Windows Server AppFabric Beta 2 Refresh  
Installation and Configuration Guide

Microsoft Corporation

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# Installation Guide

The installation guide for Windows Server AppFabric describes the process for installing and configuring these technologies.

To ensure that you are reading the most up-to-date information, you can download the latest version of this guide from the [Windows Server AppFabric Installation Guide](http://go.microsoft.com/fwlink/?LinkId=169172) (http://go.microsoft.com/fwlink/?LinkId=169172) download page.

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# Introduction

This document describes the processes for installing and configuring Windows Server AppFabric. These processes can include the following:

 Install on a single server using a wizard that validates the platform and either installs any combination of AppFabric features or adds specific features after initial setup.

 Configure using a wizard, either immediately after initial setup or subsequently.

 Remove specific features or uninstall AppFabric as a whole.

This document provides installation procedures for all prerequisites in the platform, and describes how to prepare for installing AppFabric hosting features and caching features.

We recommend that you read this entire document before beginning your installation. This is because AppFabric connects many disparate components both internal and external to your enterprise so information can flow smoothly and securely in many directions. While even the most basic single-server deployment relies on many variables, most real-world deployment scenarios extend much farther to include multiple servers and eventually clusters of both physical and virtual computers.

No two deployments of AppFabric are the same. Before you begin the installation process, gather information on the needs of your enterprise, and discuss the scope of your deployment with the IT professionals, system administrators, and developers who will use AppFabric. By studying this installation guide and carefully analyzing the specific needs of your enterprise, you can make the deployment process more straightforward.

# Checklist: Planning Your Install

This is a high-level glimpse of the installation process. Installation of Windows Server AppFabric and all prerequisite software on a single computer usually takes one-half hour to one hour. Note that each step contains many variables relevant to your enterprise. All of these issues will be addressed in later sections of this guide.

Install Software Prerequisites

 [Install Critical Windows Updates](#za5cbbd770e7b4fa5ad363acb85278f14)

 [Install the .NET Framework](#z83859bbff5fc4659af360d82905a0704)

 [Install Windows PowerShell 2.0](#zf0526c01c8844c1790afe66679b0f946) (for Windows Server 2008 or Windows Vista only)

 [Prepare a Shared Network Folder for Caching Service Configuration Settings](#z742ef0a618b54ba1acf36f7413d1ffb3)

Install and Configure AppFabric

 [Install Windows Server AppFabric](#zcd2de076c1c4469091a2d9dd83e5d1fd)

 [Configure Windows Server AppFabric](#z0207998972284751baf1f2a7aafdf01a)

# Hardware Requirements

The following table shows the minimum hardware requirements for a computer running Windows Server AppFabric. In a production environment, the volume of traffic may dictate greater hardware requirements for your servers.

|  |  |
| --- | --- |
| Component | Minimum requirement |
| Computer and processor | A computer with an Intel Pentium-compatible CPU that is:   1 GHz or higher for single processors   900 MHz or higher for dual processors   700 MHz or higher for quad processors  Hyper-threading and multi-core processors are supported.  AppFabric is supported on 32-bit (x86) and 64-bit (x64) operating systems.  The 64-bit versions of AppFabric require a 64-bit operating system running on an x64-based system. Computers based on CPUs that are compatible with the AMD64 (x86-64) and Extended Memory 64-bit Technology (EM64T) processor architecture are considered x64-based systems.  AppFabric provides limited support for WOW mode. |
| Memory | 2 GB of RAM |
| Hard disk | Minimum hard-disk space: 2 GB of available hard disk space for AppFabric features, plus space for databases. The hard disk must be NTFS formatted. |

# Preparing Your Computer for Installation

In this section you prepare your environment by installing and configuring all software prerequisites.

## In This Section

 [Install Critical Windows Updates](#za5cbbd770e7b4fa5ad363acb85278f14)

 [Install the .NET Framework](#z83859bbff5fc4659af360d82905a0704)

 [Install Windows PowerShell 2.0](#zf0526c01c8844c1790afe66679b0f946)

 [Prepare a Shared Network Folder for Caching Service Configuration Settings](#z742ef0a618b54ba1acf36f7413d1ffb3)

# Install Critical Windows Updates

Before installing Windows Server AppFabric or its prerequisites, use the following procedures to install the latest critical Microsoft updates for your version of Windows, and one necessary hotfix.

Versions of Windows supported in this release are Windows 7, Windows Vista Service Pack 2, Windows Server 2008 Service Pack 2, and Windows Server 2008 R2. For production scenarios, only Windows Server 2008 SP2 and Windows Server 2008 R2 are supported. For development scenarios, Windows 7 and Windows Vista SP2 are also supported. Pre-release versions of these operating systems (betas or release candidates) are not supported.

Note

Installation of AppFabric Hosting Services, Caching Services, Hosting Administration, and Cache Administration is not supported on the Web Edition or Foundation Edition of Windows Server 2008 R2 or Windows Server 2008 SP2. Installation of the AppFabric Cache Client is supported on Windows Server Web Edition or Foundation Edition.

