

Prerequisites for Installing SQL Server AlwaysOn

By Ginger Daniel | Installation

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Before implementing your AlwaysOn Availability Group, make sure you have everything in your environment ready to go. There are several prerequisites that need to be done to ensure a successful deployment. These prerequisites focus on your Windows environment, the SQL instances, and the databases to be included in your AlwaysOn group.

[Windows:](#)

Windows Server 2008 R2. Windows Server 2008R2 is the *minimum* Windows Server edition allowed for deploying AlwaysOn. *However*, it is *strongly* recommended that you use Windows Server 2012 instead, as there are many issues and headaches associated with 2008R2. Click here for a more in-depth explanation: <https://www.youtube.com/watch?v=-jxQERXPM9s>

Windows Server Failover Cluster. WSFC must be installed on every replica (primary and secondaries) in the AlwaysOn group. This is done through Server Manager > Add Roles & Features > Add Failover Clustering. https://youtu.be/X4gVaN-i_dE

And each SQL Server that hosts an availability group replica must reside on separate nodes of a single WSFC cluster.

.Net 3.5.1 or greater. If .net 3.5.1 or greater is not already installed on your primary and secondary replicas, you will need to install this. This can be installed at the same time you install your Windows Failover Cluster (via Server Manager > Add Roles & Features > Add Failover Clustering):

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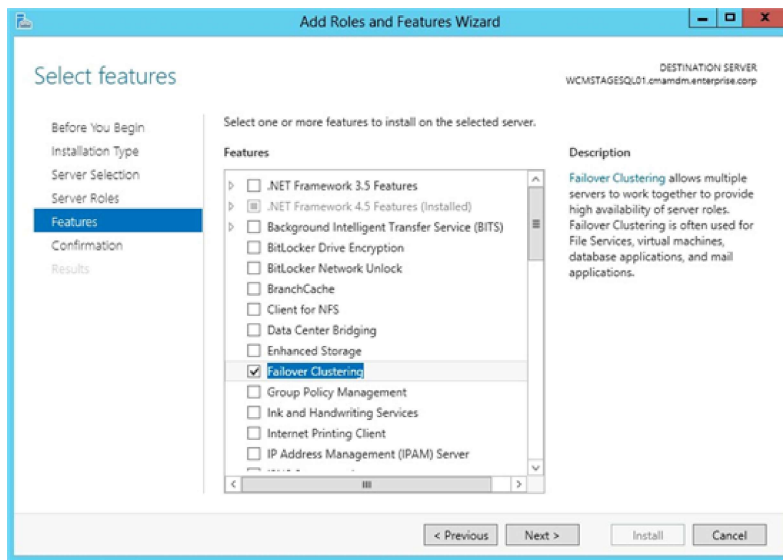
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Windows hotfixes. You need to install all available windows hotfixes on every replica prior to deploying AlwaysOn. This is particularly important if you are using Windows Server 2008R2, as most of the hotfixes are aimed toward that version. *Again, it is strongly recommended that you use Windows Server 2012 on all of your replicas instead.* Here is a list of the available hotfixes at this time: [https://msdn.microsoft.com/en-us/library/ff878487\(v=sql.110\).aspx#WinHotfixes](https://msdn.microsoft.com/en-us/library/ff878487(v=sql.110).aspx#WinHotfixes)

Windows Domain. All replicas in your AlwaysOn group must be in the same windows domain. They must be able to communicate with each other.

No domain controller. None of your replicas can be a domain controller. AlwaysOn groups are not supported on a domain controller.

Windows Firewall. Most likely you will need to adjust your Windows Firewall setting to allow the replicas to communicate with each other.

Sufficient Disk Space. You don't have to have identical hardware on each replica, but you do need enough disk space to hold all of your databases, and to account for the growth of those databases. As your databases on the primary replica grow, the replicated databases on your secondaries will also grow the same amount. And if you have other databases on your secondary replicas that are not part of your AlwaysOn group, your disk space must account for the size and growth of those databases as well.

Sufficient Resources. Again, you don't have to have identical hardware on each of your replicas, but you need to have sufficient resources on your secondaries to handle the same workload as your primary. If you're thinking that "we'll use our good, powerful server as the primary replica, and use the slower, weaker server as a secondary" with the thought that if we do have to fail over, we will just know up front that the performance will be a little slower while we get the primary server back up and running... well guess what. You're right. It will be slower performance if you have to fail over. But it will also be slower if you don't fail over! That's because the primary sends transactions to the secondary, and with synchronous data replication, the primary has to wait for the secondary to harden the log before it can move on to the next task. So your primary will only operate as fast as your slowest secondary. Your AlwaysOn group is only as fast and strong as your weakest link. So be very familiar with your workload, and try and make sure your replicas are equally yoked.

