft recommends that you u	ise a separate account for each	SQL Server servi	ce.	
Installation Rules	Service	Account Name	Password	Startup Type	
Instance Configuration	SQL Server Agent	> ty\sql_agent		Manual	~
Disk Space Requirements	SQL Server Database Engine	>ty\sql_server	••••••	Automatic	×
Server Configuration	SQL Server Browser	NT AUTHORITY/LOCAL		Automatic	~
Error Reporting Installation Configuration Rules Ready to Install Installation Progress Complete					
	1	< Back Next	> Cano	el He	lp

Select Authentication Mode and Add Users as SQL Server Instance Administrators. Click the Data Directories tab before clicking Next.

5	S	QL Server 2012 Setup	)
Database Engine Confi Specify Database Engine authe	guration	administors and data directories.	
Setup Support Rules Setup Role Feature Selection Installation Rules	Server Configuration Specify the authenti Authentication Mod	Data Directories FILESTREAM	ibase Engine.
Instance Configuration Disk Space Requirements Server Configuration	O Windows authent Mixed Mode (SQ)	tication mode L Server authentication and Windows authen	tication)
Database Engine Configuration Error Reporting	Specify the password for the SQL Server system administrator (sa) account. Enter password:		
Ready to Install Installation Progress	Confirm password: Specify SQL Server a	dministrators	
Complete	TY\clusteradmin (C TY\sqladmin (SQL A	Buster Administrator) Administrator)	SQL Server administrators have unrestricted access to the Database Engine.
	Add Current User	Add Remove	
		< Back	> Cancel Help

Verify that the **Data Directories** are correct. Click **Next**.

5	SQL Serv	er 2012 Setup
Database Engine Confi Specify Database Engine authe	<b>iguration</b> ntication security mode, administra	ators and data directories.
Setup Support Rules Setup Role Feature Selection Installation Rules Instance Configuration Disk Space Requirements Server Configuration Database Engine Configuration Error Reporting Installation Configuration Rules Ready to Install Installation Progress Complete	Server Configuration Data Dir Data root directory: System database directory: User database log directory: Temp DB log directory: Temp DB log directory: Backup directory:	ectories FILESTREAM  /\Program Files\Microsoft SQL Server  .\Program Files\Microsoft SQL Server\MSSQL11.ALWAYSON\MS  /\Program Files\Microsoft SQL Server\MSSQL11.ALWAYSON\MS
14:55PM 17-Feb-2014	1	< Back Next > Cancel Help

Click Next.

8	SQL Server 2012 Setup
Error Reporting Help Microsoft improve SQL S	erver features and services.
Setup Support Rules Setup Role Feature Selection Installation Rules Instance Configuration Disk Space Requirements Server Configuration Database Engine Configuration Error Reporting Installation Configuration Rules Ready to Install Installation Progress Complete	Specify the information that you would like to automatically send to Microsoft to improve future releases of SQL Server. These settings are optional. Microsoft treats this information as confidential. Microsoft may provide updates through Microsoft Update to modify feature usage data. These updates might be downloaded and installed on your machine automatically, depending on your Automatic Update settings. See the Microsoft SQL Server 2012 Privacy Statement for more information. Read more about Microsoft Update and Automatic Update.
15-570W 17 Eab 2014	< Back Next > Cancel Help

More Rules will be checked. Click Next.

8	SQL Server 2012 Setup	X
Installation Configurat	tion Rules mine if the installation process will be blocked. For more informa	tion, click Help.
Setup Support Rules Setup Role Feature Selection Installation Rules Instance Configuration	Operation completed. Passed: 4. Failed 0. Warning 0. Skipp Hide details << <u>View detailed report</u>	red 0. Re-run
Server Configuration Database Engine Configuration Error Reporting Installation Configuration Rules Ready to Install Installation Progress Complete	Rule         Image: Second State System         Image: Existing clustered or cluster-prepared instance         Image: Cross language installation         Image: Same architecture installation	Status Passed Passed Passed Passed
:16:30PM 17-Feb-2014	< Back	Next > Cancel Help

Installation Summary details will be shown. Click Install.