## Install Windows Updates

1. Click Start, point to All Programs, and then click Windows Update.

2. Follow the directions on the Windows Update site.

3. If prompted, restart your computer.

## Install Hotfixes

You must install KB980423 to fix a set of AppFabric issues caused by Microsoft Web Administration (MWA). After you install this item, you may have to restart your computer. In the AppFabric Beta 2 Refresh release, the prerequisite check will not flag this hotfix as required for AppFabric installation. The installation program will continue even if the hotfix is not installed.

Note

KB980423 includes KB970773, which is a critical update for IIS Manager in IIS 7.0.

 [KB980423](http://go.microsoft.com/fwlink/?LinkID=185864) (http://go.microsoft.com/fwlink/?LinkID=185864)

Note

You can install KB980423 before or after you install AppFabric.

# Install the .NET Framework

These releases contain the latest updates to the managed code programming model for Windows. Requirements for the Windows Server AppFabric hosting and caching features are shown in the following table. An “X” indicates that the version is required for the feature.

|  |  |  |
| --- | --- | --- |
| Feature | .NET Framework 4 | .NET Framework 3.5 SP1 |
| Hosting Services \* | X |  |
| Hosting Administration \* | X |  |
| Caching Service | X | Optional |
| Cache Client \*\* | .NET Framework 4 or .NET Framework 3.5 SP1 | .NET Framework 3.5 SP1 or .NET Framework 4 |
| Cache Administration |  | X |

\* The integrated version of the .NET Framework will also be enabled when these features (Hosting Services and Hosting Administration) are selected. (In Windows Vista SP2 and Windows Server 2008 SP2 the integrated version of the .NET Framework is version 3.0; in Windows 7 and Windows Server 2008 R2, the integrated version of the .NET Framework is version 3.5.)

\*\* Your .NET Framework version selection for the Cache Client will depend on the application that you are planning to host.

To download the .NET Framework, see [.NET Framework 3.5 SP1](http://go.microsoft.com/fwlink/?LinkId=177665) and [.NET Framework 4](http://go.microsoft.com/fwlink/?LinkId=177666).

Note

.NET Framework 3.5 SP1 is installed with Windows 7 or Windows Server 2008 R2. .NET Framework 4 is installed with Visual Studio 2010.

# Install Windows PowerShell 2.0

Windows PowerShell 2.0 needs to be installed on Windows Server 2008 and Windows Vista only. It is already installed on Windows Server 2008 R2 and Windows 7.

To install Windows PowerShell 2.0

|  |
| --- |
| 1. Go to [Windows Management Framework](http://go.microsoft.com/fwlink/?LinkId=177670) (http://go.microsoft.com/fwlink/?LinkId=177670).  2. Review the information on the Web page, and then click the link for the download of the Windows Management Framework Core for your platform in the Download Information section.  3. On the Update page, click Download.  4. When the download is complete, click Finish. |

# Prepare a Shared Network Folder for Caching Service Configuration Settings

This topic describes the general steps of preparing a shared network folder so that it can be used to store cluster configuration settings for the cache system. Use this topic if you are planning to use the XML provider to store Caching Service configuration data, rather than a database provider such as the SQL provider. The steps in this topic are unnecessary if you are going to use a database provider.

Instead of using a shared network folder, you can choose to store your cache cluster configuration settings in a SQL Server database. There are many factors to consider when choosing which store is right for your application. For enterprise applications, we highly recommend that you use a SQL Server database for storing cluster configuration settings. For smaller applications or development workstation scenarios, the ease of creating a shared network folder may outweigh the availability benefits of SQL Server. For more information, see the “Cluster Configuration Storage Options” topic in [Windows Server AppFabric help](http://go.microsoft.com/fwlink/?LinkId=164929) (http://go.microsoft.com/fwlink/?LinkId=164929). For more information about the configuration steps, see [Configure Windows Server AppFabric](#z0207998972284751baf1f2a7aafdf01a).

For more detailed information about using a shared network folder as the cluster configuration storage location, see the “Shared Folder-Based Cluster Configuration” topic in [Windows Server AppFabric help](http://go.microsoft.com/fwlink/?LinkId=164929) (http://go.microsoft.com/fwlink/?LinkId=164929).

To prepare a shared folder to store the Caching Service configuration settings

|  |
| --- |
| 1. Select the appropriate server to host the shared network folder.  2. Create the shared network folder. For more information about performing this step, refer to the help for the operating system on that computer.  3. Explicitly grant permissions to the security identity that will be performing the cache server configuration. The identity used for installation needs Administrator rights on the server hosting the shared network folder so that the installation program can grant permissions to the cache servers for the shared network folder.  4. Each of the cache host security identities needs read-only permissions on the Caching Service configuration shared folder. This step is done automatically by the AppFabric Configuration Wizard for each of the cache servers. Depending on the operating system, these permissions may be referred to as Contributor, Change, Write, and Read. |

# Installing and Configuring Windows Server AppFabric

You perform component-based installation and configuration of Windows Server AppFabric by using two wizards: an installation wizard and a configuration wizard. The installation wizard installs the Hosting Services, Caching Service and Cache Client, Hosting Administration, and Cache Administration. The configuration wizard configures the monitoring and persistence components of the Hosting Services, and the Caching Service.

