



# Microsoft® Search Server 2010

## Guide for IT Pros for Search Server 2010

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### Abstract

This book includes information about how to plan, deploy, and maintain Microsoft Search Server 2010 and Microsoft Search Server 2010 Express in an organization.

The content in this book is a copy of selected content in the [Search Server 2010 technical library](http://go.microsoft.com/fwlink/?LinkId=195432) (<http://go.microsoft.com/fwlink/?LinkId=195432>) as of the publication date. For the most current content, see the technical library on the Web.

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## Getting help

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Every effort has been made to ensure the accuracy of this book. This content is also available online in the Office System TechNet Library, so if you run into problems you can check for updates at:

*<http://technet.microsoft.com/office>*

If you do not find your answer in our online content, you can send an e-mail message to the Microsoft Office System and Servers content team at:

*[itspdocs@microsoft.com](mailto:itspdocs@microsoft.com)*

If your question is about Microsoft Office products, and not about the content of this book, please search the Microsoft Help and Support Center or the Microsoft Knowledge Base at:

*<http://support.microsoft.com>*

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# Getting started with Search Server 2010

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Use the links below to get started with Microsoft Search Server 2010 and Microsoft Search Server 2010 Express.

- To plan how to install and deploy Search Server 2010, see the topics in [Planning and architecture for Search Server 2010](#).
- To install Search Server 2010, see the topics in [Deployment for Search Server 2010](#).
- To find articles about how to crawl content, install protocol handlers and IFilters, work with federation, and manage Search Server 2010 on a daily and weekly basis, see [Operations for Search Server 2010 Express Beta](#).
- For information about security, see [Security and protection for Search Server 2010](#).

## See Also

[Microsoft Enterprise Search](http://go.microsoft.com/fwlink/?LinkId=111320) (<http://go.microsoft.com/fwlink/?LinkId=111320>)

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# What's new in enterprise search (Search Server 2010)

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## Note:

Unless otherwise noted, the information in this article applies to both Microsoft Search Server 2010 and Microsoft Search Server 2010 Express. In this article, the term Search Server 2010 refers to both products.

Microsoft Search Server 2010 offers all of the enterprise search features and functionality that are in Microsoft Search Server 2008 and provides many new enterprise search capabilities. This article summarizes the new enterprise search features and functionality in Search Server 2010. With these new capabilities, search administrators can configure an optimal, secure search infrastructure that enables end users to find information in the enterprise quickly and efficiently.

In this article:

- [New features and functionality for end users](http://technet.microsoft.com/library/de2566a3-7974-4fc0-8270-ee45d9314be7.aspx#BKMK_FF_ENDUSER) ([http://technet.microsoft.com/library/de2566a3-7974-4fc0-8270-ee45d9314be7.aspx#BKMK\\_FF\\_ENDUSER](http://technet.microsoft.com/library/de2566a3-7974-4fc0-8270-ee45d9314be7.aspx#BKMK_FF_ENDUSER))
- [New features and functionality for administrators](http://technet.microsoft.com/library/de2566a3-7974-4fc0-8270-ee45d9314be7.aspx#BKMK_FF_ADMIN) ([http://technet.microsoft.com/library/de2566a3-7974-4fc0-8270-ee45d9314be7.aspx#BKMK\\_FF\\_ADMIN](http://technet.microsoft.com/library/de2566a3-7974-4fc0-8270-ee45d9314be7.aspx#BKMK_FF_ADMIN))

## New features and functionality for end users

For end users, Search Server 2010 provides each of the following:

- [New search query capabilities](http://technet.microsoft.com/library/de2566a3-7974-4fc0-8270-ee45d9314be7.aspx#BKMK_QUERY) ([http://technet.microsoft.com/library/de2566a3-7974-4fc0-8270-ee45d9314be7.aspx#BKMK\\_QUERY](http://technet.microsoft.com/library/de2566a3-7974-4fc0-8270-ee45d9314be7.aspx#BKMK_QUERY))
- [Improvements for search results](http://technet.microsoft.com/library/de2566a3-7974-4fc0-8270-ee45d9314be7.aspx#BKMK_RESULT) ([http://technet.microsoft.com/library/de2566a3-7974-4fc0-8270-ee45d9314be7.aspx#BKMK\\_RESULT](http://technet.microsoft.com/library/de2566a3-7974-4fc0-8270-ee45d9314be7.aspx#BKMK_RESULT))

## New search query capabilities

Search Server 2010 enables end users to create and run more effective search queries. It also enables users to search the enterprise from the Windows 7 desktop.

- **Boolean query syntax for free-text queries and for property queries**

Search Server 2010 supports use of the Boolean operators AND, OR, and NOT in search queries. For example, a user can execute a query such as the following:

("SharePoint Search" OR "Live Search") AND (title:"Keyword Syntax" OR title:"Query Syntax")

- **Prefix matching for search keywords and document properties**

Search queries can use the \* character as a wildcard at the end of a text string. For example, the search query "micro\*" would find documents that contain "Microsoft" or "microchip," and the query "author:bi\*" would find documents that contain "Bill" or "Bing." Therefore, the query "micro\* author:bi\*" would find documents that contain both "Microsoft" and "Bill Gates."

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- **Suggestions while typing search queries**

As a user types keywords in the Search box, the Search Center provides suggestions to help complete the query. These suggestions are based on past queries from other users.

- **Suggestions after users run queries**

The Search Center provides improved "did you mean" suggestions in case keywords in a search query appear not to be what the user intended. In addition, when the search system returns results for a query, the Search Center provides suggestions for related searches.

- **Federated search connectors for searching the enterprise from Windows 7**

After Search Server 2010 returns results for a search query, a Windows 7 user can create a federated search connector shortcut for that search scope in Windows Explorer. This enables the user to search that scope at any time from Windows 7. The search results and associated metadata are displayed in Windows Explorer, where the user can take advantage of Windows features such as file preview and drag-and-drop. For any given search query, the search results that are displayed in Windows 7 are exactly the same as those that are displayed in the Search Core Results Web Part when the search is conducted directly in Search Server 2010.

## Improvements for search results

Search Server 2010 provides many improvements for getting and viewing search results.

- **Refinement panel**

The search results page includes a refinement panel, which provides a summary of search results and enables users to quickly browse and understand the results. For example, for a particular search query, the summary in the refinement panel might show that there are many Web pages in the search results and many documents by a particular author. A summary might also indicate that there are primarily Microsoft Word documents in the top 50 search results, followed by a particular number of Microsoft Excel documents.

The refinement panel also enables users to filter results — for example, by kind of content (document, spreadsheet, presentation, Web page, and so on), content location (such as SharePoint sites), content author, or date last modified. A user can also filter by category based on managed properties and enterprise content management (ECM) taxonomy nodes that an administrator configures.

- **Enhancements for relevance of search results**

Search Server 2010 provides improvements to increase the relevance and usefulness of search results, such as the following:

- **Ranking based on search results history**

If a document in a search results set was visited from a search results page much more often than other documents, the document is promoted in the ranking of search results.

- **Relevance based on inferred metadata**

Following a crawl, document metadata is parsed as part of the indexing process. In some cases, the search system can also infer metadata from the content of a document. This can be helpful when a document's explicit metadata is missing or incorrect. For example, the template

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of a Microsoft PowerPoint document might not specify an author, but the search system might infer the author from a phrase in the document such as "By John Doe."

## **New features and functionality for administrators**

Search Server 2010 includes new ways for administrators to help provide the most benefits for end users who are searching for information.

### **Farm Configuration Wizard**

The Farm Configuration Wizard runs automatically after a Server Farm installation finishes. This wizard helps simplify deployment of small farms. It provides the option to automate much of the initial configuration process with default settings. For example, when you use the Farm Configuration Wizard to deploy the first server in a farm, the wizard automatically creates a fully functional search system on that server, which includes:

- A search topology that can support an index of up to 10 million crawled documents.
- A Search Center from which users can issue queries. This Search Center is created automatically if the person installing the product selects this option in the wizard.

The search system can crawl local SharePoint sites (sites in the server farm) immediately after the Farm Configuration Wizard finishes running.

### **Search service administration independent of other shared services**

In Search Server 2008, the Office SharePoint Server Search service was contained in the Shared Services Provider (SSP). In that architecture, you could not create a new Search service without creating a new SSP. In contrast, in Search Server 2010, you can create and manage Search service applications independently. A Search service application requires no host such as an SSP.

### **Expanded support for automating administrative tasks**

You can automate many search administration tasks by using Windows PowerShell 2.0 scripts. For example, you can use Windows PowerShell 2.0 scripts to manage content sources and search system topology.

### **Increased performance, capacity, and reliability**

Search Server provides many new ways to configure and optimize a search solution for better performance, capacity, and reliability.

### **Scalability for increased crawling capability**

You can increase the number of crawl components to do the following:

- Increase crawl frequency and volume, which helps the search system to provide more comprehensive and up-to-date results.
- Increase performance by distributing the crawl load.

- 
- Provide redundancy if a particular server fails.

Index partitioning enables subsecond latency over indexes that contain 300,000 items when the system uses Microsoft SQL Server 2008 Express, or 10 million items when the system uses Microsoft SQL Server 2008 with Service Pack 1 (SP1) and Cumulative Update 2. Results can vary depending on item sizes and types and other factors.

## **Scalability for increased throughput and reduced latency**

You can increase the number of query components to do the following:

- Increase query throughput — that is, increase the number of queries that the search system can handle at a time.
- Reduce query latency — that is, reduce the amount of time it takes to retrieve search results.
- Provide failover capability for query components.

## **Topology management during normal operations**

You can tune the existing search topology during regular farm operations while search functionality remains available to users. For example, during usual operations, you can deploy additional index partitions and query components to accommodate changing conditions.

## **Operations management**

Search Server 2010 provides new capabilities for monitoring farm operations and customizing reports.

### **Health and performance monitoring**

Health and performance monitoring features enable an administrator to monitor search operations in the farm. This can be especially helpful for monitoring crawl status and query performance.

Search Server 2010 includes a health analysis tool that you can use to automatically check for potential configuration, performance, and usage problems. Search administrators can configure specific health reporting jobs to do the following:

- Run on a predefined schedule.
- Alert an administrator when problems are found.
- Formulate reports that can be used for performance monitoring, capacity planning, and troubleshooting.

### **Report customization**

You can customize reports that help you analyze search system operations and tune the search system to provide the best results for search queries. For example, reports can include information about what terms are used most frequently in queries or how many queries are issued during certain time periods. Information about peak query times can help you decide about server farm topology and about best times to crawl.

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## **Searches of diverse content by crawling or federating**

Search Server 2010 can search content in repositories other than SharePoint sites by crawling or federating. For example, the search system can do the following:

- Crawl content in repositories such as file shares, Exchange public folders, and Lotus Notes.
- Use federation for access to search results that are gathered by other crawlers or search engines. An administrator might federate search results from [www.bing.com](http://www.bing.com) or from a geographically distributed internal location, for example.

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# Planning and architecture for Search Server 2010

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The content in the planning and architecture section guides IT Pros in the development of conceptual, logical, and physical designs for configuring Microsoft Search Server 2010 or Microsoft Search Server 2010 Express features, servers, and topologies. This section also provides recommendations for system designs based on customer scenarios and includes information to help IT Pros design a highly reliable, consistently available, and scalable system.

In this section:

- [Hardware and software requirements \(Search Server 2010\)](#)  
This article describes the minimum hardware and software requirements for installing and using Microsoft Search Server 2010 or Microsoft Search Server 2010 Express.
- [Administrative and service accounts required for initial deployment \(Search Server 2010\)](http://technet.microsoft.com/library/bf92cffe-cc2d-4334-ab0d-ef394225924f(Office.14).aspx)  
([http://technet.microsoft.com/library/bf92cffe-cc2d-4334-ab0d-ef394225924f\(Office.14\).aspx](http://technet.microsoft.com/library/bf92cffe-cc2d-4334-ab0d-ef394225924f(Office.14).aspx))  
This article provides information about the administrative and service accounts that are required when you install Search Server 2010 on the first computer in a server farm.
- [Estimate performance and capacity requirements for Microsoft Search Server 2010 Express \(white paper\)](http://technet.microsoft.com/library/5dc03d91-19fb-409d-b86c-2c4f47839f47(Office.14).aspx)  
([http://technet.microsoft.com/library/5dc03d91-19fb-409d-b86c-2c4f47839f47\(Office.14\).aspx](http://technet.microsoft.com/library/5dc03d91-19fb-409d-b86c-2c4f47839f47(Office.14).aspx))  
This white paper discusses capacity management and capacity planning for Search Server 2010 Express. The white paper provides test data and includes recommendations for how to determine the hardware and configuration that you need to deploy and optimize a similar environment.

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# Hardware and software requirements (Search Server 2010)

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This article describes the minimum hardware and software requirements for installing and using Search Server 2010 or Search Server 2010 Express. This article does not discuss hardware requirements for scaling out a farm topology for increased availability, capacity, and performance.



**Note:**

Unless otherwise noted, the information in this article applies to both Microsoft Search Server 2010 and Microsoft Search Server 2010 Express. In this article, the term "Search Server" refers to Microsoft Search Server 2010 or Search Server 2010 Express.

In this article:

- [Hardware requirements](#)
- [Software requirements](#)
- [Installing software prerequisites manually](#)

## Hardware requirements



**Note:**

If you contact Microsoft technical support about a production system that does not meet the minimum hardware specifications that are described in this article, support will be limited until the system is upgraded to the minimum requirements.

Component	Minimum requirement								
Processor	64-bit, four core								
RAM	<p>For development: 4 gigabytes (GB) For evaluation or single-server production use: 8 GB For multiple-server production use: 16 GB The following memory amounts are recommended for the computer that is running SQL Server in a production environment.</p> <table border="1"><thead><tr><th>Total size of content databases</th><th>Recommended RAM</th></tr></thead><tbody><tr><td>Minimum for multiple-server farm</td><td>16 GB</td></tr><tr><td>Up to 2 terabytes</td><td>32 GB</td></tr><tr><td>2 terabytes to 5 terabytes</td><td>64 GB</td></tr></tbody></table>	Total size of content databases	Recommended RAM	Minimum for multiple-server farm	16 GB	Up to 2 terabytes	32 GB	2 terabytes to 5 terabytes	64 GB
Total size of content databases	Recommended RAM								
Minimum for multiple-server farm	16 GB								
Up to 2 terabytes	32 GB								
2 terabytes to 5 terabytes	64 GB								

Component	Minimum requirement	
	5 terabytes to 10 terabytes	64 GB to 129 GB
	 <b>Note:</b> These values are higher than the recommended minimum values for SQL Server because of the distribution of data required for a SharePoint 2010 Products environment. For more information, see <a href="http://go.microsoft.com/fwlink/?LinkId=129377">Hardware and software requirements for installing SQL Server 2008 R2</a> ( <a href="http://go.microsoft.com/fwlink/?LinkId=129377">http://go.microsoft.com/fwlink/?LinkId=129377</a> ).	
Hard disk	80 GB for system drive  In addition to the 80 GB minimum for the system drive, for production use the computer should have twice as much free disk space as it has RAM.   <b>Note:</b> The search system stores the full-text index in the file system of the query servers. Hard disk space required for the full-text index can vary from approximately 2 GB for a full-text index that contains 300,000 items to approximately 1 terabyte for a full-text index that contains 100 million items.	

## Software requirements



**Note:**

Search Server 2010 does not support single-label domain names. For more information, see [Configuring Windows for domains with single-label DNS names](http://go.microsoft.com/fwlink/?LinkId=193849) (<http://go.microsoft.com/fwlink/?LinkId=193849>).

Server or client computer	Minimum requirement
Database server   <b>Note:</b> This information about the database server requirement applies only when you install by using the <b>Server Farm</b> option. When you install by using the <b>Standalone</b> option, SQL Server 2008 Express is automatically installed and fulfills all database requirements for the	One of the following: <ul style="list-style-type: none"> <li>The 64-bit edition of Microsoft SQL Server 2008 with Service Pack 1 (SP1) and Cumulative Update 2 (CU2). From the <a href="http://go.microsoft.com/fwlink/?LinkId=165962">Cumulative update package 2 for SQL Server 2008 Service Pack 1</a> (<a href="http://go.microsoft.com/fwlink/?LinkId=165962">http://go.microsoft.com/fwlink/?LinkId=165962</a>) page, click the <b>View and request hotfix downloads</b> link and follow the instructions. On the Hotfix Request page, download the SQL_Server_2008_SP1_Cumulative_Update_2 file.</li> </ul>

Server or client computer	Minimum requirement
deployment.	<p> <b>Note</b></p> <ul style="list-style-type: none"> <li>The 64-bit edition of Microsoft SQL Server 2005 with Service Pack 3 (SP3) with <a href="http://go.microsoft.com/fwlink/?LinkId=165748">Cumulative update package 3 for SQL Server 2005 Service Pack 3</a> (<a href="http://go.microsoft.com/fwlink/?LinkId=165748">http://go.microsoft.com/fwlink/?LinkId=165748</a>). On the Cumulative update package 3 for SQL Server 2005 Service Pack 3 page, click the <b>View and request hotfix downloads</b> link and follow the instructions. On the Hotfix Request page, download the SQL_Server_2005_SP3_Cumulative_Update_3 file.</li> <li>Microsoft SQL Server 2008 R2.</li> </ul>
Application server or Web server	<p>Both of the following:</p> <ul style="list-style-type: none"> <li><b>Operating system</b> One of the following: <ul style="list-style-type: none"> <li>The 64-bit edition of Windows Server 2008 Standard, Enterprise, Data Center, or Web Server with Service Pack 2 (SP2). If you are running Windows Server 2008 without SP2, the Microsoft SharePoint Products Preparation Tool installs Windows Server 2008 SP2 automatically.</li> <li>The 64-bit edition of Windows Server 2008 R2 Standard, Enterprise, Data Center, or Web Server.</li> </ul> </li> <li><b>All other software prerequisites</b> You can automatically install all Search Server software prerequisites other than the base operating system and database software by clicking <b>Install software prerequisites</b> on the Search Server splash screen. For more information, see <a href="#">Install Search Server 2010 or Search Server 2010 Express</a>. Alternatively, you can manually install the Search Server software prerequisites. For information about Web sites where the prerequisites are available, see <a href="#">Installing software prerequisites manually</a> later in this article.</li> </ul> <p> <b>Note:</b> If you do not have an Internet connection for</p>

Server or client computer	Minimum requirement
	<p>the farm servers, you will have to obtain installable images for the required software. We recommend that you create an installation point for storing the installable images. You can also use this installation point for installing future software updates.</p> <p>The following list indicates all of the Search Server software prerequisites other than the base operating system and database software.</p> <ul style="list-style-type: none"> <li>• One of the following hotfixes, as appropriate: <ul style="list-style-type: none"> <li>• For Windows Server 2008 with SP2: <a href="http://go.microsoft.com/fwlink/?LinkID=160770">Hotfix for the .NET Framework 3.5 SP1 that provides a method to support the token authentication without transport security or message encryption in WCF</a> (<a href="http://go.microsoft.com/fwlink/?LinkID=160770">http://go.microsoft.com/fwlink/?LinkID=160770</a>).</li> <li>• For Windows Server 2008 R2: <a href="http://go.microsoft.com/fwlink/?LinkID=166231">Hotfix for the .NET Framework 3.5 SP1 that provides a method to support the token authentication without transport security or message encryption in WCF</a> (<a href="http://go.microsoft.com/fwlink/?LinkID=166231">http://go.microsoft.com/fwlink/?LinkID=166231</a>).</li> </ul> </li> <li>• <a href="http://go.microsoft.com/fwlink/?LinkID=192577">KB979917 - QFE for SharePoint issues - Perf Counter fix &amp; User Impersonation</a> (<a href="http://go.microsoft.com/fwlink/?LinkID=192577">http://go.microsoft.com/fwlink/?LinkID=192577</a>) <ul style="list-style-type: none"> <li>• For Windows Server 2008 SP2, download the file Windows6.1-DB979917-x64.msu (Vista).</li> <li>• For Windows Server 2008 R2, download the file Windows6.1-DB979917-x64.msu (Win7).</li> </ul> </li> </ul> <p>For related information, see <a href="http://go.microsoft.com/fwlink/?LinkID=192578">Two issues occur when you deploy an ASP.NET 2.0-based application on a server that is running IIS 7.0 or IIS 7.5 in Integrated mode</a> (<a href="http://go.microsoft.com/fwlink/?LinkID=192578">http://go.microsoft.com/fwlink/?LinkID=192578</a>).</p> <ul style="list-style-type: none"> <li>• Web Server (IIS) role (required for Web servers only)</li> <li>• Application Server role (required for application</li> </ul>

Server or client computer	Minimum requirement
	<p>servers only)</p> <ul style="list-style-type: none"> <li>• SQL Server 2008 Native Client</li> <li>• Microsoft .NET Framework 3.5 SP1</li> <li>• Microsoft Sync Framework Runtime v1.0 (x64)</li> <li>• Microsoft Filter Pack 2.0</li> <li>• Microsoft Chart Controls for the Microsoft .NET Framework 3.5</li> <li>• Microsoft SQL Server 2008 Analysis Services ADOMD.NET</li> <li>• ADO.NET Data Services Update for .NET Framework 3.5 SP1</li> <li>• Windows PowerShell 2.0</li> <li>• Windows Identity Foundation (WIF)</li> </ul> <p> <b>Note:</b> If Microsoft Geneva Framework is installed, you must uninstall it before Windows Identity Foundation (WIF) can be installed.</p>
Client computer	<p>A supported browser. For more information, see <a href="#">Plan browser support (SharePoint Server 2010)</a> (<a href="http://technet.microsoft.com/library/ff6c5b8c-59bd-4079-8f0b-de4f8b4e0a86(Office.14).aspx">http://technet.microsoft.com/library/ff6c5b8c-59bd-4079-8f0b-de4f8b4e0a86(Office.14).aspx</a>).</p>

## Installing software prerequisites manually

You can go to the Web sites listed in this section to manually install Search Server software prerequisites. You can install the Web server (IIS) role and the application server role in Server Manager.

- [Microsoft SQL Server 2008 SP1](http://go.microsoft.com/fwlink/?LinkId=166490) (<http://go.microsoft.com/fwlink/?LinkId=166490>)
- [Cumulative update package 2 for SQL Server 2008 Service Pack 1](http://go.microsoft.com/fwlink/?LinkId=165962) (<http://go.microsoft.com/fwlink/?LinkId=165962>)
- [Microsoft SQL Server 2005 SP3](http://go.microsoft.com/fwlink/?LinkId=166496) (<http://go.microsoft.com/fwlink/?LinkId=166496>)
- [Cumulative update package 3 for SQL Server 2005 Service Pack 3](http://go.microsoft.com/fwlink/?LinkId=165748) (<http://go.microsoft.com/fwlink/?LinkId=165748>)
- [Microsoft SQL Server 2008 Native Client](http://go.microsoft.com/fwlink/?LinkId=166505) (<http://go.microsoft.com/fwlink/?LinkId=166505>)

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- [Microsoft SQL Server 2008 Analysis Services ADOMD.NET](http://go.microsoft.com/fwlink/?LinkId=130651&clcid=0x409)  
(<http://go.microsoft.com/fwlink/?LinkId=130651&clcid=0x409>)
  - [Microsoft Windows Server 2008 SP2](http://go.microsoft.com/fwlink/?LinkId=166500) (<http://go.microsoft.com/fwlink/?LinkId=166500>)
  - [Microsoft SQL Server 2008 Express Edition Service Pack 1](http://go.microsoft.com/fwlink/?LinkId=166503)  
(<http://go.microsoft.com/fwlink/?LinkId=166503>)
  - [Microsoft .NET Framework 3.5 Service Pack 1](http://go.microsoft.com/fwlink/?LinkId=131037) (<http://go.microsoft.com/fwlink/?LinkId=131037>)
  - Windows Server 2008 with SP2 hotfix: [Hotfix for the .NET Framework 3.5 SP1 that provides a method to support the token authentication without transport security or message encryption in WCF](http://go.microsoft.com/fwlink/?LinkId=160770) (<http://go.microsoft.com/fwlink/?LinkId=160770>)
  - Windows Server 2008 R2 hotfix: [Hotfix for the .NET Framework 3.5 SP1 that provides a method to support the token authentication without transport security or message encryption in WCF](http://go.microsoft.com/fwlink/?LinkId=166231)  
(<http://go.microsoft.com/fwlink/?LinkId=166231>)
  - [Windows Identity Framework for Windows Server 2008](http://go.microsoft.com/fwlink/?LinkId=160381)  
(<http://go.microsoft.com/fwlink/?LinkId=160381>)
  - [Windows Identity Framework for Windows Server 2008 R2](http://go.microsoft.com/fwlink/?LinkId=166363)  
(<http://go.microsoft.com/fwlink/?LinkId=166363>)
  - [Microsoft Sync Framework v1.0](http://go.microsoft.com/fwlink/?LinkId=141237&clcid=0x409) (<http://go.microsoft.com/fwlink/?LinkId=141237&clcid=0x409>)
  - [Microsoft Office 2010 Filter Packs](http://go.microsoft.com/fwlink/?LinkId=191851) (<http://go.microsoft.com/fwlink/?LinkId=191851>)
  - [Microsoft Chart Controls for Microsoft .NET Framework 3.5](http://go.microsoft.com/fwlink/?LinkId=141512)  
(<http://go.microsoft.com/fwlink/?LinkId=141512>)
  - [Windows PowerShell 2.0](http://go.microsoft.com/fwlink/?LinkId=161023) (<http://go.microsoft.com/fwlink/?LinkId=161023>)
  - [KB979917 - QFE for Sharepoint issues - Perf Counter fix & User Impersonation](http://go.microsoft.com/fwlink/?LinkId=192577)  
(<http://go.microsoft.com/fwlink/?LinkId=192577>)
    - For Windows Server 2008 SP2, download the Windows6.1-DB979917-x64.msu (Vista) file.
    - For Windows Server 2008 R2, download the Windows6.1-DB979917-x64.msu (Win7) file.
- For related information, see [Two issues occur when you deploy an ASP.NET 2.0-based application on a server that is running IIS 7.0 or IIS 7.5 in Integrated mode](http://go.microsoft.com/fwlink/?LinkId=192578)  
(<http://go.microsoft.com/fwlink/?LinkId=192578>).
- [ADO.NET Data Services Update for .NET Framework 3.5 SP1](http://go.microsoft.com/fwlink/?LinkId=163519)  
(<http://go.microsoft.com/fwlink/?LinkId=163519>) for Windows Server 2008 SP2
  - [ADO.NET Data Services Update for .NET Framework 3.5 SP1](http://go.microsoft.com/fwlink/?LinkId=163524)  
(<http://go.microsoft.com/fwlink/?LinkId=163524>) for Windows Server 2008 R2 or Windows 7

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## Deployment for Search Server 2010

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Before installing Microsoft Search Server 2010 or Microsoft Search Server 2010 Express, be sure you have reviewed the information in [Planning and architecture for Search Server 2010](#). The Deployment section includes information about deployment scenarios, step-by-step installation instructions, and post-installation configuration steps. This section also covers information about upgrading to Search Server 2010 or Search Server 2010 Express.

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# Install Search Server 2010 or Search Server 2010 Express

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This article explains how to install Search Server 2010 or Search Server 2010 Express on the first computer in a deployment. This installation produces a fully functional Search Server configuration on one server.



## Note

This article contains the following main sections:

- [Determine the kind of deployment you require](#)
- [Install Search Server 2010 or Search Server 2010 Express](#)

## Determine the kind of deployment you require

Before you begin an installation, ensure that you understand the differences between Search Server 2010 and Search Server 2010 Express, and that you understand the installation options for each product.

## Understand the product differences

The following table briefly summarizes the differences between Search Server 2010 and Search Server 2010 Express.

### Main differences between Search Server 2010 and Search Server 2010 Express

	Search Server 2010	Search Server 2010 Express
Scalability	A highly scalable enterprise search solution. Search-topology components can be scaled out to multiple servers to distribute the search functionality and workload, thus increasing performance, capacity, and availability of the search system.	An entry-level enterprise search solution that has limited scalability. Topology components of any particular Search service application must be on one server. Adding topology components requires advanced configuration.
Maximum capacity of full-text index	Approximately 100 million items	Approximately 300,000 items with Microsoft SQL Server 2008 Express, or 10 million items with SQL Server
Product key required?	Yes	No. Available as a free download from Microsoft, with no time restrictions.

## Understand the installation options

After you start the installation of Search Server, you must choose one of the following two options: **Standalone** or **Server Farm**. The following table briefly summarizes the differences between these options. These differences apply to both Search Server 2010 and Search Server 2010 Express.

### Installation options: Standalone or Server Farm

	Standalone*	Server Farm
Configuration options during installation	None. Stand-alone installation is automated with default settings and proceeds without prompts.	<ul style="list-style-type: none"><li>• Requires that you specify an existing SQL Server host computer and an empty database.</li><li>• At the end of the installation, you can run the Initial Farm Configuration Wizard to configure certain initial farm settings.</li></ul>
Purpose and scalability	<p>Enables you to deploy a fully functional Search Server configuration on one computer. The computer functions as an application server for crawling and serving queries, a Web server for serving search queries and rendering search results, and a database server for hosting all of the necessary search databases. After a stand-alone installation, there is no option to add computers to the deployment to create a multiple-server farm.</p> <p>This configuration can be useful when you want any of the following:</p> <ul style="list-style-type: none"><li>• A small-scale deployment that has minimal administrative overhead</li><li>• A development or test environment</li></ul>	<p>Enables you to deploy a fully functional Search Server deployment on one computer initially, and then add multiple application servers and Web servers to the deployment to distribute the search functionality and workload. We recommend using the Server Farm installation option when you are creating a production farm because this deployment can be scaled out to multiple crawl servers, query servers, and Web servers.</p>

	Standalone*	Server Farm
	<ul style="list-style-type: none"> <li>A deployment for product evaluation</li> </ul>	
Database	Microsoft SQL Server 2008 Express is installed automatically.	Requires a SQL Server host computer that meets the version requirements specified in the <a href="#">Software requirements</a> section in <a href="#">Hardware and software requirements (Search Server 2010)</a> . The SQL Server host computer can be a different computer from the Search Server host computer.
Indexing capability	Microsoft SQL Server 2008 Express limits maximum database size to 4 gigabytes (GB). In a stand-alone installation, this limits Search Server indexing capability to approximately 300,000 items, depending on the size and type of the items.	With a SQL Server host computer that meets the version requirements specified in the <a href="#">Software requirements</a> section in <a href="#">Hardware and software requirements (Search Server 2010)</a> , Search Server provides sub-second query response times for an index of up to 100 million items, depending on the size and type of the items.

\*You cannot have a stand-alone deployment of Search Server on a domain controller.

## Install Search Server 2010 or Search Server 2010 Express

Verify that the user account that is performing the following procedures is a member of the Administrators group on the local computer, and then do the following:

1. [Start the installation](#)
2. [Install the software prerequisites](#)
3. [Install Search Server 2010 or Search Server 2010 Express](#)

### Start the installation

Start the installation by opening the product splash screen in one of the following ways:



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- For Search Server 2010 Express, do the following:
    - a. Download Search Server 2010 Express from the [Search Server 2010 Express download page](http://go.microsoft.com/fwlink/?LinkId=171064&clid=0x409) (<http://go.microsoft.com/fwlink/?LinkId=171064&clid=0x409>). After you click **Download**, click **Save** in the **File Download** dialog box and note the location to which you download the file.
    - b. Double-click the downloaded file, SearchServerExpress.exe, which is a self-extracting archive.
  - For Search Server 2010, do one of the following:
    - Insert a product disc into the DVD drive. If the installation splash screen does not appear automatically after a short time, go to the root folder of the product disc, and then double-click **Splash.hta**.
    - Go to the product location on a file share, and then double-click **Splash.hta**.

## Install the software prerequisites

You can install the software prerequisites manually or automatically.

- **Installing prerequisites manually** For information about how to manually install prerequisites, see [Software requirements](#) and [Installing software prerequisites manually](#) in [Hardware and software requirements \(Search Server 2010\)](#). After you install the software prerequisites manually, go to [Install Search Server 2010 or Search Server 2010 Express](#) later in this article to resume the installation.
- **Installing prerequisites automatically** Alternatively, you can install the prerequisites automatically by using the Microsoft SharePoint Products Preparation Tool. The Preparation Tool checks the computer for software prerequisites and automatically installs the prerequisites that are not on the computer. Use the following procedure to run the Microsoft SharePoint Products Preparation Tool.



### Note

#### ▶ To install the software prerequisites automatically by running the Microsoft SharePoint 2010 Products Preparation Tool

1. Verify that the user account that is performing this procedure is a member of the Administrators group on the local computer.
2. Ensure that you have an Internet connection while Microsoft SharePoint Products Preparation Tool runs, because the tool installs some of the prerequisites from the Internet.
3. On the Search Server splash screen, under **Install**, click **Install software prerequisites**. If the **User Account Control** dialog box appears, click **Continue**.
4. On the **Welcome to the Microsoft SharePoint 2010 Products Preparation Tool** screen, click **Next**.
5. On the **License Terms for software products** screen, read and accept the license terms, and then click **Next**.

The time that the Preparation Tool requires to complete the procedure depends on the number

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of components that the tool installs and the speed of the network connection.

6. Click **Finish** if a screen appears that has the message, **Your system needs to restart to continue. Press Finish to restart your system.** After the computer restarts, the Preparation Tool resumes automatically.
7. On the **Installation Complete** screen, review the status of each of the prerequisites, and then click **Finish**.

 **Note**

If the product splash screen does not appear again after the computer restarts, do one of the following:

## Install Search Server 2010 or Search Server 2010 Express

Follow this procedure to continue the installation process.

### To install Search Server 2010 or Search Server 2010 Express

1. On the installation splash screen, click **Install Search Server** or **Install Search Server Express**. If the **User Account Control** dialog box appears, click **Continue**.
2. For Search Server 2010 only:
  - a. On the **Enter your Product Key** screen, type your product key.
  - b. Click **Continue** after the installation program verifies the product key.
3. On the **Read the Microsoft Software License Terms** screen, review and accept the terms, and then click **Continue**.
4. On the **Choose the installation you want** screen, click **Standalone** or **Server Farm**.

Depending on whether you chose the **Standalone** or **Server Farm** option, proceed to one of the following sections in this article to complete your installation:

- [Run a Standalone installation](#)
- [Run a Server Farm installation](#)

### Run a Standalone installation

Follow this procedure to complete a stand-alone installation.



1. On the **Choose the installation you want** screen, click **Standalone**. The **Installation Progress** screen appears. This part of the setup process takes several minutes to finish.

 **Note:**

If this procedure fails, check the log files in the temp folder of the user account that ran the procedure. Ensure that you are logged on as the user who ran the procedure, and then type **%temp%** in the Address bar in Windows Explorer. If the path in Windows Explorer resolves to a location that ends in a 1 or 2, you might have to go up one level

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to view the log files. The name of the log file is Search Server Express Setup *timestamp* or Search Server Setup *timestamp*.

2. On the **Run Configuration Wizard** screen:
  - a. Ensure that the **Run the SharePoint Products Configuration Wizard now** check box is selected.
  - b. Click **Close** to start the SharePoint Products Configuration Wizard.



**Note:**

If you close this dialog box without selecting the **Run the SharePoint Products Configuration Wizard now** check box, you can run the SharePoint Products Configuration Wizard later. To do this, click **Start**, point to **All Programs**, and then click **Microsoft SharePoint 2010 Products**. If the **User Account Control** dialog box appears, click **Continue**.

3. On the **Welcome to SharePoint Products** screen, click **Next**.
4. In the dialog box that notifies you that some services might be restarted or reset during configuration, click **Yes**.

The SharePoint Products Configuration Wizard runs for several minutes to automate configuration tasks such as installing Search Server services, installing and configuring SQL Server databases, and creating the Search Server Web applications and sites for Central Administration, Search Administration, and the Search Center.
5. On the **Configuration Successful** screen, click **Finish**. The default Search Center opens. This completes the stand-alone installation.



**Note:**

The remaining procedures in this article pertain only to installing with the Server Farm installation option. To continue to configure the new stand-alone installation, see [Post-installation steps \(Search Server 2010\)](#).

6. To go to the Central Administration Web site from which you can start administering the new deployment, go to the Windows **Start** menu, click **All Programs**, and then click **SharePoint 2010 Central Administration**.



**Note:**

If you are prompted for a user name and password, type the credentials that you used to log on to the computer. Add the site to the list of trusted sites in Internet Explorer when you are prompted.

## Run a Server Farm installation

Use the following procedure to complete a Server Farm installation.