5	SQL Server 2012 Setup	- ×
Ready to Install Verify the SQL Server 2012 fea	tures to be installed.	
Setup Role Feature Selection Installation Rules Instance Configuration Disk Space Requirements Server Configuration Database Engine Configuration Error Reporting Installation Configuration Rules Ready to Install Installation Progress Complete	Summary  - Edition: Enterprise - Action: Install  - Action: Install  - Already installed: - Microsoft.NET Framework 4.0 - Windows PowerShell 2.0 - Microsoft Visual Studio 2010 Shell - Microsoft Visual Studio 2010 Shell - Database Engine Services - Management Tools - Basic - Management Tools - Complete - Instance configuration - Instance ID: ALWAYSON - Instance ID	
	< Back Install Cancel	Help

The Installation Summary Page will appear. Click **Close**. At this point the SQL Server 2012 installation is complete on the first Server. **Repeat these steps exactly on the second server in the cluster.** 

	SQL Server 20	12 Setup	
Complete Your SQL Server 2012 installar	ion completed successfully with product u	pdates.	
etup Support Rules	Information about the Setup operation	or possible next steps:	
icance Terms	Feature	Status	
atur Pole	Database Engine Services	Succeeded	
etup nore eature Selection	SQL Writer	Succeeded	
stallation Rules			
stance Configuration			
isk Space Requirements	1		
erver Configuration			
atabase Engine Configuration	Details		
rror Reporting	Viewing Product Documentation	for SQL Server	
stallation Configuration Rules			
Installation Configuration Rules Ready to Install Installation Progress Complete	Only the components that you use been installed. By default, the Help SQL Server, you can use the Help your local computer. For more infor <http: ?lir<="" fwlink="" go.microsoft.com="" td=""><td>to view and manage the documentation for SQL Server has Viewer component uses the online library. After installing Library Manager component to download documentation t mation, see <u>Use Microsoft Books Online for SQL Server</u>. httD=224683&gt;</td><td>ave ) o</td></http:>	to view and manage the documentation for SQL Server has Viewer component uses the online library. After installing Library Manager component to download documentation t mation, see <u>Use Microsoft Books Online for SQL Server</u> . httD=224683>	ave ) o
	Summary log file has been saved to the	following location:	
	CAProgram Files/Microsoft SOL Server	110/Setup Bootstrap)Log/20140217 123051	
	Summary ClusterNode1 20140217 1	23051.txt	
		Core	de

Open the **SQL Server Configuration Manager**. Click **SQL Server Services** in the Left Pane, and then Right-Click the **SQL Server Database Instance Service**. Select **Properties**.

<b>a</b>	Sql Server	r Configurat	ion Manager		- 0 X
File Action View Help					
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SQL Server Configuration Manager (Local)	Name	State Running	Start Mode Automatic	Log On As NT AUTHORITY\LO_	Process ID 1712
	SQL Server Agent	Kurniky Stopped	Start Stop Pause Resume Restart Properties Help	tylsql_agent	0
¢ III >	4				3
Displays Help for the current selection. 3 00 28PM 17-Feb-2014					

Select the **AlwaysOn High Availability Tab**. The **Windows Failover Cluster Name:** text box should already be populated with the **Failover Cluster Name**: if not, enter the Cluster Name. Select the "**Enable AlwaysOn Availability Groups**" check box to enable the feature. Click **OK** and then *Restart* the **SQL Server Database Instance Service.** 

indows fallover cluster name: WinCluster	Startup Parame	ters Advand
indows failover duster name: WinCluster		
WinCluster		1
Enable AlwaysOn Availability	Groups	
Now this instance of SQL Ser	ver to use availabilit	groups for high
and disaster recov	ery.	

Open SQL Server Management Studio and Sign in to the Always On Instance.

He Edit View Debug Tools Wind	Object Explorer Det	ails - Microsoft SQL Server Manage	ement Studio	_ 0 X
1 🗊 • 💷 - 🥔 🗐 🗿 New Query	10000 ×	ちひって、白山正都で	1	
Object Explorer 🔹	🕴 🗙 Object Explorer D	etaih X		•
Connect · 🚽 💱 = 7 🕧 🕉	4 <sup>1</sup>	Connect to Server	×	
	<b>SQL</b> Se	erver 2012		
1	Servertype:	Database Engine		
	Server name:	CLUSTERNODE1 ALWAYSON	~	I
1	Authentication:	Windows Authentication	~	
1	User name:	TY'eqiadmin	×	
1	Passod			
1		T Laurender Denimend		
1	Conn	ect Cancel Help O;	vions >>	
1	_			I
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1	AND YOU DO	a patronagated to a conver		
1	No Iter	ns		
Ready				4

Right-Click the **Server Name/Instance** and Select **Properties**.