Separate installation and configuration wizards give you flexibility in setting up your system. You can choose to enter the configuration wizard immediately after the installation wizard has finished, or you can enter the configuration wizard at a later point. Both the installation and configuration wizards are available from the Start menu, so you can install or configure components after initial installation. For more information, see [Install Windows Server AppFabric](#zcd2de076c1c4469091a2d9dd83e5d1fd) and [Configure Windows Server AppFabric](#z0207998972284751baf1f2a7aafdf01a).

You can also run an automated (silent) installation that requires no user interaction. For more information, see [AppFabric Core Help](http://go.microsoft.com/fwlink/?LinkId=164929) (http://go.microsoft.com/fwlink/?LinkId=164929).

If you run the AppFabric setup program on a computer that already has a previous version of AppFabric on it, you will be able to upgrade AppFabric through the setup wizard. For more information, see [AppFabric Core Help](http://go.microsoft.com/fwlink/?LinkId=164929) (http://go.microsoft.com/fwlink/?LinkId=164929).

Security is an important consideration in the setup and configuration process of AppFabric. For information about AppFabric security, see “Security and Protection” in the [AppFabric Core Help](http://go.microsoft.com/fwlink/?LinkId=164929) (http://go.microsoft.com/fwlink/?LinkId=164929).

## Hosting Services Installation and Configuration

Installing and configuring the AppFabric hosting features consists of the following tasks: installing AppFabric hosting features on a server, configuring AppFabric monitoring, preparing the monitoring store, configuring AppFabric persistence, and preparing the persistence store. The primary tasks are summarized in the following list:

 Installing the AppFabric hosting features: Install the Hosting Services and the Hosting Administration tools. This step is performed with the AppFabric Setup Wizard or by using automated setup. For more information about automating the installation of AppFabric, see [AppFabric Core Help](http://go.microsoft.com/fwlink/?LinkId=164929) (http://go.microsoft.com/fwlink/?LinkId=164929).

 Configuring AppFabric monitoring, including configuring the account for the Event Collection service, and initializing and registering the monitoring store. This step is performed with the AppFabric Configuration Wizard.

 Configuring AppFabric persistence, including configuring the account for the Workflow Management service, and initializing and registering the persistence store. This step is performed with the AppFabric Configuration Wizard.

## Caching Services Installation and Configuration

Installing and configuring the AppFabric caching features consists of the following tasks: installing AppFabric caching features on a cache server, preparing the Caching Service configuration store, configuring the AppFabric Caching Service, and preparing a Cache Client to use the cache cluster. The primary tasks are summarized in the following list:

 Installing the AppFabric caching features: Install the Caching Service, the Cache Client, and the Windows PowerShell-based Cache Administration tool. This step is performed with the AppFabric Setup Wizard or by using automated setup. For more information about automating the installation of AppFabric, see [AppFabric Core Help](http://go.microsoft.com/fwlink/?LinkId=164929) (http://go.microsoft.com/fwlink/?LinkId=164929).

 Preparing the Caching Service configuration store by creating and designating a shared network folder, or by creating and registering a database to store the Caching Service configuration settings.

 Configuring the Caching Service configuration settings in the Caching Service configuration store by using the AppFabric Configuration Wizard or the Cache Administration and Configuration cmdlets for Windows PowerShell.

 Installing the AppFabric Cache Client on computers that will be running applications programmed to take advantage of caching features.

The caching features of AppFabric can be installed by using the AppFabric Setup Wizard or command prompt parameters. Both means of installation require the same input information and perform the same tasks. For more information about automating the installation of AppFabric, see [AppFabric Core Help](http://go.microsoft.com/fwlink/?LinkId=164929) (http://go.microsoft.com/fwlink/?LinkId=164929).

After the Caching Service configuration store is configured and ready, you can install the caching features on as many cache servers as you would like in the cache cluster. You may experience some degree of contention on the Caching Service configuration store during parallel installations.

Note

To minimize contention issues on the Caching Service configuration storage location during parallel installation of caching features, we recommend that you use SQL Server to store the cluster configuration settings. Use SQL Server to store the Caching Service configuration settings by specifying the SQL Server AppFabric Caching Service Configuration Store Provider on the Configure Caching Service page of the AppFabric Configuration Wizard. When using a shared folder for Caching Service configuration settings, serial installation of servers with caching features is advised.

For the installation to succeed, the security identity of the person performing the installation must have the appropriate permissions on the Caching Service configuration store. Set the identity from the Configure Caching Service dialog box in the AppFabric Configuration Wizard.

## In This Section

 [Install Windows Server AppFabric](#zcd2de076c1c4469091a2d9dd83e5d1fd)

 [Configure Windows Server AppFabric](#z0207998972284751baf1f2a7aafdf01a)

# Install Windows Server AppFabric

Use the following procedure to install Windows Server AppFabric. You can use the procedures in this topic whether you are starting installation for the first time or adding or removing features after an initial installation. The installation program provides the following functionality:

 Enables you to select specific features to install.

 Validates the platform to ensure that the product is not installed in an unsupported state, and indicates which prerequisites need to be installed.

 Installs AppFabric.