1. Verify that the user account that installs Search Server satisfies the following requirements:
  - Is a domain user account.

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- Is a member of the Administrators group on the local computer (and on each computer on which Search Server will be installed).
  - Has a SQL Server login on the computer that hosts the associated SQL Server databases. (The account that installs SQL Server automatically has this SQL Server login.)
  - Is a member of the following SQL Server security roles: **securityadmin** fixed server role and **dbcreator** fixed server role. (The account that installs SQL Server is automatically a member of these roles.)
  - Is a member of the **db\_owner** fixed database role (applies only to databases that are affected when the user account runs Windows PowerShell cmdlets).

For more information, see [Administrative and service accounts required for initial deployment \(Search Server 2010\)](http://technet.microsoft.com/library/bf92cffe-cc2d-4334-ab0d-ef394225924f(Office.14).aspx) ([http://technet.microsoft.com/library/bf92cffe-cc2d-4334-ab0d-ef394225924f\(Office.14\).aspx](http://technet.microsoft.com/library/bf92cffe-cc2d-4334-ab0d-ef394225924f(Office.14).aspx)).

2. On the **Choose the installation you want** screen, click **Server Farm**. The **Server Type** screen appears.
3. On the **Server Type** screen:
  - a. On the **Server Type** tab, click **Complete**. This option installs all components to create a fully functional Search Server configuration. It also enables you to add servers to form a multiple-server farm after installation on the first server is completed.
  - b. Optional: In the **File Location** tab, change the installation path or the path for the index files. Ensure that there is sufficient disk space in the location specified for the full-text index. Disk space required for the full-text index can vary from approximately 2 GB for a full-text index that contains 300,000 items to approximately 1 terabyte for a full-text index that contains 100 million items.
4. Click **Install Now**. The **Installation Progress** screen appears. The process takes several minutes to be completed.
5. On the **Run Configuration Wizard** screen:
  - a. Ensure that the **Run the SharePoint Products Configuration Wizard now** check box is selected.
  - b. Click **Close** to start the SharePoint Products Configuration Wizard.
6. On the **Welcome to SharePoint Products** screen, click **Next**.
7. In the dialog box that notifies you that some services might be restarted or reset during configuration, click **Yes**.
8. On the **Connect to a server farm** screen, click **Create a new server farm**, and then click **Next**.
9. On the **Specify Configuration Database Settings** screen, fill in the following fields as appropriate for your organization:
  - **Database server** – Name of an existing SQL Server host that meets the version requirements that are specified in the [Software requirements](#) section in [Hardware and software requirements \(Search Server 2010\)](#).
  - **Database name** – Accept the default database name (**SharePoint\_Config**), or type a

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different name. If the specified database already exists, it must be empty. If the database does not exist, it is created automatically.

Note the database name that you specify here in case you add servers to the Search Server 2010 deployment later. It might be helpful to specify a friendly name that you can remember. You must specify the database name again when you install Search Server 2010 on additional servers in the farm.

- **Database Access Account** – Follow the instructions on the screen.

10. Click **Next**.
11. On the **Specify Farm Security Settings** screen, type a new passphrase in the **Passphrase** and **Confirm passphrase** text boxes.
12. Click **Next**.
13. On the **Configure SharePoint Central Administration Web Application** screen, accept the suggested port number or type a port number that you want to use.
14. On the **Completing the SharePoint Products and Technologies Configuration Wizard** screen, confirm the settings, ensuring that you entered the correct **Configuration Database Server** name and **Configuration Database Name**.
15. Click **Next**. The SharePoint Products Configuration Wizard runs for a few minutes to automate several configuration tasks.
16. On the **Configuration Successful** page, click **Finish**.



**Warning:**

If you are prompted for a user name and password, type the credentials that you used to log on to the computer. Add the site to the list of trusted sites in Internet Explorer when you are prompted.

17. On the **Help Make SharePoint Better** screen, select your preference, and then click **OK**.



**Note:**

If you are prompted for your user name and password, type the credentials that you used to log on to the computer. Add the site to the list of trusted sites in Internet Explorer when you are prompted.

▶ **To run the Initial Farm Configuration Wizard**

1. On the Configure your SharePoint farm page, in response to **How do you want to configure your SharePoint farm?**, do one of the following:
  - a. Click **Cancel** to go to the Central Administration Web site and start to configure the farm without using this wizard. If you click **Cancel**, you have completed the procedures in this article. You can start the Initial Farm Configuration Wizard later from the Configuration Wizards page in the Central Administration Web site. To continue to configure the new installation, see [Post-installation steps \(Search Server 2010\)](#).
  - b. Click **Start the Wizard** if you want the wizard to help you select farm services to use and create your first site. The services that you select will run with default settings on all servers

in the farm.

2. On the Configure your SharePoint farm page, in the **Service Account** section, click a service account option that you want to use to configure the services.



**Important:**

We strongly recommend that you specify a user account that is not the farm administrator account to configure services in the farm. If you specify the farm administrator account to configure services, the default content access account is also configured as the farm administrator account. In that case, the default content access account might have permissions to crawl certain documents that you do not want to crawl.

3. On the Configure your SharePoint farm page, in the **Services** section, all services in the list except Lotus Notes Connector are selected by default. We recommend that you accept the default settings for the services to run in the farm, and then click **Next**.

The following table describes the services that are listed in the **Services** section.

Service	Description
Business Data Connectivity Service	Provides the SharePoint farm with the ability to upload Business Data Connectivity models that describe the interfaces of your enterprise's line-of-business systems. This enables access to the data that is in these systems.
Lotus Notes Connector	Search connector to crawl the data in a Lotus Notes environment.
Search Service Application	Crawls content and serves search queries.
Secure Store Service	Stores data (for example, a credential set) securely and associates it with a specific identity or group of identities.
State Service	Provides temporary storage of user session data for Search Server components.
Usage and Health data collection	Collects farm-wide usage and health data so that administrators can view usage and health reports.
Web Analytics Service Application	Collects usage and health data for use by administrators and features.

4. On the Create Site Collection page, create a Search Center by doing the following:
  - a. Optionally, in the **Title and Description** section:
  - a. In the **Title** box, type a title for the new site collection. You might want to specify a name that indicates that you are creating a Search Center.

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- b. In the **Description** box, type a description of the site collection.
  - c. In the **Web Site Address** section, specify a URL for the site collection.  
For future use, bookmark or note the URL of this Search Center site.
  - d. In the **Template Selection** section, click the **Enterprise** tab.
  - e. In the **Select a template** list, ensure that the **Basic Search Center** template is selected.  
The Search Center site includes pages for displaying search results.
  - f. Click **OK**.
  - g. On the This completes the Farm Configuration Wizard page, review the summary of the farm configuration, and then click **Finish** to go to the SharePoint Central Administration Web site to configure other settings for the farm. For information about how to continue to configure the new installation, see [Post-installation steps \(Search Server 2010\)](#).

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## Post-installation steps (Search Server 2010)

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This article describes post-installation steps for configuring the search system in a single-server deployment of Microsoft Search Server 2010 or Microsoft Search Server 2010 Express. Some steps differ depending on whether the product was installed with the Standalone or the Server Farm installation option. This article provides the steps for both cases.

In this article:

- Configure basic search functionality to enable end-users to get search results.
- Enable search reports by ensuring that the Web Analytics service application is running.
- Optional steps.

### Configure basic search functionality

The following table describes the configuration of key search components of Search Server 2010 after a Standalone or Server Farm installation.

Requirement	Exists after Standalone installation?	Exists after Server Farm installation?
Search Service Application running	Yes	Yes <sup>1</sup>
Search Center site	Yes	Yes <sup>2</sup>
Contact e-mail address	Yes. Configured with fictitious address: someone@example.com	Yes. Configured with fictitious address: someone@example.com
Default content access account	Yes Configured as NT Authority\Local Service	Yes Configured by using the account specified in the Farm Configuration Wizard during installation.

<sup>1</sup>Assumes that the administrator did not clear the Search check box when running the Farm Configuration Wizard during deployment.

<sup>2</sup>Assumes that the administrator who installed Search Server 2010 selected the Basic Search Center template during deployment.

### Specify the default content access account

A user account is assigned as the default content access account during installation. The crawler uses this account to crawl content that does not have a crawl rule that specifies a different account. For the default content access account, we recommend that you specify a domain user account that has read

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access to as much of the content that you want to crawl as possible. You can change the default content access account at any time. For information about creating a crawl rule, see [Create a crawl rule](http://technet.microsoft.com/library/fc72ddda-7aba-4f48-a5a7-ee3c4e44133d.aspx#BKMK_CreateCrawlRule) ([http://technet.microsoft.com/library/fc72ddda-7aba-4f48-a5a7-ee3c4e44133d.aspx#BKMK\\_CreateCrawlRule](http://technet.microsoft.com/library/fc72ddda-7aba-4f48-a5a7-ee3c4e44133d.aspx#BKMK_CreateCrawlRule)) later in this article.

▶ **To specify the default content access account**

1. On the Search Administration page, in the **System Status** section, look at the account that is shown in the **Default content access account** row. If the account that is shown is the one that you want crawlers to use when crawling content, skip to the next procedure. Otherwise proceed to step 2.
2. Click the link in the **Default content access account** row.
3. On the Default Content Access Account dialog box, in the **Account** box, type a different user name in the form of domain\user name.
4. Type the password for this account in the **Password** and **Confirm Password** boxes.
5. Click **OK**.

## Specify the contact e-mail address

The contact e-mail address is written to the logs of crawled servers. By default, the contact e-mail address is someone@example.com. We recommend that you change this to the account that an external administrator can contact when a crawl might be contributing to a problem such as performance degradation on a server that the system is crawling.

▶ **To specify the contact e-mail address**

1. On the Search Administration page, in the **System Status** section, click the link for the **Contact e-mail address**.
2. In the **Search Email Setting** dialog box, in the **E-mail Address** box, type the e-mail address that you want to appear in the logs of servers that are crawled by the search system.
3. Click **OK**.

## Configure farm-wide search settings

Farm-wide search settings include the following:

- Proxy server  
The proxy server that the index server uses when crawling content that is external to the server farm. By default no proxy server is selected.
- Search time-out setting  
The amount of time that you want the system to wait while connecting to other services, and how long the system waits for a request for content to be acknowledged. By default, this is set to 60 seconds to wait for a connection and 60 seconds before requesting an acknowledgement.
- SSL warnings

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Specify whether to ignore SSL certificate name warnings. By default, this is set to **No**.

▶ **To configure farm-wide search settings**

1. On the Search Administration page, in the Quick Launch, click **Farm-Wide Search Administration**.
2. To specify a proxy server, click the link in the **Proxy server** row. Otherwise, skip to step 3. For more information, see [Configure farm-level proxy server settings \(Search Server 2010 Express\)](#).
3. To specify different time-out duration, click the link in the **Time-out (seconds)** row. Otherwise, skip to step 4. For more information, see [Configure search time-out settings \(Search Server 2010 Express\)](#).
4. To specify whether to ignore SSL certificate warnings, click the link in the **Ignore SSL Warnings** row. Otherwise, skip to the next section. For more information, see [Configure SSL certificate warning settings \(Search Server 2010 Express\)](#).

## **Create content sources for crawling content**

Crawling content requires at least one content source. A content source called Local SharePoint sites is created by default during installation and is configured to crawl all of the sites in the server farm.

If you perform a Standalone installation of Search Server 2010, a full crawl of local SharePoint sites is automatically performed following installation and an incremental crawl is scheduled to occur every 20 minutes after that. For an Server Farm installation of Search Server 2010, this content source is created, but no crawls are automatically performed or scheduled.

Creating and configuring a content source in Search Server 2010 is the same as it was in the previous version, with the following exceptions:

- The Business Data Catalog is now a subset of the Line of Business Data content source type.
- There is a new content source type for crawling custom repositories. This option requires that one or more custom connectors are registered.
- A new section named **Content Source Priority** is available when adding or editing a content source. You can use this section to specify that the content source runs with either normal or high priority. The default setting is Normal.

To create, configure, or crawl a content source, on the Search Administration page, in the **Crawling** section of the Quick Launch, click **Content sources**.

## **Search Center site**

After installation, depending on the kind of installation that you performed and depending on the template you selected, you might have a Search Center site.

In your Web browser, go to the top-level site for the site collection that installation created. If that site does not have a tab named Search or if it is not a Search Center site, you must create a Search Center site. If you do not have a Search Center site, use the following procedure to create one.

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▶ **To create a site collection by using the Search Center template**

1. Verify that the user account that is performing this procedure is a member of the Farm Administrators SharePoint group.
2. On the Home page of the Central Administration Web site, in the **Application Management** section, click **Create site collections**.
3. On the Create Site Collection page, do the following:
  - a. In **Title and Description** section, in the **Title** box, type the name you want for this Search Center site. Optionally, type a description in the **Description** box.
  - b. In the **Web Site Address** section, type the last part of the URL for this site.
  - c. In the **Template Selection** section, click the **Enterprise** tab and then select **Basic Search Center**.
  - d. In the **Primary Site Collection Administrator** section, in the **User name** box, type the user name of the primary site collection administrator for this site collection in the form domain\user name.
  - e. (Optional) In the **Secondary Site Collection Administrator** section, type the user name of a secondary site collection administrator.
  - f. Click **OK**.
4. On the Top-Level Site Successfully Created page, click the link to the Search Center site that you just created.

## **Grant all authenticated users access to the Search Center**



1. Verify that the user account that is performing this procedure is a site collection administrator for the Search Center site.
2. In a Web browser, go to the Search Center site.
3. On the **Site Actions** menu, click **Site Settings**.
4. In the **Users and Permissions** section, click **People and groups**.
5. On the Quick Launch, click either **Enterprise Search Center Visitors** or **Basic Search Center Visitors**, depending on the template that you used to create this Search Center.
6. In the **New** menu, click **Add Users**.
7. In the **Users/Groups** box, type **NT Authority\authenticated users**.
8. Click **OK**.

## **Enable search reporting**

Search-related reports depend on the Web Analytics Web Service. This service is created when you run the Farm Configuration Wizard during installation.

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## Verify that the Web Analytics service application is started



1. Verify that the user account that is performing this procedure is an administrator for the Search service application.
2. On the Home page of the Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
3. On the Manage Service Applications page, verify that the Web Analytics service application is in the list of service applications, and then do one of the following:
  - If the service application exists, ensure that **Started** is displayed in the **Status** column for this service application. If the **Status** column displays **Started** for this service application, skip to the “Run search queries” section later in this article. Otherwise, go to the procedure titled “Start the Web Analytics service application. If the Web Analytics service application was created without using the Farm Configuration Wizard, the dependent service for the application is not started.
  - If the Web Analytics service application does not exist, use the following procedure to create it.

## Create the Web Analytics service application

### To create the Web Analytics service application

1. Verify that the user account that is performing this procedure is a member of the Farm Administrators SharePoint group.
2. On the Home page of the Central Administration Web site, in the Quick Launch, click **Configuration Wizards**.
3. Click **Launch the Farm Configuration Wizard**.
4. On the Help Make SharePoint Better page, select one for the following:
  - **Yes, I am willing to participate (Recommended)**.
  - **No, I don't wish to participate**.
5. Click **OK**.
6. On the Configure your SharePoint farm page, accept the default setting, and then click **Next**.
7. On the Configure your SharePoint farm page, in the **Service Account** section, select **Use existing managed account**.
8. Ensure that the Web Analytics Web Service Application check box is selected, and then click **Next**.
9. On the Create Site Collection page, click **Skip**.
10. On the Configure your SharePoint farm page, click **Finish**.
11. Proceed to Run search queries.

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## Start the Web Analytics Web service

### To start the Web Analytics Web service

1. Verify that the user account that is performing this procedure is a member of the Farm Administrators SharePoint group.
2. On the Home page of the Central Administration Web site, in the **System Settings** section, click **Manage servers in this farm**.
3. On the Servers in Farm page, in the **Server** column, click the link for the server.
4. On the Services on Server page, in the **Web Analytics Web Service** row, in the **Action** column, click **Start**.

Note that if the link name is **Stop**, this service is already started and no further action is necessary.

## Run search queries

Use the Search Center Web site and optionally the Search box in your other site collections, such as a Team site, to run search queries. Query reports are compiled separately for each site collection, including the site collection that hosts the Search Center Web site.



### Tip:

Query reports are processed daily. Typically you must wait about 24 hours after the queries run before they appear in query reports.

## View query reports

Search administrators can view query reports at two levels: Web application level and site collection level. Other search reports, primarily reports concerning crawling content, are available.



### Note:

You must be a farm administrator to perform the following steps.

## View query reports

Search administrators can view reports about crawling content by performing the following procedure. You must be a farm administrator to perform these steps.



1. In the Central Administration Web site, on the Quick launch, click **Monitoring**.
2. In the Reporting section, click **View administrative reports**.
3. In the Type column, click the **Search** folder.
4. In the Name column, click the name of the report you want to view.

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## Optional steps

The following procedures are optional.

### Create a crawl rule (optional)

If the account you assigned as the default content access account in the “Specify the default content access account” section earlier in this article is not an administrator on the User Profile service application, we recommend that you create a crawl rule that the crawler can use to authenticate to the User Profile service application.



**Note:**

This procedure is not necessary if you performed the steps shown in the “Add an administrator to the User Profile service application section”, earlier in this article.



1. On the Home page of the Central Administration Web site, in the Application Management section, click **Manage service applications..**
2. On the Manage Service Applications page, click **Search Service Application.**
3. On the Search Administration page, in the Quick Launch, in the **Crawling** section, click **Crawl rules.**
4. On the Manage Crawl Rules page, click **New Crawl Rule.**
5. In the Path section, in the **Path** box, type the start address for the User Profile service application in the form of **sps3://hostname**, where hostname is the host name of the server farm.
6. In the **Crawl Configuration** section, select **Include all items in this path.**
7. In the **Specify Authentication** section, select **Specify a different content access account.**
8. In the **Account** box that appears, type the name of user account that is an administrator on the User Profile service application in the form of domain\user name.
9. Type the password for the account you specified in the previous step in the **Password** and **Confirm Password** boxes.
10. Click **OK.**

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# Upgrade to Search Server 2010 or Search Server 2010 Express

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The following articles will provide information about upgrading to Search Server 2010 or Microsoft Search Server 2010 Express:

- [Upgrade to Search Server 2010 Express from Search Server 2008 Express](#)
- [Upgrade to Search Server 2010 from Search Server 2008](#)
- [Upgrade to Search Server 2010 or Search Server 2010 Express from SharePoint Foundation 2010](#)
- [Upgrade to Search Server 2010 from Search Server 2010 Express](#)

# How search features are affected by upgrade (Search Server 2010 Express)

When you upgrade from Microsoft Search Server 2008 to Microsoft Search Server 2010, aspects of the search system that are affected include:

- [Effect of product upgrade on search system architecture](#)
- [Effect of product upgrade on Search Center sites](#)

The following table describes how search system architecture is affected by upgrading from Search Server 2008 to Search Server 2010.

## Effect of product upgrade on search system architecture

Feature or function	Feature in Search Server 2008	Corresponding feature in Search Server 2010
Search service	A Shared Services Provider (SSP) hosts one or more centrally managed, reusable services. These services can be consumed by multiple Web applications in a farm. One of the services is the Office SharePoint Server Search service (OSearch). The OSearch service is used to crawl content repositories, index the crawled content, and serve search queries that are issued by end users.	For each SSP that existed in the farm before upgrade, the upgrade process automatically creates a <i>Search service application</i> . At upgrade time, the administrative settings from the OSearch service in an SSP are copied to the corresponding new Search service application. For example, the new Search service application contains the content sources, scopes, and crawl rules from the OSearch service in the corresponding SSP.
Search service configuration dependencies	In an SSP, the search administrator configures the OSearch service to define one group of settings (such as content sources and scopes) for a farm-wide search system. Each SSP can contain only one OSearch service. Therefore, an SSP can contribute only one group of	Each Search service application contributes one group of settings (such as content sources and scopes) for a farm-wide search system. A Search service application requires no host such as an SSP. To add a new group of settings to a farm-wide search system, the search administrator

	<p>settings to the farm-wide search system.</p> <p>However, an administrator might want to define more than one group of search settings for a farm-wide search configuration. For example, for security reasons the administrator might want to dedicate one content index to one set of content sources, and another content index to another set of content sources. To define an additional group of settings for a farm-wide search system, the search administrator must configure the OSearch service in a different SSP. If there is no other SSP in the farm that can be used for this purpose, the farm administrator must create a new SSP. However, each SSP requires maintenance and can consume system resources in addition to those that are used for the OSearch service.</p>	<p>merely creates and configures an additional Search service application.</p>
<p>Databases</p>	<p>For each SSP, there are two databases:</p> <ul style="list-style-type: none"> <li>• The SSP database. This database contains the following: <ul style="list-style-type: none"> <li>• Administrative settings for search, such as content sources and scopes.</li> <li>• The profile store.</li> </ul> </li> <li>• The search database. This database contains: <ul style="list-style-type: none"> <li>• Crawler internal data, such as crawl logs.</li> <li>• The property store, which includes the metadata</li> </ul> </li> </ul>	<p>For each SSP that existed before upgrade, the following three databases are created and associated with the corresponding Search service application:</p> <ul style="list-style-type: none"> <li>• The search administration database. This database contains the administrative settings for search that were stored in the SSP database.</li> <li>• The crawl database. This database contains the crawler internal data that was stored in the SSP database.</li> <li>• The property database. This database is primarily the same</li> </ul>

	from crawled documents.	<p>as the Search database that existed before upgrade. (Some information that was in the search database before upgrade is moved into the search administration database and crawl database.)</p> <p>There is only one search administration database per search service application. After an upgrade, however, the crawl database and property database can be scaled out.</p>
Crawling	An index server has a single crawler.	A <i>crawl server</i> contains one or more crawl components that can crawl content independently of one another.
Serving queries	A query server has only one component to serve search queries.	A query server can host one or more query components, each of which serves search queries.
Content index	Each SSP can contain only one OSearch service, and there is one corresponding content index.	<p>For each SSP that existed before upgrade, one index partition is created with one query component. An in-place upgrade copies the entire content index from the SSP to the new index partition. After upgrade, the administrator can scale out to multiple index partitions. Each index partition contains a discrete part of the index. For example, in a topology with two index partitions, each partition contains half of the index.</p> <p>In a database-attach upgrade, the old content index is not retained. To create an index, it is necessary to perform a full crawl after the upgrade.</p>
Propagation of content index	The search system stores the content index in the file system of the index server. The search	Each crawl component propagates the content index to the index partitions on the query servers. The

	system also propagates a copy of the content index to each query server.	crawl server does not keep a copy of the content index.
Naming of SSP and Search service application	Each SSP in a server farm has a unique name, for example, SharedServices1.	Each Search service application that is created during the upgrade process has a default name based on the name of the corresponding SSP from Microsoft Search Server 2008. For example, if the SSP was named SharedServices1, by default the corresponding Search service application is named SharedServices1_Search. However, the administrator can customize these database names with an XML file that is used at upgrade time.
Site settings	Site administrators can configure site settings such as Best bets and scopes.	For an in-place-upgrade, site settings are retained. In a database-attach upgrade, these settings are not retained.

## Effect of product upgrade on Search Center sites

Search Center sites that an administrator creates in Search Server 2010 have a new look compared to the look of old sites created in Search Server 2008. During product upgrade, a server administrator can upgrade old sites to the new look. After product upgrade, a site owner can upgrade old sites one at a time.

In this section:

- [Server administrator options for upgrading sites during product upgrade](#)
- [Site owner options for upgrading sites after product upgrade](#)

### Server administrator options for upgrading sites during product upgrade

During product upgrade, the server administrator can specify one of the following three options for upgrading old sites to the new look:

- Keep the old look for all old sites.
- Apply the new look to all old sites that were not customized.
- Apply the new look to all old sites.

The effect of the server administrator's choice depends on the amount of customization of the old sites:

- No customization.
- Minor customization (such as minor modifications to Web Part properties and cascading style sheets).
- Extensive customization (such as significant modifications to page layout, cascading style sheets, and master-pages).

The following table shows the effect of these two factors on the look of old sites immediately after upgrade.

**Look of Search Center sites immediately after product upgrade**

Amount of customization of Search Center sites in Search Server 2008	Apply new look to old Search Center sites at upgrade time?		
	No. Keep old look for all Search Center sites.	Depends. Keep old look for sites that were customized. Apply the new look to all Search Center sites that were not customized.	Yes. Apply new look to all Search Center sites.
No customization	All old Search Center sites keep the old look and the old customizations. <sup>1</sup>	All Search Center sites get the new look. <sup>2</sup>	All Search Center sites get the new look. <sup>2</sup>
Minor customization	All old Search Center sites keep the old look and the old customizations.	Customized old sites keep the old look. All other old sites get the new look. <sup>2</sup>	All old Search Center sites get the new look. Old customizations are carried over.
Extensive customization	All old Search Center sites keep the old look and customizations.	Old sites that were not customized get the new look. Old sites that were customized keep the old look. It might be necessary to adjust some cascading style sheets so that the upgraded Search Center closely matches the old look. In addition, if the page layout was customized before upgrade, after upgrade the administrator must add code so that the new layout displays the ribbon. For more information, see <a href="#">Displaying the Server Ribbon and Site Actions Menu on Customized Search Pages Upgraded to SharePoint 2010 Using Visual Upgrade</a>	All old Search Center sites get the new look. Old customizations that an administrator provided in separate page layout and master page files that are on disk (not in the

Amount of	Apply new look to old Search Center sites at upgrade time?	
		<p>(<a href="http://go.microsoft.com/fwlink/?LinkId=178924">http://go.microsoft.com/fwlink/?LinkId=178924</a>).<sup>2</sup> product database) are retained following upgrade. However, old customizations of nativeSearch Server 2008 search page layouts and master pages are lost.</p>

<sup>1</sup>Some kinds of Search Center site customization are not supported. This includes customizations that directly alter related files on disk. Successful transfer of such customizations during the upgrade process, and use of the customizations after upgrade, is also not supported.

<sup>2</sup>Web Parts that are new in Search Server 2010 are not added during upgrade. For example, after upgrade the site owner manually adds the Refinement Web Part to the left zone.

### Site owner options for upgrading sites after product upgrade

Following the product upgrade, site owners can upgrade sites from the old look to the new look one at a time.

 **Note:**

The site owner’s options are affected by the decisions that the administrator specifies during upgrade. For example, if the administrator upgraded all old sites to the new look, the site owner has no choices remaining in this regard.

Before committing to upgrade a site to the new look, the site owner can preview the new look for a site (by using the **Title, Description, and Icon** link from the **Site Actions** menu, Site Settings page). This preview capability is especially helpful when the site was customized in Search Server 2008 because it enables the site owner to determine the amount of work that might be required to upgrade the site.

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# Operations for Search Server 2010 Express Beta

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This section includes articles that describe how to do the following tasks:

- [Manage farm-level search settings \(Search Server 2010 Express\)](#)
- [Manage crawling \(Search Server 2010 Express\)](#)
- [Manage queries and results \(Search Server 2010 Express\)](#)

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# Back up and restore Search Server 2010

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The articles in this section are written to meet the requirements of information technology (IT) professionals who are responsible for the planning, design, deployment, and operations of backup and recovery solutions. These solutions might be in enterprise, corporate, or branch-office environments. The IT professionals who are responsible for backup and recovery solutions are expected to have an understanding of the technical details that are contained in this section. However, service-level expertise is not needed to understand the enterprise-level discussions and decisions.

A backup is a copy of data that is used to restore and recover that data after a system failure. Backups allow you to restore data after a failure. If you make the appropriate backups, you can recover from many system failures, including the following:

- Media failure
- User errors (such as deleting a file by mistake)
- Hardware failures (such as a damaged hard disk or permanent loss of a server)
- Natural disasters

Additionally, it is useful to keep backups of data for routine purposes. Those purposes include copying a database from one server to another, setting up database mirroring, and archiving to comply with regulatory requirements.

This section includes the following articles:

- [Back up search \(Search Server 2010\)](#)
- [Back up a farm configuration \(Search Server 2010\)](#)
- [Back up a Web application \(Search Server 2010\)](#)
- [Back up a service application \(Search Server 2010\)](#)
- [Back up a content database \(Search Server 2010\)](#)
- [Back up a site collection \(Search Server 2010\)](#)
- [Back up databases to snapshots \(Search Server 2010\)](#)
- [Back up customizations \(Search Server 2010\)](#)
- [Restore search \(Search Server 2010\)](#)
- [Restore a farm \(Search Server 2010\)](#)
- [Restore or copy a farm configuration \(Search Server 2010\)](#)
- [Restore a Web application \(Search Server 2010\)](#)
- [Restore a content database \(Search Server 2010\)](#)
- [Restore a service application \(Search Server 2010\)](#)
- [Restore a site collection \(Search Server 2010\)](#)
- [Restore customizations \(Search Server 2010\)](#)
- [Export a site, list, or document library \(Search Server 2010\)](#)
- [Import a site, list, or document library \(Search Server 2010\)](#)
- [Attach and restore a read-only content database \(Search Server 2010\)](#)

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# Back up search (Search Server 2010)

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We recommend that you regularly back up at the farm level. However, business or IT requirements might require that you back up the search service and related resources. Regularly backing up the search system reduces the possibility of data losses that might occur from hardware failures, power outages, or other problems. It is a simple process that helps to ensure that data and configurations that compose the search system are available for recovery, if that is required.

Backing up search does not affect the state of the farm. However, it does require resources. Therefore, backing up search might affect farm performance while the backup is running. You can avoid performance issues by backing up search during hours when farm use is lowest.

Procedures in this topic:

- [Use Windows PowerShell to back up search](#)
- [Use Central Administration to back up search](#)



**Note:**

You cannot use SQL Server tools or Data Protection Manager to back up all of the search components.

## Task requirements

Before you begin, you must create a folder on the local computer or the network in which to store the backups. For better performance, we recommend that you back up to the local computer and then move the backup files to a network folder.

## Use Windows PowerShell to back up search

You can use Windows PowerShell to back up search manually or as part of a script that can be run at scheduled intervals. This procedure backs up all of the search components including the databases, the search service configuration, and the index files.

### ▶ To back up search by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See [Add-SPShellAdmin](#).
2. On the **Start** menu, click **Administrative Tools**.
3. Click **SharePoint 2010 Management Shell**.
4. At the Windows PowerShell command prompt, type the following command:

```
Backup-SPFarm -Directory <BackupFolder> -BackupMethod Full -  
Item <SearchServiceApplicationName>
```



**Note:**

If you are backing up the farm for the first time, you must use the **Full** option for the

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**BackupMethod** parameter. You must perform a full backup before you can perform a differential backup.

For more information, see [Backup-SPFarm](http://technet.microsoft.com/library/c37704b5-5361-4090-a84d-fcdd17bbe345(Office.14).aspx) ([http://technet.microsoft.com/library/c37704b5-5361-4090-a84d-fcdd17bbe345\(Office.14\).aspx](http://technet.microsoft.com/library/c37704b5-5361-4090-a84d-fcdd17bbe345(Office.14).aspx)).



**Note:**

We recommend that you use Windows PowerShell when performing command-line administrative tasks. The Stsadm command-line tool has been deprecated, but is included to support compatibility with previous product versions.

## Use Central Administration to back up search

You can use Central Administration to back up search. This procedure backs up all of the search components including the databases, the search service configuration, and the index files.

### ▶ To back up search by using Central Administration

1. Verify that the user account that performs this procedure is a member of the Farm Administrators SharePoint group.
2. In Central Administration, on the Home page, in the **Backup and Restore** section, click **Perform a backup**.
3. On the Perform a Backup — Step 1 of 2: Select Component to Back Up page, in the list of components, expand **Shared Services** and then expand **Shared Services Applications** to view the list of service applications in the farm. Select the search service application from the list of components, and then click **Next**.



**Note:**

The Search service application might consist of several components. You must select the top-level component. By default, the service application is named “Search Service Application”.

4. On the Start Backup — Step 2 of 2: Select Backup Options page, in the **Backup Type** section, select either **Full** or **Differential**.



**Note:**

If you are backing up search for the first time, you must use the **Full** option. You must perform a full backup before you can perform a differential backup.

5. In the **Back Up Only Configuration Settings** section, click **Back up content and configuration settings**.
6. In the **Backup File Location** section, type the Universal Naming Convention (UNC) path of the backup folder, and then click **Start Backup**.
7. You can view the general status of all backup jobs at the top of the Backup and Restore Job Status page in the **Readiness** section. You can view the status for the current backup job in the lower part of the page in the **Backup** section. The status page updates every 30 seconds automatically. You can manually update the status details by clicking **Refresh**. Backup and

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recovery are timer service jobs. Therefore, it might take several seconds for the backup to start. If you receive any errors, you can review them in the **Failure Message** column of the Backup and Restore Job Status page. You can also find more details in the Spbackup.log file at the UNC path that you specified in step 6.

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# Back up a farm (Search Server 2010)

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This topic describes how to back up a whole server farm.

Procedures in this task:

- [Use Windows PowerShell to back up a farm](#)
- [Use Central Administration to back up a farm](#)
- [Using SQL Server tools to back up a farm](#)

We recommend that you regularly back up the complete farm by backing up both the configuration and content. Regularly backing up the farm reduces the possibility of data losses that might occur from hardware failures, power outages, or other problems. It is a simple process that helps to ensure that all the farm data and configurations are available for recovery, if that is required.

Performing a backup does not affect the state of the farm. However, it does require resources and might slightly affect farm performance when the backup is running. You can avoid performance issues by backing up the farm during hours when farm use is lowest, such as outside office hours.

## Task requirements

Before you begin, you must create a folder on the local computer or the network in which to store the backups. For better performance, we recommend that you back up to the local computer and then move the backup files to a network folder.

## Use Windows PowerShell to back up a farm

You can use Windows PowerShell to back up the farm manually or as part of a script that can be run at scheduled intervals.

### To back up a farm by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See [Add-SPShellAdmin](#).
2. On the **Start** menu, click **All Programs**.
3. Click **Microsoft SharePoint 2010 Products**.
4. Click **SharePoint 2010 Management Shell**.
5. At the Windows PowerShell command prompt, type the following command:

```
Backup-SPFarm -Directory <BackupFolder> -BackupMethod Full -Verbose
```

Where <BackupFolder> is the folder on the local computer that you want to use for the backup.



#### **Note:**

If you are backing up the farm for the first time, you must use the `Full` option. You must perform a full backup before you can perform a differential backup.

For more information, see [Backup-SPFarm](http://technet.microsoft.com/library/c37704b5-5361-) (<http://technet.microsoft.com/library/c37704b5-5361->

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4090-a84d-fcdd17bbe345(Office.14).aspx).



**Note:**

We recommend that you use Windows PowerShell when performing command-line administrative tasks. The Stsadm command-line tool has been deprecated, but is included to support compatibility with previous product versions.

## Use Central Administration to back up a farm

You can use Central Administration to back up the farm.

### ▶ To back up a farm by using Central Administration

1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, on the Home page, in the **Backup and Restore** section, click **Perform a backup**.
3. On the Perform a Backup — Step 1 of 2: Select Component to Back Up page, select the farm from the list of components, and then click **Next**.
4. On the Start Backup — Step 2 of 2: Select Backup Options page, in the **Backup Type** section, select either **Full** or **Differential**.



**Note:**

If you are backing up the farm for the first time, you must use the **Full** option. You must perform a full backup before you can perform a differential backup.

5. In the **Back Up Only Configuration Settings** section, click **Back up content and configuration settings**.
6. In the **Backup File Location** section, type the UNC path of the backup folder, and then click **Start Backup**.
7. You can view the general status of all backup jobs at the top of the Backup and Restore Status page in the **Readiness** section. You can view the status for the current backup job in the lower part of the page in the **Backup** section. The status page updates every 30 seconds automatically. You can manually update the status details by clicking **Refresh**. Backup and recovery are Timer service jobs. Therefore, it may take several seconds for the backup to start. If you receive any errors, you can review them in the **Failure Message** column of the Backup and Restore Job Status page. You can also find more details in the Spbackup.log file at the UNC path that you specified in step 5.

## Using SQL Server tools to back up a farm

If you want to back up the complete farm, you must use either Windows PowerShell or Central Administration. You cannot back up the complete farm by using the SQL Server tools because you cannot use the tools to back up the farm configuration. For information about how to back up a farm

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configuration, see [Back up a farm configuration \(Search Server 2010\)](#). However, you can use SQL Server tools to back up all the databases that are associated with the farm.