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yect explorer	A 10 1 10		Object Explorer Details X			
onnect - 24	51 = 1 51 50	-	001770	Search		
H De	Connect	-	CLUSTERNODE1\ALWAYS	ON (SQL Server 11.0.3000 - TV\sqladmin	0	
H 🛄 Se	Disconnect		Name	Policy Health State		
III 🛄 Se	Register		Databases			
H AF	New Query		Security			
2 🖬 M	Activity Monitor		a Replication			
R Inf		🗀 AlwaysOn High Avi	ailability			
	ybt	Management				
	Pause		Integration Services Catalo			
	Returne		(T0) side beiver wigene (i	addene voo		
	Restart					
	Ballalas					
	Foretr					
	Facets	-				
	Start PowerShell					
	Reports					
	Pefresh		0			
	Properties		CLUSTERNODE1	ALWAYSON (SQL Server 11.0.300	0 - TY\sqladmin)	
_		-	8 Items			

Verify the state of the "Is HADR Enabled" property is equal to True.

Select a paye	Script - 🚺 Help			
General     Memory     Processors     Security				
Connections	Name	CLUSTERNODE1\ALWAYSON		
Patabase Settings	Product	Microsoft SQL Server Enterprise (64-bit)		
Advanced	Operating System	Microsoft Windows NT 6.2 (9200)		
Permissions	Platform	NT x64		
	Version	11.0.3000.0		
	Language	English (United States)		
	Memory	4093 (MB)		
	Processors	1		
	Root Directory	J:\Program Files\Microsoft SQL Server\MSSQL11.		
	Server Collation	SQL_Latin1_General_CP1_CI_AS		
	and a Chattand	Gales		
	Is HADR Enabled	True		
Connection				
Connection Server: CLUSTERNODE1\ALWAYSON				
Connection Server: CLUSTERNODE1\ALWAYSON Connection: TY'aqladmin	Name Name of the server and instance.			
Connection Server: CLUSTERNODE1\ALWAYSON Connection: TYYsqladmin Wew connection properties	Name Name of the server and instance.			
Connection Server: CLUSTERNODE1\ALWAYSON Connection: TY\eqladmin Wew connection properties Progress	Name Name of the server and instance. Changes to server properties a availability of this SQL Server	and settings may affect the performance, security, and		
Connection Server: CLUSTERNODE1\ALWAYSON Connection: TY'sqladmin Mew connection properties Progress Ready Ready	Name Name of the server and instance. Changes to server properties a availability of this SQL Server product documentation.	and settings may affect the performance, security, and instance. Before making any such changes, consult the		

If SharePoint will be used with this Instance, Select Advanced and set **Max Degree of Parallelism** to "1."

Select a page	Script - The Help				
🚰 General	2) soft - El tet				
Memory	the second s				
Processors	21 21				
Security	4 FILESTREAM				
Connections	FILESTREAM Aco	ess Level Disabled	1.1		
Advanced	FILESTREAM Sha	re Name ALWAYSON			
	4 Miscellaneous	disaster disaster de la companya de			
	Allow Triggers to Fi	re Others True			
	Blocked Process T	hreshold 0			
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	Default Full-Text La	anguage 1033			
	Default Language	English			
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TY sqladmin	Comp West	and the second	Υ.		
32 Vew connection properties	Max Degree of Para	allelism			
	Limit the number of proc	cessors to use in parallel plan execution.			
Progress					
db. Best					
ryeady	Configured values	Rupping values			
S		C. LINELING LINEAR			

Create a **New Database** for the purpose of the initial setup by right-clicking the **Databases folder** and selecting **New Database...** 

File Edit View Deb Dijet Explorer Connect 2/ 2/ 2/ 2 COLSTERNODE	Object Exp ug Tools Window Help New Query C 12 12 * 7 × Objec ? 2 3 NALWAYSON (SQL Ser CLUS	Iorer Details - Micros	oft SQL Server Management St · 아 - SI - 대 ( 교육 ) · · · earch   QL Server 11.0.3000 - TV\sgladmini).Dat	abases	
Construction  C	New Database Attach Restore Database Restore Files and Filegroups Deploy Data-tier Application Import Data-tier Application	Databases se Snapshots	Name CLUSTERNODE1\ALWAYSON CLUSTERNODE1\ALWAYSON	Policy Health State	Ava
	Start PowerShell Reports Refresh	•			
< 10	<	III Databases 2 Items			>

Enter a **Database Name**. Then Select **Options** in the left pane.