 Enables you to remove specific AppFabric features or AppFabric as a whole, ensuring that the computer can be left in a state in which the features or AppFabric can be reinstalled.

 Creates the AppFabric Event Collector service, the AppFabric Workflow Management service, and the AppFabric Caching Service. Sets the services to a startup type of manual and a status of stopped. In the configuration process, the Event Collector and Workflow Management services are changed to an automatic startup type and are started. The startup type for the Caching Service remains set to manual.

The AppFabric setup program sets configuration settings in the root (server level) Web.config file, the machine.config file, and the applicationHost.config file.

For information about configuration, see [Configure Windows Server AppFabric](#z0207998972284751baf1f2a7aafdf01a). You can configure AppFabric either immediately after installation, or in a separate process.

To open the installation wizard

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. Open the installation wizard for initial installation by downloading and running the appropriate setup program from [Windows Server AppFabric](http://go.microsoft.com/fwlink/?LinkID=183123) (http://go.microsoft.com/fwlink/?LinkID=183123), as shown in the following table. These programs all run a Microsoft Update package to install AppFabric features, which are features of Windows.   |  |  | | --- | --- | | Platform | Setup package | | Windows Vista and Windows Server 2008 x64 | WindowsServerAppFabricSetup\_amd64\_6.0.exe | | Windows 7 and Windows Server 2008 R2 x64 | WindowsServerAppFabricSetup\_amd64\_6.1.exe | | Windows Vista and Windows Server 2008 x86 | WindowsServerAppFabricSetup\_x86\_6.0.exe | | Windows 7 x86 | WindowsServerAppFabricSetup\_x86\_6.1.exe |   Note  You can open the installation wizard to add or remove features after an initial installation by clicking Start, clicking All Programs, clicking Windows Server AppFabric, and then clicking Add or remove Features.  2. Proceed to the next section of this topic to install AppFabric. |

To install AppFabric

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. On the Accept License Terms page, read the license terms, and then accept the terms and click Next to continue, or do not accept the terms and then exit the setup wizard.  2. On the Customer Experience Improvement Program page, select Yes to participate in the Customer Experience Improvement program, or No not to participate, and then click Next.  Note  If you select Yes to participate, this program will collect information about your hardware, how you use AppFabric, and what problems you might have with AppFabric, in order to enable Microsoft to improve AppFabric. The program will not interrupt you.  3. On the Feature Selection page, select the AppFabric components that you want to install to reliably host and manage applications, and to use caching, and then click Next.  Note  If you keep the same settings that are displayed in the installation wizard when it is run for the first time, the installation wizard will install the Hosting Services, Cache Client, and Hosting Administration features. It will not install the Caching Services or Cache Administration features, because they would often be installed on a separate computer. However, you can install all features on the same computer, particularly for developing or testing purposes.   |  |  | | --- | --- | | Control | Description | | Hosting Services | AppFabric components that enable you to reliably host and manage WCF/WF applications. When this component is selected, the Hosting Administration feature will automatically be selected. | | Caching Services | The distributed Caching Service and related components that enable you to prepare this host as a Caching Service, turning the server into the node of a cluster. You can create a new cluster or join this host to an existing cluster using the Caching Service. | | Cache Client | The client libraries that enable you to use cache functionality in your applications during development or run time. You can install this component even if you are not installing the Caching Services. | | Hosting Administration | Components that enable you to administer the Hosting Services. When this feature is selected, the installation program installs the IIS Manager, the AppFabric Configuration Wizard, and the hosting features Windows PowerShell modules. When you make a remote connection with a separate server that has Hosting Services installed on it, the AppFabric IIS Manager extensions are transferred over to the computer with IIS Manager installed on it.  You can select Hosting Administration with no other features selected, which enables you to create a monitoring or persistence database on a database server while the Hosting Services runtime and the administration tools are installed on separate servers. If Hosting Administration is installed, but Hosting Services is not installed, the services for the AppFabric Event Collection service and Workflow Management service will not be installed. | | Cache Administration | Components that enable you to administer a cache cluster. You can select Cache Administration as an independent component, with no other features selected. In that instance, you could use administration tools to administer the Caching Service installed on a separate computer. |   Note  If prerequisite software needs to be installed, the setup wizard will display the Platform Validation page after the Feature Selection page. You must install the missing prerequisites manually. If all prerequisites have already been installed, the setup wizard will proceed directly to the Confirm Installation Selections page.  4. On the Platform Validation page, review the information and download any necessary prerequisite software. Click the link for a component or a configuration issue for more information. After installing components and/or resolving issues, click Refresh to verify that the problem has been fixed and then click Next to continue with the setup wizard. For more information, see Preparing Your Computer for Installation.  5. The Confirm Installation Selections page will display a list of the features that were selected in the Feature Selection page, and will be installed. It displays a list of the required Windows components and the AppFabric features that will be installed. Verify that the lists are correct, and then click Install to begin installation.  Note  The Application Server role is required for AppFabric. This role will be included in the list of the required Windows components even if it is already installed, and the installation wizard will verify that it has been installed.  6. On the Installation Progress page, you can monitor the progress of the installation.  7. On the Installation Results page, verify that the installation has succeeded. To run the configuration wizard, select the Launch configuration tool check box, and then click Finish to complete the installation wizard. Click Detailed Installation report to display a log of setup events. |