▶ **To back up the databases associated with a farm by using SQL Server tools**

1. To use SQL Server tools to back up Search Server 2010 databases, the account that is used to back up the databases must be a member of the SQL Server **db\_backupoperator** fixed database role on the database server where each database is stored.
2. Open SQL Server Management Studio and connect to the database server.
3. In Object Explorer, expand **Databases**.
4. Right-click the database that you want to back up, point to **Tasks**, and then click **Back Up**.
5. In the **Back Up Database** dialog box, in the **Source** area, select the kind of backup that you want to perform from the **Backup type** list. For more information about which backup type to use, see [Overview of Recovery Models \(http://go.microsoft.com/fwlink/?LinkId=114396\)](http://go.microsoft.com/fwlink/?LinkId=114396).
6. In the **Backup component** area, click **Database**.
7. Either use the default name provided or specify a name for the backup set in the **Name** text box.
8. Specify the expiration date for the backup set. This date determines how long, or when, the backup set can be overwritten by any later backups that have the same name. By default, the backup set is set to never expire (0 days).
9. In the **Destination** area, specify where you want to store the backup.
10. Click **OK** to back up the database.
11. Repeat steps 1-10 for each farm database.

**See Also**

[Restore a farm \(Search Server 2010\)](#)

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# Back up a farm configuration (Search Server 2010)

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The information in this section does not apply to Microsoft Search Server 2010 Express. It applies to the full version of Microsoft Search Server 2010 only.

This article describes how to back up the configuration of a server farm.

In earlier versions of Microsoft Search Server, you could not back up or restore the configuration database. In Microsoft Search Server 2010, you can perform the equivalent operation by backing up or restoring the configuration of the server farm.

We recommend that you regularly back up the complete farm by backing up both the configuration and content. However, you might want to perform configuration-only backups in test or development environments. Similarly, if you are using Microsoft SQL Server tools to back up the databases for the farm, you will want to back up the configuration. Regularly backing up the farm reduces the possibility of data losses that can occur from hardware failures, power outages, or other problems. It helps to ensure that all the farm data and configurations are available for recovery.

The configuration backup will extract and back up the configuration settings from a Search Server 2010 configuration database. You can back up configuration from any configuration database that includes the configuration database for the current farm or another farm, or a configuration database that is not associated with any farm.

Procedures in this task:

- [Use Windows PowerShell to back up a farm configuration](#)
- [Use Central Administration to back up a farm configuration](#)



**Note:**

You cannot use either SQL Server tools or Data Protection Manager to back up the farm configuration.

## Task requirements

Before you begin, you must create a folder on the local computer or the network in which to store the backups. For better performance, we recommend that you back up to the local computer and then move the backup files to a network folder.



**Important:**

Backing up the farm configuration will not back up the information you need to restore service applications. If you want to restore a service application configuration, you must perform a configuration and content backup of the service application. For more information about backing up service applications, see [Back up a service application \(Search Server 2010\)](#).

---

## Use Windows PowerShell to back up a farm configuration

You can use Windows PowerShell to back up the configuration from any configuration database on the current farm, on another farm, or from a configuration database that is not associated with any farm. You can back up a farm configuration manually or as part of a script that can be run at scheduled intervals.

### ▶ To back up the configuration from any configuration database by using Windows PowerShell

1. Verify the following: See [Add-SPShellAdmin](#).
2. In the SharePoint 2010 Management Shell, at the Windows PowerShell command prompt, type the following command:

```
Backup-SPConfigurationDatabase -Directory <BackupFolder> -DatabaseServer  
<DatabaseServerName> -DatabaseName <DatabaseName> -DatabaseCredentials  
<PSCredential> [-Verbose]
```

Where:

- *<BackupFolder>* is the path of the backup folder.
- *<DatabaseServerName>* is the database server where the configuration database is located.
- *<DatabaseName>* is the name of the configuration database.
- *<PSCredential>* is the identity and password that corresponds to the administrator user name for the SQL Server database. If you are not logged on with an account that is a member of the **db\_backupoperator** fixed database role on the database server where the configuration database is stored, you must use the **DatabaseCredentials** parameter.

To view the progress of the backup operation, use the **Verbose** parameter.

For more information, see [Backup-SPConfigurationDatabase](#)

([http://technet.microsoft.com/library/28ddc176-1b7f-47dd-868f-39b7c403a900\(Office.14\).aspx](http://technet.microsoft.com/library/28ddc176-1b7f-47dd-868f-39b7c403a900(Office.14).aspx)).

If you do not use the **Verbose** parameter, the Command Prompt window displays no message if the operation succeeds. If the operation does not finish successfully, the Command Prompt window displays an error message such as the following:

3. If there are errors or warnings, or if the backup does not finish successfully, review the Spbackup.log file in the backup folder.

## Use Central Administration to back up a farm configuration

You can use Central Administration to back up the configuration of the farm that Central Administration is running on. To back up the configuration of a remote farm, you must use the Central Administration

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Web application on that farm. You cannot use Central Administration to backup an unattached configuration database.

▶ **To back up a farm configuration by using Central Administration**

1. Verify that the user account that is performing this procedure is a member of the Farm Administrators SharePoint group.
2. On the Central Administration Home page, in the **Backup and Restore** section, click **Perform a backup**.
3. On the Perform a Backup — Step 1 of 2: Select Component to Back Up page, select the farm from the list of components, and then click **Next**.



**Note:**

You can back up the configuration for any service or application. However, common practice is to back up configuration at the farm level.

4. On the Start Backup — Step 2 of 2: Select Backup Options page, in the **Backup Type** section, select **Full**.
5. In the **Backup Only Configuration Settings** section, select the **Backup only configuration settings** option.
6. In the **Backup File Location** section, type the Universal Naming Convention (UNC) path of the backup folder, and then click **Start Backup**.
7. You can view the general status of all backup jobs at the top of the Backup and Restore Job Status page in the **Readiness** section. You can view the status for the current backup job in the lower part of the page in the **Backup** section. The status page updates every 30 seconds automatically. You can manually refresh the status details by clicking **Refresh**. Backup and recovery are Timer service jobs. Therefore, it may take several seconds for the backup to start. If you receive any errors, you can review them in the **Failure Message** column of the Backup and Restore Job Status page. You can also find more details in the Spbackup.log file at the UNC path that you specified in step 5.

**See Also**

[Restore or copy a farm configuration \(Search Server 2010\)](#)

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# Back up a Web application (Search Server 2010)

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We recommend that you regularly back up at the farm level. However, business or IT requirements might require that you back up a Web application. Regularly backing up a Web application reduces the possibility of data losses that might occur from hardware failures, power outages, or other problems. It is a simple process that can help to ensure that all the Web application-related data and configurations are available for recovery, if that is required.

You can only back up one Web application at a time using this procedure. However, you can simultaneously back up all Web applications by backing up the entire farm.

Performing a backup does not affect the state of the farm. However, it does require resources and might slightly affect farm performance when the backup is running. You can avoid performance issues by backing up the Web application during hours when farm use is lowest, such as outside office hours.

This topic describes how to back up a single Web application.

Procedures in this topic:

- [Use Windows PowerShell to back up a Web application](#)
- [Use Central Administration to back up a Web application](#)
- [Use SQL Server tools to back up a Web application](#)

## Task requirements

Before you begin, you must create a network folder in which to store the backups. Both the Windows SharePoint Services Timer V4 service account and the server farm user account must have Full Control permissions to this folder.

## Use Windows PowerShell to back up a Web application

You can use Windows PowerShell to back up a Web application manually or as part of a script that can be run at scheduled intervals.

### To back up a Web application by using Windows PowerShell

1. Verify the following: See [Add-SPShellAdmin](#). Additionally, the user account performing this procedure must be a member of the SQL Server **db\_backupoperator** fixed database role on the database server where each database is stored.
2. In the SharePoint 2010 Management Shell, at the Windows PowerShell command prompt, type the following command:

```
Backup-SPFarm -Directory <BackupFolder> -BackupMethod Full -Item  
<WebApplicationName> [-Verbose]
```

Where:

- 
- *<BackupFolder>* is the path of the network folder in which you want to store the backups.
  - *<WebApplicationName>* is the name of the Web application that you want to back up. To display the name of the Web application, at the Windows PowerShell command prompt, type the following command: `Backup-SPFarm -ShowTree`.

To view the progress of the backup operation, use the **Verbose** parameter.

 **Note:**

If you are backing up the Web application for the first time, you must use the **Full** option. You must perform a full backup before you can perform a differential backup.

For more information, see [Backup-SPFarm](http://technet.microsoft.com/library/c37704b5-5361-4090-a84d-fcdd17bbe345(Office.14).aspx) ([http://technet.microsoft.com/library/c37704b5-5361-4090-a84d-fcdd17bbe345\(Office.14\).aspx](http://technet.microsoft.com/library/c37704b5-5361-4090-a84d-fcdd17bbe345(Office.14).aspx)).

3. If you do not use the **Verbose** parameter, the Command Prompt window displays no message if the operation succeeds. If the job does not finish successfully, the Command Prompt window displays an error message such as the following:
4. If there are errors or warnings, or if the backup does not finish successfully, review the Spbackup.log file in the backup folder.

## Use Central Administration to back up a Web application

You can use Central Administration to back up a Web application.

### To back up a Web application by using Central Administration

1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, on the Home page, in the **Backup and Restore** section, click **Perform a backup**.
3. On the Perform a Backup — Step 1 of 2: Select Component to Back Up page, select the Web application from the list of components, and then click **Next**.

 **Note:**

The Web application might consist of several components. You must select the top-level component.

4. On the Start Backup — Step 2 of 2: Select Backup Options page, in the **Backup Type** section, select either **Full** or **Differential**.

 **Note:**

If you are backing up the Web application for the first time, you must use the **Full** option. You must perform a full backup before you can perform a differential backup.

5. In the **Back Up Only Configuration Settings** section, click **Back up content and configuration settings**.
6. In the **Backup File Location** section, type the Universal Naming Convention (UNC) path of the

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backup folder, and then click **Start Backup**.

7. You can view the general status of all backup jobs at the top of the Backup and Restore Job Status page in the **Readiness** section. You can view the status for the current backup job in the lower part of the page in the **Backup** section. The status page updates every 30 seconds automatically. You can manually update the status details by clicking **Refresh**. Backup and recovery are Timer service jobs. Therefore, it may take several seconds for the backup to start. If you receive any errors, you can review them in the **Failure Message** column of the Backup and Restore Job Status page. You can also find more details in the Spbackup.log file at the UNC path that you specified in step 6.

## Use SQL Server tools to back up a Web application

You cannot back up the complete Web application by using SQL Server tools. However, you can back up all the databases that are associated with the Web application. To back up the complete Web application, use either Windows PowerShell or Central Administration.

### ▶ To back up a Web application by using SQL Server tools

1. Verify that the user account that is used to back up the databases is a member of the SQL Server **db\_backupoperator** fixed database role on the database server where each database is stored. Additionally, verify that the user account has Full Control permissions on the backup folder.
2. Open SQL Server Management Studio and connect to the database server.
3. In Object Explorer, expand **Databases**.
4. Right-click the database that you want to back up, point to **Tasks**, and then click **Back Up**.
5. In the **Back Up Database** dialog box, in the **Source** area, select the kind of backup that you want to perform from the **Backup type** list. For more information about which backup type to use, see [Overview of Recovery Models](http://go.microsoft.com/fwlink/?LinkId=114396) (<http://go.microsoft.com/fwlink/?LinkId=114396>).
6. In the **Backup component** area, click **Database**.
7. Either use the default name provided or specify a name for the backup set in the **Name** text box.
8. Specify the expiration date for the backup set. This date determines how long, or when, the backup set can be overwritten by any later backups that have the same name. By default, the backup set is set to never expire (0 days).
9. In the **Destination** area, specify where you want to store the backup.
10. Click **OK** to back up the database.
11. Repeat steps 1-10 for each database that is associated with the Web application.

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# Back up a service application (Search Server 2010)

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We recommend that you regularly back up at the farm level. However, business or IT requirements might require that you back up a service application. Regularly backing up a service application reduces the possibility of data losses that might occur from hardware failures, power outages, or other problems. It is a simple process that helps to ensure that all the service application-related data and configurations are available for recovery, if that is required. You can back up only one service application at a time. You can back up all the service applications in the farm by backing up the complete farm.

Backing up a service application does not affect the state of the farm. However, it does require resources. Therefore, backing up a service application might affect farm performance while the backup is running. You can avoid performance issues by backing up the service application during hours when farm use is lowest.

Procedures in this topic:

- [Use Windows PowerShell to back up a service application](http://technet.microsoft.com/library/03c32499-3537-469b-a6d4-0e5b56e5c6e0.aspx#PowerShellServiceAppBackup)  
(<http://technet.microsoft.com/library/03c32499-3537-469b-a6d4-0e5b56e5c6e0.aspx#PowerShellServiceAppBackup>)
- [Use Central Administration to back up a service application](#)



**Note:**

You cannot use SQL Server tools or Data Protection Manager to back up a service application.

## Task requirements

Before you begin, you must create a folder on the local computer or the network in which to store the backups. For better performance, we recommend that you back up to the local computer, and then move the backup files to a network folder.

## Use Windows PowerShell to back up a service application

You can use Windows PowerShell to back up one or more service applications manually or as part of a script that can be run at scheduled intervals.

### To back up a service application by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See [Add-SPShellAdmin](#).
2. On the **Start** menu, click **All Programs**.
3. Click **SharePoint 2010 Products**.
4. Click **SharePoint 2010 Management Shell**.

- 
- At the Windows PowerShell command prompt, type the following command:

```
Backup-SPFarm -Directory <BackupFolder> -BackupMethod Full -Item  
<ServiceApplicationName> [-Verbose]
```

Where:

- <BackupFolder> is the path of the backup folder.
- <ServiceApplicationName> is the name of the service application. To display the name of the service application, at the Windows PowerShell command prompt, type the following command: `Backup-SPFarm -ShowTree`.

To view the progress of the backup operation, use the **Verbose** parameter.

If you do not use the **Verbose** parameter, the Command Prompt window displays no message if the backup succeeds. If the backup job does not finish successfully, the Command Prompt window displays an error message such as the following:

 **Note**

If you are backing up the service application for the first time, you must use the **Full** option. You must perform a full backup before you can perform a differential backup.

Some service applications always require a full backup. For these service applications, even if you select the **Differential** option, the system performs a full backup.

- If there are errors or warnings, or if the backup does not finish successfully, review the `Spbackup.log` file in the backup folder.

For more information, see [Backup-SPFarm](http://technet.microsoft.com/library/c37704b5-5361-4090-a84d-fcdd17bbe345(Office.14).aspx) ([http://technet.microsoft.com/library/c37704b5-5361-4090-a84d-fcdd17bbe345\(Office.14\).aspx](http://technet.microsoft.com/library/c37704b5-5361-4090-a84d-fcdd17bbe345(Office.14).aspx)).

 **Note:**

We recommend that you use Windows PowerShell when performing command-line administrative tasks. The `Stsadm` command-line tool has been deprecated, but is included to support compatibility with previous product versions.

## Use Central Administration to back up a service application

You can use Central Administration to back up a service application.

### To back up a service application by using Central Administration

- Verify that the user account that performs this procedure is a member of the Farm Administrators group.
- In Central Administration, on the Home page, in the **Backup and Restore** section, click **Perform a backup**.
- On the Perform a Backup — Step 1 of 2: Select Component to Back Up page, select the

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service application from the list of components, and then click **Next**.



**Note:**

The service application might consist of several components. You must select the top-level component.

4. On the Start Backup — Step 2 of 2: Select Backup Options page, in the **Backup Type** section, select either **Full** or **Differential**.



**Note**

If you are backing up the service application for the first time, you must use the **Full** option. You must perform a full backup before you can perform a differential backup.

Some service applications always require a full backup. For these service applications, the system performs a full backup even if you select the **Differential** option.

5. In the **Backup File Location** section, type the path of the backup folder, and then click **Start Backup**.
6. You can view the general status of all backup jobs at the top of the Backup and Restore Job Status page in the **Readiness** section. You can view the status for the current backup job in the lower part of the page in the **Backup** section. The status page updates every 30 seconds automatically. You can manually update the status details by clicking **Refresh**. Backup and recovery are Timer service jobs. Therefore, it may take several seconds for the backup to start.

If you receive any errors, you can review them in the **Failure Message** column of the Backup and Restore Job Status page. You can also find more details in the Spbackup.log file at the UNC path that you specified in step 5.

**See Also**

[Restore a service application \(Search Server 2010\)](#)

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# Back up a content database (Search Server 2010)

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Microsoft Search Server 2010 content databases can grow to be very large. Therefore, you might want to back them up separately from farm backups. Regularly backing up content databases reduces data losses that might occur from hardware failures, power outages, or other problems. It is a simple process and helps to ensure that all the data is available for recovery, if that is required. You can only back up one content database at a time.

This topic describes how to back up a single content database.

Procedures in this task:

- [Use Windows PowerShell to back up a content database](#)
- [Use Central Administration to back up a content database](#)
- [Use SQL Server tools to back up a content database](#)

## Task requirements

Before you begin, you must create a folder on the local computer or the network in which to store the backups. For better performance, we recommend that you back up to the local computer and then move the backup files to a network folder.

## Use Windows PowerShell to back up a content database

You can use Windows PowerShell to back up a content database manually or as part of a script that can be run at scheduled intervals.

### To back up a content database by using Windows PowerShell

1. Verify that you meet the following requirements: See [Add-SPShellAdmin](#).
2. In the SharePoint 2010 Management Shell, at the Windows PowerShell command prompt, type the following command:

```
Backup-SPFarm -Directory <BackupFolder> -BackupMethod Full -Item  
<ContentDatabaseName> [-Verbose]
```

Where:

- *<BackupFolder>* is the path of the backup folder.
- *<ContentDatabaseName>* is the name of the database that you want to back up. To display the name of the content database, type the following command at the Windows PowerShell command prompt: `Backup-SPFarm -ShowTree`.

To view the progress of the backup operation, use the **Verbose** parameter.

**Note:**

If you are backing up the content database for the first time, you must use the **Full** option. You must perform a full backup before you can perform a differential backup.

For more information, see [Backup-SPFarm](http://technet.microsoft.com/library/c37704b5-5361-4090-a84d-fcdd17bbe345(Office.14).aspx) ([http://technet.microsoft.com/library/c37704b5-5361-4090-a84d-fcdd17bbe345\(Office.14\).aspx](http://technet.microsoft.com/library/c37704b5-5361-4090-a84d-fcdd17bbe345(Office.14).aspx)).

3. If you do not use the **Verbose** parameter, the Command Prompt window displays no message if the operation succeeds. If the job does not finish successfully, the Command Prompt window displays an error message such as the following.
4. If there are errors or warnings, or if the backup does not complete successfully, review the Spbackup.log file in the backup folder.

## Use Central Administration to back up a content database

You can use Central Administration to back up a content database.

### ▶ To back up a content database by using Central Administration

1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, on the Home page, in the **Backup and Restore** section, click **Perform a backup**.
3. On the Perform a Backup — Step 1 of 2: Select Component to Back Up page, select the content database that you want to back up from the list of components, and then click **Next**.

**Note:**

Not all content databases can be selected in the list. If a database is not selectable, you must use Windows PowerShell to back up the content database.

4. On the Start Backup — Step 2 of 2: Select Backup Options page, in the **Backup Type** section, select either **Full** or **Differential**.

**Note:**

If you are backing up the content database for the first time, you must use the **Full** option. You must perform a full backup before you can perform a differential backup.

5. In the **Backup File Location** section, type the Universal Naming Convention (UNC) path of the backup folder, and then click **Start Backup**.
6. You can view the general status of all backup jobs at the top of the Backup and Restore Job Status page in the **Readiness** section. You can view the status of the current backup job in the lower part of the page in the **Backup** section. The status page updates every 30 seconds automatically. You can manually update the status details by clicking **Refresh**. Backup and recovery are Timer service jobs. Therefore, it may take several seconds for the backup to start. If you receive any errors, review the **Failure Message** column of the Backup and Restore Job

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Status page. You can also find more details in the Spbackup.log file at the UNC path that you specified in step 4.

## Use SQL Server tools to back up a content database

You can use SQL Server tools to back up a content database.

### ▶ To back up a content database by using SQL Server tools

1. Verify that the user account that is performing this procedure is a member of the SQL Server **db\_backupoperator** fixed database role on the database server where each database is stored.
2. Open SQL Server Management Studio and connect to the database server.
3. In Object Explorer, expand **Databases**.
4. Right-click the database that you want to back up, point to **Tasks**, and then click **Back Up**.
5. In the **Back Up Database** dialog box, in the **Source** area, select the kind of backup that you want to perform from the **Backup type** list. For more information about which backup type to use, see [Overview of Recovery Models](http://go.microsoft.com/fwlink/?LinkId=114396) (<http://go.microsoft.com/fwlink/?LinkId=114396>) in SQL Server Books Online.
6. In the **Backup component** area, click **Database**.
7. Either use the default name provided or specify a name for the backup set in the **Name** text box.
8. Specify the expiration date for the backup set. This date determines how long, or when, the backup set can be overwritten by any later backups that have the same name. By default, the backup set is set to never expire (0 days).
9. In the **Destination** area, specify where you want to store the backup.
10. Click **OK** to back up the database.
11. Repeat steps 1-9 for each content database that you want to back up.

### See Also

[Restore a content database \(Search Server 2010\)](#)

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# Back up a site collection (Search Server 2010)

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We recommend that you regularly back up the complete farm. However, IT practices might require that you also back up a site collection.



## Note:

If the site collection's **Lock status** is set to **Not locked** or **Adding content prevented**, Microsoft Search Server 2010 temporarily sets the site to **Read-Only** while the backup operation is occurring. Search Server 2010 does this to reduce the possibilities of users changing the site collection while it is being backed up. After the backup is finished, the setting is changed back its normal status.

Performing a site collection backup might require resources and might slightly affect farm performance when the backup is running. You can help avoid performance issues by backing up the farm during hours when farm use is lowest, such as outside office hours.

Procedures in this task:

- [Use Windows PowerShell to back up a site collection](#)
- [Use Central Administration to back up a site collection](#)

## Task requirements

Before you begin, you must create a folder on the local computer or the network in which to store the backups. For better performance, we recommend that you back up to the local computer and then move the backup files to a network folder.

## Use Windows PowerShell to back up a site collection

You can use Windows PowerShell to back up a site collection manually or as part of a script that can be run at scheduled intervals.

### ▶ To back up a site collection by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See [Add-SPShellAdmin](#).
2. On the **Start** menu, click **Administrative Tools**.
3. Click **SharePoint 2010 Management Shell**.
4. At the Windows PowerShell command prompt, type the following command:

```
Backup-SPSite -Identity <SiteCollectionName> -Path <BackupFolder> Force -  
NoSiteLock -UseSqlSnapshot -Verbose
```

Where:

- *<SiteCollectionName>* is the name of the site collection that you want to back up.
- *<BackupFolder>* is the path of the backup folder.

---

This command overwrites a previously used backup file because it uses the **Force** parameter. The **NoSiteLock** parameter keeps the read-only lock from being set on the site collection while it is being backed up. However, using this parameter allows users to change the site collection while it is being backed up, and therefore can lead to possible data corruption during backup.

If the database server is running an Enterprise Edition of Microsoft SQL Server, we recommend that you use the **UseSqlSnapshot** parameter for more consistent backups.

For more information, see [Backup-SPSite](http://technet.microsoft.com/library/d4c31a1a-82a7-425f-b1bb-22e70bedd338(Office.14).aspx) ([http://technet.microsoft.com/library/d4c31a1a-82a7-425f-b1bb-22e70bedd338\(Office.14\).aspx](http://technet.microsoft.com/library/d4c31a1a-82a7-425f-b1bb-22e70bedd338(Office.14).aspx)).



**Note:**

We recommend that you use Windows PowerShell when performing command-line administrative tasks. The Stsadm command-line tool has been deprecated, but is included to support compatibility with previous product versions.

## Use Central Administration to back up a site collection

You can use Central Administration to back up a site collection.

### ▶ To back up a site collection by using Central Administration

1. Verify that the user account performing this procedure is a member of the Farm Administrators group. Additionally, verify that the Windows SharePoint Services Timer V4 service has Full Control permissions on the backup folder.
2. In Central Administration, on the Home page, in the **Backup and Restore** section, click **Perform a site collection backup**.
3. On the Site collection backup page, select the site collection from the **Site Collection** list.
4. Type the local path of the backup file in the **Filename** box.



**Note:**

If you want to reuse a file, select the **Overwrite existing file** check box.

5. Click **Start Backup**.
6. You can view the general status of all backup jobs at the top of the Granular Backup Job Status page in the **Readiness** section. You can view the status for the current backup job in the lower part of the page in the **Site Collection Backup** section. The status page updates every 30 seconds automatically. You can manually update the status details by clicking **Refresh**. Backup and recovery are Timer service jobs. Therefore, it may take several seconds for the backup to start.

If you receive any errors, you can review them in the **Failure Message** column of the Granular Backup Job Status page.

### See Also

[Restore a site collection \(Search Server 2010\)](#)

---

# Back up databases to snapshots (Search Server 2010)

---

This topic describes how to back up a farm database to a snapshot.

You can only use SQL Server tools to back up a farm database to a snapshot.

We recommend that you regularly back up the complete farm. Regularly backing up the farm reduces data losses that might occur from hardware failures, power outages, or other problems. It is a simple process and helps to ensure that all the farm data and configurations are available for recovery, if that is required. However, IT requirements might require that you backup databases to snapshots.

Although you can back up any farm database to a snapshot, you typically back up content databases.

A database snapshot provides a read-only, static view of a source database as it existed at snapshot creation, minus any uncommitted transactions. Uncommitted transactions are rolled back in a newly created database snapshot because the Database Engine runs recovery after the snapshot has been created (transactions in the database are not affected). For more information about database snapshots, see [Database Snapshots](http://go.microsoft.com/fwlink/?LinkId=163950) (<http://go.microsoft.com/fwlink/?LinkId=163950>).

## Task requirements

Before you begin, you must create a folder on the database server. If you want to store the snapshots at another location, you can move the backup files to a backup folder on the network after the operation is finished.

## Use SQL Server tools to back up a database to a snapshot

If you want to back up databases to snapshots, you must use SQL Server tools. The databases that are associated with the farm are determined by the features that you have installed on the farm.

### To back up a database to a snapshot by using SQL Server tools

1. Verify that the account that is used to back up the databases is a member of the SQL Server **db\_owner** fixed database role.
2. Open SQL Server Management Studio and connect to the database server.
3. In Object Explorer, expand **Databases**.
4. Select the database that you want to back up, and then click **New Query**.
5. Copy the following text, and then paste it to the query pane.

```
CREATE DATABASE <snapshot name>
```

```
ON
```

```
(
```

---

```
NAME=<logical name of the database file>,  
FILENAME = 'c:\WSS_Backup1.ss')  
AS SNAPSHOT OF <database name>;
```

**See Also**

[Database Snapshots](http://go.microsoft.com/fwlink/?LinkId=163950) (*http://go.microsoft.com/fwlink/?LinkId=163950*)

---

# Back up customizations (Search Server 2010)

---

This article describes how to back up customizations that have been made to sites in a Microsoft Search Server 2010 farm.

Customizations to sites in a Search Server 2010 farm can include the following:

- Custom logic in DLLs, such as managed assemblies deployed to the global assembly cache (GAC).
- XML files used to configure and extend Microsoft Search Server 2010, such as feature or site definition XML files.
- Master pages, page layouts, and cascading style sheets. These objects are stored in the content database for a Web application.
- Web Parts, site or list definitions, custom columns, new content types, custom fields, custom actions, coded workflows, and workflow activities and conditions.
- Third-party solutions and their associated binary files and registry keys, such as IFilters.
- Changes to standard XML files.
- Custom site definitions (Webtemp.xml files).
- Resource (.resx) files.

The method that you use to back up customizations is partly determined by whether the Search Server 2010 site customizations are *centrally managed*.

An environment is considered to be centrally managed if all customizations and changes are deployed by a specific group or individual who is assigned to this task. Typically, a change control method is used to document and manage system changes. In a centrally managed environment, the locations of the customization files are always known.

An environment is not considered to be centrally managed if various teams or individuals perform customizations without using change control or other ways of identifying and managing the customizations. In this case, customization files can be put in nonstandard, undocumented locations that make the files difficult to back up.

## Backing up customizations for centrally managed systems

In centrally managed systems, backing up site customizations is simple because the site customizations are packaged as solution files. The site customizations can then be easily backed up as needed by using a file system backup solution or as part of the development source solution.

A solution file has a .cab-based format and a .wsp extension. A solution is a deployable, reusable package that can contain a set of feature definitions and related element definitions that include files, site definitions, and assemblies. For example, you can use the solution file to deploy the contents of a Web Part package that includes assemblies, class resources, .dwp files, and other package components.

**Note:**

You can also package certain kinds of customizations as content deployment packages.

Binary files and registry keys that are associated with third-party customizations are not handled by solution packages without custom coding.

To create a solution package, we recommend that you use Microsoft Visual Studio 2010.

For more information about solution packages and deploying customizations, see the following resources:

- [SharePoint Development Using Solutions](http://go.microsoft.com/fwlink/?LinkId=169421) (<http://go.microsoft.com/fwlink/?LinkId=169421>)
- [Solutions Overview](http://go.microsoft.com/fwlink/?LinkId=169422) (<http://go.microsoft.com/fwlink/?LinkId=169422>)

## Backing up site customizations in decentralized environments

Backing up customizations in a decentralized environment can be a complex process because the customization file locations are not standardized.

The following table lists locations where customizations are typically stored on Web servers. Consult with the development team or customization vendor to determine whether the customizations involve additional add-in software or files in other locations. We recommend that you back up these directories with a file system backup solution.

Location	Description
%COMMONPROGRAMFILES%\Microsoft Shared\Web Server Extensions\14	Commonly updated files, custom assemblies, custom templates, custom site definitions
Inetpub	Location of IIS virtual directories
%WINDIR%\Assembly	Global assembly cache (GAC): a protected operating system location where the Microsoft .NET Framework code assemblies are installed to provide full system access

### ▶ To back up decentralized customizations

1. Record all customization file names and locations.
2. Record all changes that have been made to the Web.config files.
3. Create a backup job by using a file system backup program to back up all customization files in all locations.

### See Also

[Restore customizations \(Search Server 2010\)](#)

---

# Restore search (Search Server 2010)

---

There are situations in which you might have to restore the search system instead of restoring the complete farm.



## Important:

You cannot back up from one version of Microsoft Search Server and restore to another version of Search Server.

Procedures in this topic:

- [Use Windows PowerShell to restore a Search service application](#)
- [Use Central Administration to restore a search service application](#)



## Note:

You cannot use SQL Server tools to restore all of the search components.

## Use Windows PowerShell to restore a Search service application

You can use Windows PowerShell to restore search. This procedure restores all of the search components including the databases, the search service configuration, and all of the index files.

### ▶ To restore a Search service application by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See [Add-SPShellAdmin](#).
2. On the **Start** menu, click **All Programs**.
3. Click **Microsoft SharePoint 2010 Products**.
4. Click **SharePoint 2010 Management Shell**.
5. At the Windows PowerShell command prompt, type the following command:

```
Restore-SPFarm -Directory <BackupFolder> -Item <SearchServiceApplicationName> -  
RecoveryMethod Overwrite -BackupId <GUID> -Verbose
```

Where:

- *<BackupFolder>* is the path of the backup folder.
- *<SearchServiceApplicationName>* is the name of the service application that you want to restore.
- *<GUID>* is the identity of the backup that you want to use. To view the backups for the farm, type the following command: `Get-SPBackupHistory -Directory <BackupFolder> -ShowBackup`. If you do not use the **BackupId** parameter, the most recent backup will be used. You cannot restore search from a configuration-only backup.

For more information, see [Restore-SPFarm](#) (<http://technet.microsoft.com/library/8e18ea80-0830->

---

4ffa-b6b6-ad18a5a7ab3e(Office.14).aspx).



**Note:**

We recommend that you use Windows PowerShell when performing command-line administrative tasks. The Stsadm command-line tool has been deprecated, but is included to support compatibility with previous product versions.

## Use Central Administration to restore a search service application

Use the following procedure to restore search by using the SharePoint Central Administration Web site. This procedure restores all of the search components including the databases, the search service configuration, and all of the index files.

### ▶ To restore a Search service application by using Central Administration

1. Verify that the user account performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, on the Home page, in the **Backup and Restore** section, click **Restore from a backup**.
3. On the Restore from Backup — Step 1 of 3: Select Backup to Restore page, select the backup job that contains the search backup, or a farm-level backup, from the list of backups, and then click **Next**. You can view more details about each backup by clicking the (+) next to the backup.



**Note**

If the correct backup job does not appear, in the **Backup Directory Location** text box, type the Universal Naming Convention (UNC) path of the correct backup folder, and then click **Refresh**.

You cannot use a configuration-only backup to restore search.

4. On the Restore from Backup — Step 2 of 3: Select Component to Restore page, expand the **Shared Services Applications** node.
5. Select the check box that is next to the Search service application, and then click **Next**.
6. On the Restore from Backup — Step 3 of 3: Select Restore Options page, in the **Restore Component** section, make sure that **Farm\Shared Services Applications\<Search service application>** appears in the **Restore the following content** list.

In the **Restore Options** section, under **Type of restore**, select the **Same configuration** option. If you select this option, a dialog box appears that asks you to confirm the operation. Click **OK**.

7. Click **Start Restore**.

You can view the general status of all recovery jobs at the top of the Backup and Restore Job Status page in the **Readiness** section. You can view the status for the current recovery job in the lower part of the page in the **Restore** section. The status page updates every 30 seconds automatically. You can manually update the status details by clicking **Refresh**. Backup and

---

recovery are timer service jobs. Therefore, it may take a several seconds for the recovery to start.

If you receive any errors, you can review them in the **Failure Message** column of the Backup and Restore Job Status page. You can also find more details in the Sprestore.log file at the UNC path that you specified in step 3.

---

# Restore a farm (Search Server 2010)

---

Farm-level recovery is usually performed only after a failure that involves the complete farm, or where partial recovery of part of the farm is not possible. If you only have to restore part of the farm, a specific database, a service application, a list, or document library, or a specific document, use another recovery method.

Farm recovery is usually performed for any of the following reasons:

- Restoring a farm after a fire, disaster, equipment failure, or other data-loss event.
- Restoring farm configuration settings and data to a specific previous time and date.
- Moving a Microsoft Search Server 2010 deployment from one farm to another farm.

Procedures in this task:

- [Use Windows PowerShell to restore a farm](#)
- [Use Central Administration to restore a farm](#)
- [Use SQL Server tools to restore a farm](#)

## Task requirements

Consider the following information before you restore a farm:

- If you are using a recovery farm, it must have the same topology as the source farm.
- You cannot restore a multiple-server farm to a single-server recovery farm or a single-server farm to a multiple-server recovery farm.
- You cannot back up from one version of Search Server and restore to another version of Search Server.
- A recovery farm is not intended to be a live farm. It is a farm that is only used to restore data. The recovery farm does not have to have the same hardware as the primary farm; we recommend that you use a stand-alone installation or a virtual farm.

## Use Windows PowerShell to restore a farm

You can use Windows PowerShell to restore a farm.

### To restore a farm by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See [Add-SPShellAdmin](#).
2. In the SharePoint 2010 Management Shell, at the Windows PowerShell command prompt, type the following command:

```
Restore-SPFarm -Directory <BackupFolder> -RestoreMethod Overwrite -BackupId <GUID>
```

Where:

- *<BackupFolder>* is the path of the backup folder that you want to use.

- 
- <GUID> is the identity of the backup that you want to use. To specify which backup to use, use the **BackupId** parameter. To view the backups for the farm, type the following command: `Get-SPBackupHistory -Directory <BackupFolder> -ShowBackup -Verbose`. If you do not use the **BackupId** parameter, the most recent backup is used. You cannot use a configuration-only backup to restore content databases together with the configuration.

**Note:**

If you are not logged on as the Farm account, you are prompted for the Farm account credentials.

This command restores to the same farm because it uses the **Overwrite** option. To restore to a different farm, such as a recovery farm, use the **New** option. To view the progress of the backup, use the **Verbose** parameter.

For more information, see [Restore-SPFarm](http://technet.microsoft.com/library/8e18ea80-0830-4ffa-b6b6-ad18a5a7ab3e(Office.14).aspx) ([http://technet.microsoft.com/library/8e18ea80-0830-4ffa-b6b6-ad18a5a7ab3e\(Office.14\).aspx](http://technet.microsoft.com/library/8e18ea80-0830-4ffa-b6b6-ad18a5a7ab3e(Office.14).aspx)).