8		New	Database		_ 0 X		
Select a page	📓 Script 👻 🚺 Help						
Options Flegroups	Database name: Owner: I Use full-text in Database files:	ndesing	AGTestDB <default></default>				
	Logical Name	File Type	Filegroup	Initial Size (MB)	Autogrowth / Maxsize		
	AGTestDB	Rows	PRIMARY	4	By 1 MB, Unlimited		
	AGTestDB_J	Log	Not Applicable	1	By 10 percent, Unlimited		
Connection							
Server: CLUSTERNODE1\ALWAYSON							
Connection: TY/sqladmin							
View connection properties							
Progress							
Ready	<	-18			>		
New Y				Add	Remove		
3:11:30PM 17-Feb-2014				-			

Ensure the **Recovery Model** is equal to **Full**. This is an Availability Group requirement. Click **OK**.

Script	cdefau Ful SQL S None	ierver 2012 (110)	> > > > >
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Intainment type: her options: 21 Auto Shrink Auto Update Statistics	None	False	Ŷ
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Default Language		English	
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llow Completion		False	200
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Another Requirement is an initial **Database Backup**. Right-click the **Database**, Select **Tasks**, Select **Back Up...** 

File Edit View Debug	Tools Window	Help 1 1 1 1 1 1 1	0310-0-0-0141) ·	
Object Explorer Connect • 34 32 = 1 COUSTERNODE1\ALV CUSTERNODE1\ALV Databases	+ 9 ×	Object Explorer Do	etails ×	•
III 🤤 System Datab III 🧰 📴 Database Sna	ases pshots	Name Database 0	Policy Health State Diagrams	
Accepted     Security     Description     Description	New Database. New Query Script Database		Detach Take Offline	
🗉 🦳 AlwaysOn Hi 🗄 🎦 Management	Tasks	•	Bring Online	
Description Se     Description Se     SQL Server Ac	Policies Facets	•	Shrink • Back Up	
	Start PowerShe	H -	Kestore +	
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	Rename Delete		Ship Transaction Logs	
	Refresh		Generate Scripts	
	Properties	AGTest	Extract Data-tier Application Deploy Database to SQL Azure Export Data-tier Application	1
< III	>	o item	Register as Data-tier Application Upgrade Data-tier Application	

Accept the defaults and Click **OK**.

U	Back Up Databa	se - AGTestDE	3	ß	- 0 ×	
Select a page	🖾 Script 🝷 🚺 Help					
Options	Source					
	Database:		AGTestDB		×	
	Recovery model:		FULL			
	Backup type:		Ful		¥	
	Copy-only Backup					
	Backup component:					
	Database					
	<ul> <li>Files and filegroups:</li> </ul>					
	Backup set	(				
	Name:	AGTestDB-Fu	II Database Back.	φ.		
	Description:					
	Backup set will expire:					
Connection	<ul> <li>Atter.</li> </ul>	0	÷	days		
Server:	() On:	2/17/2014	- <u>-</u>			
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TY/sqladmin	J \Program Files \Microsoft SQ	L Server\MSSQL1	ALWAYSON	SQL\Back	A.J.	
Wew connection properties					A00	
Progress	<	ш		>	Remove	
O Ready				[	Contents	
				ОК	Cancel	

Click **OK**. The Database backup is complete.

Select a page	(P							
🕈 General	20 Pouts + 10 Heb							
2 Options	Same							Ē
	Database		AGTedDB			-		
	Recovery model		FULL			-		
	Backup type:		E.I.			~	108	
	Copy only Backup		L. a.			-		
	Backup component							
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	10		-		X			
	MICrosoft SQL Serv	er Management	Studio			-		
The backup of	database 'AGTestDE' consistent	n vreest de				5		
The badup of	database 'AGTestDB' completed r	successfully.				Ę		
The backup of	database 'AGTestDB' completed i	successfully.		_				
The backup of	database 'AGTestDB' completed i	successfully.		0	×			
Come	database 'AGTestDB' completed i	auccessfully. 2/17/2014	(j) -	0	×			
Cons Server CLUSTERNODET-ALWAYSON	database 'AGTestD6' completed : On: Destination	auccessfully.	() 		×			
Conn Conn Conn Conne CLUSTERNODET-ALWAYSON Connection: Threshadren	database 'AGTestD6' completed : O On: Destination Back up to :	successfully. 2/17/2014 Dak	Ø*)	C C	×			
Connection: The backup of La Connection: The backup of Connection: The connection of the con	database 'AGTestDB' completed i On: Destination Back up to:	successfully. 2/17/2014 Disk 15/11 Stress MISSON		Tier	K Add			
Const Const	database 'AGTestD6' completed i O On: Destination Back up to:	auccessfu8y. 2/17/2014 ● Dak 15/18		Tape	X Add			
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Conne La Server: CLUSTERNODE T-ALWAYSON Connection: TYTaqiadmin ∰ View connection properties Progress Executing (100%)	database 'AGTestD6' completed : On: Destination Back up to: Endercommiliate Ministerio C	auccessfully. 2/17/2014 Dak Scill Streen MSSoll 38		Tape	X Add Remove Cortent			
Conse La Conse Consection: TY'acjadmin Wew connection properties Progress Decuting (100%) Stop action now	database 'AGTestD6' completed : On: Destination Back up to: El Processo Ecolomous C	successfully, 2/17/2014 Dak Scill Sover MISSOL III		Tape Tape	X Add Remove Content	•		