## In This Section

 [Install Cache Client Assemblies](#z4820a742c8e14290b822f02d04b76a61)

# Install Cache Client Assemblies

To use the cache cluster, a cache-enabled application server or a Visual Studio development environment workstation must have a local copy of the Windows Server AppFabric caching assemblies. Obtain these assemblies by installing AppFabric on the development workstation. Only the Cache Client feature is required to install and register the required assemblies. By default, the assemblies are placed in the .\Windows\Sytem32\AppFabric directory. The most important assemblies for application development include the following:

 Microsoft.ApplicationServer.Caching.Core.dll

 Microsoft.ApplicationServer.Caching.Client.dll

 Microsoft.WindowsFabric.Common.dll

 Microsoft.WindowsFabric.Data.Common.dll

Important

It is important that your application or development environment use the same assemblies as the cache servers. During any upgrade of the distributed cache system, make sure that all cache clients using that system have the same versions of the assemblies. Check this by comparing the product version of the cache client's Microsoft.ApplicationServer.Caching.Client.dll file with the product version of the cache server's Microsoft.ApplicationServer.Caching.Server.dll file located in the installation folder.

## Preparing the Cache-Enabled Application Server

For your application server to use the AppFabric caching assemblies, you must install the cache-enabled application that uses them. As long as that application's installation program copies the AppFabric caching assemblies to an accessible location on the application server, that application can employ traditional .NET application installation techniques.

### Preparing the Development Workstation

When developing a cache-enabled application, you only program with the public members of Microsoft.ApplicationServer.Caching.Core.dll and Microsoft.ApplicationServer.Caching.Client.dll. For more information, see the topic [Preparing the Development Environment](http://go.microsoft.com/fwlink/?LinkId=187215) (http://go.microsoft.com/fwlink/?LinkId=187215).

# Configure Windows Server AppFabric

You can configure Windows Server AppFabric by running a configuration wizard either immediately after successfully running the setup wizard, or by executing the configuration wizard from the Start menu after initial installation. The configuration wizard overwrites existing configuration values with any new values that you enter in the wizard.

Many of the steps that are performed in the configuration wizard can be performed manually by executing AppFabric configuration cmdlets. For more information, see the [Windows Server AppFabric help](http://go.microsoft.com/fwlink/?LinkId=164929) (http://go.microsoft.com/fwlink/?LinkId=164929).

You can set the following configuration in the configuration wizard, based upon which features you have installed in the setup wizard:

 Configure the accounts for the Event Collection service and the Workflow Management service.

 Add the default configuration entries for the monitoring and persistence stores to the root Web.config file.

 Initialize the default monitoring and persistence stores.

 Configure a Caching Service configuration database, creating a new cache cluster or joining an existing cache cluster.

The configuration wizard sets the configuration of the Hosting Services feature in the root Web.config file. The wizard sets the configuration of the Caching Service in the DistributedCache.exe.config file located in <drive>:\Windows\System32\AppFabric folder. The DistributedCacheService.exe.config file contains a connection string for the Caching Service configuration information. If you select XML for the Caching Service configuration provider, the cluster configuration will be set in an .xml file in a folder that you designate during configuration; otherwise, the cluster configuration is set in a store determined by the Caching Service configuration provider, as configured in the wizard.

For more information about installation, see [Install Windows Server AppFabric](#zcd2de076c1c4469091a2d9dd83e5d1fd).

## Start Configuration of Windows Server AppFabric



|  |
| --- |
| 1. Open the AppFabric Configuration Wizard after performing the AppFabric Setup Wizard by selecting the Launch configuration tool check box on the Installation Results page of the setup wizard, and then clicking Finish to complete the setup wizard.  2. You can also open the configuration wizard by clicking Start, clicking All Programs, clicking Windows Server AppFabric, and then clicking Configure AppFabric.  3. On the Before You Begin page, select Yes to participate in the Customer Experience Improvement program, or No not to participate, and then click Next. The Configure Hosting Services page will be displayed. Proceed to the next section of this topic.  Note  If you participate, this program helps Microsoft improve Windows Server AppFabric. Without interrupting you, it collects information about your computer hardware and how you use Windows Server AppFabric. The program also periodically downloads a file to collect information about problems you might have with Windows Server AppFabric. The information collected is not used to identify or contact you. |