3. If you do not use the **Verbose** parameter, the Command Prompt window displays no message if the operation succeeds. If the operation does not finish successfully, the Command Prompt window displays an error message such as the following:  

```
Restore-SPFarm: The operation failed. At line: <line> char:<column>. + Restore-SPFarm  
<<<< <Error Message>
```
4. If there are errors or warnings, or if the job does not finish successfully, review the `Sprestore.log` file in the backup folder.

## Use Central Administration to restore a farm

You can use Central Administration to restore a farm.

### ▶ To restore a farm by using Central Administration

1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, on the Home page, in the **Backup and Restore** section, click **Restore from a backup**.
3. On the Restore from Backup — Step 1 of 3: Select Backup to Restore page, from the list of backups, select the backup job that contains the farm backup, and then click **Next**. You can view more details about each backup by clicking the (+) next to the backup.

**Note**

If the correct backup job does not appear, in the **Backup Directory Location** text box, type the Universal Naming Convention (UNC) path of the correct backup folder, and then click **Refresh**. You cannot use a configuration-only backup to restore the farm.

4. On the Restore from Backup — Step 2 of 3: Select Component to Restore page, select the check box that is next to the farm, and then click **Next**.
5. On the Restore from Backup — Step 3 of 3: Select Restore Options page, in the **Restore**

---

**Component** section, ensure that **Farm** appears in the **Restore the following component** list.

In the **Restore Only Configuration Settings** section, ensure that the **Restore content and configuration settings** option is selected.

In the **Restore Options** section, select the **Type of Restore** option. Use the **Same configuration** setting unless you are migrating the farm or using a recovery farm. If you select this option, a dialog box will appear that asks you to confirm the operation. Click **OK**.

 **Note:**

If the **Restore Only Configuration Settings** section does not appear, the backup that you selected is a configuration-only backup. You must select another backup.

 **Note:**

If you are migrating the farm or restoring the farm to a recovery farm, select the **New configuration** option.

Click **Start Restore**.

6. You can view the general status of all recovery jobs at the top of the Backup and Restore Job Status page in the **Readiness** section. You can view the status for the current recovery job in the lower part of the page in the **Restore** section. The status page updates every 30 seconds automatically. You can manually update the status details by clicking **Refresh**. Backup and recovery are Timer service jobs. Therefore, it may take several seconds for the recovery to start.

If you receive any errors, you can review them in the **Failure Message** column of the Backup and Restore Job Status page. You can also find more details in the Sprestore.log file at the UNC path that you specified in step 2.

## Use SQL Server tools to restore a farm

Although you cannot restore the complete farm by using SQL Server tools, you can restore most of the farm databases. If you restore the databases by using SQL Server tools, you must restore the farm configuration by using Central Administration or Windows PowerShell. For more information about how to restore the farm's configuration settings, see [Restore or copy a farm configuration \(Search Server 2010\)](#).

 **Note:**

The search index is not stored in SQL Server. If you use SQL Server tools to back up and restore search, you must perform a full crawl after you restore the content database.

Before you restore Search Server 2010, we recommend that you configure a recovery farm for site and item recovery.

Restore the databases by following these steps:

1. If possible, back up the live transaction log of the current database to protect any changes that were made after the last full backup.
2. Restore the last full database backup.

- 
3. Restore the most recent differential database backup that occurred after the most recent full database backup.
  4. Restore all transaction log backups that occurred after the most recent full or differential database backup.

▶ **To restore a farm by using SQL Server tools**

1. Verify that the user account that is performing this procedure is a member of the **sysadmin** fixed server role.
2. If the Windows SharePoint Services Timer service is running, stop the service and wait for several minutes for any currently running stored procedures to finish. Do not restart the service until after you restore all the databases that you have to restore.
3. Start SQL Server Management Studio and connect to the database server.
4. In Object Explorer, expand **Databases**.
5. Right-click the database that you want to restore, point to **Tasks**, point to **Restore**, and then click **Database**.

The database is automatically taken offline during the recovery operation and cannot be accessed by other processes.

6. In the **Restore Database** dialog box, specify the destination and the source, and then select the backup set or sets that you want to restore.

The default values for destination and source are appropriate for most recovery scenarios.

7. In the **Select a page** pane, click **Options**.
8. In the **Restore options** section, select only **Overwrite the existing database**. Unless your environment or policies require otherwise, do not select the other options in this section.
9. In the **Recovery state** section:
  - If you have included all the transaction logs that you must restore, select **RECOVER WITH RECOVERY**.
  - If you must restore additional transaction logs, select **RECOVER WITH NORECOVERY**.
  - The third option, **RECOVER WITH STANDBY** is not used in this scenario.



**Note:**

For more information about these recovery options, see [Restore Database \(Options Page\)](http://go.microsoft.com/fwlink/?LinkId=114420) (<http://go.microsoft.com/fwlink/?LinkId=114420>).

10. Click **OK** to complete the recovery operation.
11. Except for the configuration database, repeat steps 4 through 9 for each database that you are restoring.
12. To restore the configuration settings, you must use the existing configuration database or manually create a new database and restore the configuration to that database. For more information about restoring the farm configuration, see [Restore or copy a farm configuration \(Search Server 2010\)](#).
13. Start the Windows SharePoint Services Timer service.

---

# Restore or copy a farm configuration (Search Server 2010)

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The information in this section does not apply to Microsoft Search Server 2010 Express. It applies to the full version of Microsoft Search Server 2010 only.

You can restore a backed-up configuration that was extracted from a configuration database or copy the farm configuration to another farm. Situations in which you might want to restore a configuration from one farm to another farm include:

- Disseminating a standardized farm configuration template to be used throughout an environment.
- Moving configurations from a development or test environment to a production environment.
- Moving configurations from a stand-alone installation to a farm environment.
- Configuring a farm to serve as part of a standby environment.



**Note:**

In earlier versions of Microsoft Search Server, you could not restore the configuration database and, therefore, you could not restore the configuration of a farm. In Microsoft Search Server 2010, you do not have to restore the configuration database because you can restore the farm configuration directly.

A configuration can be restored to the same server farm, or any other server farm. When a configuration is restored, it overwrites any settings contained within the configuration that are present in the farm. If any settings present in the farm are not contained in the configuration, they are not overwritten. For more information about configuration backup, see [Back up a farm configuration \(Search Server 2010\)](#).

Farm-level configuration recovery is performed only after a failure that involves the configuration database but does not involve other farm data, such as a content database or Web application. If restoring the farm configuration does not solve the problems, you must restore the complete farm. For more information about how to restore the complete farm, see [Restore a farm \(Search Server 2010\)](#). You can restore the configuration from a farm backup that used either the **Backup content and configuration settings** option or the **Backup only configuration settings** option.



**Important:**

To restore service application configuration along with the farm configuration, you must restore the content and configuration of the service application.

Procedures in this task:

- [Use Windows PowerShell to restore a farm's configuration](#)
- [Use Central Administration to restore a farm's configuration](#)



**Note:**

You cannot use SQL Server tools or Data Protection Manager to restore or copy the farm configuration.

---

# Use Windows PowerShell to restore a farm's configuration

You can use Windows PowerShell to restore a farm's configuration.

## ▶ To restore a farm's configuration by using Windows PowerShell

1. Verify that you meet the following requirements: See [Add-SPShellAdmin](#).  
You must also be a member of the **sysadmin** fixed server role on the database server where each database is stored.
2. In the SharePoint 2010 Management Shell, at the Windows PowerShell command prompt, type the following command:

```
Restore-SPFarm -Directory <BackupFolder> -RestoreMethod <Option> -  
ConfigurationOnly -PreserveChangeLog -Verbose
```

Where:

- *<BackupFolder>* is the path of the backup folder
- *<Option>* is one of the following:
  - **Overwrite**, if you want to restore the configuration to the same farm.
  - **New**, if you want to copy the farm configuration.

This command uses the **PreserveChangeLog** parameter to preserve the search database change log so that the next crawl of the content databases is not a full crawl. To view the progress of the operation, use the **Verbose** parameter. For more information, see [Restore-SPFarm](http://technet.microsoft.com/library/8e18ea80-0830-4ffa-b6b6-ad18a5a7ab3e(Office.14).aspx) ([http://technet.microsoft.com/library/8e18ea80-0830-4ffa-b6b6-ad18a5a7ab3e\(Office.14\).aspx](http://technet.microsoft.com/library/8e18ea80-0830-4ffa-b6b6-ad18a5a7ab3e(Office.14).aspx)).

3. If you do not use the **Verbose** parameter, the Command Prompt window displays no message if the operation succeeds. If the job does not finish successfully, the Command Prompt window displays an error message such as the following:  
Restore-SPFarm: The job failed. For more information, see the error log that is located in the restore directory. At line: <line> char:<column>+ restore-spfarm <<<< <Error Message>
4. If there are errors or warnings, or if the job does not finish successfully, review the Sprestore.log file in the backup folder.

# Use Central Administration to restore a farm's configuration

You can use Central Administration to restore a farm's configuration. To copy the farm configuration to another farm, you must use Windows PowerShell.

## ▶ To restore a farm's configuration by using Central Administration

1. Verify that the user account that is performing this procedure is a member of the Farm

---

Administrators group and a member of the **sysadmin** fixed server role on the database server where each database is stored.

2. In Central Administration, on the Home page, in the **Backup and Restore** section, click **Restore from a backup**.
3. On the Restore from Backup — Step 1 of 3: Select Backup to Restore page, select the backup job that contains the farm backup from the list of backups, and then click **Next**.



**Note:**

You can view additional information about the backups by expanding the row that contains the backup.



**Note:**

If the correct backup job does not appear, in the **Backup Directory Location** text box, enter the Universal Naming Convention (UNC) path of the correct backup folder, and then click **Refresh**.

4. On the Restore from Backup — Step 2 of 3: Select Component to Restore page, select the check box that is next to the farm, and then click **Next**.
5. On the Restore from Backup — Step 3 of 3: Select Restore Options page, in the **Restore Component** section, ensure that **Farm** appears in the **Restore the following content** list.

In the **Restore Only Configuration Settings** section, ensure that the **Restore only configuration settings** option is selected.

In the **Restore Options** section, select the **Type of Restore** option. Use the **Same configuration** setting to overwrite the current farm's configuration or use the **New configuration** option to copy the farm configuration to another farm. A dialog box will appear that asks you to confirm the operation. Click **OK**.

6. Click **Start Restore**.
7. You can view the general status of all recovery jobs at the top of the Backup and Restore Job Status page in the **Readiness** section. You can view the status of the current recovery job in the lower part of the page in the **Restore** section. The status page updates every 30 seconds automatically. You can manually update the status details by clicking **Refresh**. Backup and recovery are Timer service jobs. Therefore, it may take several seconds for the recovery to start.

If you receive any errors, you can review them in the **Failure Message** column of the Backup and Restore Job Status page. You can also find more details in the Sprestore.log file at the UNC path that you specified in step 2.

---

# Restore a Web application (Search Server 2010)

---

When you restore a Web application, you also restore the Internet Information Services (IIS) settings and all content databases that are associated with the Web application. You can only restore one Web application at a time by using this procedure. However, you can simultaneously restore all the Web applications in the farm by restoring the complete farm. For more information, see [Restore a farm \(Search Server 2010\)](#).

**Note:**

You cannot use SQL Server tools to restore a Web application.

Procedures in this topic:

- [Use Windows PowerShell to restore a Web application](#)
- [Use Central Administration to restore a Web application](#)

## Use Windows PowerShell to restore a Web application

You can use Windows PowerShell to restore a Web application manually or as part of a script that can be run at scheduled intervals.

### ▶ To restore a Web application by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See [Add-SPShellAdmin](#). You must also have read permissions to the backup folder and be a member of the following fixed database roles: **db\_owner** on the farm configuration database, and **dbcreator** on the content databases that are being restored.
2. In the SharePoint 2010 Management Shell, at the Windows PowerShell command prompt, type the following command:

```
Restore-SPFarm -Directory <BackupFolder> -RestoreMethod <Option> -Item  
<WebApplicationName> -BackupId <GUID> -Verbose
```

Where:

- *<BackupFolder>* is the path of the backup that you want to use.
- *<Option>* is one of the following:
  - **Overwrite**, to restore to the same farm.
  - **New**, to restore to a different farm such as a recovery farm.
- *<WebApplicationName>* is the name of the Web application.
- *<GUID>* is the identity of the specific backup that you want to use. You can view the backups for the farm by typing the following: `Get-SPBackupHistory -`

---

Directory <BackupFolder> -ShowBackup. If you do not use the **BackupID** parameter, the most recent backup will be used. You cannot restore a Web application by using a configuration-only backup.

To view the progress of the operation, use the **Verbose** parameter. For more information, see [Restore-SPFarm](http://technet.microsoft.com/library/8e18ea80-0830-4ffa-b6b6-ad18a5a7ab3e(Office.14).aspx) ([http://technet.microsoft.com/library/8e18ea80-0830-4ffa-b6b6-ad18a5a7ab3e\(Office.14\).aspx](http://technet.microsoft.com/library/8e18ea80-0830-4ffa-b6b6-ad18a5a7ab3e(Office.14).aspx)).

3. If you do not use the **Verbose** parameter, the Command Prompt window displays no message if the operation succeeds. If the job does not finish successfully, the Command Prompt window displays an error message such as the following:  
  
Restore -SPFarm: The job failed. For more information, see the error log that is located in the backup folder. At line: <line> char:<column>. + <cmdlet> <<<< <location of error>
4. If there are errors or warnings, or if the restore does not finish successfully, review the Sprestore.log file in the backup folder.

## Use Central Administration to restore a Web application

You can use Central Administration to restore a Web application.

### To restore a Web application by using Central Administration

1. Verify that the user account performing this procedure is a member of the Farm Administrators group. Additionally, verify that the Windows SharePoint Services Timer V4 service and the Farm Database Access account have Full Control permissions on the backup folder.
2. In Central Administration, on the Home page, in the **Backup and Restore** section, click **Restore from a backup**.
3. On the Restore from Backup — Step 1 of 3: Select Backup to Restore page, from the list of backups, select the backup job that contains the farm or Web application backup, and then click **Next**. You can view more details about each backup by clicking the (+) next to the backup.

#### **Note**

If the correct backup job does not appear, in the **Current Directory Location** text box, type the Universal Naming Convention (UNC) path of the correct backup folder, and then click **Refresh**.

You cannot use a configuration-only backup to restore the Web application.

4. On the Restore from Backup — Step 2 of 3: Select Component to Restore page, select the check box that is next to the Web application, and then click **Next**.
5. On the Restore from Backup — Step 3 of 3: Select Restore Options page, in the **Restore Component** section, make sure that **Farm\<Web application>** appears in the **Restore the following content** list.

In the **Restore Only Configuration Settings** section, make sure that the **Restore content and configuration settings** option is selected.

In the **Restore Options** section, select the **Type of Restore** option. Use the **Same**

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**configuration** setting unless you are migrating the Web application or using a recovery farm. If you select this option, a dialog box will appear that asks you to confirm the operation. Click **OK**.



**Note:**

If the **Restore Only Configuration Settings** section does not appear, the backup that you selected is a configuration-only backup. You must select another backup.



**Note:**

If you are migrating the Web application or restoring the farm to a recovery farm, select the **New configuration** option.

Click **Start Restore**.

6. You can view the general status of all recovery jobs at the top of the Backup and Restore Job Status page in the **Readiness** section. You can view the status for the current recovery job in the lower part of the page in the **Restore** section. The status page updates every 30 seconds automatically. You can manually update the status details by clicking **Refresh**. Backup and recovery are Timer service jobs. Therefore, it may take several seconds for the recovery to start.

If you receive any errors, you can review them in the **Failure Message** column of the Backup and Restore Job Status page. You can also find more details in the Sprestore.log file at the UNC path that you specified.

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# Restore a content database (Search Server 2010)

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You can restore any content database or several content databases, one at a time. For information about how to restore all the content databases in a farm at the same time, see [Restore a farm \(Search Server 2010\)](#).

Procedures in this task:

- [Use Windows PowerShell to restore a content database](#)
- [Use Central Administration to restore a content database](#)
- [Use SQL Server tools to restore a content database](#)

## Task requirements

Consider the following information before you restore a content database:

- If you are using a recovery farm, it must have the same topology as the source farm.
- You cannot restore a multiple-server farm to a single-server recovery farm or a single-server farm to a multiple-server recovery farm.
- You cannot back up from one version of Microsoft Search Server 2010 and restore to another version of Search Server 2010.
- A recovery farm is not intended to be a live farm. It is a farm that is only used to restore data. The recovery farm does not have to have the same hardware as the primary farm; we recommend that you use a stand-alone installation or a virtual farm.

## Use Windows PowerShell to restore a content database

You can use Windows PowerShell to restore a content database.

### To restore a content database by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See [Add-SPShellAdmin](#).
2. In the SharePoint Management Shell, at the Windows PowerShell command prompt, type the following command:

```
Restore-SPFarm -Directory <BackupFolder> -RestoreMethod <Option> -  
Item <ContentDatabaseName> -BackupId <GUID> -Verbose
```

Where:

- *<BackupFolder>* is the path of the backup folder that you want to use.



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check box that is next to the content database, and then click **Next**.



**Note:**

If the content database is not selectable, you must use Windows PowerShell or SQL Server tools to restore the content database.

5. On the Restore from Backup — Step 3 of 3: Select Restore Options page, in the **Restore Options** section, select the **Type of Restore** option. Use the **Same configuration** setting. A dialog box appears that asks you to confirm the operation. Click **OK**.

Click **Start Restore**.

6. You can view the general status of all recovery jobs at the top of the Backup and Restore Job Status page in the **Readiness** section. You can view the status for the current recovery job in the lower part of the page in the **Restore** section. The status page updates every 30 seconds automatically. You can manually update the status details by clicking **Refresh**. Backup and recovery are Timer service jobs. Therefore, it may take several seconds for the recovery to start.

If you receive any errors, you can review them in the **Failure Message** column of the Backup and Restore Job Status page. You can also find more details in the Sprestore.log file at the UNC path that you specified in step 2.

## Use SQL Server tools to restore a content database

You can use SQL Server tools to restore a content database by following these steps:

1. If possible, back up the live transaction log of the content database to protect any changes that were made after the last full backup.
2. Restore the last full database backup.
3. Restore the most recent differential database backup that occurred after the most recent full database backup.
4. Restore all transaction log backups that occurred after the most recent full or differential database backup.

### ▶ To restore a content database by using SQL Server tools

1. Verify that the user account that is performing this procedure is a member of the **sysadmin** fixed server role.
2. If the Windows SharePoint Services Timer service is running, stop the service and wait for several minutes for any currently running stored procedures to finish. Do not restart the service until after you restore the content databases.
3. Start SQL Server Management Studio and connect to the database server.
4. In Object Explorer, expand **Databases**.
5. Right-click the database that you want to restore, point to **Tasks**, point to **Restore**, and then click **Database**.

The database is automatically taken offline during the recovery operation and cannot be

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accessed by other processes.

6. In the **Restore Database** dialog box, specify the destination and the source, and then select the backup set or sets that you want to restore.

The default values for destination and source are appropriate for most recovery scenarios.

7. In the **Select a page** pane, click **Options**.
8. In the **Restore options** section, select only **Overwrite the existing database**. Unless the environment or policies require otherwise, do not select the other options in this section.
9. In the **Recovery state** section:
  - If you have included all the transaction logs that you must restore, select **RECOVER WITH RECOVERY**.
  - If you must restore additional transaction logs, select **RECOVER WITH NORECOVERY**.
  - The third option, **RECOVER WITH STANDBY** is not used in this scenario.



**Note:**

For more information about these recovery options, see [Restore Database \(Options Page\)](http://go.microsoft.com/fwlink/?LinkId=114420) (<http://go.microsoft.com/fwlink/?LinkId=114420>).

10. Click **OK** to complete the recovery operation.
11. Repeat steps 4 through 10 for each database that you are restoring.
12. Start the Windows SharePoint Services Timer service.

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# Restore a service application (Search Server 2010)

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There are situations in which you might have to restore a specific service application instead of restoring the complete farm. Some service applications — for example, the Business Data Connectivity service application the Search service application — provide data to other services and sites. As a result, users might experience some service interruption until the recovery process is finished.

For information about how to simultaneously restore all the service applications in a farm, see [Restore a farm \(Search Server 2010\)](#).



## Important:

You cannot back up from one version of Microsoft Search Server and restore to another version of Search Server.

Procedures in this topic:

- [Use Windows PowerShell to restore a service application](#)
- [Use Central Administration to restore a service application](#)
- [Use SQL Server tools to restore a service application](#)

## Use Windows PowerShell to restore a service application

You can use Windows PowerShell to restore a service application.

### ▶ To restore a service application by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See [Add-SPShellAdmin](#).
2. In the SharePoint 2010 Management Shell, at the Windows PowerShell command prompt, type the following command:

```
Restore-SPFarm -Directory <BackupFolder> -Item <ServiceApplicationName> -  
RecoveryMethod <Option> -BackupId <GUID> -Verbose
```

Where:

- *<BackupFolder>* is the path of the backup that you want to use.
- *<ServiceApplicationName>* is the name of the service application that you want to restore. To display the names of service applications, type the following command: `Backup-SPFarm -ShowTree`.
- *<Option>* is one of the following:
  - **Overwrite**, to restore a service application to the same farm.
  - **New**, to restore to a different farm such as a recovery farm.

- 
- <GUID> is the identity of the specific backup that you want to use. If you do not use the **BackupId** parameter, the most recent backup is used.

**Note:**

If you are not logged on as the Farm account, you are prompted for the Farm account's credentials.

To view the progress of the operation, use the **Verbose** parameter.

You cannot restore a service application from a configuration-only backup.

For more information, see [Restore-SPFarm](http://technet.microsoft.com/library/8e18ea80-0830-4ffa-b6b6-ad18a5a7ab3e(Office.14).aspx) ([http://technet.microsoft.com/library/8e18ea80-0830-4ffa-b6b6-ad18a5a7ab3e\(Office.14\).aspx](http://technet.microsoft.com/library/8e18ea80-0830-4ffa-b6b6-ad18a5a7ab3e(Office.14).aspx)).

3. If you do not use the **Verbose** parameter, the Command Prompt window displays no message if the operation succeeds. If the job does not finish successfully, the Command Prompt window displays an error message, such as the following.

```
Restore-SPFarm: The operation failed. At line: <line> char:<column>. + Recover-SPFarm  
<<<< <Error Message>
```

4. If there are errors or warnings, or if the operation does not finish successfully, review the Sprestore.log file in the backup folder.

## Use Central Administration to restore a service application

Use the following procedure to restore a service application by using the SharePoint Central Administration Web site.

### ▶ To restore a service application by using Central Administration

1. Verify that the user account performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, on the Home page, in the **Backup and Restore** section, click **Restore from a backup**.
3. On the Restore from Backup — Step 1 of 3: Select Backup to Restore page, select the backup job that contains the service application backup, or a farm-level backup, from the list of backups, and then click **Next**. You can view more details about each backup by clicking the (+) next to the backup.

**Note**

If the correct backup job does not appear, in the **Backup Directory Location** text box, type the Universal Naming Convention (UNC) path of the correct backup folder, and then click **Refresh**.

You cannot use a configuration-only backup to restore the farm.

4. On the Restore from Backup — Step 2 of 3: Select Component to Restore page, select the check box that is next to the service application, and then click **Next**.
5. On the Restore from Backup — Step 3 of 3: Select Restore Options page, in the **Restore**

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**Component** section, make sure that **Farm\<Service application>** appears in the **Restore the following content** list.

In the **Restore Only Configuration Settings** section, make sure that the **Restore content and configuration settings** option is selected.

In the **Restore Options** section, select the **Type of restore** option. Use the **Same configuration** setting unless you are migrating the service application. If you select this option, a dialog box will appear that asks you to confirm the operation. Click **OK**.



**Note:**

If the **Restore Only Configuration Settings** section does not appear, the backup that you selected is a configuration-only backup. You must select another backup.

Click **Start Restore**.

6. You can view the general status of all recovery jobs at the top of the Backup and Restore Job Status page in the **Readiness** section. You can view the status for the current recovery job in the lower part of the page in the **Restore** section. The status page updates every 30 seconds automatically. You can manually update the status details by clicking **Refresh**. Backup and recovery are Timer service jobs. Therefore, it may take a several seconds for the recovery to start.

If you receive any errors, you can review them in the **Failure Message** column of the Backup and Restore Job Status page. You can also find more details in the Sprestore.log file at the UNC path that you specified in step 2.

## Use SQL Server tools to restore a service application

You cannot restore the complete service application by using SQL Server tools. However, you can use SQL Server tools to restore the databases that are associated with the service application. To restore the complete service application, use either Windows PowerShell or Central Administration.

### ▶ To restore a service application by using SQL Server tools

1. Verify that the user account you are using to restore the databases is a member of the SQL Server **sysadmin** fixed server role on the database server where each database is stored.
2. Open SQL Server Management Studio and connect to the database server.
3. In Object Explorer, expand **Databases**.
4. Right-click the database that you want to restore, point to **Tasks**, and then click **Restore**.
5. In the **Restore Database** dialog box, select the kind of recovery that you want to perform from the **Restore type** list.

For more information about which recovery type to use, see [Overview of Recovery Models](http://go.microsoft.com/fwlink/?LinkId=114396) (<http://go.microsoft.com/fwlink/?LinkId=114396>) in SQL Server 2005 Books Online.

6. In the **Restore component** area, click **Database**.
7. Either use the default name provided or specify a name for the recovery set in the **Name** text box.

- 
8. Specify the expiration date for the recovery set. The date determines how long, or when, the recovery set can be overwritten by any later recoveries that have the same name. By default, the recovery set is set to never expire (0 days).
  9. In the **Destination** area, specify where you want to store the recovery.
  10. Click **OK** to restore the database.
  11. Repeat steps 2-10 for each database that is associated with the service application.

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# Restore a site collection (Search Server 2010)

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You can use only Windows PowerShell to restore a site collection.

## Use Windows PowerShell to restore a site collection

You can use Windows PowerShell to restore a site collection manually or as part of a script that can be run at scheduled intervals.

### ▶ To restore a site collection by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See [Add-SPShellAdmin](#). Additionally, verify that the user account performing this procedure has read permissions to the backup folder and is a member of the **db\_owner** fixed database role on both the farm configuration database and the content database where the site collection is being restored.
2. In the SharePoint 2010 Management Shell, at the Windows PowerShell command prompt, type the following command:

```
Restore-SPSite -Identity <SiteCollectionURL> -Path <BackupFile> -  
DatabaseServer <DatabaseServerName> -DatabaseName <ContentDatabaseName> -  
HostHeader <HostHeader> -Force -GradualDelete -Verbose
```

Where:

- *<SiteCollectionURL>* is the URL of the site collection that you want to restore.
- *<BackupFile>* is the path of the backup that you want to use.
- *<DatabaseServerName>* and *<ContentDatabaseName>* are the specific database server and content database to which you want to restore the site collection. If you do not specify a content database, the site collection will be restored to a content database chosen by Microsoft Search Server 2010.
- *<HostHeader>* is the URL of the Web application that will hold the host-named site collection.

This command uses the **Force** parameter to overwrite an existing site collection and uses the **GradualDelete** parameter for better performance during the restore process, which is recommended if the site collection that you are restoring is 1 gigabyte or larger. When this parameter is used, the site collection that is overwritten is marked as deleted, which immediately prevents any additional access to its content. The data in the marked site collection is then deleted gradually over time by a timer job instead of all at the same time, which reduces the impact on server performance.

For more information, see [Restore-SPSite](http://technet.microsoft.com/library/90f19a58-0455-470c-a8ee-3129fc341f62(Office.14).aspx) ([http://technet.microsoft.com/library/90f19a58-0455-470c-a8ee-3129fc341f62\(Office.14\).aspx](http://technet.microsoft.com/library/90f19a58-0455-470c-a8ee-3129fc341f62(Office.14).aspx)).

**Note:**

We recommend that you use Windows PowerShell when performing command-line administrative tasks. The Stsadm command-line tool has been deprecated, but is included to support compatibility with previous product versions.

**See Also**

[Back up a site collection \(Search Server 2010\)](#)

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# Restore customizations (Search Server 2010)

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This article describes how to restore customizations that have been made to sites in a Microsoft Search Server farm.

Customizations to sites in a Search Server farm can include the following:

- Custom logic in DLLs, such as managed assemblies deployed to the global assembly cache (GAC).
- XML files used to configure and extend Search Server 2010, such as feature or site definition XML files.
- Master pages, page layouts, and cascading style sheets. These objects are stored in the content database for a Web application.
- Web Parts, site or list definitions, custom columns, new content types, custom fields, custom actions, coded workflows, and workflow activities and conditions.
- Third-party solutions and their associated binary files and registry keys, such as IFilters.
- Changes to standard XML files.
- Custom site definitions (Webtemp.xml files).
- Resource (.resx) files.

The method that you use to restore customizations is partly determined by whether the Search Server site customizations are *centrally managed*.

An environment is considered to be centrally managed if all customizations and changes are deployed by a specific group or individual who is assigned to this task. Typically, a change control method is used to document and manage system changes. In a centrally managed environment, the locations of the customization files are always known.

An environment is not considered to be centrally managed if various teams or individuals perform customizations without using change control or other ways of identifying and managing the customizations. In this case, customization files can be put in nonstandard, undocumented locations that makes the customization files difficult to restore.

For best practices and recommendations about how to manage customizations to sites in a Search Server farm, see [SharePoint Products and Technologies customization policy \(white paper\)](http://go.microsoft.com/fwlink/?linkid=92311&clcid=0x409) (<http://go.microsoft.com/fwlink/?linkid=92311&clcid=0x409>).

## Restoring customizations for centrally managed systems

In centrally managed systems, restoring site customizations is simple because the site customizations are packaged as solution files. The site customizations can be easily restored as needed by using a file-system restore solution or as part of the development source solution.

A solution file has a .cab-based format and a .wsp extension. A solution is a deployable, reusable package that can contain a set of feature definitions and related element definitions that include files,

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site definitions, and assemblies. For example, you can use the solution file to deploy the contents of a Web Part package that includes assemblies, class resources, .dwp files, and other package components.

We recommend that you package site customizations as solution files, which you can then easily restore as needed by using a file-system restore solution.



**Note:**

You can also package certain kinds of customizations as content deployment packages.

Binary files and registry keys that are associated with third-party customizations are not handled by solution packages without custom coding.

To create a solution package, we recommend that you use Microsoft Visual Studio 2010.



**Tip:**

To simplify the recovery process, create a set of solution packages that contain configuration elements that are specific to certain kinds of sites or site collections. You can then recover different site collection configurations by deploying specific solution packages to Web servers.

Restoring customizations to a site collection involves importing the solution package to the server and then deploying the solution package.

For more information about solution packages and deploying customizations, see the following resources:

- [SharePoint Development Using Solutions](http://go.microsoft.com/fwlink/?LinkID=169421) (<http://go.microsoft.com/fwlink/?LinkID=169421>)
- [Solutions Overview](http://go.microsoft.com/fwlink/?LinkID=169422) (<http://go.microsoft.com/fwlink/?LinkID=169422>)

## Restore a solution package by using Central Administration

You can restore a solution package by using the SharePoint Central Administration Web site. You can restore a single solution package to multiple site collections and servers.

### ▶ To restore a solution package by using Central Administration

1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, in the Quick Launch, click **System Settings**.
3. On the System Settings page, in the **Farm Management** section, click **Manage farm solutions**.
4. On the Solution Management page, click the solution that you want to restore.
5. On the Solution Properties page, click **Deploy Solution**.
6. On the Deploy Solution page, in the **Deploy When** section, select one of the following options:
  - **Now**
  - **At a specified time**. If you select this option, specify a time by using the date and time boxes. We recommend that you select a time when the load on the destination servers is low.

- 
7. In the **Deploy To** section, in the **A specific Web application** list, click either **All Web applications** or select a specific Web application.
  8. Click **OK**.



**Note:**

The previous procedure assumes that the solution is scoped to an object that is smaller than the farm.

## Restoring site customizations in decentralized environments

Restoring customizations in a decentralized environment can be a complex process because the locations of the customization files are not standardized.

The following table lists locations where customizations are typically stored on Web servers. Consult with the development team or customization vendor to determine whether the customizations involve additional add-in software or files in other locations. We recommend that you restore directories with a file-system restore solution.

Location	Description
%COMMONPROGRAMFILES%\Microsoft Shared\Web Server Extensions\14	Commonly updated files, custom assemblies, custom templates, custom site definitions
Inetpub	Location of IIS virtual directories
%WINDIR%\Assembly	Global assembly cache (GAC): a protected operating system location where the Microsoft .NET Framework code assemblies are installed to provide full system access

### See Also

[Back up customizations \(Search Server 2010\)](#)

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# Export a site, list, or document library (Search Server 2010)

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We recommend that you regularly back up the complete farm. However, business or IT requirements might require that you export a site, such as a Search Center site. Regularly exporting Search Center or other sites reduces data losses that might occur from hardware failures, power outages, or other problems. It is a simple process and helps to ensure that data is available for recovery, if that is required. You can export sites, lists, or document libraries, but you can only export one at a time.

Procedures in this task:

- [Use Windows PowerShell to export a site, list, or document library](#)
- [Use Central Administration to export a site, list, or document library](#)



## Note:

You cannot use SQL Server tools or Data Protection Manager to export a site, list or document library.

## Task requirements

Before you begin, you must create a folder on the local computer or the network in which to store the export file. For better performance, we recommend that you export to the local computer and then move the export file to a network folder.

## Use Windows PowerShell to export a site, list, or document library

You can use Windows PowerShell to export a site, list, or document library manually or as part of a script that can be run at scheduled intervals.

### ▶ To export a site, list, or document library by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See [Add-SPShellAdmin](#).
2. In the SharePoint 2010 Management Shell, at the Windows PowerShell command prompt, type the following command:

```
Export-SPWeb -Identity <ID> -Path <PathName> -IncludeUserSecurity -IncludeVersions  
-NoFileCompression -Verbose
```

Where:

- *<ID>* is the URL or GUID of the site, list, or library.
- *<PathName>* is the Universal Naming Convention (UNC) path and the name of the file to which you want to export the list or library.

This command uses the **IncludeVersions** parameter for which you must specify one of the

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following values:

- “LastMajor” (default)
- “CurrentVersion”
- “LastMajorandMinor”
- “All”

This command also uses the **IncludeUserSecurity** parameter to include the user security settings in the site.

The **NoFileCompression** parameter lets you specify that no file compression is performed during the export process. Using this parameter can lower resource usage up to 30% during the export process. Using this parameter will result in a backup folder being created instead of a compressed file. If you use the **NoFileCompression** parameter in the **Export-SPWeb** command, you must also use it when you import the content by using the **Import-SPWeb** command.

For more information, see [Export-SPWeb](http://technet.microsoft.com/library/cd85bf19-6f24-4f13-bd9c-37bbf279ea2b(Office.14).aspx) ([http://technet.microsoft.com/library/cd85bf19-6f24-4f13-bd9c-37bbf279ea2b\(Office.14\).aspx](http://technet.microsoft.com/library/cd85bf19-6f24-4f13-bd9c-37bbf279ea2b(Office.14).aspx)).

3. If you do not use the **Verbose** parameter, the Command Prompt window displays no message if the operation succeeds. If the job does not finish successfully, the Command Prompt window displays an error message such as the following:

If there are errors or warnings, or if the backup does not finish successfully, review the <file name>.export.log file in the backup folder.

## Use Central Administration to export a site, list, or document library

You can use Central Administration to export a site, list, or document library. You can only export one site, list, or document library at a time.

### To export a site, list, or document library by using Central Administration

1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, on the Home page, click **Backup and Restore**.
3. On the Backup and Restore page, in the **Granular Backup** section, click **Export a Site or List**.
4. On the Site or List Export page, in the **Site Collection** section, select the site collection from the **Site Collection** list, and then select the site from the **Site** list.
5. If you are exporting a site, skip this step: Select the list or document library from the **List** list.
6. In the **File Location** section, in the **Filename** box, type the UNC path of the shared folder and the file to which you want to export the list or document library. The file name must use the .cmp extension.
7. If the file already exists and you want to use this file, select the **Overwrite existing files** check

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box. Otherwise, specify a different file name.

8. If you want to export all the security and permissions settings with the site, in the **Export Full Security** section, select the **Export full security** check box.
9. If you want to specify which version of the site to export, select one of the following versions from the **Export versions** list:
  - All Versions
  - Last Major
  - Current Version
  - Last Major and Last Minor
10. When you have specified the settings that you want, click **Start Export**.
11. You can view the status of all backup jobs at the top of the Granular Backup Job Status page. You can view the status of the current backup job in the **Content Export** section of the page. The status page updates every 30 seconds automatically. You can manually update the status details by clicking **Refresh**. Backup and recovery are Timer service jobs. Therefore, it may take several seconds for the backup to start.