Create a **File Share** that both **Servers** and the **SQL Server Service Account** can read/write from/to.

ca   🗋 🖬 🖛	AGData (J:)	= 0 X
File Home Share View	AGShare Properties	× 0
<ul> <li>This PC + AGData (<i>k</i>)</li> <li>Favorites</li> <li>Desktop</li> <li>Downloads</li> <li>Recent places</li> <li>This PC</li> <li>Network</li> </ul>	Customize       Classification       NFS Sharing         General       Sharing       Security       Previous Versions         Network File and Folder Sharing       AGShare         Shared       Share         VCLUSTERNODETVAGShare       Share         Share       Share         Advanced Sharing       Set outon permissions, create multiple shares, and set other advanced sharing options.         Manced Sharing       Set outon permissions, create multiple shares, and set other advanced sharing options.	
2 items 1 item selected 3 : 15 : 48PH 17-Feb-2014	OK Cancel Acply	

Expand AlwaysOn High Availability, right-click Availability Groups, and Select New Availability Group Wizard...

Object Explorer	+ ₽ : ⊡ 3 WAYSON (SOL Se	× Object Explorer Details ×	Search		
CLUSTERNODE1\ALWAYSON	Availability New Availabi New Availabi	Name Ry Group Wizard	Server Instance (Primary)	Awaysun High Availability	Avasabany Groups
	Show Dashbo Start PowerSh Reports Refresh	and rell			
	Start PowerSh Reports Refresh	Availability Groups			

The Availability Group Wizard will Start. Click Next.

0	New Availability Group
Introduction	
Introduction	🥺 Help
Specify Name	Create a new availability group.
Select Databases Specify Replicas	An availability group defines a set of user databases that fail over as a single unit.
Select Data Synchronization	To create an availability group, you will need to:
Validation	<ul> <li>Specify an availability group name.</li> <li>Select one or more user databases on this instance of SQL Server.</li> </ul>
Summary	<ul> <li>Specify one or more instances of SQL Server to host secondary availability replicas.</li> <li>Specify your availability group listener preference.</li> </ul>
Results	<ul> <li>Select your initial data synchronization preference.</li> <li>Check the validation results of availability group creation.</li> <li>Review your selections.</li> </ul>
	To begin creating an availability group, click Next. Do not show this page again.
:17:43PM 17-Feb-2014	< Previous Next > Cancel

Enter a **Name** for the **Availability Group**. This is a SQL Management Studio Name Only. Click **Next**.

<b>b</b>	New Availability Group		- 0 ×
Specify Availab	ility Group Name		
ntroduction			🥹 Help
Select Databases	Specify an availability group name.		
ipecify Replicas	AGTest		
elect Data Synchronization			
alidation			
ummary			
lesults			
		_	-
18.14PM 17-Feb-2014	< Pre	vious Next >	Cancel

Select **Databases** to add to the **Availability Group**. The previously created Database appears, is selected by default, and Meets Prerequisites. Click **Next**.

<b>6</b>	New A	vailability Group	<b>X</b> (	_ = X
Select Databas	ses			
Introduction Specify Name	Select user databases	for the availability	group.	🥑 Help
Select Databases	User databases on this	instance of SQL Serv	/en	
Specify Replicas	Name	Size	Status	
Select Data Synchronization	AGTestD8	5.0 MB	Meets procequisitos	
Validation				
Summary				-
Parulte				
				Refresh
3:18:44PM 17-Feb-2014			< Previous Ne	ancel

The Primary replica appears on the **Specify Replicas** page, **Replicas** tab. Select **Automatic Failover\***, **Synchronous commit**, and whether to allow the **Secondary Replica to be Readable** while not the active replica.