## Configure Monitoring



|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| 1. On the Configure Hosting Services page, use the tables below to configure monitoring, and then click Next.  Note  If Hosting Administration is installed, but Hosting Services is not installed, then the services for the AppFabric Event Collection service and the Workflow Management service are not installed, and the text boxes for the identities of the services will display “Service not installed”.   |  |  | | --- | --- | | Control | Description | | Set monitoring configuration | Select to select the Event Collector service account, and to select and configure the monitoring store. | | AppFabric Event Collection service account | Displays the Windows logon account for the Event Collection service. By default, the Event Collection service account is used for the monitoring provider. The Event Collection service account is a member of the Administrators group, and has administrative access to the monitoring database. The default is NT Authority\LocalService. | | Change | If you click Change for the Event Collector service account, you will be able to select the user credential for system services. You can select a built-in account or enter a custom user name and password. In the Select User dialog box, select the account that you want to use for the service, and then click OK. Doing so will update the identity (if it was changed) and restart the service.  For more information, see the section “Security Model for AppFabric” in [Windows Server AppFabric help](http://go.microsoft.com/fwlink/?LinkId=164929) (http://go.microsoft.com/fwlink/?LinkId=164929). | | Monitoring provider | Select the provider that will give access to the monitoring database. All valid data providers registered in the local machine.config file will be displayed in this list. | | Configure | After selecting the monitoring provider, click to set the configuration for the monitoring provider. For more information about configuring the SQL monitoring provider, see the discussion of the Configure SQL Monitoring Store dialog box below. You can also select a custom monitoring provider. | | How to install additional Monitoring providers | You can add a monitoring provider to the list of providers that you can select in the Monitoring provider drop-down box. Click this link to get help on how to add a provider. |   2. If you clicked Configure for the SQL monitoring provider (System.Data.SqlClient) on the Configure Hosting Services page, the Configure SQL Monitoring Store dialog box will be displayed. The following table describes the controls in this dialog box. Use this table to configure the monitoring store, and then click OK to return to the Configure Hosting Services page. Verify that the store was initialized and registered successfully.   |  |  | | --- | --- | | Control | Description | | Register AppFabric monitoring store in root web.config | Select to register the monitoring store identified by the connection string, by adding its configuration to the root Web.config file. This includes the ApplicationServerMonitoringConnectionString and its related monitoring behavior. This registration makes the connection string and behavior available at all scopes on the computer.  You can select this check box even if Initialize monitoring store is not selected. Do so if the database is already created and initialized, or to point to the database even if it is not initialized.  Note  This check box is disabled if the Hosting Administration tools are installed, but the Hosting Services feature is not installed. | | Initialize monitoring store | Select to initialize the monitoring database identified in the connection string, as required before it can be used. Initialization creates the database schema and the structure based upon that schema. If the database does not exist, it will be created, and then initialized.  If this check box is selected, but Register AppFabric monitoring store in root web.config is not selected, then the database will be created, if necessary, and initialized, but it will not be available for use from this computer.  The initializing operation is performed by the initialization cmdlets. For more information, see the [Windows Server AppFabric help](http://go.microsoft.com/fwlink/?LinkId=164929) (http://go.microsoft.com/fwlink/?LinkId=164929).  Note  For the database to be created, you must have permissions to create databases on the destination server. | | Connection string | String specifying the server and database used to access the monitoring store.  In the Server field, enter the name of the computer that the database is on.  In the Database field, enter the name of the database to be created for monitoring data, or select an existing database from the list. | | Security Configuration | Select Windows authentication or SQL Server authentication.  For Windows authentication, to change the administrators, readers, or writers role, click Browse and use the standard Select User or Group dialog box to enter a different value. You can change the value for administrators, readers, or writers only if Initialize monitoring store is selected.  Note  When you have installed only Hosting Administration, and you are initializing the monitoring SQL store with Windows authentication, no group or user is entered by default for the Administrators, Readers, or Users role. You will need to click Browse and enter a group or user manually for each role before proceeding with the configuration. |   3. After setting the monitoring configuration, proceed to the next section of this topic if you want to set persistence configuration. Otherwise, click Next to display the Configure Caching Service page, and proceed to the “Configure Caching Service” section of this topic. |