If you receive any errors, you can review them in the **Failure Message** column of the Backup and Restore Job Status page. You can also find more details in the <file name>.export.log file at the UNC path that you specified in step 4.

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# Import a site, list, or document library (Search Server 2010)

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You can use importing as a method of restoring items or as a method of moving or copying the items from one farm to another farm. You can import a site, such as a Search Center site from a backup of the current farm, from a backup of another farm, or from a read-only content database. To import from a read-only content database, you must first attach the read-only database. For more information, see [Attach and restore a read-only content database \(Search Server 2010\)](#).

Although you can use either Windows PowerShell or Central Administration to export a site, list, or document library, you can use only Windows PowerShell to import a site, list, or document library. For information about how to export sites, lists or libraries, see [Export a site, list, or document library \(Search Server 2010\)](#).



## Important:

You cannot import a site, list or document library exported from one version of Microsoft Search Server to another version of Search Server.

## Import a site, list or document library

You can use Windows PowerShell to manually import a site, list, or document library or as part of a script that can be run at regular intervals.

### ▶ To import a site, list or document library by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See [Add-SPShellAdmin](#).
2. In the SharePoint 2010 Management Shell, at the Windows PowerShell command prompt, type the following command:

```
Import-SPWeb -Identity <ID> -Path <FileName> -Verbose -Force -NoFileCompression
```

Where:

- <ID> is URL or GUID of the site, list, or library.
- <FileName> is the Universal Naming Convention (UNC) path and file name of the file from which to import the site.

This command overwrites the site that you specified because it uses the **Force** parameter. Using the **NoFileCompression** parameter can lower resource usage up to 30% during the export and import process. If you are importing a site, list, or document library that you exported from Central Administration, or if you exported a site, list, or document library by using Windows PowerShell and you did not use the **NoFileCompression** parameter in the **Export-SPWeb** cmdlet, you cannot use this parameter in the **Import-SPWeb** cmdlet.



## Note:

There is no facility in the **Import-SPWeb** cmdlet import a subset of the items in the

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export file. Therefore, the import operation will import everything from the file.

For more information, see [Import-SPWeb](http://technet.microsoft.com/library/2ecc5b6e-1b23-4367-a966-b7bd3377db3a(Office.14).aspx) ([http://technet.microsoft.com/library/2ecc5b6e-1b23-4367-a966-b7bd3377db3a\(Office.14\).aspx](http://technet.microsoft.com/library/2ecc5b6e-1b23-4367-a966-b7bd3377db3a(Office.14).aspx)).

3. If you do not use the **Verbose** parameter, the Command Prompt window displays no message if the operation succeeds. If the job does not finish successfully, the Command Prompt window displays an error message such as the following:

```
Import-SPWeb: <Error Message>. At line: <line> char:<column>. + import-spweb <<<< <
parameters>
```

If there are errors or warnings, or if the operation does not finish successfully, review the *<File Name>.import.log* file.

### **See Also**

[Export a site, list, or document library \(Search Server 2010\)](#)

---

# Attach and restore a read-only content database (Search Server 2010)

---

The information in this section does not apply to Microsoft Search Server 2010 Express. It applies to the full version of Microsoft Search Server 2010 only.

A Microsoft Search Server 2010 farm in which content databases have been set to be read-only can be part of a failure recovery environment that runs against mirrored or log-shipped content databases or part of a highly available maintenance or patching environment that provides user access when another version of the farm is being updated. When you re-attach the read-only databases, they become read-write.

## Use Windows PowerShell to attach and restore a read-only content database

You can only use Windows PowerShell to attach and restore a read-only content database.

### To attach and restore a read-only content database by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See [Add-SPShellAdmin](#).
2. On the **Start** menu, click **All Programs**.
3. Click **SharePoint 2010 Products**.
4. Click **SharePoint 2010 Management Shell**.
5. At the Windows PowerShell command prompt, type the following command:

```
Mount-SPContentDatabase -Name <DatabaseName> -WebApplication <WebApplicationID> -  
Verbose
```

Where:

- *<DatabaseName>* is the name of the content database that you want to attach.
- *<WebApplicationID>* is the identity of the Web application to which you want to associate the content database.

If you do not use the **Verbose** parameter, the Command Prompt window displays no message if the operation succeeds. If the operation does not finish successfully, the Command Prompt window displays an error message such as the following:

```
Mount-SPContentDatabase : <context-specific error message>. At line: <line> char:<column>.  
+ <cmdlet> <<<< <location of error>
```



#### Note:

Attaching a content database by using the **Mount-SPContentDatabase** cmdlet differs from attaching a database in SQL Server by using SQL Server tools. **Mount-SPContentDatabase** associates the content database with a Web application so that the

---

contents can be read.

For more information, see [Mount-SPContentDatabase](#)

([http://technet.microsoft.com/library/20d1bc07-805c-44d3-a278-e2793370e237\(Office.14\).aspx](http://technet.microsoft.com/library/20d1bc07-805c-44d3-a278-e2793370e237(Office.14).aspx)).



**Note:**

We recommend that you use Windows PowerShell when performing command-line administrative tasks. The Stsadm command-line tool has been deprecated, but is included to support compatibility with previous product versions.

---

# Manage search topology (Search Server 2010)

---

Search Server 2010 has several search topology components. You can scale out these components to multiple servers to increase performance, capacity, and availability of the search system.



## Note

The topics in this section describe the purpose of the search topology components and the ways to add or remove search topology components in a server farm.

- [Add or remove an index partition \(Search Server 2010\)](#)
- [Add or remove a query component \(Search Server 2010\)](#)
- [Add or remove a crawl database \(Search Server 2010\)](#)
- [Add or remove a crawl component \(Search Server 2010\)](#)
- [Add or remove a property database \(Search Server 2010\)](#)
- [Add or remove a host distribution rule \(Search Server 2010\)](#)

---

# Add or remove an index partition (Search Server 2010)

---



## Note

In Search Server 2010, an index partition is a group of query components. Each query component holds a subset of the full text index and returns search results to the query originator. Each index partition is associated with a specific property database that contains metadata associated with a specific set of crawled content. You can distribute the load of query servicing by adding index partitions to a Search service application and placing their query components on different farm servers.

You assign a server to service queries by creating a query component on that server. If you want to balance the load of servicing queries across multiple farm servers, add query components to an index partition and associate them with the servers that you want to service queries. For more information, see [Add or remove a query component \(Search Server 2010\)](#).



## Note:

When you create a new index partition, the first query component in the index partition is created automatically.

## To add an index partition to a Search service application



1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, in the **Application Management** section, click **Manage service applications**.
3. On the Service Applications page, click the name of the Search service application to which you want to add an index partition.
4. On the Search Administration page, in the **Search Application Topology** section, click the **Modify** button.
5. On the Manage Search Topology page, click **New**, and then click **Index Partition and Query Component**.
6. In the **Add Query Component** dialog box, in the **Server** list, click the farm server to which you want to add the first query component of the new index partition.
7. In the **Associated Property Database** list, click the property database that you want to associate with the new index partition.
8. In the **Location of Index** field, you can optionally enter the location on the server that you want to use for storage of the index files after the index partition receives them from the crawl

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components. If you want to accept the default location, leave the contents of this field unchanged.

9. In the **Failover-only Query Component** section, you can select the **Set this query component as failover-only** check box if you want the query component to receive queries only in the event of a failure of the primary query component in the same index partition. If you are creating a new index partition, you should leave this box unchecked. You can add a failover-only query component to the index partition later if it is necessary.
10. Click **OK** to add the new index partition and its first query component to the job queue.
11. On the Manage Search Topology page, click the **Apply Topology Changes** button to start the SharePoint timer job that will add the new index partition and its first query component to the specified server.



**Note:**

You can make other changes to the Search topology and then apply them at the same time by clicking the **Apply Topology Changes** button.

## To remove an index partition from a Search service application

You can remove an index partition from a Search service application, which also removes all index files associated with the index partition. To remove an index partition, you delete all query components that are associated with the index partition, as described in the following procedure.



1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, in the **Application Management** section, click **Manage service applications**.
3. On the Service Applications page, click the name of the Search Service Application from which you want to remove an index partition.
4. On the Search Administration page, in the **Search Application Topology** section, click the **Modify** button.
5. On the Manage Search Topology page, click any query component in the index partition that you want to remove, and then click **Delete**.
6. In the message box that appears, click **OK** to delete the query component.
7. Repeat steps 4-5 for every query component in the index partition that you want to remove. Removing the last query component also removes the index partition.



**Note:**

If you remove all the query components from an index partition, the index partition is completely removed from the farm and all the data from the partition is copied and distributed into the remaining partitions. Depending on resource availability and the

---

volume of data in the partition, this operation might take a long time and affect farm performance. You cannot remove the last remaining index partition in a given Search Service Application.

8. On the Manage Search Topology page, click the **Apply Topology Changes** button to start the SharePoint timer job that will remove the index partition and its query components from the farm.



**Note:**

You can make other changes to the Search topology and then apply them all at the same time by clicking the **Apply Topology Changes** button.

---

# Add or remove a query component (Search Server 2010)

---



## Note

In Search Server 2010, query components return search results to the query originator. Each query component is part of an index partition, which is associated with a specific property database that contains metadata associated with a specific set of crawled content. You can distribute query load by adding mirror query components to an index partition and placing them on different farm servers. For more information about index partitions, see [Add or remove an index partition \(Search Server 2010\)](#).

Typically, a given index partition contains one or two query components depending on whether you want to provide load balancing or failover capabilities to the index partition. You can add more than two query components to an index partition, but in general, we recommend that in such cases, you instead create a new index partition.

You assign a server to service queries by creating a query component on that server. If you want to balance the load of servicing queries across multiple farm servers, add mirror query components to an index partition and associate them with the servers you want to service queries.



## Note:

When you create a new index partition, the first query component in the index partition is created automatically.

## To add a query component to an index partition



1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, in the Application Management section, click **Manage service applications**.
3. On the Service Applications page, click the name of the Search service application to which you want to add a query component.
4. On the Search Administration page, in the Search Application Topology section, click the **Modify** button.
5. On the Manage Search Topology page, click a query component in the index partition that you want to modify, and then click **Add Mirror**.
6. In the **Add mirror query component** dialog box, in the **Server** field, select the farm server to which you want to add the query component.
7. The **Associated Property Database** field displays the property database that is associated with the index partition that you are modifying. This field cannot be changed while adding a

---

mirror query component to an index partition.

8. In the **Location of Index** field, you can optionally specify the location on the server that will be used for storage of the index files after receiving them from the crawl components. If you want to accept the default location, leave the contents of this field unchanged.
9. In the **Failover-only Query Component** section, you can select the **Set this query component as failover-only** check box if you want the query component to receive queries only in the event of a failure of the primary query component in the same index partition.
10. Click **OK** to add the new mirror query component to the job queue.
11. On the Manage Search Topology page, click the **Apply Topology Changes** button to start the SharePoint timer job that will add the new mirror query component to the selected index partition.



**Note:**

You can make other changes to the Search topology and then apply them all at the same time by clicking the **Apply Topology Changes** button.

## To remove a query component from an index partition



1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, in the Application Management section, click **Manage service applications**.
3. On the Service Applications page, click the name of the Search Service Application from which you want to remove a query component.
4. On the Search Administration page, in the **Search Application Topology** section, click the **Modify** button.
5. On the Manage Search Topology page, click the query component that you want to remove, and then click **Delete**.
6. In the message box that appears, click **OK** to add the removal of the query component to the job queue.
7. On the Manage Search Topology page, click the **Apply Topology Changes** button to start the SharePoint timer job that will remove the query component from the selected index partition.



**Note:**

If you remove all of the query components from an index partition, the index partition is removed from the farm completely and all the data from the partition is copied and distributed into the remaining partitions. Depending on resource availability and the volume of data in the partition, this operation might take a long time and might affect farm performance. You cannot remove the last remaining index partition in a given

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Search service application.



**Note:**

You can make other changes to the Search topology and then apply them all at the same time by clicking the **Apply Topology Changes** button.

---

# Add or remove a crawl database (Search Server 2010)

---



## Note

In Search Server 2010, a crawl database contains data related to the location of content sources, crawl schedules, and other information specific to crawl operations for a specific Search service application. You can distribute the database load by adding crawl databases to different computers that are running SQL Server. Crawl databases are associated with crawl components, and can be dedicated to specific hosts by creating host distribution rules. For more information about crawl components, see [Add or remove a crawl component \(Search Server 2010\)](#). For more information about host distribution rules, see [Add or remove a host distribution rule \(Search Server 2010\)](#).

## To add a crawl database to a Search service application



1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, in the Application Management section, click **Manage service applications**.
3. On the Service Applications page, click the name of the Search service application to which you want to add a crawl database.
4. On the Search Administration page, in the **Search Application Topology** section, click the **Modify** button.
5. On the Manage Search Topology page, click **New**, and then click **Crawl Database**.
6. In the **Add Crawl Database** dialog box, in the **Add Crawl Database** section, specify a database server to which you want to add the crawl database, the database name, and database authentication information. By default, the **Database Server** field contains the host name and instance that is used to store the farm's configuration database, and the **Database Name** field is pre-populated with a suggested name.
7. In the **Failover Database Server** field, you can optionally specify a failover database server that is used in conjunction with SQL Server database mirroring.



### Important:

Do not enter a server name into this field unless SQL Server database mirroring is currently configured and operational.

8. In the **Dedicated Database** section, you can select the **Dedicate this crawl store to hosts as specified in Host Distribution Rules** check box if appropriate.

**Note:**

It is not possible to set a crawl store (that is, a crawl database) as dedicated after it has been created.

9. Click **OK** to add the new crawl database to the job queue.
10. On the Manage Search Topology page, click the **Apply Topology Changes** button to start the SharePoint timer job that will add the new crawl database to the specified SQL Server computer and make it available for association with crawl components.

**Note:**

You can make other changes to the Search topology and then apply them all at the same time by clicking the **Apply Topology Changes** button.

## To remove a crawl database from a Search service application

**Important:**

Before you can delete a crawl database, you must remove associations with any crawl components, either by removing the crawl components or by assigning them to a different crawl database. If any crawl components are currently associated with the crawl database, the **Delete** option will not appear when you click the crawl database.



1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, in the Application Management section, click **Manage service applications**.
3. On the Service Applications page, click the name of the Search service application from which you want to remove a crawl database.
4. On the Search Administration page, in the **Search Application Topology** section, click the **Modify** button.
5. On the Manage Search Topology page, click the crawl database that you want to remove, and then click **Delete**.

**Note:**

If any crawl components are currently associated with the crawl database, the **Delete** option will not appear when you click the crawl database.

6. In the message box, click **OK** to add the removal of the crawl database to the job queue.
7. On the Manage Search Topology page, click the **Apply Topology Changes** button to start the SharePoint timer job that will delete the crawl database from the specified SQL Server computer and remove it from the farm.



**Note:**

You can make other changes to the Search topology and then apply them all at the same time by clicking the **Apply Topology Changes** button.

---

# Add or remove a crawl component (Search Server 2010)

---



## Note

In Search Server 2010, crawl components process crawls of content sources, propagate the resulting index files to query components, and add information about the location and crawl schedule of content sources to their associated crawl databases. Crawl components are associated with a single Search service application. You can distribute the crawl load by adding crawl components to different farm servers.

You assign a farm server to participate in crawling by creating a crawl component on that server. If you want to balance the load of servicing crawls across multiple farm servers, add crawl components to the farm and associate them with the servers that you want to crawl content.

## To add a crawl component to a Search service application



1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, in the Application Management section, click **Manage service applications**.
3. On the Service Applications page, click the name of the Search service application to which you want to add a crawl component.
4. On the Search Administration page, in the **Search Application Topology** section, click the **Modify** button.
5. On the Manage Search Topology page, click **New**, and then click **Crawl Component**.
6. In the **Add Crawl Component** dialog box, in the **Server** list, click the farm server to which you want to add the crawl component.
7. In the **Associated Crawl Database** list, click the crawl database that you want to associate with the new crawl component.
8. In the **Temporary Location of Index** field, you can optionally enter the location on the server that will be used for creating the index files before propagating them to the query components. If you want to accept the default location, leave the contents of this field unchanged.
9. Click **OK** to add the new crawl component to the job queue.
10. On the Manage Search Topology page, click the **Apply Topology Changes** button to start the SharePoint timer job that will add the new crawl component to the farm on the specified server.

**Note:**

You can make other changes to the Search topology and then apply them all at the same time by clicking the **Apply Topology Changes** button.

## To remove a crawl component from a Search service application



1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, in the Application Management section, click **Manage service applications**.
3. On the Service Applications page, click the name of the Search service application to which you want to add a crawl component.
4. On the Search Administration page, in the **Search Application Topology** section, click the **Modify** button.
5. On the Manage Search Topology page, click the crawl component that you want to remove, and then click **Delete**.
6. In the message box that appears, click **OK** to add the removal of the crawl component to the job queue.
7. On the Manage Search Topology page, click the **Apply Topology Changes** button to start the SharePoint timer job that will delete the crawl component from the farm.

**Note:**

You can make other changes to the Search topology and then apply them all at the same time by clicking the **Apply Topology Changes** button.

---

# Add or remove a property database (Search Server 2010)

---



## Note

In Search Server 2010, property databases contain metadata that is associated with crawled content. You can distribute the database load of queries by adding property databases to different computers that are running SQL Server. Property databases are associated with index partitions, and return any metadata that is associated with content in query results. For more information about index partitions, see [Add or remove an index partition \(Search Server 2010\)](#).

## To add a property database to a farm



1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, in the **Application Management** section, click **Manage service applications**.
3. On the Service Applications page, click the name of the Search service application to which you want to add a property database.
4. On the Search Administration page, in the **Search Application Topology** section, click the **Modify** button.
5. On the Manage Search Topology page, click **New**, and then click **Property Database**.
6. In the **Add Property Database** dialog box, in the **Add Property Database** section, specify a database server to which you want to add the property database, the database name, and database authentication information. By default, the **Database Server** field contains the host name and instance that is used to store the farm's configuration database, and the **Database Name** field is pre-populated with a suggested name.
7. In the **Failover Database Server** field, you can optionally specify a failover database server that is used in conjunction with SQL Server database mirroring.



### Important:

Do not enter a server name in this field unless SQL Server database mirroring is currently configured and operational.

8. Click **OK** to add the new property database to the job queue.
9. On the Manage Search Topology page, click the **Apply Topology Changes** button to start the SharePoint timer job that will add the new property database to the selected SQL Server computer and make it available for association with index partitions.



### Note:

---

You can make other changes to the Search topology and then apply them all at the same time by clicking the **Apply Topology Changes** button.

## To remove a property database from a farm



### Important:

Before you can delete a property database, you must first remove any associations with any query components either by removing the query components or by assigning them to a different property database. If any query components are currently associated with the property database, the **Delete** option will not appear when you click the property database.



1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, in the Application Management section, click **Manage service applications**.
3. On the Service Applications page, click the name of the Search service application from which you want to remove a property database.
4. On the Search Administration page, in the **Search Application Topology** section, click the **Modify** button.
5. On the Manage Search Topology page, click the property database that you want to remove, and then click **Delete**.



### Note:

If any query components are currently associated with the property database, the **Delete** option will not appear when you click the property database.

6. In the message box that appears, click **OK** to add the removal of the property database to the job queue.
7. On the Manage Search Topology page, click the **Apply Topology Changes** button to start the SharePoint timer job that will delete the property database from the specified computer that is running SQL Server and remove it from the farm.



### Note:

You can make other changes to the Search topology and then apply them all at the same time by clicking the **Apply Topology Changes** button.

---

# Add or remove a host distribution rule (Search Server 2010)

---



## Note

In Search Server 2010, host distribution rules are used to associate a host with a specific crawl database. By default, hosts are load-balanced across crawl databases based on space availability. However, you may want to assign a host to a specific crawl database for availability and performance optimization. For more information about crawl databases, see [Add or remove a crawl database \(Search Server 2010\)](#).

## To add a host distribution rule



1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group.
2. In Central Administration, in the **Application Management** section, click **Manage service applications**.
3. On the Service Applications page, click the name of the Search service application to which you want to add a host distribution rule.
4. On the Search Administration page, in the Quick Launch, click **Host Distribution Rules**.
5. On the Host Distribution Rules page, click **Add Distribution Rule**.



## Note:

If there is only one crawl database in the Search service application, you cannot add a host distribution rule, and this option will not appear.

6. On the Add Host Rule page, in the **Hostname** field, enter the name of the host to which this rule applies.
7. In the **Distribution Configuration** list, select the crawl database that you want to participate in the crawl of this host.
8. Click **OK** to add the new mirror query component to the job queue.
9. On the Host Distribution Rules page, click **Apply Changes**.
10. Click **OK** to apply the rule.

## To remove a host distribution rule



1. Verify that the user account that is performing this procedure is a member of the Farm

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Administrators group.

2. In Central Administration, in the Application Management section, click **Manage service applications**.
3. On the Service Applications page, click the name of the Search service application from which you want to remove a host distribution rule.
4. On the Search Administration page, in the Quick Launch, click **Host Distribution Rules**.
5. On the Host Distribution Rules page, point to the host distribution rule that you want to delete, click the arrow that appears, and then click **Delete**.
6. In the message box that appears, click **OK** to add the removal of the host distribution rule to the job queue.
7. On the Host Distribution Rules page, click **Apply Changes**.
8. Click **OK** to delete the rule.

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## Manage farm-level search settings (Search Server 2010 Express)

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You can perform the following procedures to manage farm-level search settings:

- [Configure farm-level proxy server settings \(Search Server 2010 Express\)](#)
- [Configure search time-out settings \(Search Server 2010 Express\)](#)
- [Configure SSL certificate warning settings \(Search Server 2010 Express\)](#)

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## Configure farm-level proxy server settings (Search Server 2010 Express)

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You must configure proxy server settings if a crawler must use a proxy server to crawl content. This is often the case when crawling Internet content.

### ▶ To configure farm-level proxy server settings

1. Verify that the user account that is performing this procedure is an administrator for the search service application.
2. In Central Administration, in the Quick Launch, click **General Application Settings**.
3. On the General Application Settings page, in the **Search** section, click **Farm Search Administration**.
4. On the Farm Search Administration page, in the **Farm-Level Search Settings** section, click the value of the **Proxy server** setting.
5. In the **Search Proxy Setting** dialog box, select **Do not connect by using a proxy server** if you do not want the crawler to use a proxy server. Select **Use the proxy server specified** if you want the crawler to use a proxy server when crawling content. If you select this option, configure the following options:
  - In the **Address** box, type the URL of the proxy server.
  - In the **Port** box, if the proxy server is not using the default port, type the port number that the proxy server is using.
  - If you do not want the crawler to use the proxy server when crawling within the intranet, select the **Bypass proxy server for local (intranet) addresses** check box.
  - In the **Do not use proxy server for addresses beginning with** box, type the URLs that the crawler can access without going through the proxy server. Separate the addresses with semi-colons.
  - Select the **Use these proxy settings for access to federated sites** check box if you want the search system to go through the proxy server when querying external content repositories.
6. Click **OK**.

---

# Configure search time-out settings (Search Server 2010 Express)

---

You can configure time-out settings that the search system will use before attempting to connect to a content repository or respond to a connection attempt.

▶ **To configure search time-out settings**

1. Verify that the user account that is performing this procedure is an administrator for the search service application.
2. In Central Administration, in the Quick Launch, click **General Application Settings**.
3. On the General Application Settings page, in the **Search** section, click **Farm Search Administration**.
4. On the Farm Search Administration page, in the **Farm-Level Search Settings** section, click the value of the **Time-out (seconds)** setting.
5. In the **Search Time-out Setting** dialog box, in the **Connection time (in seconds)** box, type the number of seconds that you want the search system to wait when attempting to connect to a content repository.
6. In the **Request acknowledgement time (in seconds)** box, type the number of seconds that you want the search system to wait for a content repository to respond to a connection attempt.
7. Click **OK**.

---

## Configure SSL certificate warning settings (Search Server 2010 Express)

---

You can configure whether or not a crawler will crawl a site's content if the site name does not match the site name in the site's Secure Sockets Layer (SSL) certificate.

▶ **To configure SSL certificate warning settings**

1. Verify that the user account that is performing this procedure is an administrator for the Search service application.
2. In Central Administration, in the Quick Launch, click **General Application Settings**.
3. On the General Application Settings page, in the **Search** section, click **Farm Search Administration**.
4. On the Farm Search Administration page, in the **Farm-Level Search Settings** section, click the value of the **Ignore SSL Warnings** setting.
5. In the Search SSL Settings dialog box, select the **Ignore SSL certificate name warnings** check box if you want the crawler to proceed to crawl content even if the site name and the name in the SSL certificate do not match.
6. Click **OK**.

---

## Change the default content access account (Search Server 2010)

---

The default content access account is used to crawl all content. Any content that a content source specifies to which the default content access account does not have access requires a separate crawl rule. To limit the number of crawl rules, use a default content access account that has access to as many content sources as possible.

### Changing the default content access account

Use the following procedure to change the default content access account.

 **To change the default content access account**

1. Verify that the user account that is performing this procedure is a service application administrator for the Search service application for which you want to change the default content access account.
2. On the SharePoint 2010 Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
3. On the Manage Service Applications page, click the Search service application for which you want to change the default content access account.
4. On the Search Service Application: Search Administration page, in the **System Status** section, locate the default content access account, which is in the form Domain\UserName.
5. Click the default content access account name. The **Default Content Access Account** dialog box appears.
6. Type the new domain user account information into the **Account** box and the password into the **Password** box, and then click **OK**.

The Search Service Application: Search Administration page refreshes and the new default content access account item is displayed.

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# Change the contact e-mail address (Search Server 2010)

---

Before you crawl any content, you should first specify a contact e-mail address that will help content owners to contact an administrator if crawl errors or performance issues occur. The contact e-mail address is included in the header information that the search system sends during crawl requests.

## Configure the contact e-mail address

Use this procedure to configure the contact e-mail address.

 **To configure the contact e-mail address**

1. Verify that the user account that is performing this procedure is a service application administrator for the Search service application.
2. On the SharePoint 2010 Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
3. On the Manage Service Applications page, click the Search service application for which you want to configure a contact e-mail address.
4. On the Search Service Application: Search Administration page, locate **Contact e-mail address**. The contact e-mail address is in the form *UserName@Domain.com*.
5. Click the *UserName@Domain.com* text. The **Search Email Setting** dialog box opens.
6. Type the new e-mail address that you want to use in the **E-mail Address** box.
7. Click **OK**.

The Search Administration page refreshes and the new e-mail address is displayed.

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# Configure proxy server settings for search (Search Server 2010)

---

Search administrators can configure crawler proxy server settings for search.

## Configuring the crawler proxy server settings

Use this procedure to configure the proxy server settings. This procedure assumes that you want to use a proxy server when crawling content on a different server.

### ▶ To configure the crawler proxy server settings

1. Verify that the user account that is performing this procedure is a service application administrator for the Search service application.
2. On the SharePoint 2010 Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
3. On the Manage Service Applications page, click the Search service application for which you want to configure a proxy server.
4. On the Search Service Application: Search Administration page, in the **System Status** section, locate the **Proxy server** item. The default setting for the Proxy server item is **None**.
5. Click **None**. The **Search Proxy Setting** dialog box opens.
6. In the **Search Proxy Setting** dialog box, click **Use the proxy server specified**, and then do the following:
  - In the **Address** box, type the NetBIOS name or the IP address of the proxy server.
  - In the **Port** box, type the port to use for this proxy server.
  - To bypass this proxy server when crawling local addresses, select the **Bypass proxy server for local (intranet) addresses** check box.
  - To specify addresses to bypass the proxy server when crawling, type the addresses separated by semicolons in the **Do not use proxy server for addresses beginning with:** box.
  - To specify that the listed settings are used for connection to federated sites, select the **Use these proxy settings for federated sites** box.
7. Click **OK**.

---

# Manage crawling (Search Server 2010 Express)

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You can perform the following procedures to manage crawling:

- [Add, edit, or delete a content source \(Search Server 2010\)](#)
- [Manage crawl rules \(Search Server 2010\)](#)
- [Start, pause, resume, or stop a crawl \(Search Server 2010\)](#)
- [Configure and use the Exchange connector \(Search Server 2010\)](#)
- [Configure and use the Lotus Notes connector \(Search Server 2010\)](#)

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# Add, edit, or delete a content source (Search Server 2010)

---

A *content source* is a set of options that you can use to specify what type of content is crawled, what URLs to crawl, and how deep and when to crawl.

You must create at least one content source before a crawl can occur. After you create a content source, you can edit or delete it at any time.

## Create, edit, or delete a content source

### ▶ To get to the Manage Content Sources page

1. Verify that the user account that is performing this procedure is a service application administrator for the Search service application.
2. On the Home page of the Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
3. On the Manage Service Applications page, click **Search Service Application**.
4. On the Search Administration Page, in the **Crawling** section, click **Content Sources**.

### ▶ To create a content source

1. On the Manage Content Sources page, click **New Content Source**.
2. On the Add Content Source page, in the **Name** section, in the **Name** box, type a name for the new content source.
3. In the **Content Source Type** section, select the type of content that you want to crawl.
4. In the **Start Addresses** section, in the **Type start addresses below (one per line)** box, type the URLs from which the crawler should begin crawling.
5. In the **Crawl Settings** section, select the crawling behavior that you want.
6. In the **Crawl Schedules** section, to specify a schedule for full crawls, select a defined schedule from the **Full Crawl** list. A full crawl crawls all content that is specified by the content source, regardless of whether the content has changed. To define a full crawl schedule, click **Create schedule**.
7. To specify a schedule for incremental crawls, select a defined schedule from the **Incremental Crawl** list. An incremental crawl crawls content that is specified by the content source that has changed since the last crawl. To define a schedule, click **Create schedule**. You can change a defined schedule by clicking **Edit schedule**.

- 
8. To prioritize this content source, in the **Content Source Priority** section, on the **Priority** list, select **Normal** or **High**.
  9. To immediately begin a full crawl, in the **Start Full Crawl** section, select the **Start full crawl of this content source** check box, and then click **OK**.

 **To edit a content source**

1. You can edit a content source to change the schedule on which the content is crawled, the crawl start addresses, the content source priority, or the name of the crawl. Crawl settings and content type cannot be changed when editing a content source.
2. On the Manage Content Sources page, in the list of content sources, point to the name of the content source that you want to edit, click the arrow that appears, and then click **Edit**.
3. After you have made the changes that you want, select the **Start full crawl of this content source** check box, and then click **OK**.

 **Delete a content source**

1. On the Manage Content Sources page, in the list of content sources, point to the name of the content source that you want to delete, click the arrow that appears, and then click **Delete**.
2. Click **OK** to confirm that you want to delete this content source.

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# Manage crawl rules (Search Server 2010)

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You can add a crawl rule to include or exclude specific paths when you crawl content. When you include a path, you can optionally provide alternative account credentials to crawl it. In addition to creating or edit crawl rules, you can test, delete, or reorder existing crawl rules.

In this article:

- [To create or edit a crawl rule](#)
- [To test a crawl rule on a URL](#)
- [To delete a crawl rule](#)
- [To reorder crawl rules](#)

## ▶ To create or edit a crawl rule

1. Verify that the user account that is performing this procedure is a sService application administrator for the Search service application.
2. In Central Administration, in the **Application Management** section, click **Manage Service Applications**.
3. On the Manage Service Applications page, in the list of service applications, click **Search Service Application**.
4. On the Search Administration page, in the Quick Launch, click **Crawl Rules**. The Manage Crawl Rules page appears.
5. To create a new crawl rule, click **New Crawl Rule**. To edit an existing crawl rule, in the list of crawl rules, point to the name of the crawl rule that you want to edit, click the arrow that appears, and then click **Edit**.
6. On the Add Crawl Rule page, in the **Path** section:
  - In the **Path** box, type the path to which the crawl rule will apply. You can use standard wildcard characters in the path.
  - Select the **Follow regular expression syntax when matching this rule** check box to use regular expressions instead of wildcard characters.
  - Select the **Match case** check box if you want the capitalization in the provided path to exactly match the capitalization of the actual path.
7. In the **Crawl Configuration** section, select one of the following options:
  - **Exclude all items in this path**. Select this option if you want to exclude all items in the specified path from crawls. If you select this option, you can refine the exclusion by selecting the following:
    - **Exclude complex URLs (URLs that contain question marks (?))**. Select this option if

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you want to exclude URLs that contain parameters that use the question mark (?) notation.

- **Include all items in this path.** Select this option if you want all items in the path to be crawled. If you select this option, you can further refine the inclusion by selecting any combination of the following:
- **Follow links on the URL without crawling the URL itself.** Select this option if you want to crawl links contained within the URL, but not the starting URL itself.
- **Crawl complex URLs (URLs that contain a question mark (?)).** Select this option if you want to crawl URLs that contain parameters that use the question mark (?) notation.
- **Crawl SharePoint content as HTTP pages.** Normally, SharePoint sites are crawled by using a special protocol. Select this option if you want SharePoint sites to be crawled as HTTP pages instead. When the content is crawled by using the HTTP protocol, item permissions are not stored.

8. In the **Specify Authentication** section, perform one of the following actions:



**Note:**

This option is not available unless the Include all items in this path option is selected in the **Crawl Configuration** section.

- To use the default content access account, select **Use the default content access account**.
- If you want to use a different account, select **Specify a different content access account** and then perform the following actions:
  - a. In the **Account** box, type the user account name that can access the paths that are defined in this crawl rule.
  - b. In the **Password and Confirm Password** boxes, type the password for this user account.
  - c. To prevent basic authentication from being used, select the **Do not allow Basic Authentication** check box. The server attempts to use NTLM authentication. If NTLM authentication fails, the server attempts to use basic authentication unless the **Do not allow Basic Authentication** check box is selected.
- To use a client certificate for authentication, select **Specify client certificate**, expand the **Certificate** menu, and then select a certificate.
- To use form credentials for authentication, select **Specify form credentials**, type the form URL (the location of the page that accepts credentials information) in the **Form URL** box, and then click **Enter Credentials**. When the logon prompt from the remote server opens in a new window, type the form credentials with which you want to log on. You are prompted if the logon was successful. If the logon was successful, the credentials that are required for authentication are stored on the remote site.
- To use cookies, select **Use cookie for crawling**, and then select either of the following options:
  - **Obtain cookie from a URL.** Select this option to obtain a cookie from a Web site or server.
  - **Specify cookie for crawling.** Select this option to import a cookie from your local file system or a file share. You can optionally specify error pages in the **Error pages (semi-**

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colon delimited) box.

9. Click **OK**.

▶ **To test a crawl rule on a URL**

1. Verify that the user account that is performing this procedure is a service application administrator for the Search service application.
2. In Central Administration, in the **Application Management** section, click **Manage Service Applications**.
3. On the Manage Service Applications page, in the list of service applications, click **Search Service Application**.
4. On the Search Administration page, in the Quick Launch, click **Crawl Rules**.
5. On the Manage Crawl Rules page, in the **Type a URL and click test to find out if it matches a rule** box, type the URL that you want to test.
6. Click **Test**. The result of the test appears below the **Type a URL and click test to find out if it matches a rule** box.

▶ **To delete a crawl rule**

1. Verify that the user account that is performing this procedure is a service application administrator for the Search service application.
2. In Central Administration, in the **Application Management** section, click **Manage Service Applications**.
3. On the Manage Service Applications page, in the list of service applications, click **Search Service Application**.
4. On the Search Administration page, in the Quick Launch, click **Crawl Rules**.
5. On the Manage Crawl Rules page, in the list of crawl rules, point to the name of the crawl rule that you want to delete, click the arrow that appears, and then click **Delete**.
6. Click **OK** to confirm that you want to delete this crawl rule.

▶ **To reorder crawl rules**

1. Verify that the user account that is performing this procedure is a service application administrator for the Search service application.
2. In Central Administration, in the **Application Management** section, click **Manage Service Applications**.
3. On the Manage Service Applications page, in the list of service applications, click **Search Service Application**.
4. On the Search Administration page, in the Quick Launch, click **Crawl Rules**.
5. On the Manage Crawl Rules page, in the list of crawl rules, in the **Order** column, specify the crawl rule position that you want the rule to occupy. Other values shift accordingly.

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# Start, pause, resume, or stop a crawl (Search Server 2010)

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When you perform a full crawl, all content specified by the content source is crawled even if the content already exists in the index. To perform a full crawl, you must crawl the content defined in a particular content source individually. Note that using the **Start all crawls** link on the Manage Content Sources page results in all content sources being crawled using an incremental crawl, unless the system detects that a full crawl is required.