Select **Add Replica** and **add the Secondary Replica** (the following screenshot) from the second server. Then Click **Listener**.

<b>1</b>		New Avail	ability Group			- 0 X
Specify Replicas	6					
Introduction Specify Name	Specify an instance of	of SQL Server to I	host a standary	replica.		🤨 Help
Select Databases	Replicas Endpoints	Backup Preferer	nces Listener			
pecify Replices	Availability Replices					
elect Data Synchronization	Server Instance	Initial Role	Automatic Failover (Up to 2)	Synchronous Commit (Up to 3)	Readable Secondary	_
iummary	CLUSTERNODETVAL	Primary			Yes	~
	Add Replica	emove Replica				
	Summary for the re Replica mode: Syn This replica will use sy Readable seconda in the secondary role, clients.	plica hosted by ( chronous commit wit nohronous-commit a wy: Yes this availability replic	CLUSTERNODE h automatic failover valiability mode and a will allow all conn	TVALWAYSON I support both automa ections for read acce	tic fallover and manual failo	ver. nning with older
19:59PM 17-Feb-2014					< Previous Next >	Cancel

\*Automatic Failover only works when the Availability Group is NOT installed as an instance in a SQL Cluster. If the Instance is installed into a SQL Cluster the Availability Group will have to be manually failed over.

Adding the Second Instance as the Secondary Replica to the Availability Group. Enter the Server/Instance and click Connect.



The **Secondary Replica** is listed. Make the same selections as before for the additional options. Click **Next**.

Specify Replic	as					
troduction secify Name	Specify an instar	ice of SQL Server to	host a secondary	replica.		🥑 Hel
lect Databases	Replicas Endpo	oints Backup Prefer	ences Listener			
ecify Replicas	Availability Repl	licas:				
lect Data Synchronization	Server Instance	Initial Role	Automatic Failover (Up to 2)	Synchronous Commit (Up to 3)	Readable Secondary	
mmary	CLUSTERNODE	1\AL Primary	•		Yes	~
	and the second se	2 Al Casandan	12	12	11	15
ults	CLUSTERNODE	Secondary			Tes	×
sults	Add Replica	Remove Replica		×	165	

On the Listener Tab select "Create an availability group listener." Enter a Name in the Listener DNS Name: text box. As the name suggests, this will be the name created as a DNS Host for the Availability group. This is also the name that will be created as a Computer Object in the same AD Container as the Server Failover Cluster Name Object.

Enter a **Port**. *Endpoints (Endpoints Tab) use port 5022*. Typically I put the listener on 5023, 5024, or 5025. Before clicking Next, click on **Add** (the following screen shot) and enter the **IP Address** for use with the Listener Name.

Click Next.

ö		New Availabil	ity Group		- 0 X
Specify Replica	s				
Introduction Specify Name	Specify an instance of St	QL Server to host	a secondary replica.		<table-cell> Help</table-cell>
Select Databases	Replicas Endpoints B	ackup Preferences	Listener		
pecity Replicas	Specify your preference	for an availability g	group listener that will provide a clie	ant connection point:	
elect Data Synchronization	O Do not create an av	alability group list	lener now		
alidation	You can create the list	tener later using th	e Add Availability Group Listener d	ialog.	
ummary	Create an availability	group listener			
esuits	Specify your listener p	references for this	availability group.		
	Listener DNS Name:	AGTestListener			
	Port	5025			
	Network Mode:	Static IP			*
	Subnet	IP Address			
	10.10.8.0/24	10.10.8.28			
				8.44	Remove
					THENDER
43:45PH 17-Feb-2014			< P	revious Next >	Cancel

Adding the **IP Address** for the listener. Click **OK** to complete.

ő	New Availability Group	= 0 X
Specify Replica	5	
Introduction Specify Name Select Databases	Specify an instance of SQL Server to host a secondary replica.           Replicas         Endpoints         Backup Preferences         Listener	😨 Help
Select Data Synchronization	Specify your preference for an availability group listener that will provide a client connecting Add IP Address	x
Summary Results	Subnet         10.10.8.0/24           Address         IPv4 Address           IPv4 Address         255.255.0           D 6 Address         ID 6 Address	
	OK Cancel Help	
		Add Remove
43:06PH 17-Feb-2014	< Previous	Next > Cancel

Select **Full** for **Initial Data Synchronization** and enter the **UNC Path** to the AG Shared Folder created previously. Use this option to have the **Availability Group creation wizard** create an initial database **backup** to the share, **restore** the database to the Secondary Replica, and **synchronize** the two replicated databases. To perform the steps manually select either **Join Only**, or **Skip**. Click **Next**.