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Instance:

SQL Server 2012 or 2014 Enterprise Edition. For testing or development purposes, you can install Developer or Evaluation edition, but for a production environment, you must install Enterprise edition. Standard edition will not work.

Database Collation. Databases in your AlwaysOn group must use the same collation...they cannot differ across replicas.

SQL Server Collation. All replicas in your AlwaysOn group must use the same SQL Server collation.

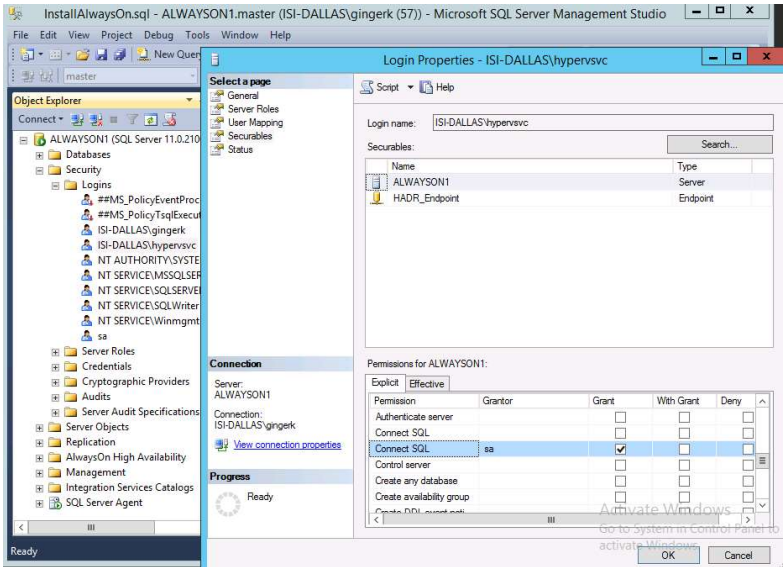
Active Directory Services. No replicas can run Active Directory services. This is not supported with AlwaysOn.

Database Mirroring Endpoint. Each instance needs a database mirroring endpoint. If you have more than one instance on your server, you will need to create an additional endpoint so the instances can communicate with each other. Here is instructions on how to do that:
[https://msdn.microsoft.com/en-us/library/ms187811\(v=sql.110\).aspx](https://msdn.microsoft.com/en-us/library/ms187811(v=sql.110).aspx)

SQL Service Account. Your account that runs SQL Services must be a domain account. Do not use the local machine service account. The SQL service account must be able to access every replica, and therefore must be a domain account.

Also, this account must belong to the Administrators Group on each of the replicas.

And this SQL service account needs connect permissions (given through SSMS). Right click on the SQL Service login to open the properties dialog box, go to the Securables page, and make sure the 'Connect SQL' Grant box is checked. Do this on all your instances:



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Full Recovery Model. Make sure your databases are in Full Recovery Mode, not Simple or Bulk Logged. Also, these databases must be taken out of any tlog backup maintenance process while the AlwaysOn group is being created.

User database. Databases included in your AlwaysOn group must be user databases. System databases cannot participate in AlwaysOn Availability Groups.

Read/Write database. Read-only databases cannot belong to an AlwaysOn group.

Multi-user database. Databases must be in multi-user mode, they can't be in single user mode.

Don't use AUTO_CLOSE. Check the properties of your databases, and make sure this option is set to 'False'.

DB in only one Availability Group. Databases may only belong to one availability group at a time. You can have more than one AlwaysOn Availability Group on your instance, but databases cannot belong to more than one group.

Not configured for database mirroring. Your databases cannot be enabled for database mirroring. Make sure this feature is not enabled.

Full Backups. Make sure full backups of each of your databases are made prior to installing AlwaysOn.

Allow Remote Connections. This can be done in SSMS either through the Instance properties, or by using sp_configure, which ever you prefer.

```
EXEC sp_configure 'remote access', 1;
```

```
GO
```

```
RECONFIGURE;
```

```
GO
```

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Steps for Installing AlwaysOn: <https://sqlrx.wordpress.com/2015/04/30/steps-for-installing-sql-server-alwayson-availability-groups/>

Prerequisites: <https://sqlrx.wordpress.com/2015/04/23/prerequisites-for-installing-sql-server-alwayson/>

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Afiq Haizi

August 8, 2019

Does this prerequisites follows the same as the Basic AlwaysOn Availability Group on SQL Server Standard Edition 2016/2017

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 Reply to Afiq Haizi

Lori Brown

August 15, 2019

I believe that the prerequisites are very similar. Here is a link to the 2017 documentation on it.

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