▶ **To start, pause, resume, or stop a crawl of a content source**

1. Verify that the user account that is performing this procedure is a service application administrator for the Search service application.
2. In Central Administration, in the Quick Launch, click **Application Management**.
3. On the Application Management page, under **Service Applications**, click **Manage service applications**.
4. On the Service Applications page, in the list of service applications, click the Search service application that you want.
5. On the Search Administration page, in the Quick Launch, under **Crawling**, click **Content Sources**.
6. On the Manage Content Sources page, in the list of content sources, point to the name of the content source that you want, click the arrow that appears, and then click one of the following menu items:
  - **Start Full Crawl**. The value in the **Status** column changes to **Crawling Full** for the selected content source. The value in the **Status** column does not automatically change when the crawl is complete. To update the **Status** column, refresh the Manage Content Sources page by clicking **Refresh**.
  - **Start Incremental Crawl**. The value in the **Status** column changes to **Crawling Incremental** for the selected content source. The value in the **Status** column does not automatically change when the crawl is complete. To update the **Status** column, refresh the Manage Content Sources page by clicking **Refresh**.
  - **Resume Crawl**. The value in the **Status** column changes back to **Crawling Full** or **Crawling Incremental** for the selected content source.
  - **Pause Crawl**. The value in the **Status** column changes to **Paused** for the selected content source.
  - **Stop Crawl**. You must click **OK** to confirm that you want to stop the crawl.

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# Add a file type to the content index (Search Server 2010)

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To add a file type to the content index, you have to add it to the list of file types that are crawled. After you specify a new file type to include in the content index, you must perform a full crawl to ensure that content with the file name extension that is specified by the new file type is included in the content index.

Use the following procedure to add file types.

 **To add file types to the content index**

1. Verify that the user account that is performing this procedure is a service application administrator for the Search service application to which you want to add a file type to include in the content index.
2. On the SharePoint Central Administration home page, in the **Application Management** section, click **Manage service applications**.
3. On the Manage Search Applications page, click the Search service application to which you want to add the file type.
4. On the Search Service Application: Search Administration page, in the Quick Launch, in the **Crawling** section, click **File Types**.
5. On the Search Service Application: Manage File Types page, click **New File Type**.
6. On the Search Service Application: Add File Type page, in the **File extension** text box, type the file name extension of the file type that you want to add.
7. Click **OK**.

The Search Service Application: Manage File Types page opens and the new file type is displayed in the **File name extension** list.

8. Repeat the previous steps for each new file type that you want to add, and then perform a full crawl.

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## Delete a file type from the content index (Search Server 2010)

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To delete a file type from the content index, you have to remove it from the list of file types that are crawled. After you delete a file type and perform a full crawl, content that has the file name extension that is specified by the deleted file type is no longer in the content index. Therefore, after you delete a file type, you must perform a full crawl to ensure that all previous results returned from that file type are removed from the content index.

Use the following procedure to delete a file type from the content index.

### To delete a file type from the content index

1. Verify that the user account that is performing this procedure is a service application administrator for the Search service application for which you want to delete a file type from the content index.
2. On the SharePoint Central Administration home page, in the **Application Management** section, click **Manage service applications**.
3. On the Manage Search Applications page, click the Search service application for which you want to delete a file type from the content index.
4. On the Search Service Application: Search Administration page, in the Quick Launch, in the **Crawling** section, click **File Types**.
5. On the Search Service Application: Manage File Types page, point to the file name extension of the file type that you want to delete, click the arrow that appears, and then click **Delete**.
6. In the confirmation dialog box that appears, click **OK** to confirm deletion of the file name extension. The Search Service Application: Manage File Types page refreshes, and the file name extension that you deleted is no longer in the list.

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## Reset the content index (Search Server 2010)

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You should reset the content index only when you plan to crawl content after you have created a new set of content sources. When you reset the content index, all search results are immediately removed. After you reset the content index, you must perform a full crawl to create a new content index so that a current results set is available to users.

Use the following procedure to reset the content index.

▶ **To reset the content index**

1. Verify that the user account that is performing this procedure is a service application administrator for the Search service application for which you want to reset the content index.
2. On the SharePoint Central Administration home page, in the **Application Management** section, click **Manage service applications**.
3. On the Manage Search Applications page, click the Search service application for which you want to reset the content index.
4. On the Search Service Application: Search Administration page, in the Quick Launch, in the **Crawling** section, click **Index Reset**.
5. On the Search Service Application: Index Reset page, verify that the **Deactivate search alerts during reset** check box is checked, and then click **Reset Now**.
6. In the confirmation dialog box that appears, click **OK** to confirm the content index reset. The Search Service Application: Search Administration page opens and the System Status is displayed.
7. Perform a full crawl.

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## Install connectors (Search Server 2010)

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Microsoft Search Server 2010 can crawl content by using the following indexing connector protocols:

- file
- https
- http
- rb
- rbs
- sps
- sps3
- sps3s
- spsimport
- spss
- sts
- sts2
- sts2s
- sts3
- sts3s

For other types of content, a separate connector is required. Search Server 2010 comes with two indexing connectors: Lotus Notes connector and Exchange connector. You can get other connectors from third-party vendors. If there is no connector for a protocol, you can create custom connectors by using Microsoft SharePoint Designer and Microsoft Visual Studio 2010.

## Install connectors for Exchange and Lotus Notes connectors

The following sections provide overviews for the Exchange and Lotus Notes connectors. The procedures for installing each of these connectors are linked to at the end of each overview section.

### Exchange connector

The Exchange connector enables Search Server 2010 to crawl Microsoft Exchange Server data. The Exchange connector comes installed as part of the default Search Server 2010 installation and requires only configuration to use. For more information about how to configure the Exchange connector, see [Configure and use the Exchange connector \(Search Server 2010\)](#).

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## Lotus Notes connector

The Lotus Notes connector enables Search Server 2010 to crawl Lotus Notes Domino Server data. The Lotus Notes connector comes installed as part of the default Search Server 2010 installation and requires only configuration to use. For more information about how to configure the Lotus Notes connector, see [Configure and use the Lotus Notes connector \(Search Server 2010\)](#).

## Indexing Connector for Documentum

The Indexing Connector for Documentum enables Search Server 2010 to index content that is stored in the EMC Documentum system. The following article describes how to install and configure the Indexing Connector for Documentum: [Configure and use the Documentum connector \(Search Server 2010\)](#) ([http://technet.microsoft.com/library/c800f794-1872-475e-98ad-93b8d2b20a66\(Office.14\).aspx](http://technet.microsoft.com/library/c800f794-1872-475e-98ad-93b8d2b20a66(Office.14).aspx)).

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# Configure and use the Exchange connector (Search Server 2010)

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This article describes how to create a crawl rule and add a content source for crawling Microsoft Exchange Server public folders.

Before you begin, ensure that the crawler has at least Read permission to the public folder.

## Create a crawl rule

This section describes the steps that are required to create a crawl rule. You must create a crawl rule if the default content access account does not have Read permission to the Exchange public folders that you want to crawl.

### To create a crawl rule

1. Verify that the user account that is performing this procedure is an administrator for the Search service application.
2. On the Home page of the SharePoint Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
3. On the Manage Service Applications page, click **Search Service Application**.
4. On the Search Administration page, in the **Crawling** section, click **Crawl Rules**.
5. On the Manage Crawl Rules page, click **New Crawl Rule**.
6. In the **Path** section, in the **Path** box, type a path to be crawled.

When creating a crawl rule, the URL that you type in the **Path** box should be in the following form: *<protocol>://hostname/\**

where *<protocol>* is the protocol that you want to use (typically http or https), and *hostname* is the NetBIOS or fully qualified domain name of the server that is running Exchange Server.

7. In the **Crawl Configuration** section, select one of the following:
  - **Exclude all items in this path (Default)**
  - **Include all items in this path**
8. In the **Specify Authentication** section, select the type of crawl authentication to use. This section is used only when **Include all items in this path** is selected.
9. Click **OK** to add the crawl rule.

## Add a content source for Microsoft Exchange public folders

Use the following procedures to create a content source for Exchange Server public folders. Note that there are two procedures listed that describe separate processes to add a content source based on the

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Exchange Server version. The first procedure describes how to add a content source for Exchange Server 2007 and earlier, the second describes how to add a content source from Exchange Server 2007 with Service Pack 2 (SP2) and later versions. This includes Microsoft Exchange Server 2010.

▶ **To add a content source for Exchange Server 2007 and earlier public folders**

1. Verify that the user account that is performing this procedure is an administrator for the Search service application.
2. On the SharePoint Central Administration Home page, in the **Application Management** section, click **Manage service applications**.
3. On the Manage Service Applications page, click **Search Service Application**.
4. On the Search Administration page, in the **Crawling** section, click **Content Sources**.
5. On the Manage Content Sources page, click **New Content Source**.
6. On the Add Content Source page, in the **Name** box, type the name that you want to use for the content source.
7. In the **Content Source Type** section, select **Exchange Public Folders**.
8. In the **Start Addresses** section, type the URLs for the Exchange Server public folders that you want to crawl. These URLs are typically in one of the following forms:

- *<protocol>://host name/public*  
where *<protocol>* can be http or https, and *host name* is the NetBIOS or fully qualified domain name (FQDN) of the server that is running Exchange Server.
- *<protocol>://host name/public/subfolder*  
where *<protocol>* can be http or https, *host name* is the NetBIOS or FQDN of the server that is running Exchange Server, and *subfolder* is the name of the specific subfolder that you want to crawl.

For example, if you want to crawl all subfolders in the public folder on a server that is named `exch-01` and that is in the `Contoso` domain, and that server does not use SSL, you could type either `http://exch-01/public` or `http://exch-01.contoso.com`. To crawl only a specific subfolder named `Bob` in the same public folder, type `http://exch-01/public/bob` or `http://exch-01.contoso.com/bob`.



**Note:**

For performance reasons, you cannot add the same start addresses to multiple content sources.

9. In the **Crawl Settings** section, select the behavior for the kind of content that you selected.
10. In the **Crawl Schedules** section, you can optionally specify when to start full and incremental crawls:
  - You can create a full crawl schedule by clicking the **Create Schedule** link below the **Full Crawl** list.
  - You can create an incremental crawl schedule by clicking the **Create schedule** link below the **Incremental Crawl** list.

- 
11. Click **OK**.
  12. Repeat steps 4 through 10 for any additional content sources that you want to create.

▶ **To add content sources for Microsoft Exchange 2007 SP2 and later versions public folders**

1. Verify that the user account that is performing this procedure is an administrator for the Search service application.
2. Open a Web browser and navigate to the Outlook Web Access Web page for the Exchange Server that has the public folders that you want to crawl.
3. Log on to Outlook Web Access using any user account that has Read access to the public folders that you want to crawl.
4. Navigate to the public folder that you want to crawl, right-click that folder, and then select **Open in New Window**.
5. When the new window opens, navigate to the new window's address bar and copy the complete URL. This is the Outlook Web Access public folder address.
6. On the SharePoint Central Administration Web site, in the Application Management section, click **Manage service applications**.
7. On the Manage Service Applications page, click **Search Service Application**.
8. On the Search Administration page, in **Crawling** section, click **Content Sources**.
9. Click **New Content Source**.
10. On the Add Content Source page, in the **Name** box, type the name that you want to use for the content source.
11. In the **Content Source Type** section, select **Exchange Public Folders**.
12. In the **Start Addresses** section, paste the Outlook Web Access public folder address that you copied in step 5.
13. In the **Crawl Settings** section, select the behavior for the kind of content that you selected.
14. In the **Crawl Schedules** section, you can optionally specify when to start full and incremental crawls:
  - You can create a full crawl schedule by clicking the **Create Schedule** link below the **Full Crawl** list.
  - You can create an incremental crawl schedule by clicking the **Create schedule** link below the **Incremental Crawl** list.
15. To create the content source, click **OK**.

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# Configure and use the Lotus Notes connector (Search Server 2010)

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This article describes the administrative roles, required software, user accounts, and processes that are required to install and operate the Lotus Notes Client and the Lotus Notes Connector to work with Microsoft Search Server 2010.

## Required administrative roles

The following administrative roles are required to prepare the crawl server to crawl Lotus Notes content that is hosted by one or more Lotus Domino databases:

- Administrator of the Lotus Domino server that you want to crawl
- Server administrator of the crawl server that you want to use to crawl Lotus Notes content
- Service application administrator for the Search service application

## Required software

The following software is required:

- The Lotus C++ API Toolkit for Notes.
- The Lotus Notes client application, available for purchase from IBM.

## User accounts required to crawl Lotus Domino databases

A Domino administrator must grant a Lotus Notes user ID (which represents a Domino user) at least the Reader permission to the Lotus Domino databases and individual documents that you want to crawl. The Domino administrator must also add this Lotus Notes user ID and the Windows domain user account that is assigned to the SharePoint Server Search 14 service (OSearch14) to a mappings database on the Lotus Domino server that you want to crawl.



### Note:

Only the user account that is assigned to the OSearch14 service can be used to crawl Lotus Domino databases. You cannot use the default content access account or a crawl rule to specify a different user account to crawl Lotus Domino databases.

The following table summarizes the user accounts that are required to crawl Lotus Domino databases.

Required account	Comment	Example
Windows domain user account	The user account that is assigned to the OSearch14 service must also be a member of the Administrators group on	Contoso\User1, where Contoso is the domain name and User1 is the name of the Windows domain user

Required account	Comment	Example
	the crawl server.	account.
Lotus Notes user ID	Must be granted at least Reader access on the Lotus Domino databases and on the individual documents that you want to crawl. The Domino certificate also contains this Lotus Notes user ID.	User2  <b>Note:</b> The name of this account and its password do not have to match the Windows domain user account.

More information about this mappings table is provided later in this article.

## Install the Lotus Notes client application

Use the following procedure to install the Lotus Notes client application on the crawl server in the server farm with which you want to crawl a Lotus Domino database. Note that this client application serves as a protocol handler and is used to configure the Notes.ini file. Both are used by the crawler when crawling Lotus Domino databases.

### To install Lotus Notes

1. Verify that the user account that is performing this procedure is a member of the Administrators group on the crawl server and has at least Manager permissions on the Domino server.
2. Copy the Lotus Notes client application to the crawl server that you want to use to crawl Lotus Notes documents.
3. Start the Lotus Notes Installation Wizard.
4. In the **Welcome to the Installation Wizard for Lotus Notes** dialog box, click **Next**.
5. On the License Agreement page, click **I accept the terms in the license agreement**, and then click **Next** to continue.
6. On the Customer Information page, type a user name in the **User Name** box and the name of the organization in the **Organization** box, or accept the default settings, and then click **Next**.
7. On the Installation Path Selection page, specify the path that you want to use for the program and data files, or accept the default installation paths, and then click **Next**.



#### **Note:**

By default, program files are stored in the <SystemDrive>\Program Files\lotus\notes\ folder and data files are stored in the <SystemDrive>\Program Files\lotus\notes\data\ folder, where <SystemDrive> is the drive on which Lotus Notes is installed.

8. On the Custom Setup page, select the program features that you want to install on the local hard disk drive, and then click **Next**.

The following table shows the features and sub-features that are required by the Lotus Notes

connector.

Feature	Sub-feature
Notes Client	Client Help Files
	Domino Enterprise Connection Services (DECS)
Domino Designer	Designer Help

9. On the Ready to Install the Program page, if you do not want Lotus Notes to be the default e-mail program, clear the selection **Make Notes my default e-mail program**.
10. Click **Install**.  
The Installing Lotus Notes page shows the installation status.
11. On the Install Wizard Completed page, click **Finish**.

## Grant permissions on the data folder

Use the following procedure to grant Full Control permissions for the WSS\_WPG group on the <SystemDrive>:\Program Files\Lotus\Notes\Data folder on the crawl server.

### To Grant permissions on the data folder

1. Verify that the user account that is performing this procedure is a member of the Administrators group on the crawl server and has at least Manager permissions on the Domino server.
2. On the crawl server, click **Start**, point to **All Programs**, click **Accessories**, and then click **Windows Explorer**.
3. In Windows Explorer, go to the <SystemDrive>:\Program Files\Lotus\Notes\Data folder, where <SystemDrive> is the drive on which Lotus Notes is installed.
4. Right-click the **Data** folder, and then click **Sharing and Security**.
5. In the **Properties** dialog box, on the **Security** tab, click **Add**.
6. In the **Select the object names to select** box, do one of the following, and then click **OK**:
  - If search is installed on an Active Directory domain controller, type *domain*\WSS\_WPG, where *domain* is the name of the domain that is associated with the domain controller.
  - If search is installed on a server that is not an Active Directory domain controller, type *server*\WSS\_WPG, where *server* is the NetBIOS name of the crawl server.
7. In the **Properties** dialog box, in the **Permissions for WSS\_WPG** section, select the **Allow** box in the **Full control** row, and then click **OK**.

---

## Configure the Lotus Notes client application

Use the following procedure to configure the Lotus Notes client application. Note that the configuration settings selected in this procedure are written to the Notes.ini file, which the crawler uses to discover how to connect to the Lotus Domino server.

### To configure Lotus Notes

1. Verify that the user account that is performing this procedure is a member of the Administrators group on the crawl server and has at least Manager permissions on the Domino server.
2. On the crawl server, click **Start**, point to **All Programs**, point to **Lotus Applications**, and then click **Lotus Notes**.
3. On the Welcome page, click **Next**.
4. On the User Information page, type the user name associated with the Domino certificate in the **Your name** box.
5. Type the hierarchical name of the Domino server that you want to crawl in the **Domino server** box — for example, Contoso/marketing/west.
6. Ensure that **I want to connect to a Domino server** is selected, and then click **Next**.
7. On the Notes ID File page, click **Browse**, and then locate where the certificate is stored. Select the certificate, click **Open**, and then click **Next**.
8. Click **Yes** to copy the certificate to the specified location.



#### Note:

If you are not prompted for a Domino certificate, click **Previous**, and ensure that you have entered the correct information.

9. If a dialog box appears that informs you that you are not authorized to access the specified directory, click **OK** to close the dialog box. Note that this error is expected if the account that you are logged on with does not have access to the mail folder on the Domino server.
10. On the Instant Messaging Setup page, cancel the selection **Setup instant messaging**.
11. Click **Next**.
12. On the Additional Services page, click **Next**.
13. In the **Lotus Notes message** box, click **OK**.

The Lotus Notes Welcome screen appears.

Leave the Lotus Notes client application open. You will need it for the next procedure.

## Verify access to the Lotus Domino database that you want to crawl

Use the following procedure to verify that the certificate that you installed has access to the database that you want to crawl.

---

► **To verify access**

1. Verify that the user account that is performing this procedure is a member of the Administrators group on the crawl server and has at least Manager permissions on the Domino server.
2. In Lotus Notes, click **File**, point to **Database**, and then click **Open**.
3. In the **Open Database** dialog box, select the Lotus Domino server that you want to connect to from the **Server** list.
4. In the **Database** list, select the database that you want to connect to, and then click **Open**.  
The documents that are contained by the database that you selected are displayed in the **Document Name** section. This means that the crawl server has the necessary permissions to crawl these documents.
5. Repeat steps 1 through 3 for each additional database that you want to verify access to.
6. On the **File** menu, click **Exit Notes**.

## Configure security mappings

Use the information in the following table to help you perform the next procedure.

Item	Comment
Mappings database name	Name of the Lotus Domino database that is used to map Lotus Notes user IDs to Windows domain user accounts
Lotus Notes field name	Name of the field in the Lotus Domino database file that is used to store Lotus Notes user IDs
Windows user field name	Name of the field in the Lotus Domino database file that is used to store Windows user names
Form name	Name of the form that stores the <b>Lotus Notes field name</b> and <b>Windows user field name</b> fields
View name	Name of the view for the form that stores the Lotus Notes user IDs to Windows user name mappings  <b>Note:</b> This name is case-sensitive.

## Create the mappings database

Use this procedure to create a mappings database by using Domino Designer. You need only one mappings database for each forest of Domino servers that contain databases that you want to crawl.

---

▶ **To create a mappings database**

1. Verify that the user account that is performing this procedure is a member of the Administrators group on the crawl server and has at least Manager permissions on the Domino server that you want to crawl.
2. On the crawl server, open Domino Designer.
3. Click **File**, point to **Database**, and then click **New**.
4. In the **New Database** dialog box, do the following:
  - a. Select the Domino server from the **Server name** list.
  - b. In the **Title** box, type a title for the new database.

This content automatically populates the **File Name** box, appended with the .nsf file name extension.

Note that if the title that you chose is more than eight characters long, the file name will be truncated.
  - c. Click **OK** to close the **New Database** dialog box.
5. Click **Create**, point to **Design**, and then click **Form**.
6. Click **Create**, and then click **Field**.
7. In the **Field** dialog box, in the **Name** box, type the name that you want to use for this field. Note that this field will be used to store the Lotus Notes user IDs.
8. Close the dialog box to save the field.
9. Click **Create**, and then click **Field**.
10. In the **Field** dialog box, in the **Name** box, type the name that you want to use for this field. Note that this field will be used to store the Windows domain user accounts.
11. Close the dialog box to save the field.
12. Click **File**, click **Save**, and then do the following:
  - a. Type a name for this form in the **Save Form as** box.
  - b. Click **OK** to close the dialog box.
13. On the **Create** menu, point to **Design**, and then click **View**.
14. In the **Create View** dialog box, do the following:
  - a. Type a name for this view in the **View name** box.
  - b. Select **Shared** from the **View type** list.
  - c. Click **OK** to save the view.
15. Open the view that you created in step 13.
16. On the **Objects** tab, select the column that you created in step 10. In the lower right pane, select **Field** and then select the field that has the same name.
17. On the **Objects** tab, select the column that you created in step 12. In the lower right pane, select **Field** and then select the field of the same name.
18. Click **File** and then click **Save** to save the view, and then close Domino Designer.

---

## Add user accounts to the mappings database

Use this procedure to add user accounts to the mappings database using the Lotus Notes client. You should add all accounts which need access to the mappings database and the Domino server.

### To add user accounts to the mappings database

1. Verify that the user account that is performing this procedure is a member of the Administrators group on the crawl server and has at least Manager permissions on the Domino server.
2. On the crawl server, open the Lotus Notes client application.
3. Click **File**, point to **Database**, and then click **Open**.
4. In the **Open Database** dialog box, do the following:
  - a. Select the Domino server from the **Server name** list
  - b. Select the mappings database that you created earlier.
  - c. Click **Open**.
5. In the left pane, select the view that you created for this database.
6. Click **Create**, and then click the name of the form that you created earlier.
7. In the form, in the field that you created to store the Lotus Notes user IDs, type a Lotus Notes user ID that you want to map to a Windows domain user account — for example, ContosoUser. Note that this field is case-sensitive.
8. In the field that you created to map to the Lotus Notes user IDs, type the Windows domain user account that you want to map to the Lotus Notes user ID that you entered in step 6. Note that this must be in the form of domain\user, for example, Contoso\user1.
9. Click **File**, and then click **Save** to save the document.
10. Repeat steps 6 through 8 if you want to add more mappings. Otherwise, go to step 10.
11. When finished, save the form and then close the Lotus Notes client application.

## Restart the crawl server

You must restart the crawl server before continuing to the next procedure.

### Important:

After the crawl server restarts, do not open the Lotus Notes client application again. This is because the Lotus Notes client application might lock files that could cause the following procedures and crawling Lotus Domino databases to fail.

## Register Lotus Notes with the crawl server

Use the following procedure to register Lotus Notes with the operating system of the crawl server.

### To register Lotus Notes

1. Verify that the user account that is performing this procedure is a member of the Administrators

- 
- group on the crawl server.
2. Run **Notessetup.exe** on the crawl server by using the same credentials that are used to provision the Lotus Notes Connector.
  3. On the crawl server, in Windows Explorer, go to the <SystemDrive>:\Program Files\Microsoft Office Servers\14\Bin\1033 folder, where <SystemDrive> is the drive on which Microsoft Search Server 2010 is installed.
  4. Double-click **NotesSetup.exe**.
  5. On the Welcome to the Lotus Notes Index Setup Wizard page, click **Next**.
  6. In the **Register Lotus Notes for use with SharePoint Server 2010** dialog box, do the following:
    - a. In the **Location of the notes.ini file** box, ensure that the correct path of the Notes.ini file is specified. The default path of this file is <SystemDrive>:\Program Files\lotus\notes\notes.ini, where <SystemDrive> is the drive on which Lotus Notes is installed.
    - b. In the **Location of the Lotus Notes install directory** box, ensure that the correct path of the Lotus Notes installation directory is specified. By default, the path of this directory is <SystemDrive>:\Program Files\lotus\notes.
    - c. In the **Password** box, type the password for the user name that is associated with the Domino certificate.
    - d. In the **Confirm Password** box, retype the password for the user name that is associated with the Domino certificate.
  7. We recommend that you leave the **Ignore Lotus Notes security while building the index** box cleared. This allows the crawl to include all all all Lotus Notes documents in the index without restriction. Security for these documents and objects is determined by the mappings table and provides security data without excluding documents from the index.
  8. Click **Next**.
  9. On the Specify Lotus Notes Owner Field to Windows User Name Mapping page, do the following:
    - a. In the **Lotus Notes server name** box, type the NetBIOS name or IP address of the Domino server.
    - b. In the **Lotus Notes database file name** box, type the file name of the Lotus Domino database that maps the Lotus Notes user IDs to Windows domain user accounts. Be sure to include the .nsf file name extension with this name — for example, Mappings.nsf.
    - c. In the **View name** box, type the view name of the Lotus Domino database that stores the Lotus Notes user IDs to Windows user name mappings.
    - d. In the **Lotus Notes field name column title** box, type the name of the column in the Lotus Notes database file that is used to store Lotus Notes user IDs.
    - e. In the **Windows user name column title** box, type the name of the column in the Lotus Notes database file that is used to store the Windows user accounts.
  10. Click **Next**.

- 
11. On the Completing the Lotus Notes Index Setup Wizard page, click **Finish**.

## Provision the Lotus Notes Connector

Use the following procedure to provision Lotus Notes Connector with the operating system of the crawl server.

### To Provision Lotus Notes

1. Verify that the user account that is performing this procedure is a member of the Administrators group on the crawl server.
2. Open SharePoint Central Administration; in the System Settings section click **Manage services on Server**.
3. On the Services on Server page, in the Service column, find the Lotus Notes Connector service.
4. In the Action column, click **Start**.
5. On the Lotus Notes connector settings page, in the application pool section, select **Create new application pool**, and then enter a name for the new application pool.
6. In the Configurable drop-down, select or register the same security account used for installation of the NotesSetup.exe.
7. Click **Provision**.

The Lotus Notes connector is now provisioned and started.

## Restart the OSearch14 service

The server administrator of the crawl server must restart the OSearch14 service before a content source can be created for Lotus Domino databases.

### Important:

Do not use the Services on Server page on the SharePoint Central Administration Web site to restart this service. Doing so resets the content index, which requires you to do a full crawl of all content to rebuild the index.

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# Best practices for using crawl logs (Search Server 2010)

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The crawl log tracks information about the status of crawled content. This log lets you determine whether crawled content was successfully added to the index, whether it was excluded because of a crawl rule, or whether indexing failed because of an error. The crawl log also contains more information about crawled content, including the time of the last successful crawl, the content sources, and whether any crawl rules were applied. You can use the crawl log to diagnose problems with the search experience.

In this article:

- [To view the crawl log](#)
- [Crawl log views](#)
- [Crawl log timer job](#)
- [Troubleshoot common problems](#)

## To view the crawl log

1. Verify that the user account that is performing this procedure is an administrator for the Search service application.
2. In Central Administration, in the Quick Launch, click **Application Management**.
3. On the Application Management page, under **Service Applications**, click **Manage service applications**.
4. On the Service Applications page, in the list of service applications, click the Search service application that you want.
5. On the Search Administration page, in the Quick Launch, under **Crawling**, click **Crawl Log**.
6. On the Crawl Log – Content Source page, click the view that you want.

## Crawl log views

The following table shows the different views that you can select for viewing the status of crawled content.

View	Description
Content Source	Summarizes items crawled per content source. Shows successes, warnings, errors, top-level

View	Description
	<p>errors, and deletes. The data in this view represent the current status of items that are already present in the index per content source. The Object Model provides the data for this view.</p>
Host Name	<p>Summarizes items crawled per host. Shows successes, warnings, errors, deletes, top-level errors, and total. The data in this view represent the current status of items that are already present in the index per host. If your environment has multiple crawl databases, the data is shown per crawl database. The Search Administration database provides the data for this view. You can filter the results by typing a URL in the <b>Find URLs that begin with the following hostname/path:</b> box.</p>
URL	<p>Lets you search the crawl logs by content source or URL or host name and view details of all items that are present in the index. The MSSCrawlURLReport table in the crawl database provides the data for this view. You can filter the results by setting the <b>Status</b>, <b>Message</b>, <b>Start Time</b>, and <b>End Time</b> fields.</p>
Crawl History	<p>Summarizes crawl transactions that were completed during a crawl. There can be multiple crawl transactions per item in a single crawl, so the number of transactions can be larger than the total number of items. This view shows data for three kinds of crawls:</p> <ul style="list-style-type: none"> <li>• <b>Full.</b> Crawls all items in a content source.</li> <li>• <b>Incremental.</b> Crawls items that have been changed since the last full or incremental crawl. This kind of crawl only runs if it is scheduled.</li> <li>• <b>Delete.</b> If start addresses are removed from a content source, a delete crawl removes items associated with the deleted start address from the index before a full or incremental crawl runs. This kind of crawl cannot be scheduled.</li> </ul> <p>The Search Administration database provides the data for this view. You can filter the results by</p>

View	Description
	content source.
Error Message	<p>Provides aggregates of errors per content source or host name. The MSSCrawlURLReport table in the crawl database provides the data for this view. You can filter by content source or host.</p> <p> <b>Note:</b> The filter drop-down box only shows content sources that contain errors. If there is an error against an item that does not appear in the index, the error does not appear in this view.</p>

The Content Source, Host Name, and Crawl History views show data in the following columns:

- **Successes.** Items that were successfully crawled and searchable.
- **Warnings.** Items that might not have been successfully crawled and might not be searchable.
- **Errors.** Items that were not successfully crawled and might not be searchable.
- **Deletes.** Items that were removed from the index and are no longer searchable.
- **Top Level Errors.** Errors in top-level documents, including start addresses, virtual servers, and content databases. Every top-level error is counted as an error, but not all errors are counted as top-level errors. Because the **Errors** column includes the count from the **Top Level Errors** column, top-level-errors are not counted again in the Host Name view.
- **Not Modified.** Items that were modified between crawls.
- **Security Update.** Items whose security settings were crawled because they were modified.

## Crawl log timer job

By default, the data for each view in the crawl log is refreshed every five minutes by the timer job Crawl Log Report for Search Application <Search Service Application name>. You can change the refresh rate for this timer job, but in general, this setting should remain as is.



### Tip:

If you think the crawl log is not showing fresh data, make sure that the timer job has not been paused and has recently run.

### ► To check the status of the crawl log timer job

1. Verify that the user account that is performing this procedure is a member of the Farm Administrators SharePoint group.
2. In Central Administration, in the **Monitoring** section, click **Check job status**.

- 
3. On the Timer Job Status page, click **Job History**.
  4. On the Job History page, find Crawl Log Report for Search Application <Search Service Application name> for the Search service application that you want and review the status.

▶ **To change the refresh rate for the crawl log timer job**

1. Verify that the user account that is performing this procedure is a member of the Farm Administrators SharePoint group.
2. In Central Administration, in the **Monitoring** section, click **Check job status**.
3. On the Timer Job Status page, click **Job History**.
4. On the Job History page, click **Crawl Log Report for Search Application <Search Service Application name>** for the Search service application that you want.
5. On the Edit Timer Job page, in the **Recurring Schedule** section, change the timer job schedule to the interval that you want.
6. Click **OK**.

## Troubleshoot common problems

This section provides information about common crawl log errors, crawler behavior, and actions to take to maintain a healthy crawling environment.

### When an item is deleted from the index

When a crawler cannot find an item that exists in the index because the URL is obsolete or it cannot be accessed due to a network outage, the crawler reports an error for that item in that crawl. If this continues during the next three crawls, the item is deleted from the index. For file-share content sources, items are immediately deleted from the index when they are deleted from the file share.

### “Object could not be found” error for a file share

This error can result from a crawled file-share content source that contains a valid host name but an invalid file name. For example, with a host name and file name of \\ValidHost\files\file1, \\ValidHost exists, but the file file1 does not. In this case, the crawler reports the error "Object could not be found" and deletes the item from the index. The Crawl History view shows:

- Error: 1
- Deletes: 1
- Top Level Errors: 1 (\\ValidHost\files\file1 shows as a top-level error because it is a start address)

The Content Source view shows:

- Errors: 0
- Deletes: 0
- Top Level Errors: 0

---

The Content Source view will show all zeros because it only shows the status of items that are in the index, and this start address was not entered into the index. However, the Crawl History view shows all crawl transactions, whether or not they are entered into the index.

## “Network path for item could not be resolved” error for a file share

This error can result from a crawled file-share content source that contains an invalid host name and an invalid file name. For example, with a host name and file name of \\InvalidHost\files\file1, both \\InvalidHost and the file file1 do not exist. In this case, the crawler reports the error "Network path for item could not be resolved" and does not delete the item from the index. The Crawl History view shows:

- Errors: 1
- Deletes: 0
- Top Level Errors: 1 (\\ValidHost\files\file1 shows as a top-level error because it is a start address)

The Content Source view shows:

- Error: 0
- Deletes: 0
- Top Level Errors: 0

The item is not deleted from the index, because the crawler cannot determine if the item really does not exist or if there is a network outage that prevents the item from being accessed.

## Obsolete start addresses

The crawl log reports top-level errors for top-level documents, or start addresses. To ensure healthy content sources, you should take the following actions:

- Always investigate non-zero top-level errors.
- Always investigate top-level errors that appear consistently in the crawl log.
- Otherwise, we recommend that you remove obsolete start addresses every two weeks after contacting the owner of the site.

### To troubleshoot and delete obsolete start addresses

1. Verify that the user account that is performing this procedure is an administrator for the Search service application.
2. When you have determined that a start address might be obsolete, first determine whether it exists or not by pinging the site. If you receive a response, determine which of the following issues caused the problem:
  - If you can access the URL from a browser, the crawler could not crawl the start address because there were problems with the network connection.
  - If the URL is redirected from a browser, you should change the start address to be the same as the new address.
  - If the URL receives an error in a browser, try again at another time. If it still receives an error after multiple tries, contact the site owner to ensure that the site is available.

- 
3. If you do not receive a response from pinging the site, the site does not exist and should be deleted. Confirm this with the site owner before you delete the site.

## **Access Denied**

When the crawl log continually reports an "Access Denied" error for a start address, the crawler account might not have Read permissions to crawl the site. If you are able to view the URL with an administrative account, there might be a problem with how the permissions were updated. In this case, you should contact the site owner to request permissions. For information about how to set permissions for a crawler, see [Manage crawl rules \(Search Server 2010\)](#).

## **Numbers set to zero in Content Source view during host distribution**

During a host distribution, the numbers in all columns in Content Source view are set to zero. This happens because the numbers in Content Source view are sourced directly from the crawl database tables. During a host distribution, the data from these tables are being moved, so the values remain at zero during the duration of the host distribution.

After the host distribution is complete, run an incremental crawl of the content sources in order to restore the original numbers.

## **Showing file-share deletes in Content Source view**

When documents are deleted from a file-share content source that was successfully crawled, they are immediately deleted from the index during the next full or incremental crawl. These items will show as errors in the Content Source view of the crawl log, but will show as deletes in other views.

## Use search administration reports (Search Server 2010)

Search administration reports help you to determine the health of Search service applications on a Microsoft Search Server 2010 farm. There are three types of search administration reports:

- **Basic search administration reports.** Enabled by default, these reports show high-level monitoring data aggregated from all components for the selected search service application.
- **Advanced search administration reports.** Enabled by default, these reports show more in-depth monitoring data aggregated from all components for the selected search service application.
- **Verbose search administration reports.** After enabling verbose query monitoring for search, this trend report uses per-query data to derive query latency percentiles.



### Note:

To obtain search administration reports, you must have a Microsoft SharePoint Server 2010, Microsoft Search Server 2010, or Microsoft FAST Search Server 2010 for SharePoint environment that contains crawled data and a Search Center. You also have to ensure that the State Service has been enabled through the Farm Configuration Wizard.

The following table shows the four basic search administration reports and the metrics they provide. For each report, you can filter the results by search service application and time. You can also filter the Crawl Rate per Content Source by content source.