The Wizard will Validate the selected options. Click Next.

3		
Validation		
Introduction Specify Name	Results of availability group validation.	🕑 Help
Select Databases	Name	Result
Specify Replicas	Checking whether the endpoint is encrypted using a compatible algorithm	Success
Select Data Synchronization	Checking shared network location	Success
	Checking for free disk space on the server instance that hosts secondary replica CLUSTERNODE2\AL	Success
Alidation	Checking if the selected databases already exist on the server instance that hosts secondary replica	Success
ummary	Checking for compatibility of the database file locations on the server instance that hosts secondary	Success
lesults	Checking for the existence of the database files on the server instance that hosts secondary replica	Success
	Checking the listener configuration	Success
	Checking replica availability mode	Success
	Re-run	Validation

Summary of selected options. Click **Finish** to create the **Availability Group**.

<b>0</b>	New Availability Group	- • ×
Summary		
Introduction Specify Name Select Databases	Verify the choices made in this wizard. Click Finish to perform the following actions:	🐼 Help
Specify Replicas Select Data Synchronization Validation Summary Results	Availability Group: AGTest     Primary replica: CLUSTERNODE1\ALWAYSON     Availability Group Listener: AGTestListener     Automated backup preference: Secondary     Databases    AGTestDB (5.0 MB)    Initial data synchronization: Full     Backup location: \\clusternode1\AGShare     Replica     Replica     Replica:     Replica mode: Synchronous commit with automatic failover    Readable secondary: Yes    Redbica:    Replica: TCP://ClusterNode1.ty.local:5022    Endpoint: Ty/sql_server    Server     Automated backup priority: 50    New Logins:    Ty/sql_server    Ty/sql_server    Ty/sql_server	<
		Script •
3:45:34PM 17-Feb-2014	< Previous	Finish Cancel

The Availability Group creation Progress Page.

ñ.	New Availability Group	-1	D X
Progress			
Introduction			😢 Help
Specify Name	Create Availability Group Listener 'AGTestListener'.		
Select Databases			
Farantin Bandinan			
specity replicas		Tellar -	
Select Data Synchronization	Name	Status	î
Validation	Creating logins on CLUSTERNODETALWAYSON.	Success	
Summary	Creating logins on CLUSTERVODEZIALWATSON.	Success	
Dani dar	Configuring enapoints.	Success	
Nestores	Grating the Alwayson health' Verset session on CLUSTERMODETALWAYSON.	Success	
	Creation availability or our 'AGTert'	Success	
	Waiting for availability group "AGTest" to come online	Success	-
	Create Availability Group Listener 'AGTestListener'	In Progress	- 1
	Joining secondary replicas to availability group 'AGTest'.	Not started	
	Validating WSFC guorum vote configuration.	Not started	
	Creating a full backup for 'AGTestDB'.	Not started	
	Restoring 'AGTestDB' on 'CLUSTERNODE2\ALWAYSON'.	Not started	
	Backing up log for 'AGTestDB'.	Not started	
	Restoring 'AGTestDB' log on 'CLUSTERNODE2\ALWAYSON'.	Not started	
	Inining 'AGTartDR' to availability arous 'AGTart' on 'CLUSTERNODE2(ALWAYSON'	Mint started	~
	Fewer details		
49-05PW 17-Feb-2014	< Previous	Neit>	Cancel

The Availability Group creation Results Page. Click **Close**. The Availability Group has been created.