## Configure Persistence



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| 1. On the Configure Hosting Services page, use the tables below to configure persistence, and then click Next.  Note  This page will be displayed only if you selected Worker on the Feature Selection page.   |  |  | | --- | --- | | Control | Description | | Set persistence configuration | Select this check box to select the Workflow Management service account, and to select and configure the persistence store. | | AppFabric Workflow Management service account | Displays the Windows logon account for the Workflow Management service. The Workflow Management service account is a member of the Administrators group, and has administrative access to the persistence database. The default is NT Authority\LocalService. | | Change | If you click Browse for the Workflow Management service account, you will be able to select the user credential for system services. You can select a built-in account or enter a custom user name and password. In the Select User dialog box, select the account that you want to use for the service, and then click OK.  For more information, see the section “Security Model for AppFabric” in the [Windows Server AppFabric help](http://go.microsoft.com/fwlink/?LinkId=164929) (http://go.microsoft.com/fwlink/?LinkId=164929). | | Persistence provider | Select the provider that will give access to the persistence database. All valid data providers registered in the local machine.config file will be displayed in this list. | | Configure | Click to set the configuration for the persistence provider. | | How to install additional Persistence providers | You can add a persistence provider to the list of providers that you can select in the Persistence provider drop-down box. Click this link to get help on how to add a provider. |   2. If you clicked Configure for the SQL persistence provider (sqlStoreProvider) on the Configure Hosting Services page, the Configure SQL Persistence Store dialog box will be displayed. The following table describes the controls in this dialog box. Use this table to configure the persistence provider, and then click OK to return to the Configure Hosting Services page. Verify that the store was initialized and registered successfully.   |  |  | | --- | --- | | Control | Description | | Register AppFabric persistence store in root web.config | Select to register the persistence store identified by the connection string, by adding or updating its configuration in the root Web.config file. This includes the ApplicationServerWorkflowInstanceStoreConnectionString and its related persistence behavior. This registration makes the connection string and behavior available at all scopes on the computer.  You can select this check box even if Initialize persistence store is not selected. Do so if the database is already created and initialized, or to point to the database even if it is not initialized.  Note  This check box is disabled if the Hosting Administration tools are installed, but the Hosting Services feature is not installed. | | Initialize persistence store | Select to initialize the persistence database identified in the connection string, as required before it can be used. Initialization creates the database schema and the structure based upon that schema. If the database does not exist, it will be created, and then initialized.  If this check box is selected, but Register AppFabric persistence store in root web.config is not selected, then the database will be created, if necessary, and initialized, but it will not be available for use from this computer.  The initializing operation is performed by the initialization cmdlets. For more information, see the AppFabric core help.  Note  For the database to be created, you must have permissions to create databases on the destination server. | | Connection string | String specifying the server and database used to access the persistence store.  In the Server field, enter the name of the computer that the database is on.  In the Database field, enter the name of the database to be created for persistence data, or select an existing database from the list. | | Security Configuration | Select Windows authentication or SQL Server authentication. Windows Integrated Security is selected by default and the groups are populated with the default built-in groups.  For Windows authentication, to change the administrators, readers, or users role, click Browse and use the standard Select User or Group dialog box to enter a different value. You can change the value for administrators, observers, or writers only if Initialize persistence store is selected.  Note  When you have installed only Hosting Administration, and you are initializing the persistence SQL store with Windows authentication, no group or user is entered by default for the Administrators, Readers, or Users role. You will need to click Browse and enter a group or user manually for each role before proceeding with the configuration. |   3. After setting the persistence configuration, click Next on the Configure Hosting Services page. The setup program will start the Event Collection service and Workflow Management service, if they are configured, and then display the Configure Caching Service page. Proceed to the “Configure Caching Service” section of this topic. |