Report	Description	Metrics Reported
Crawl Rate per Content Source	Provides a view of recent crawl activity, aggregated by content source. Anchor crawl appears as a separate (virtual) content source. You can filter the report by search service application, time, and content source.	Average items crawled per minute, separated by content source. Accompanying table shows crawl start times, duration, and crawl rate.
Crawl Rate per Type	Provides a view of recent crawl activity, sorted by items and actions for a given URL. These items and actions include modified items, deleted items, retries, errors, and others. You can filter the report by search service application and time.	Average items per minute, separated by type of crawl transaction: <ul style="list-style-type: none"> <li>• Modified: Shows items that were modified and re-crawled.</li> <li>• Not modified: Shows items that were not modified and not crawled.</li> <li>• Security only: shows items for</li> </ul>

Report	Description	Metrics Reported
		<p>which the security attributes were changed.</p> <ul style="list-style-type: none"> <li>• Deleted: Shows items that were deleted from the content source and must be deleted from the index.</li> <li>• Not indexed: Shows items that were crawled but not indexed.</li> <li>• Anchor text: Shows anchor text items crawled.</li> <li>• Retry: Shows crawl retries.</li> <li>• Error: Shows crawl errors.</li> </ul> <p>Accompanying table shows totals for each type of crawl task.</p>
Overall Query Latency	Provides a view of recent query activity, showing latency from the major segments of the query pipeline and query averages per minute. You can filter the report by search service application and time.	<ul style="list-style-type: none"> <li>• Average query count per minute (along the right side of the graph), represented by a light purple line. Usually fluctuates throughout the day.</li> <li>• Average overall query latency per minute (on the left side of the graph), represented by the height of the stacked bars for the major segments of the query pipeline: <ul style="list-style-type: none"> <li>• Server Rendering: Shows time spent for the various web parts in the Web front-end.</li> <li>• Object Model: Shows the time spent for communication between the Web front-end and the search back-end.</li> <li>• Back-end: Shows the time spent querying all index and property databases, removing duplicates, and returning the results to the</li> </ul> </li> </ul>

Report	Description	Metrics Reported
		Object Model.
SharePoint Back-end Query Latency	Provides a view of recent query activity, showing latency details from the index and property database portion of the query pipeline and query averages per minute. You can filter the report by search service application and time. This report is only applicable to queries that go to the Microsoft SharePoint Server 2010 or Microsoft Search Server 2010 back-end.	<p>Average back-end query count per minute (on the right side of the graph), represented by a light purple line. Usually fluctuates throughout the day.</p> <p>Average back-end query latency per minute (on the left side of the graph) for the following back-end tasks:</p> <ul style="list-style-type: none"> <li>• Results Population: Average time spent creating the in memory table to be passed back to the Object Model.</li> <li>• High Confidence Results: Average time spent to retrieve high confidence results for queries.</li> <li>• Multiple Results Retrieval: Average time spent retrieving document metadata, such as title or author, to appear in the query results.</li> <li>• Best Bets: Average time spent determining whether there are best bets available for the query terms.</li> <li>• Final Sort: Average times spent sorting results.</li> <li>• Security Trimming: Average time spent removing items the user doesn't have access to. You can increase the security cache to decrease the values.</li> <li>• Duplicate Removal: Average time spent removing duplicates.</li> <li>• Property Store Query: Average time spent querying the property database for property-</li> </ul>

Report	Description	Metrics Reported
		<p>based queries.</p> <ul style="list-style-type: none"> <li>• Full-text Query: Average time spent querying the full-text index for results. Sustained high values for your environment mean you should probably partition the index.</li> </ul>

The following table shows the three advanced search administration reports and the metrics they provide.

Report	Description	Metrics Reported
Crawl Processing per Activity	Provides a view of where crawl processing occurs in the pipeline. The timings per component are grouped by activity, such as filtering or word breaking. You can filter the report by search service application and time.	<p>Crawl activity in seconds, separated by major task:</p> <ul style="list-style-type: none"> <li>• Waiting: Time spent waiting.</li> <li>• Standard Properties: Time spent retrieving standard properties.</li> <li>• Protocol Handlers: Time spent running protocol handlers.</li> <li>• Initializing Filter: Time spent initializing filters.</li> <li>• Filtering: Time spent filtering.</li> <li>• Word Breaking: Time spent on word breaking.</li> <li>• Process Words: Time spent on processing words.</li> <li>• Chunk Processing: Time spent on processing chunks.</li> <li>• Initializing Document Filtering: Time spent on initializing document filtering.</li> <li>• Completing Document Filtering: Time spent on completing document filtering.</li> </ul>
Crawl Processing per	Provides a view of where crawl	Crawl activity in seconds,

Report	Description	Metrics Reported
Component	processing occurs in the pipeline, per minute. The timings are grouped by component, such as File Protocol Handler or Anchor Plug-in.	separated by component: <ul style="list-style-type: none"> <li>• Waiting: Time spent on waiting.</li> <li>• BCS Protocol Handler: Crawl processing time for the Business Connectivity Services (BCS) protocol handler.</li> <li>• File Protocol Handler: Crawl processing time for the file protocol handler.</li> <li>• HTTP Protocol Handler: Crawl processing time for the HTTP protocol handler.</li> <li>• Lotus Protocol Handler: Crawl processing time for the Lotus protocol handler.</li> <li>• SPS Protocol Handler: Crawl processing time for the Microsoft Office SharePoint Portal Server 2003 protocol handler.</li> <li>• STS3 Protocol Handler: Crawl processing time for the Microsoft Office SharePoint Server 2007 protocol handler.</li> <li>• STS4 Protocol Handler: Crawl processing time for the SharePoint Server 2010 protocol handler.</li> <li>• Other Protocol Handler: Crawl processing time for other protocol handlers.</li> <li>• Initializing Filter: Crawl processing time for the filter initializer.</li> <li>• Filtering: Crawl processing time for the filtering component.</li> <li>• Word Breaking: Crawl</li> </ul>

Report	Description	Metrics Reported
		<ul style="list-style-type: none"> <li>processing time for the word-breaking component.</li> <li>Anchor Plug-in: Crawl processing time for the anchor text plug-in.</li> <li>ARPI Plug-in: Crawl processing time for the ARPI plug-in.</li> <li>Feature Extraction Plug-in: Crawl processing time for the feature extraction plug-in.</li> <li>Indexer Plug-in: Crawl processing time for the indexer plug-in.</li> <li>Matrix Plug-in: Crawl processing time for the matrix plug-in.</li> <li>Scopes Plug-in: Crawl processing time for the scopes plug-in.</li> <li>Gatherer Plug-in: Crawl processing time for the gatherer plug-in.</li> <li>Other: Crawl processing time for other components.</li> </ul>
Crawl Queue	Provides a view of the state of the crawl queue, displaying incoming links to process and outgoing transactions queued.	<ul style="list-style-type: none"> <li>Links to Process: Incoming links to process.</li> <li>Transactions Queued: Outgoing transactions queued.</li> </ul>

The following table shows the verbose search administration report and the metrics it provides.

Report	Description	Metrics Reported
Query Latency Trend	This report provides a view of server-side query latency breakdown by percentile, in addition to the current crawl rate.	<ul style="list-style-type: none"> <li>Crawl Rate (in milliseconds)</li> <li>Query latency (in milliseconds), separated by</li> </ul>

---

Report	Description	Metrics Reported
		percentile



#### Note

- To enable the Query Latency Trend report, you must run the following PowerShell cmdlets:

In this article:

- [Filter data for search administration reports](#)

## Filter data for search administration reports

To view administrative reports, see [View administrative reports \(SharePoint Server 2010\)](#) ([http://technet.microsoft.com/library/d213b668-756f-49ac-b314-883d90aac394\(Office.14\).aspx](http://technet.microsoft.com/library/d213b668-756f-49ac-b314-883d90aac394(Office.14).aspx)). You can filter data for search administration reports by using Central Administration. By default, search administration reports show data for all search applications over the last 12 hours. You can filter report data in the following ways:

- Restrict a report to one or more search service applications
- Restrict a report to a specific time period

### ▶ To restrict a report to one or more search service applications

- Verify that you have the following administrative credentials:
  - To view reports in the **Search administration reports folder**, you must be a member of the Farm Administrators SharePoint group on the computer running the SharePoint Central Administration Web site.
- On the report page, click the filter icon next to the **Application** box.
- In the **Select Filter Value(s)** dialog box, select the search service applications that you want, and then click OK.
- Click the **Apply Filters** button to update the report.

### ▶ To restrict a report to a specific time period

- Verify that you have the following administrative credentials:
  - To view reports in the **Search administration reports folder**, you must be a member of the Farm Administrators SharePoint group on the computer running the SharePoint Central Administration Web site.
- On the report page, click the **Start Date** and **End Date** calendars and times to specify the time period that you want.
- Click the **Apply Filters** button to update the report.

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## Manage queries and results (Search Server 2010 Express)

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You can perform the following procedures to manage queries and results:

- [Manage search scopes \(SharePoint Server 2010\)](http://technet.microsoft.com/library/13c54e36-f09e-4dc1-8611-514c003d0c38(Office.14).aspx) ([http://technet.microsoft.com/library/13c54e36-f09e-4dc1-8611-514c003d0c38\(Office.14\).aspx](http://technet.microsoft.com/library/13c54e36-f09e-4dc1-8611-514c003d0c38(Office.14).aspx))
- [Manage federated locations \(SharePoint Server 2010\)](http://technet.microsoft.com/library/50f1b0ab-c0c1-46d3-9a7c-4974b5d458f2(Office.14).aspx) ([http://technet.microsoft.com/library/50f1b0ab-c0c1-46d3-9a7c-4974b5d458f2\(Office.14\).aspx](http://technet.microsoft.com/library/50f1b0ab-c0c1-46d3-9a7c-4974b5d458f2(Office.14).aspx))

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# Manage search scopes (Search Server 2010 Express)

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A search scope defines a subset of information in the search index. Users can select a search scope when performing a search to restrict search results to the subset of information that they want. Typically, search scopes encompass specific topics and content sources that are important and common to users in the organization. For example, you can create a search scope for all items related to a specific project or for all items related to a specific group in the organization, such as finance or marketing. You can also create a search scope that encompasses several other scopes.

You can set search scopes at both the Search service application level and at the site administration level. Search scopes set at the service application level are available to all sites and site collections within the service application. These scopes cannot be modified or deleted at the site administration level. This topic describes how to create or edit a search scope and how to add or edit a scope rule at the service application level.

## ► To create or edit a search scope at the service application level

1. Verify that the user account that is performing this procedure is a service application administrator for the Search service application.
2. In Central Administration, in the **Application Management** section, click **Manage service applications**.
3. On the Manage Service Applications page, in the list of service applications, click **Search Service Application**.
4. On the Search Administration page, in the Quick Launch, under **Queries and Results**, click **Scopes**. The View Scopes page appears.
5. To create a new scope, click **New Scope**. The Create Scope page appears. To edit an existing scope, in the list of scopes, point to the name of the scope that you want to edit, click the arrow that appears, and then click **Edit Properties and Rules**. On the Scope Properties and Rules page, in the **Scope Settings** section, click **Change scope settings**. The Edit Scope page appears.
6. In the **Title and Description** section, configure the following options:
  - In the **Title** box, type a title for the scope.
  - In the **Description** box, type a description for the search scope that informs administrators of the purpose of the scope.
  - The **Last modified by** box shows your user name and is not configurable.
7. In the **Target Results Page** section, select one of the following options:
  - **Use the default Search Results Page**. Select this option if you want search results from

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this search scope to be presented by using the standard Search Results page (Searchresults.aspx).

- **Specify a different page for searching this scope.** Select this option if you want search results from this search scope to be presented on a custom Web page. If you select this option, in the **Target results page** box, type the URL for the custom search results page.
8. Click **OK** to create the scope and return to the View Scopes page.

▶ **To add or edit a scope rule at the service application level**

1. Verify that the user account that is performing this procedure is a service application administrator for the Search service application.
2. In Central Administration, in the **Application Management** section, click **Manage service applications**.
3. On the Manage Service Applications page, in the list of service applications, click **Search Service Application**.
4. On the Search Administration page, in the Quick Launch, under **Queries and Results**, click **Scopes**. The View Scopes page appears.
5. On the View Scopes page, in the list of scopes, point to the name of the scope that you want to edit, click the arrow that appears, and then click **Edit Properties and Rules**.
6. To add a new rule, on the Scope Properties and Rules page, in the **Rules** section, click **New Rule**. The Add Scope Rule page appears. To edit an existing rule, on the Scope Properties and Rules page, in the **Rules** section, click the rule that you want to edit. The Edit Scope Rule page appears.
7. In the **Scope Rule Type** section, select one of the following options:
  - **Web Address.** Select this option if you want the scope to include or exclude content from any resource in the search index that can be identified either by a URL (such as Web sites, file shares, and Microsoft Exchange Server public folders) or by a host name, domain name, or subdomain name.
  - **Property Query.** Select this option if you want the scope to include or exclude content that has a managed property with a particular value. For example, Author="John Doe".
  - **Content Source.** Select this option if you want the scope to include or exclude content that was crawled by using a particular content source.
  - **All Content.** Select this option if the rule should not restrict the scope (the scope will include or exclude all content in the index).
8. In the **Behavior** section, select an option to specify how this rule combines with other rules to define the scope:
  - **Include – Any item that matches this rule will be included, unless the item is excluded by another rule.** Use this option to apply an “OR” rule.
  - **Require – Every item in the scope must match this rule.** Use this option to apply an “AND” rule.
  - **Exclude – Items matching this rule will be excluded from the scope.** Use this option to

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apply an “AND NOT” rule.

For example, if you apply include rules named I1 and I2, require rules named R1 and R2, and exclude rules named E1 and E2, the resulting scope equals the following:

(I1 OR I2) AND R1 AND R2 AND (NOT E1) and (NOT E2)

9. Click **OK**.

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# Manage federated locations (Search Server 2010 Express)

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Federated locations provide information that exists outside of your internal network to your end-users.

## Add, edit, or delete a federated location

### ▶ To go to the Manage Federated Locations page

1. Verify that the user account that is performing this procedure is an administrator for the Search service application.
2. On the Home page of the SharePoint Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
3. On the Service Applications page, click **Search Service Application**.
4. In the Quick Launch on the Search Administration page, in the **Queries and Results** section, click **Federated Locations**.

### ▶ To add a federated location

1. On the Manage Federated Locations page, click **New Location**.
2. On the Add Federated Location page, in the **Location Name** section, in the **Location Name** box, type a name for the new federated location. This name will appear to service application administrators and developers. In the **Display Name** box, type a name that will identify the federated location to service application administrators and site owners.
3. In the Description section, in the **Description** box, type a detailed description for this federated location.
4. In the **Author** section, in the **Author** box, type the name of the author that you want to appear to users of this location.
5. In the **Version** section, in the **Version** box, type a version number for this location.
6. In the **Trigger** section, select one of the following options:
  - **Always: Query should always match.**
  - **Prefix: Query must begin with a specified prefix.** If you select this option, type the prefix in the **Add Prefix** box.
  - **Pattern: Query must match a specified pattern.** If you select this option, type the pattern in the **Add Pattern** box.
7. Expand the **Location Information** section.

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- a. In the **Location Type** section, select one of the following options:
    - **Search Index on this Server**
    - **FAST Index**
    - **OpenSearch 1.0/1.1**
  - b. In the **Query Template** section, in the **Query Template** box, specify the template for passing queries on the selected location.
  - c. In the **"More Results" Link Template** section, in the **"More Results" Link Template** box, type the URL of the page that displays results for a search query.
8. Expand the **Display Information** section, and then configure the following options:
    - a. In the **Federated Search Results Display Metadata** section, clear the **Use Default Formatting** check box to do the following:
      - In the **Sample Data** box, edit the default sample data as necessary.
      - In the **XSL** box, edit the default XSL if necessary.
      - In the **Properties** box, edit the default properties if necessary.
    - b. In the **Core Search Results Display Metadata** section, clear the **Use Default Formatting** check box to do the following:
      - In the **XSL** box, edit the default XSL if necessary.
      - In the **Properties** box, edit the default properties if necessary.
      - In the **Sample Data** box, edit the default sample data as necessary.
    - c. In the **Top Federated Results Display Metadata** section, clear the **Use Default Formatting** check box to do the following:
      - In the **XSL** box, edit the default XSL if necessary.
      - In the **Properties** box, edit the default properties if necessary.
      - In the **Sample Data** box, edit the default sample data as necessary.
  9. Expand the **Restrictions and Credentials Information** section.
    - a. In the **Restrict Usage** section, select one of the following options:
      - **No restriction: All sites can use this location.**
      - **Use restriction: Only allowed sites can use this location.** If you select this option, in the **Allowed Sites** box, type the start addresses, using semicolons to separate the URLs if necessary.

 **To edit a federated location**

1. On the Manage Federated Locations page, point to the location that you want to edit, click the arrow that appears, and then click **Edit Location**.
2. After you have made the changes that you want, click **OK**.

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▶ **To copy a federated location**

1. On the Manage Federated Locations page, point to the location that you want to copy, click the arrow that appears, and then click **Copy Location**.
2. Select the federated location you wish to copy, and then click **OK**.

▶ **To delete a federated location**

1. On the Manage Federated Locations page, point to the location that you want to delete, click the arrow that appears, and then click **Delete Location**.
2. Click **OK** to confirm that you want to proceed with the deletion.

▶ **To import a federated location**

1. On the Manage Federated Locations page, click **Import Location**.
2. On the Import Federated Location page, in the **Location Definition File** section, in the **Federated Location Definition File** box, type the path of the federated location definition (.fkd) file or click the **Browse** button to find the file on the local file system or on the network.
3. Click **OK**.

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## Remove URLs from search results (Search Server 2010)

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A Search service application administrator can exclude specific URLs from being displayed in search results. After an administrator removes a URL, the system removes the URL from the content index and automatically creates a rule that excludes the URL from future crawls.

Use the following procedure to remove URLs from search results.

▶ **To remove URLs from search results**

1. Verify that the user account that is performing this procedure is a service application administrator for the Search service application.
2. On the SharePoint Central Administration home page, click **Manage service applications**.
3. On the Service Applications page, click the Search service application for which you want to remove URLs from search results.
4. On the Search Service Application: Search Administration page, on the Quick Launch, in the **Crawling** section, click **Crawl Log**.
5. On the Search Service Application: Crawl Log – Content Source page, click **URL**.
6. On the Search Service Application: Crawl Log - URL page, point to the URL that you want to remove from the content index, click the arrow that appears, and then click **Remove the item from the index**.
7. In the dialog box that appears, click **OK**.  
The URL is removed from the content index and the following text is appended to the URL:  
**Removed from the search index by Admin. This item will be excluded from future crawls.**
8. Repeat the previous steps for each URL that you want to remove from search results.

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## Manage settings to improve search results (Search Server 2010)

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In Microsoft Search Server 2010, search administrators can configure settings to improve search results in the following ways:

- By using stop word files, search administrators can designate words that the search system should ignore in search queries because those words are unlikely to be helpful for identifying or narrowing search results. For more information, see [Manage stop word files \(Search Server 2010\)](#).
- By using thesaurus files, search administrators can specify replacements or synonyms for words or phrases in user search queries. For more information, see [Manage thesaurus files \(Search Server 2010\)](#).
- By using a custom dictionary, search administrators can specify words or tokens that the word breaker for a particular language treats as indivisible at index time and at query time. For more information, see [Create a custom dictionary \(Search Server 2010\)](#).
- On the Specify Authoritative Pages page, search administrators can designate Web pages as authoritative or non-authoritative. This affects how relevance rankings are calculated, and therefore affects the order in which certain results appear in a search results list. For more information, see [Configure authoritative pages \(Search Server 2010\)](#).

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# Manage stop word files (Search Server 2010)

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The information in this article applies to both Microsoft Search Server 2010 and Microsoft Search Server 2010 Express.

A *stop word*, or noise word, is a word that the search system ignores in end-user search queries. A word might be designated as a stop word because it occurs in the language so frequently that it is unlikely to be helpful for identifying or narrowing search results. Articles such as "an" and "the" are typically specified as stop words for English, for example. If a user types the English query "the highest mountain", "the" is removed from the query if it is a stop word, so that the query becomes "highest mountain". Potentially offensive words are also sometimes specified as stop words.

In this article:

- [Understanding stop word files](http://technet.microsoft.com/library/9685317a-e058-4e4d-b965-f5feffccfea7.aspx#Section1) (<http://technet.microsoft.com/library/9685317a-e058-4e4d-b965-f5feffccfea7.aspx#Section1>)
- [Edit a stop word file](http://technet.microsoft.com/library/9685317a-e058-4e4d-b965-f5feffccfea7.aspx#Section2) (<http://technet.microsoft.com/library/9685317a-e058-4e4d-b965-f5feffccfea7.aspx#Section2>)
- [Stop word files by language](http://technet.microsoft.com/library/9685317a-e058-4e4d-b965-f5feffccfea7.aspx#Section3) (<http://technet.microsoft.com/library/9685317a-e058-4e4d-b965-f5feffccfea7.aspx#Section3>)

## Understanding stop word files

The stop words for a given language are listed in the *stop word file* for that language. The Microsoft Search Server 2010 installation program automatically installs one stop word file for each language that the product supports. Following installation, many of the stop word files contain some typical stop words for the associated language. For example, by default the U.S. English stop word file (noiseenu.txt) contains the words a, and, is, in, it, of, the, to. At any time after product installation, the search administrator can add or remove words in a stop word file to improve relevance of search results or to meet organization standards. For information about adding or removing words in a stop word file, see [Edit a stop word file](http://technet.microsoft.com/library/9685317a-e058-4e4d-b965-f5feffccfea7.aspx#Section2) (<http://technet.microsoft.com/library/9685317a-e058-4e4d-b965-f5feffccfea7.aspx#Section2>) later in this article. For information about supported languages, see [Stop word files by language](http://technet.microsoft.com/library/9685317a-e058-4e4d-b965-f5feffccfea7.aspx#Section3) (<http://technet.microsoft.com/library/9685317a-e058-4e4d-b965-f5feffccfea7.aspx#Section3>) later in this article.

At query time, the word breaker for the language of the query identifies individual words in the search query by determining word boundaries based on the lexical rules of the language. The word breaker then removes any words from the query that are listed in the stop word file.

By default, the stop word files for all supported languages are installed at %ProgramFiles%\Microsoft Office Servers\14.0\Data\Office Servers\Config. When a farm administrator creates a Search service application, the search system automatically copies the stop word files from the installation location (including any stop word files there that a search administrator has edited) to %ProgramFiles%\Microsoft Office Servers\14.0\Data\Applications\GUID\Config, where *GUID* is the GUID of the new Search service application. The search system performs the same operation on every

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query server that is running the new Search service application. In this way, there is a copy of each stop word file on each query server that is running that Search service application.

## Edit a stop word file

If you edit a stop word file in the installation location, the system automatically propagates the edited stop word file to Search service applications that are created afterward. However, the edited stop word file is not automatically propagated to existing Search service applications. For each existing Search service application to which you want the changes to apply, you must manually copy the edited file to the Search service application folder on each query server that is running that Search service application.



### Note

Use the following procedure to edit a stop word file.

#### ► To edit a stop word file

1. Verify that the user account that is performing this procedure is member of the local server Administrators group.
2. Open the stop word file in a text editor. For information about locating and identifying the appropriate stop word file, see [Understanding stop word files](http://technet.microsoft.com/library/9685317a-e058-4e4d-b965-f5feffccfea7.aspx#Section1) (<http://technet.microsoft.com/library/9685317a-e058-4e4d-b965-f5feffccfea7.aspx#Section1>) earlier in this article.
3. Edit the file so that it includes only the words that you want the search system to ignore in search queries.
4. Save the stop word file.



### Note:

When you save a stop word file, always use the default **Encoding** value, which is **Unicode**.

5. Restart the SharePoint Server Search 14 service by following these steps:
  - a. Click **Start**, point to **Administrative Tools**, and then click **Services**.
  - b. Right-click **SharePoint Server Search 14**, and then click **Restart**.Stop word changes take effect after the SharePoint Server Search 14 service restarts.



### Note:

In Microsoft Search Server 2008, the search system excluded stop words from queries and from the index. Therefore, after an administrator removed a word from a stop word file, it was necessary to perform a full crawl to index any instances of that stop word that the crawler might encounter. In contrast, in Search Server 2010, the search system excludes stop words from queries, but by design it does not exclude stop words from the index. Therefore, in Search Server 2010, if you remove a word from a stop word file, it is not necessary to perform a new crawl because the stop word is already in the index if it was encountered during a crawl.

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(If you add a word to a stop word file, it is not necessary to perform a new crawl either, because the search system does not look for stop words in the index.)

## Stop word files by language

When you install Search Server 2010, stop word files are installed for the following languages. If a stop word file does not exist for a language, the search system uses the neutral stop word file `noiseneu.txt`.

Language	Stop word file name
Arabic	<code>noiseara.txt</code>
Bengali	<code>noiseben.txt</code>
Bulgarian	<code>noisebul.txt</code>
Catalan	<code>noisecat.txt</code>
Czech	<code>noiseces.txt</code>
Chinese (Simplified)	<code>noisechs.txt</code>
Chinese (Traditional)	<code>noisecht.txt</code>
Croatian	<code>noisecro.txt</code>
Danish	<code>noisedan.txt</code>
Dutch (Netherlands)	<code>noisenld.txt</code>
English (United Kingdom)	<code>noiseeng.txt</code>
English (United States)	<code>noiseenu.txt</code>
Finnish	<code>noisefin.txt</code>
French	<code>noisefra.txt</code>
German	<code>noisedeu.txt</code>
Greek	<code>noisegr.txt</code>
Gujarati	<code>noiseguj.txt</code>
Hebrew	<code>noiseheb.txt</code>
Hindi	<code>noisehin.txt</code>
Hungarian	<code>noisehun.txt</code>
Icelandic	<code>noiseice.txt</code>
Indonesian	<code>noiseind.txt</code>
Italian	<code>noiseita.txt</code>

Language	Stop word file name
Japanese	noisejpn.txt
Kannada	noisekan.txt
Korean	noisekor.txt
Language neutral	noiseneu.txt
Latvian	noiselav.txt
Lithuanian	noiselit.txt
Malay	noisemal.txt
Malayalam	noisemly.txt
Marathi	noisemar.txt
Norwegian (Bokmal)	noisenor.txt
Polish	noiseplk.txt
Portuguese (Portugal)	noisepor.txt
Portuguese (Brazil)	noiseptb.txt
Punjabi	noisepun.txt
Romanian	noiserom.txt
Russian	noiserus.txt
Serbian (Cyrillic)	noisesbc.txt
Serbian (Latin)	noisesbl.txt
Slovak	noisesvk.txt
Slovenian	noiseslo.txt
Spanish	noiseesn.txt
Swedish	noisesve.txt
Tamil	noisetam.txt
Telugu	noisetel.txt
Thai	noisetha.txt
Turkish	noisetur.txt
Ukrainian	noiseurk.txt
Urdu (Pakistan)	noiseurd.txt

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Language	Stop word file name
Vietnamese	noisevie.txt

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# Manage thesaurus files (Search Server 2010)

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## Note:

The information in this article applies to both Microsoft Search Server 2010 and Microsoft Search Server 2010 Express.

By using thesaurus files, a search administrator can specify replacements or synonyms for words or phrases that occur in search queries.

- **Specifying replacements for query words or phrases** A search administrator can designate one or more words or phrases as replacements for particular words or phrases that a user might type in a search box. For example, an administrator might specify that whenever the term “Longhorn” appears in a query, the search system replaces it with “Windows Vista” or “Vista”. Similarly, an administrator might specify that whenever the term “NT5” or the term “W2K” appears in a query, the search system replaces it with “Windows 2000”.

To specify replacements for query words or phrases, the search administrator inserts a *replacement set* into a thesaurus file. For more information, see [Using replacement sets](#) later in this article.

- **Specifying synonyms for query words or phrases** A search administrator can specify one or more words or phrases as synonyms for a particular word or phrase that a user might type in a search box. For example, an administrator might specify “IE”, “IE8”, and “Internet Explorer” as synonyms for one another. When one of these terms appears in a query, the system also searches for the other terms. Therefore, a query on any of these three terms could return search results that contain “IE”, “IE8”, or “Internet Explorer”.

To specify synonyms for query words or phrases, the search administrator inserts an *expansion set* into a thesaurus file. For more information, see [Using expansion sets](#) later in this article.

In this article:

- [Understanding thesaurus files](#)
- [Using replacement sets](#)
- [Using expansion sets](#)
- [Using a custom dictionary with a thesaurus file](#)
- [Edit a thesaurus file](#)
- [Thesaurus files by language](#)

## Understanding thesaurus files

The Microsoft Search Server 2010 installation program installs a thesaurus file for each language that the product supports. The installation also provides the language-neutral thesaurus file, which is named tsneu.xml. This file is applied to all queries during query processing, regardless of whether there is a thesaurus file that is specific to the query language. For more information, see [Thesaurus files by language](#) later in this article.

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By default, Search Server 2010 installs the thesaurus files for all supported languages at %ProgramFiles%\Microsoft Office Servers\14.0\Data\Office Server\Config. When a search administrator creates a Search service application, the search system automatically copies the thesaurus files from the installation location (including any thesaurus files there that an administrator has edited) to %ProgramFiles%\Microsoft Office Servers\14.0\Data\Applications\GUID\Config, where *GUID* is the GUID of the new Search service application. The search system performs the same operation on every query server that is running the new Search service application. Thus there is a copy of each thesaurus file on each query server that is running that Search service application. Upon installation, each thesaurus file contains only inactive, sample content that is in comments. Therefore, you must edit a thesaurus file before the search system can use it. In addition to replacement sets and expansion sets, thesaurus files contain a “diacritics\_sensitive” tag that specifies whether diacritical marks such as accents are ignored or respected by the search system. By default, diacritics\_sensitive is set to 0 so that diacritical marks are ignored. To direct the search system to respect diacritical marks, change the value of diacritics\_sensitive to 1.

The following example shows the default XML in a thesaurus file:

```
<XML ID="Microsoft Search Thesaurus">

<!-- Commented out

<thesaurus xmlns="x-schema:tsSchema.xml">
  <diacritics_sensitive>0</diacritics_sensitive>
  <expansion>
    <sub>Internet Explorer</sub>
    <sub>IE</sub>
    <sub>IE8</sub>
  </expansion>
  <replacement>
    <pat>NT5</pat>
    <pat>W2K</pat>
    <sub>Windows 2000</sub>
  </replacement>
  <expansion>
    <sub>run</sub>
    <sub>jog</sub>
  </expansion>
</thesaurus>

-->
```

---

</XML>

## Using replacement sets

A search administrator inserts a *replacement set* into a thesaurus file to designate one or more words or phrases as replacements for particular words or phrases that a user might type in a search box. Each replacement set in a thesaurus file is enclosed in <replacement> tags. In the replacement set, the administrator specifies one or more query words or phrases to replace by enclosing each word or phrase in <pat> (pattern) tags, and the administrator specifies one or more replacements by enclosing each replacement in <sub> (substitution) tags. For example, the following replacement set replaces the query term “Longhorn” with “Windows Vista” or “Vista”:

```
<replacement>
  <pat>Longhorn</pat>
  <sub>Windows Vista</sub>
  <sub>Vista</sub>
</replacement>
```

Similarly, the following example shows a replacement set that specifies that the query terms “NT5” and “W2K” are replaced by “Windows 2000”:

```
<replacement>
  <pat>W2K</pat>
  <pat>NT5</pat>
  <sub>Windows 2000</sub>
</replacement>
```

By specifying a pattern with an empty substitution, the search administrator can specify that a query on a particular term returns no results. In the following example, queries for the term “bugs” will not return any results:

```
<replacement>
  <pat>bugs</pat>
  <sub></sub>
</replacement>
```

---

## Using expansion sets

A search administrator uses an *expansion set* in a thesaurus file to designate one or more words or phrases as synonyms of one another. A search query that contains any word or phrase in the expansion set is expanded to include all synonyms in the expansion set. Therefore, a search query that includes any word or phrase in the expansion set also returns search results that contain any of the synonyms in the set.

Each expansion set is enclosed in `<expansion>` tags. In the expansion set, the administrator specifies one or more synonyms by enclosing each synonym in `<sub>` tags. For example, a search administrator might want to specify an expansion set that designates the following three terms as synonyms: writer, author, blogger. To specify this expansion set, the search administrator adds the following lines to the thesaurus file:

```
<expansion>
  <sub>writer</sub>
  <sub>author</sub>
  <sub>blogger</sub>
</expansion>
```

This expansion set specifies that a query on any of the three terms also returns search results that contain either or both of the other two terms.

## Using a custom dictionary with a thesaurus file

The word breaker for a given language identifies individual words in a search query by determining word boundaries according to the lexical rules of the language. If you include a word in a thesaurus file that the word breaker might not recognize as a single word, you should also include the word in a custom dictionary so that the word breaker does not break the word into smaller tokens. For example, if you use the term "IT&T" in an expansion set but you do not include it in a custom dictionary, the word breaker might break the term into three separate terms, "IT", "&", and "T". This can cause the expansion set in the thesaurus file not to work as expected when a user issues a search query for "IT&T". For information about how to create and use custom dictionaries, see [Create a custom dictionary \(Search Server 2010\)](#).

## Edit a thesaurus file

If you edit a thesaurus file in the installation location, the search system automatically propagates the edited file to Search service applications that are created afterward. However, the edited thesaurus file is not automatically propagated to existing Search service applications. For each existing Search service application to which you want the changes to apply, you must manually copy the edited file to the Search service application folder on each query server that is running that Search service application.



#### Note

Use the following procedure to edit a thesaurus file.



#### Note:

When editing a file, you must use matching pairs of opening and closing tags around each entry in the file. If the XML tags in the thesaurus file do not match correctly, an error is logged in the application event log.

#### ▶ To edit a thesaurus file

1. Verify that the user account that is performing this procedure is a member of the Administrators group on the local computer.
2. Open a thesaurus file in a text editor. For information about how to locate and identify the appropriate thesaurus file, see [Understanding thesaurus files](#) earlier in this article.
3. If you are changing the thesaurus file for the first time, remove the `<!-- Commented out` comment line at the beginning of the file, and the `-->` comment line at the end of the file.
4. Edit the thesaurus file as necessary.
5. Save the thesaurus file.



#### Note:

When you save a thesaurus file, always use the default **Encoding** value, which is **Unicode**.

## Restart the SharePoint Server Search 14 service

After you edit a thesaurus file, you must restart the SharePoint Server Search 14 service for the changes to take effect. Thesaurus file changes take effect after the SharePoint Server Search 14 service restarts. It is not necessary to perform a crawl for the changes to take effect.

#### ▶ To restart the SharePoint Server Search 14 service

1. Verify that the user account that is performing this procedure is a member of the Administrators group on the local computer.
2. Click **Start**, point to **Administrative Tools**, and then click **Services**.
3. Right-click **SharePoint Server Search 14**, and then click **Restart**.

Thesaurus file changes take effect after the SharePoint Server Search 14 service restarts.

## Thesaurus files by language

The following thesaurus files are installed automatically and available to use.

Language	File name
Language-neutral	tsneu.xml
Arabic	tsara.xml
Bengali	tsben.xml
Bulgarian	tsbul.xml
Catalan	tscat.xml
Chinese (Simplified)	tschs.xml
Chinese (Traditional)	tscht.xml
Croatian	tscro.xml
Czech	tsces.xml
Danish	tsdan
Dutch (Netherlands)	tsnld.xml
English (United Kingdom)	tseng.xml
English (United States)	tsenu.xml
Finnish	tsfin.xml
French (Standard)	tsfra.xml
German (Standard)	tsdeu.xml
Gujarati	tsguj.xml
Hungarian	tshun.xml
Icelandic	tsice.xml
Indonesian	tsind.xml
Italian	tsita.xml
Japanese	tsjpn.xml
Kannada	tskan.xml
Korean	tskor.xml
Lithuanian	tslit.xml
Malay (Malaysian)	tsmal.xml
Malayalam	tsmly.xml
Marathi	tsmar.xml

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Language	File name
Norwegian (Bokmal)	tsnor.xml
Polish	tsplk.xml
Portuguese (Brazil)	tsptb.xml
Portuguese (Portugal)	tspor.xml
Punjabi	tspun.xml
Romanian	tsrom.xml
Russian	tsrus.xml
Serbian (Cyrillic)	tssbc.xml
Serbian (Latin)	tssbl.xml
Slovak	tssvk.xml
Slovenian	tsslo.xml
Spanish	tsesn.xml
Swedish	tssve.xml
Tamil	tstam.xml
Telugu	tstel.xml
Thai	tstha.xml
Turkish	tstur.xml
Ukrainian	tsukr.xml
Urdu (Pakistan)	tsurd.xml
Vietnamese	tsvie.xml

**See Also**

[Create a custom dictionary \(Search Server 2010\)](#)

[Manage stop word files \(Search Server 2010\)](#)

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# Create a custom dictionary (Search Server 2010)

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**Note:**

The information in this article applies to both Microsoft Search Server 2010 and Microsoft Search Server 2010 Express.