Results		
troduction pecify Name elect Databases	The wizard completed successfully.	😧 He
леспу керінсая	Name	Result
lect Data Synchronization	Creating logins on 'CLUSTERNODE1\ALWAYSON'.	Success
lidation	Creating logins on 'CLUSTERNODE2\ALWAYSON'.	Success
immary	Configuring endpoints.	Success
with the second s	Starting the 'AlwaysOn_health' XEvent session on 'CLUSTERNODET\ALWAYSON'.	Success
	Starting the 'AlwaysOn_health' XEvent session on 'CLUSTERNODE2\ALWAYSON'.	Success
	Creating availability group 'AGTest'.	Success
	Waiting for availability group 'AGTest' to come online.	Success
	Create Availability Group Listener 'AGTestListener'.	Success
	Joining secondary replicas to availability group 'AGTest'.	Success
	Validating WSFC quorum vote configuration.	Success
	Creating a full backup for 'AGTestDB'.	Success
	Restoring 'AGTestDB' on 'CLUSTERNODE2\ALWAYSON'.	Success
	Backing up log for 'AGTestDB'.	Success
	Restoring 'AGTestDB' log on 'CLUSTERNODE2\ALWAYSON'.	Success
	Joining 'AGTestDB' to availability group 'AGTest' on 'CLUSTERNODE2\ALWAYSON'.	Success

Verify the Components of the Availability Group Primary Replica.

Obje         File         Edit         View         Debug         Tools         Window           Image: Comparison of the second s	ct Explorer Details - M Help (1) (1) (2) (A - 4) (3)	Aicrosoft SQL Server Management Studio	×
Object Explorer     • # ×       Connect • # # = # # #       © CLUSTERNODETALWAYSON (SQL Server)       © CLUSTERNODETALWAYSON (SQL Server)       © CLUSTERNODETALWAYSON (SQL Server)       © System Databases	Object Explorer Details	Search SoN (SQL Server 11.0.3000 - TV).sqladmin)\AlwaysOn High Avail Server Instance (Primary)	ability/Availability Groups
	i AGTest	CLUSTERNODETALWAYSON	
SQL Server Agent (Agent XPs disabl	Availability Grou 1 Item	ps	



Verify the Components of the Availability Group Secondary Replica.

The Listener Computer Name Object.

0	Active Director	y Users and Computer	rs	- 0 ×
File Action View Help		2		
Active Directory Users and Com	Name AGTestListener	Tune Computer	Description Failover cluster virtual n	
<ul> <li>tyJocal</li> <li>Builtin</li> <li>Computers</li> <li>Domain Controllers</li> <li>ForeignSecurityPrincipal:</li> <li>LostAndFound</li> <li>Managed Service Account</li> <li>Program Data</li> <li>System</li> <li>Users</li> <li>NTDS Quotas</li> <li>TPM Devices</li> </ul>	CLUSTERNODE1 CLUSTERNODE2 SPF2013 SPS2010 SQL2012 WINCLUSTER	Computer Computer Computer Computer Computer Computer	Failover cluster virtual n	
3-51-59DW 12-Feb-2014				

The Listener DNS Host Entry.

File Action View Help				
🕨 🏟 🖄 📷 🗶 📾 🔒				
DNS DDS DC01 DC01 DC01 DC01 DC01 DC01 DC01 DC0	Name  I _msdcs  _sites  _tcp  _udp DomainDnsZones  ForestDnsZones  (same as parent folder)  (same as parent folder)  (same as parent folder)	Type Start of Authority (SOA) Name Server (NS) Host (A)	Data [259], dc01.ty.local., host dc01.ty.local. 10.10.8.8	Timestamp static static 1/14/2014 1:00:00
	AGTestListener	Host (A)	10.10.8.28	2/17/2014 1:00:00
	ClusterNode1 ClusterNode2 CMHLTTYOKE dc01 SPF2013 SPS2010 SPS2013 SQL2012 WinCluster	Host (A) Host (A) Host (A) Host (A) Host (A) Host (A) Host (A)	10.10.8.25 10.10.8.26 10.10.8.11 10.10.8.8 10.10.8.20 10.10.8.20 10.10.8.21 10.10.8.22 10.10.8.22	static static static 1/5/2014 1:00:00 static 1/5/2014 1:00:00 1/5/2014 1:00:00 2/17/2014 11:00:00

The Availability Group Creation Wizard also creates the Failover Cluster Role.

8		1	Failover Cluste	r Manager		- D X
File Action View Help						
a Failover Cluster Manager	Roles (1)					Actions
WinCluster.ty.local	Search			.P Qu	eries 🕶 🛃 🕶 🗢	Roles
) Nodes	Nere	Status	Time	Owner Node	Printy Infe	By Configure Role_
a 🛃 Storage	1 AGTest	(1) Running	Other	ClusterNode 1	Medium	Virtual Machines
E Pools						Creste Empty Role
Networks						View P
[1] Cluster Events						Refresh
						I Help
4:43:40PM 17-Feb-2014						