## Configure Caching Service



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| 1. On the Configure Caching Service page, use the tables below to configure the Caching Service, and then click Next. A pop-up message will be displayed indicating that this action will apply the Caching Service configuration. To continue, click Yes. When you do so, the configuration settings will be made in the Caching Service configuration file. The Configure Cache Node page will then be displayed.  Note  This page will be displayed only if you selected at least one of the Caching Services features on the Feature Selection page of the installation wizard (Caching Service, Cache Client, or Cache Administration).   |  |  | | --- | --- | | Control | Description | | Set Caching Service configuration | Select to add or update system-level configuration of the Caching Service feature. | | Caching Service account | Displays the Windows logon account for the Caching Service. By default, the Caching Service account is used for the Caching Service configuration provider. The default is NT AUTHORITY\NETWORK SERVICE.  If your computer is part of a workgroup, you must change the Caching Service account. Use a local account that exists on all computers participating in the cluster and use the same password for the account on all computers. For configuration, the local account must have local administrator privileges, and must not be a built-in account. This step is not necessary for domain-joined machines. | | Change | Click to display the Select User dialog box that you use to select an account for the Caching Service account.  For more information, see the section “Security Model for AppFabric” in the [Windows Server AppFabric help](http://go.microsoft.com/fwlink/?LinkId=164929) (http://go.microsoft.com/fwlink/?LinkId=164929). | | Caching Service configuration provider | When specifying the Caching Service configuration provider, there are two options available:  a. XML – Caching Service configuration information is stored in an XML file on a network file share.  b. SQL Server Distributed Cache Configuration Store Provider – Caching Service configuration information is stored in a SQL Server database.  Warning  If XML is selected and the network discovery property is turned off, and you click Browse to select a file share for the XML provider, you will not be able to expand the Network folder in the Browse for Folder dialog box. You can, however, type in a UNC server share. To be able to expand the Network folder, you need to turn network discovery on by opening Control Panel, selecting Network and Internet, selecting Network and Sharing Center, selecting Change Advanced sharing settings, clicking Turn on network discovery, and then clicking Save changes.  Note  In workgroup scenarios, only the XML provider is supported, not database providers. | | Configure | If you chose SQL Server AppFabric Caching Service Configuration Store Provider as the configuration provider, click Configure to create or select a Caching Service configuration database. | | File Share | If you chose XML Provider as the configuration provider, enter or browse to the network file share that will contain the XML configuration file. The file share must be a valid UNC path,for example, \\server\share.  Important  You must manually create a network file share that is accessible to all cache servers in the cache cluster. The user account that is running the AppFabric configuration wizard must have “Owner” or “Co-Owner” permissions to the specified network file share and “Full Control” permissions to the folder at the file system level.  The Caching Service must have Read/Write access to the network file share. | | Browse | If you click Browse for the File share, you will be able to use the Browse for Folder dialog box to select the file share for the XML configuration provider. Select an existing folder or create a new folder, and then click OK. | | New cluster/Join cluster | Select New Cluster if this is the first computer in the cluster. When you run Setup on subsequent computers in the cluster, select Join Cluster. The default is New Cluster.  To create or join a cluster, you need to specify the location of the configuration data (either in a database or an XML file), and then on the next page (the Configure AppFabric Cache Node page) enter the ports, and set the firewall settings to unblock the services listed.  When creating a cluster, you need to indicate the cluster size (the number of computers in the cluster). This enables the system to optimize memory allocation. | | Cluster size | Select one of the following three options to optimize performance based on cluster size. This setting is available only if the New Cluster control is selected.   Small [1-5 computers]   Medium [6-15 computers]   Large [> 15 computers]  Note  After this selection has been set, it cannot be changed.  Note  Your cluster size is not limited by this selection. You can still add or remove computers from the cluster after optimization. However, performance will only be optimized when the cluster size is within the range specified. Select a cluster size based upon the eventual number of nodes that will be in the cluster. After you set the cluster size during configuration, you cannot change it later. If you select Small for the cluster size, the cluster will be optimized for one to five computers. If your cluster eventually grows to ten computers, the cluster will still be optimized for one to five computers. You cannot subsequently change the cluster size to Medium, in order to optimize the cluster for 6 to 15 computers. |   2. If you selected SQL Server AppFabric Caching Service Configuration Store Provider in the Caching Service configuration provider drop-down list and click Configure, the Windows Server AppFabric Caching Configuration Store dialog box will be displayed. Use the tables below to configure the SQL store, and then click Next.  Note  When you click OK in the Windows Server AppFabric Caching Configuration Store dialog box, the distributed cache database will be created, and a pop-up message with the results of the operation will be displayed.  Note  Security configuration settings do not need to be made on this page because Windows authentication is required. Caching does not support SQL authentication.   |  |  | | --- | --- | | Control | Description | | Register AppFabric Caching Service configuration database | Select to register the configuration database identified by the connection string, by adding its configuration to the root Web.config file, and to set the security configuration. This registration makes the connection string and behavior available at all scopes on the computer. You can select this check box even if Create AppFabric Caching Service configuration database is not selected. Do so if the database is already created. | | Create AppFabric Caching Service configuration database | Select to create the configuration database and to specify the connection string. | | Connection String | Enter the server in the Server field and select or type the database in the Database field. |   3. When you click Next with the Configure Caching Service page displayed, the Configure AppFabric Cache Node page will be displayed. Use the tables below to configure the cache node ports and Windows firewall.  Note  This page will be displayed only if you selected at least one of the Caching Services features on the Feature Selection page. You can set the firewall exceptions only if the Windows Firewall service is enabled.  Note  If the Windows Firewall is disabled, the Windows firewall exceptions area of the Configure AppFabric Cache Node dialog box will be disabled.   |  |  | | --- | --- | | Control | Description | | Node ports | Enter or select a unique value for each port, or leave the default settings.   Service port. The default is 22233.   Cluster port. The default is 22234.   Arbitrator port. The default is 22235.   Replication port. The default is 22236.  The valid range for port values is 1024 through 65535. Each port must have a unique port number. | | Windows firewall exceptions | For the AppFabric Distributed Cache features to function, you must configure the Windows Firewall rules to allow access for the Cache Service.  a. Windows Server AppFabric: AppFabric Caching Service  b. Remote Service Management  Important  If you are using a third party (non-Windows) firewall, or a Windows Firewall that is subject to domain policy, you must manually configure the firewall for the caching features to work properly. |   Note  After you click Next on the Configure AppFabric Cache Node page, the Configure Application page will be displayed if the AppFabric hosting features are installed. Proceed to the next section of this topic. |

## Complete Configuration of Windows Server AppFabric



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|  On the Configure Application page, select Start Internet Information Services (IIS) Manager to configure an application in the IIS Manager. Click Finish to close the configuration wizard. |

Note

After the AppFabric Configuration Wizard has successfully configured the Caching Service, you will need to use administration cmdlets to start the cluster or start individual hosts in the cluster. Use the Start-CacheCluster or Start-CacheHost cmdlet. For more information about these cmdlets, see "Cache Administration with Windows PowerShell" in the [Windows Server AppFabric help](http://go.microsoft.com/fwlink/?LinkId=164929) (http://go.microsoft.com/fwlink/?LinkId=164929).

## Start Cache Host Services for the First Time

After installation for the first time, you will need to start the cache cluster. Configure at least one node in the cluster, and then execute a cmdlet to start the cluster.

In the developer scenario (using a single-node cluster), to start a new cluster execute Use-CacheCluster (to set the context of your Windows PowerShell session to a particular cache cluster) and then execute Start-CacheCluster.

In a multiple-node cluster, to start all cache host services in the cluster (lead hosts first), execute Start-CacheCluster. For additional cache hosts (and any other cluster-level configuration changes) to be acknowledged by the cache cluster, you need to restart all cache host services with Restart-CacheCluster. To start a specific cache host service, execute Start-CacheHost.

For more information, see [Cache Administration with Windows PowerShell](http://go.microsoft.com/fwlink/?LinkId=178100) (http://go.microsoft.com/fwlink/?LinkId=178100).