A custom dictionary is a file that an administrator creates to specify tokens that the word breaker of a particular language should treat as indivisible at index time and at query time. Custom dictionary files are not provided with the product. You must create a separate custom dictionary for each language for which you want to modify the behavior of a word breaker.

**Note:**

A custom dictionary for a given language applies to all Search service applications in the server farm.

In this article:

- [Reasons to use a custom dictionary](#)
- [Rules for creating a custom dictionary](#)
- [Create a custom dictionary](#)
- [Copy the custom dictionary to each application server](#)
- [Stop and restart the SharePoint Server Search 14 service on each application server](#)
- [Perform a full crawl](#)
- [Supported languages](#)

## Reasons to use a custom dictionary

To know whether you must have a custom dictionary and what entries it should contain, you must understand the behavior of word breakers. The indexing system uses word breakers to break tokens when it indexes crawled content, and the query processor uses word breakers in queries. In each case, if a custom dictionary exists that supports the language and dialect of the word breaker that is being used, the search system checks for the word in the custom dictionary before it determines whether to use a word breaker for that word. If the word does not exist in the custom dictionary, the word breaker performs its usual actions, which might result in breaking a token into multiple tokens. If the token exists in the custom dictionary, the word breaker does not perform any actions on that token. The following two examples describe typical word breaker behavior and how an entry in the custom dictionary can affect that behavior.

- A word breaker might break the token “IT&T” immediately before and after the ampersand (&), resulting in the three tokens “IT”, “&”, and “T”. However, if the token “IT&T” is in the custom dictionary of the same language as the word breaker that is being used, the word breaker does not break that token (at crawl time or query time). If “IT&T” is in the custom dictionary, and if a

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document does not contain "IT" or "T" but does contain "IT&T", a query that contains "IT" or "T" but not "IT&T" does not return that document in the results set.

- Terms like Chemical Abstracts Service (CAS) registry numbers can be affected by word breakers. For example, word breakers typically split numbers that appear before or after a hyphen or other special character from the rest of the number. For example, the CAS registry number for oxygen is 7782-44-7. After word-breaker processing, this CAS registry number is broken into three parts: the numbers 7782, 44, and 7. Adding the CAS registry numbers that appear in a corpus to a custom dictionary directs the search system to index each number without breaking it into parts.

## Normalizations and thesaurus files

Named-entity normalizations, such as date normalizations, that are ordinarily applied by word breakers are not applied to terms that are in custom dictionaries. Instead, all terms that are in custom dictionaries are treated as a match. This is especially important if you have words or numbers in a thesaurus file. For example, if the CAS registry number 7782-44-7 is part of an expansion set in the thesaurus and the word breaker breaks that number at the hyphens into three separate numbers, the expansion set of which that number is a part might not work as expected. In this case, adding the CAS registry number 7782-44-7 to the custom dictionary of the appropriate language resolves the problem. For information about how to use thesaurus files, see [Manage thesaurus files \(Search Server 2010\)](#)

## Rules for creating a custom dictionary

A custom dictionary is a Unicode-formatted file. Each entry must be on a separate line, separated by a carriage return (CR) and line feed (LF). When you add entries to a custom dictionary, consider the following rules to avoid unexpected results:

- Entries are not case-sensitive.
- The pipe character (|) cannot be used.
- White space cannot be used.
- The number sign character (#) cannot be used at the beginning of an entry but it can be used within or at the end of an entry.
- Except for the pipe, number sign, and white-space characters previously mentioned, any alphanumeric characters, punctuation, symbols, and breaking characters are valid.
- The maximum length of an entry is 128 (Unicode) characters.

The following table shows examples of supported and unsupported entries.

**Table 1 – Examples of supported and unsupported entries for custom dictionary files**

Supported	Not supported
dogfood	dog food
3#	#3
For#sale	For sale

Supported	Not supported
ASP.NET	
IT&T	
(2-Methoxymethylethoxy)propanol	
34590-97-8	
C7H16O3	

There is no fixed limit to the number of entries in a custom dictionary. However, we recommend that the total file size of a custom dictionary file does not exceed 2 gigabytes (GB). In practice, we suggest that you limit the number of entries to a few thousand.

## Create a custom dictionary

Use the following procedure to create a custom dictionary.

### To create a custom dictionary

1. Verify that the user account that is performing this procedure is a member of the Administrators group on the local computer.
2. Log on to a crawl server.
3. Open a new file in a text editor.  
Type the words that you want in the custom dictionary according to the rules stated in [Rules for creating a custom dictionary](#) earlier in this article.
4. On the **File** menu, click **Save As**.
5. In the **Save as type** list, select **All Files**.
6. In the **Encoding** list, select **Unicode**.
7. In the **File name** box, type the file name in the following format: Custom/NNNN.lex, where “Custom” is a literal string, NNNN is the four-digit hexadecimal code of the language for which you are creating the custom dictionary, and lex is the file name extension. For a list of valid file names for supported languages and dialects, see [Supported languages](#) later in this article.
8. In the **Save in** list, browse to the folder that contains the word breakers. By default, this folder is %ProgramFiles%\Microsoft Office Servers\14.0\Bin.



#### Note:

Custom dictionary files can be used only if they are stored in this folder in the local file system. They cannot be used if they are only stored in a SharePoint site, for example.

9. Click **Save**.
10. If there are no other crawl servers or query servers in the farm, go to [Stop and restart the SharePoint Server Search 14 service on each application server](#). Otherwise, go to the next

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procedure, “Copy the custom dictionary to each application server in the farm”.

## Copy the custom dictionary to each application server

There must be a copy of the custom dictionary on each application server in the farm.

### ▶ To copy the custom dictionary to each application

1. Verify that the user account that is performing this procedure is a member of the Administrators group on each application server (that is, each crawl server or query server) in the farm.
2. On each application server in the farm, copy the new custom dictionary file to the folder that contains the word breakers. By default, this folder is %ProgramFiles%\Microsoft Office Servers\14.0\Bin.



#### **Note:**

Custom dictionary files can be used only if they are stored in this folder in the local file system. They cannot be used if they are only stored in a SharePoint site, for example.

## Stop and restart the SharePoint Server Search 14 service on each application server

You must restart the SharePoint Server Search 14 service on each application server in the farm.



#### **Important:**

Do not use the Services on Server page in Central Administration to stop and start the service. Doing so removes the service and deletes the index and the associated configuration. Instead, follow these steps.

### ▶ To stop and restart the SharePoint Server Search 14 service on each application server

1. Verify that the user account that is performing this procedure is a member of the Administrators group on the local computer.
2. On the **Start** menu, point to **All Programs**, point to **Administrative Tools**, and then click **Services**.
3. Right click the **SharePoint Server Search 14** service and then click **Properties**. The **Properties** dialog box appears.
4. Click **Stop**. After the service stops, click **Start**.
5. Ensure that the **Startup type** is not set to **Disabled**.
6. Repeat this procedure for each application server (that is, each crawl server and each query server) in the farm.

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## Perform a full crawl

To apply the custom dictionary to the content index, you must perform a full crawl of the content that contains the tokens that you added to the custom dictionary. For information about performing a full crawl, see [Manage crawling \(Search Server 2010 Express\)](#).

## Supported languages

The following table indicates the languages and dialects for which Search Server 2010 supports custom dictionaries. You cannot create a custom dictionary for the language-neutral word breaker. The table includes the language code identifier (LCID) and language hexadecimal code for each supported language and dialect. The first two numbers in the hexadecimal code represent the dialect and the last two numbers represent the language. For languages that do not have separate word breakers for separate dialects, the first two numbers in the language hexadecimal code are always zeros.

**Table 2 - Supported languages**

Language / dialect	LCID	Language hexadecimal code
Arabic	1025	0001
Bengali	1093	0045
Bulgarian	1026	0002
Catalan	1027	0003
Croatian	1050	001a
Danish	1030	0006
Dutch	1043	0013
English	1033	0009
French	1036	000c
German	1031	0007
Gujarati	1095	0047
Hebrew	1037	000d
Hindi	1081	0039
Icelandic	1039	000f
Indonesian	1057	0021
Italian	1040	0010
Japanese	1041	0011

Language / dialect	LCID	Language hexadecimal code
Kannada	1099	004b
Latvian	1062	0026
Lithuanian	1063	0027
Malay	1086	003e
Malayalam	1100	004c
Marathi	1102	004e
Norwegian_Bokmaal	1044	0414
Portuguese	2070	0816
Portuguese_Braz	1046	0416
Punjabi	1094	0046
Romanian	1048	0018
Russian	1049	0019
Serbian_Cyrillic	3098	0c1a
Serbian_Latin	2074	081a
Slovak	1051	001b
Slovenian	1060	0024
Spanish	3082	000a
Swedish	1053	001d
Tamil	1097	0049
Telugu	1098	004a
Ukrainian	1058	0022
Urdu	1056	0020
Vietnamese	1066	002a

**See Also**

[Manage thesaurus files \(Search Server 2010\)](#)

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# Configure authoritative pages (Search Server 2010)

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## Note:

The information in this article applies to both Microsoft Search Server 2010 and Microsoft Search Server 2010 Express.

An administrator of a Search service application can designate a Web page as most authoritative, second-level authoritative, third-level authoritative, or non-authoritative. This setting affects relevance rankings for search results. Therefore, it affects the order in which search results appear in a search results list.

The relevance ranking for a search result is determined in part by how far (in clicks) the result is from a URL that is designated as most authoritative, second-level authoritative, or third-level authoritative. A most-authoritative page contains or links to the most relevant information. A second-level authoritative page receives a penalty click of one. A third-level authoritative URL receives a penalty click of two. URLs designated as non-authoritative are ranked lower than other sites.

## Specify Web pages as authoritative

Use the following procedure to specify Web pages as authoritative or non-authoritative.

### ► To specify Web pages as authoritative

1. Verify that the user account that is performing this procedure is an administrator for the Search service application for which you want to configure authoritative Web pages.
2. On the Central Administration Web site, in the **Application Management** section, click **Manage service applications**.
3. Click the Search service application for which you want to configure authoritative Web pages.
4. On the Search Administration page, in the Quick Launch, click **Authoritative Pages**.
5. On the Specify Authoritative Pages page, in the **Most authoritative pages** box in the **Authoritative Web Pages** section, type the URLs of pages that are most authoritative. Separate the URLs by returns so that there is one URL per line.
6. In the **Second-level authoritative pages** box, type the URLs of pages that are secondary.
7. In the **Third-level authoritative pages** box, type the URLs of pages that are tertiary.
8. In the **Non-authoritative Sites** section, in the **Sites to demote** box, type the URLs of sites that you want to be ranked lower than all other sites, such as URLs of sites that contain outdated information but are retained for record-keeping). A URL whose prefix matches the prefix of a URL in the **Sites to demote** box is ranked lower than all other sites.
9. If you want re-calculation of ranking to begin after you click **OK**, select the **Refresh now** check box in the **Refresh Now?** section. If the check box is cleared, ranking re-calculation occurs later, according to a predetermined schedule.
10. Click **OK**.

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# Manage metadata properties (Search Server 2010)

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You can enhance the end-user search experience by mapping crawled properties to managed properties. Crawled properties are metadata (such as author, title, or subject) that are extracted from documents during crawls. Managed properties show up in search results and help users perform more successful queries.

Searches can be performed only on managed properties, not crawled properties. To make a crawled property available for search queries and display in Advanced Search and search results, you must map it to a managed property. You can map multiple crawled properties to a single managed property or map a single crawled property to multiple managed properties. If a managed property has multiple crawled properties mapped to it, and a document contains values for more than one of the crawled properties, the order in which the properties are mapped and their priority determine the value of the managed property.

For example, three different document types might have different names for the property that identifies the author. One document type might name this property Author, another Writer, and a third Property3. Although all three are crawled properties, only the documents with the Author property appear in search results when a user queries by author. To ensure that all documents appear in search results, map each of these crawled properties to the Author managed property.

Procedures in this article:

- [To view managed properties and crawled properties](#)
- [To add a managed property](#)
- [To edit a managed property](#)
- [To delete a managed property](#)
- [To map a crawled property to a managed property](#)

## To view managed properties and crawled properties

1. Verify that the user account that is performing this procedure is an administrator for the Search service application.
2. In Central Administration, in the **Application Management** section, click **Manage service applications**.
3. Click the Search service application for which you are viewing managed and crawled properties.
4. On the Search Administration page, in the Quick Launch, under **Queries and Results**, click **Metadata Properties**. Mapped properties appear. To view crawled properties, click **Crawled Properties**.

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▶ **To add a managed property**

1. Verify that the user account that is performing this procedure is an administrator for the Search service application.
2. In Central Administration, in the **Application Management** section, click **Manage service applications**.
3. Click the Search service application for which you are viewing managed and crawled properties.
4. On the Search Administration page, in the Quick Launch, under **Queries and Results**, click **Metadata Properties**.
5. On the Metadata Property Mappings page, click **New Managed Property**.
6. On the New Managed Property page, in the **Property name** box in the **Name and type** section, type the name of the new managed property.
7. In the **Description** box, type a description of the property.
8. Under **The type of information in this property**, select one of the following options for the property:
  - **Text**
  - **Integer**
  - **Decimal**
  - **Date and Time**
  - **Yes/No**
  - **Has Multiple Values**
9. In the **Mappings to crawled properties** section, select one of the following:
  - **Include values from all crawled properties mapped** Select this option if you want values from all crawled properties to be mapped for a given document. A query for a property in a document in which all crawled properties are mapped returns a result if any of the crawled properties that are mapped match.
  - **Include values from a single crawled property based on the order specified** Select this option if you want only a single value mapped. When multiple crawled properties are mapped to a managed property, the one that is chosen is the first in the list that has a value for a given document. You can reorder the list by using the **Move up** and **Move down** buttons.
10. Click **Add Mapping** to add a mapping to the list. The **Crawled property selection** dialog box appears.
11. Configure the settings as follows:
  - a. On the **Select a category** menu, click either **All categories** or a specific type of document category (for example, **Office** or **XML**).
  - b. In **Select a crawled property**, click a crawled property to map to the managed property

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that you are adding.

Because the list of crawled properties is likely to be long, you can type the name (or the first part of the name) of the property that you are looking for in the **Crawled property name** box, and then click **Find**. A truncated list appears.

c. Click **OK**.

12. On the New Managed Property page, in the **Use in scopes** section, select the **Allow this property to be used in scopes** check box if you want the property to be available for defining search scopes.



**Tip:**

Only select this check box for properties that you intend to use in scopes. Each property that you set as a scope increases the size of the index, which you should avoid when possible.

13. In the **Optimize managed property storage** section, select the **Reduce storage requirements for text properties by using a hash for comparison** check box if you only need this property to have equality/inequality comparisons. Leave the check box cleared if you need to enable other types of comparisons (such as less than, greater than, and order by). Select the **Add managed property to custom results set retrieved on each query** check box to add this property to the restricted set of properties for optimized queries that use a custom results page to show special managed properties.
14. In the message box advising that the changes do not take effect until after the next full crawl, click **OK**.



**Note:**

Changes to the property mappings take effect on a document-by-document basis as soon as a document is crawled, regardless of the type of the crawl. A full crawl ensures that the changes are consistently applied to the entire index.

▶ **To edit a managed property**

1. Verify that the user account that is performing this procedure is an administrator for the Search service application.
2. On the Metadata Property Mappings page, click the managed property that you want to edit. You can find information about the managed property settings, including how to add a new mapping, in the [To add a managed property](#) section.

▶ **To delete a managed property**

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1. Verify that the user account that is performing this procedure is an administrator for the Search service application.
  2. On the Metadata Property Mappings page, point to the managed property that you want to delete, click the arrow that appears, and then click **Delete**.
  3. Click **OK** when asked if you want to delete the managed property.

Deleting a managed property has the following consequences:

- Users will no longer be able to query by using this property.
- If a scope uses this property in its rules, the scope will no longer work.
- If custom search applications or Web Parts use this property, they will no longer work.

### ▶ **To map a crawled property to a managed property**

1. Verify that the user account that is performing this procedure is an administrator for the Search service application.
2. On the Metadata Property Mappings page, click **Crawled Properties**.
3. On the Crawled Properties page, click the crawled property that you want to map.
4. On the Edit Crawled Property page, in the **Mappings to managed properties** section, click **Add Mapping**.
5. In the **Managed property selection** dialog box, select a managed property, and then click **OK**.
6. On the Edit Crawled Property page, if you want to include values for the crawled property in the search index, select the **Include values for this property in the search index** check box. This option makes values for the crawled property searchable when a full-text search is used. Crawled properties are usually searchable only when a property-based search is used.
7. Click **OK**.
8. In the message box advising that the changes will not take effect until after the next full crawl, click **OK**.



**Note:**

The changes actually occur on a document-by-document basis during the crawl.

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# Security and protection for Search Server 2010

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This section provides information and best practices about how to make the Microsoft Search Server 2010 system more secure and how to help protect data.

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## Technical reference for Search Server 2010

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Technical reference includes information about the Microsoft Search Server 2010 provider for Windows PowerShell, the Stsadm command-line tool, and other useful reference information about general settings, security, and tools.

The Windows PowerShell information is available as a [downloadable CHM file](http://go.microsoft.com/fwlink/?LinkID=163185) (<http://go.microsoft.com/fwlink/?LinkID=163185>).

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# Windows PowerShell for Search Server 2010

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Windows PowerShell can be used with Microsoft Search Server 2010 to perform both simple and complex administrative tasks. Information about cmdlets in Search Server 2010 is currently accessible using command-line Help. For information about Windows PowerShell in general, visit the [Windows PowerShell Technology Center](http://go.microsoft.com/fwlink/?LinkId=167152) (<http://go.microsoft.com/fwlink/?LinkId=167152>).

In this section:

- [SharePoint 2010 Products administration by using Windows PowerShell](#)
- [Windows PowerShell for Search Server 2010 reference](#)

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# SharePoint 2010 Products administration by using Windows PowerShell

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This article describes how to use Windows PowerShell with Microsoft SharePoint 2010 Products and provides an overview of basic Windows PowerShell cmdlets and concepts necessary to get the most benefit from this powerful functionality.

In this article:

- [Overview](#)
- [Accessing Windows PowerShell for SharePoint 2010 Products](#)
- [Permissions](#)
- [Learning Windows PowerShell](#)

## Overview

Windows PowerShell is a command-line scripting tool that provides an administrator full access to applicable application programming interfaces (APIs), along with the ability to unlock the capability to interact directly with SharePoint 2010 Products to manipulate Web applications, site collections, sites, lists and much more. In addition, the administrator has the ability to script cmdlets (pronounced "command-lets"), which makes for an improved experience from past product versions.

Windows PowerShell 2.0 is a pre-requisite for installing SharePoint 2010 Products. It will be installed, if necessary, when you run the Microsoft SharePoint Products Preparation Tool. By default, Windows PowerShell is located at the following path:

**<%SystemRoot%>\System32\WindowsPowerShell\v1.0\PowerShell.exe.**



**Note:**

Windows PowerShell 2.0 is backward compatible with Windows PowerShell 1.0 and subsequently installs to the v1.0 folder.

For a list of new features for Windows PowerShell version 2.0, see [About Windows PowerShell 2.0](http://go.microsoft.com/fwlink/?LinkId=113247) (<http://go.microsoft.com/fwlink/?LinkId=113247>).

We recommend that you use Windows PowerShell when performing command-line administrative tasks. The Stsadm command-line tool has been deprecated, but is included to support compatibility with previous product versions.

## Accessing Windows PowerShell for SharePoint 2010 Products

After installing SharePoint 2010 Products, the applicable Windows PowerShell cmdlets are available by using the SharePoint 2010 Management Shell, or by using the Windows PowerShell console. With the management shell, you can manage every aspect of SharePoint 2010 Products. You can create new

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site collections, Web applications, user accounts, service applications, proxies, and more. The commands from the management shell output SharePoint objects based on the Microsoft .NET Platform. These objects can be applied as input to subsequent commands or stored in local variables for later use.

With the management shell, you do not have to register the snap-in that contains the cmdlets. Registration of the Microsoft.SharePoint.PowerShell.dll module for SharePoint 2010 cmdlets is automatic, as a result of the line `Add-PSSnapin Microsoft.SharePoint.PowerShell` in the `SharePoint.ps1` file located in `%CommonProgramFiles%\Microsoft Shared\Web Server Extensions\14\Config\PowerShell\Registration`. If you choose to use the Windows PowerShell console, you must register this snap-in manually.

Whether you are using the management shell or the Windows PowerShell console, you can also load additional snap-ins. For more information, see [Customizing Profiles](http://go.microsoft.com/fwlink/?LinkId=183166) (<http://go.microsoft.com/fwlink/?LinkId=183166>).

### ▶ To access the SharePoint 2010 Management Shell

1. On the **Start** menu, click **All Programs**.
2. Click **Microsoft SharePoint 2010 Products**.
3. Click **SharePoint 2010 Management Shell**.



#### Note:

The SharePoint 2010 Management Shell and the Windows PowerShell console also differ in the use of the `ReuseThread` option, which defines how the threading model is used. The management shell's use is defined by this line, `{Host.Runspace.ThreadOptions = "ReuseThread"}`, which is in the `SharePoint.ps1` file. For more information, see [PS Thread Options](http://go.microsoft.com/fwlink/?LinkId=183145) (<http://go.microsoft.com/fwlink/?LinkId=183145>).

## Permissions

Before you can use the management shell and the Windows PowerShell cmdlets, verify that you meet the following minimum requirements: See [Add-SPShellAdmin](#).

If you do not have membership in the `SharePoint_Shell_Access` role or `WSS_Admin_WPG` local group, use the `Add-SPShellAdmin` cmdlet. When the **Add-SPShellAdmin** cmdlet is used, the user is added to the **WSS\_Admin\_WPG** group in all front-end Web servers and is added to the **SharePoint\_Shell\_Access** role. If the target database does not have a **SharePoint\_Shell\_Access** role, the role is automatically created. Once the **Add-SPShellAdmin** cmdlet has been run, the user can run SharePoint 2010 Windows PowerShell cmdlets in a multiple-server farm environment.

When you run the **Add-SPShellAdmin** cmdlet to add a user to the **SharePoint\_Shell\_Access** role, you must have the following security permissions:

- **Securityadmin** server role access on the SQL instance and the **db\_owner** role in a database.
- Administrative permission on the local computer.



#### Note:

Typically, the person that will use the **Add-SPShellAdmin** cmdlet must be associated with the user account that was used for Setup.

You must run the **Add-SPShellAdmin** cmdlet for all databases to which you want to grant access. If no database is specified, the farm configuration database is used. If you do specify a database, the farm content database will be included in addition to the farm configuration database you specify.

To see a list of all of the **\*SPShellAdmin** cmdlets, from a Windows PowerShell command prompt, type `Get-Command -Noun SPShellAdmin`.

## Learning Windows PowerShell

There are several Windows PowerShell learning resources for SharePoint IT professionals who are not familiar with Windows PowerShell.

### TechNet Scripting Center

The TechNet Scripting Center includes many resources for learning the basics of using Windows PowerShell. It also contains script repositories with samples of scripts commonly used with various Microsoft products. The following table shows the main learning resources.

Page	Description
<a href="http://go.microsoft.com/fwlink/?LinkId=187813">Windows PowerShell Documentation on TechNet</a> ( <a href="http://go.microsoft.com/fwlink/?LinkId=187813">http://go.microsoft.com/fwlink/?LinkId=187813</a> )	This section of the TechNet Library contains Web copies of the core Windows PowerShell Get-Help topics. The section also has Web copies of the Windows PowerShell Getting Started document, the PowerShell.exe help, and a Windows PowerShell primer.
<a href="http://go.microsoft.com/fwlink/?LinkId=187815">Scripting With Windows PowerShell</a> ( <a href="http://go.microsoft.com/fwlink/?LinkId=187815">http://go.microsoft.com/fwlink/?LinkId=187815</a> )	The home page for Windows PowerShell scripting learning resources.
<a href="http://go.microsoft.com/fwlink/?LinkId=187817">Windows PowerShell Owner's Manual</a> ( <a href="http://go.microsoft.com/fwlink/?LinkId=187817">http://go.microsoft.com/fwlink/?LinkId=187817</a> )	Web-based guide for getting started with Windows PowerShell.
<a href="http://go.microsoft.com/fwlink/?LinkId=187819">Windows PowerShell Quick Reference</a> ( <a href="http://go.microsoft.com/fwlink/?LinkId=187819">http://go.microsoft.com/fwlink/?LinkId=187819</a> )	Downloadable copy of the Quick Reference document installed with Windows PowerShell.

### Windows PowerShell documents

Windows PowerShell installs the following documents in the Windows PowerShell 1.0 program group. They can also be installed after downloading the [Windows PowerShell 1.0 Documentation Pack](http://go.microsoft.com/fwlink/?LinkId=187822) (<http://go.microsoft.com/fwlink/?LinkId=187822>).

File	Description
GettingStarted.rtf	Describes how to start using Windows

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File	Description
	PowerShell.
UsersGuide.rtf	A primer for the Windows PowerShell environment and language.
QuadFold.rtf	A printable quick reference document for the commonly used Windows PowerShell syntax and commands. Also available as a download from the TechNet Scripting Center.

As you read these resources, consider that the following concepts and cmdlets are useful ones to learn before using Windows PowerShell for SharePoint 2010 Products:

- [Get-Command](http://go.microsoft.com/fwlink/?LinkId=171069) (*http://go.microsoft.com/fwlink/?LinkId=171069*)
- [Get-Member](http://go.microsoft.com/fwlink/?LinkId=171070) (*http://go.microsoft.com/fwlink/?LinkId=171070*)
- [Get-Help](http://go.microsoft.com/fwlink/?LinkId=171068) (*http://go.microsoft.com/fwlink/?LinkId=171068*).
- [Aliasing](http://go.microsoft.com/fwlink/?LinkId=113207) (*http://go.microsoft.com/fwlink/?LinkId=113207*)
- [Piping and the Pipeline in Windows PowerShell](http://go.microsoft.com/fwlink/?LinkId=187808) (*http://go.microsoft.com/fwlink/?LinkId=187808*)
- [Cmdlet Parameter Sets](http://go.microsoft.com/fwlink/?LinkId=187810) (*http://go.microsoft.com/fwlink/?LinkId=187810*)
- [Foreach-Object](http://go.microsoft.com/fwlink/?LinkId=187812) (*http://go.microsoft.com/fwlink/?LinkId=187812*)
- [Where-Object](http://go.microsoft.com/fwlink/?LinkId=187811) (*http://go.microsoft.com/fwlink/?LinkId=187811*)

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# Windows PowerShell for Search Server 2010 reference

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The following articles list Windows PowerShell cmdlets for Microsoft Search Server 2010 by functionality:

- [Search cmdlets \(Search Server 2010\)](#)
- [SharePoint Foundation 2010 Search cmdlets \(Search Server 2010\)](#)

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## Search cmdlets (Search Server 2010)

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Search is composed of several components, all of which provide specific functionality that is required for Search to operate. These components can be configured by using Windows PowerShell cmdlets.

### Administration

Cmdlet name	Description
<a href="#">Get-SPEnterpriseSearchAdministrationComponent</a> ( <a href="http://technet.microsoft.com/library/716ce487-e8e3-4e77-b80d-c5b895ce7574(Office.14).aspx">http://technet.microsoft.com/library/716ce487-e8e3-4e77-b80d-c5b895ce7574(Office.14).aspx</a> )	Returns the administration component for a search service application.
<a href="#">Set-SPEnterpriseSearchAdministrationComponent</a> ( <a href="http://technet.microsoft.com/library/45a38f5b-92ee-4fbf-bd35-54b83f535b82(Office.14).aspx">http://technet.microsoft.com/library/45a38f5b-92ee-4fbf-bd35-54b83f535b82(Office.14).aspx</a> )	Sets properties of an administration component for a search service application.
<a href="#">Ping-SPEnterpriseSearchContentService</a> ( <a href="http://technet.microsoft.com/library/931bd536-1b29-42d1-a06a-1a6a08b7af2d(Office.14).aspx">http://technet.microsoft.com/library/931bd536-1b29-42d1-a06a-1a6a08b7af2d(Office.14).aspx</a> )	Sends a request to the content distributor.

### Crawling

Cmdlet name	Description
<a href="#">Get-SPEnterpriseSearchCrawlComponent</a> ( <a href="http://technet.microsoft.com/library/2c5bea45-185f-4900-9b13-fe233a9c1860(Office.14).aspx">http://technet.microsoft.com/library/2c5bea45-185f-4900-9b13-fe233a9c1860(Office.14).aspx</a> )	Returns a crawl component for a shared search application.
<a href="#">Get-SPEnterpriseSearchCrawlContentSource</a> ( <a href="http://technet.microsoft.com/library/2bd3631d-a24d-443f-bab8-a261dc3fb701(Office.14).aspx">http://technet.microsoft.com/library/2bd3631d-a24d-443f-bab8-a261dc3fb701(Office.14).aspx</a> )	Returns a crawl content source.
<a href="#">Get-SPEnterpriseSearchCrawlCustomConnector</a> ( <a href="http://technet.microsoft.com/library/bd3948e9-e1b5-453e-bd2d-85be7c859339(Office.14).aspx">http://technet.microsoft.com/library/bd3948e9-e1b5-453e-bd2d-85be7c859339(Office.14).aspx</a> )	Returns a <b>CustomConnector</b> object type.
<a href="#">Get-SPEnterpriseSearchCrawlDatabase</a> ( <a href="http://technet.microsoft.com/library/d4944100-fea2-4a6c-9ea3-553cd99c856b(Office.14).aspx">http://technet.microsoft.com/library/d4944100-fea2-4a6c-9ea3-553cd99c856b(Office.14).aspx</a> )	Returns a crawl store.
<a href="#">Get-SPEnterpriseSearchCrawlExtension</a> ( <a href="http://technet.microsoft.com/library/ab5860a7-1570-4451-863a-f231191eeb5b(Office.14).aspx">http://technet.microsoft.com/library/ab5860a7-1570-4451-863a-f231191eeb5b(Office.14).aspx</a> )	Returns the file types to be included in the content index.
<a href="#">Get-SPEnterpriseSearchCrawlMapping</a>	Returns a crawl mapping for the search

<b>Cmdlet name</b>	<b>Description</b>
( <a href="http://technet.microsoft.com/library/89a24664-f67a-4fe8-bb7c-95bf297c7776(Office.14).aspx">http://technet.microsoft.com/library/89a24664-f67a-4fe8-bb7c-95bf297c7776(Office.14).aspx</a> )	application.
<a href="#">Get-SPEnterpriseSearchCrawlRule</a> ( <a href="http://technet.microsoft.com/library/a99f98a2-82b2-4336-a14f-1bc527129e8d(Office.14).aspx">http://technet.microsoft.com/library/a99f98a2-82b2-4336-a14f-1bc527129e8d(Office.14).aspx</a> )	Accesses crawl rules.
<a href="#">Get-SPEnterpriseSearchCrawlTopology</a> ( <a href="http://technet.microsoft.com/library/fb2af992-dbb3-47e5-9f9f-fb94590ec733(Office.14).aspx">http://technet.microsoft.com/library/fb2af992-dbb3-47e5-9f9f-fb94590ec733(Office.14).aspx</a> )	Returns a crawl topology.
<a href="#">New-SPEnterpriseSearchCrawlComponent</a> ( <a href="http://technet.microsoft.com/library/98f86631-c6b5-4379-ab89-5d0884cb0fd0(Office.14).aspx">http://technet.microsoft.com/library/98f86631-c6b5-4379-ab89-5d0884cb0fd0(Office.14).aspx</a> )	Adds a query component to a query topology.
<a href="#">New-SPEnterpriseSearchCrawlContentSource</a> ( <a href="http://technet.microsoft.com/library/5eeb0b21-d8db-436a-b353-a6bf57b6f734(Office.14).aspx">http://technet.microsoft.com/library/5eeb0b21-d8db-436a-b353-a6bf57b6f734(Office.14).aspx</a> )	Creates a new crawl content source for a shared search application.
<a href="#">New-SPEnterpriseSearchCrawlCustomConnector</a> ( <a href="http://technet.microsoft.com/library/9cfc9653-9bee-4c3a-8739-9bc81aa3e699(Office.14).aspx">http://technet.microsoft.com/library/9cfc9653-9bee-4c3a-8739-9bc81aa3e699(Office.14).aspx</a> )	Registers a protocol for custom crawling.
<a href="#">New-SPEnterpriseSearchCrawlDatabase</a> ( <a href="http://technet.microsoft.com/library/71a9d57c-4383-497d-8510-9d79c1784a77(Office.14).aspx">http://technet.microsoft.com/library/71a9d57c-4383-497d-8510-9d79c1784a77(Office.14).aspx</a> )	Creates a crawl database which can be added to a search service application.
<a href="#">New-SPEnterpriseSearchCrawlExtension</a> ( <a href="http://technet.microsoft.com/library/4e7dad0d-7ae9-446e-8455-f6f69f8004a0(Office.14).aspx">http://technet.microsoft.com/library/4e7dad0d-7ae9-446e-8455-f6f69f8004a0(Office.14).aspx</a> )	Adds an extension rule to a shared search application.
<a href="#">New-SPEnterpriseSearchCrawlMapping</a> ( <a href="http://technet.microsoft.com/library/f1932a85-aaee-4c2b-982f-5ba21b36cf3a(Office.14).aspx">http://technet.microsoft.com/library/f1932a85-aaee-4c2b-982f-5ba21b36cf3a(Office.14).aspx</a> )	Creates a crawl mapping rule for a shared search application.
<a href="#">New-SPEnterpriseSearchCrawlRule</a> ( <a href="http://technet.microsoft.com/library/f299d577-acd6-4da3-975e-f0a0b9092aa8(Office.14).aspx">http://technet.microsoft.com/library/f299d577-acd6-4da3-975e-f0a0b9092aa8(Office.14).aspx</a> )	Creates a new crawl rule.
<a href="#">New-SPEnterpriseSearchCrawlTopology</a> ( <a href="http://technet.microsoft.com/library/b5e5055f-8a12-4334-a196-9ee60c03af94(Office.14).aspx">http://technet.microsoft.com/library/b5e5055f-8a12-4334-a196-9ee60c03af94(Office.14).aspx</a> )	Adds a crawl topology to a shared search application.
<a href="#">Remove-SPEnterpriseSearchCrawlComponent</a> ( <a href="http://technet.microsoft.com/library/4fd83c51-88c8-48b5-b3f6-8a1d3b8d083a(Office.14).aspx">http://technet.microsoft.com/library/4fd83c51-88c8-48b5-b3f6-8a1d3b8d083a(Office.14).aspx</a> )	Deletes a crawl component from a shared search application.
<a href="#">Remove-SPEnterpriseSearchCrawlContentSource</a> ( <a href="http://technet.microsoft.com/library/7017b7ca-">http://technet.microsoft.com/library/7017b7ca-</a> )	Deletes a specified crawl content source from a

Cmdlet name	Description
<i>b8b5-4735-a5a8-d12c820dc0a6(Office.14).aspx</i>	search application.
<a href="http://technet.microsoft.com/library/deeb7740-bcb8-45d8-a611-e581dfe8b118(Office.14).aspx">Remove-SPEnterpriseSearchCrawlCustomConnector</a> ( <i>http://technet.microsoft.com/library/deeb7740-bcb8-45d8-a611-e581dfe8b118(Office.14).aspx</i> )	Removes a <b>CustomConnector</b> object.
<a href="http://technet.microsoft.com/library/dc814306-8ded-4b2c-8ee4-c1e69d85a374(Office.14).aspx">Remove-SPEnterpriseSearchCrawlDatabase</a> ( <i>http://technet.microsoft.com/library/dc814306-8ded-4b2c-8ee4-c1e69d85a374(Office.14).aspx</i> )	Sets properties of a crawl database for a search service application.
<a href="http://technet.microsoft.com/library/f09e4c7c-c4a7-4c3b-a271-a7f011b125ad(Office.14).aspx">Remove-SPEnterpriseSearchCrawlExtension</a> ( <i>http://technet.microsoft.com/library/f09e4c7c-c4a7-4c3b-a271-a7f011b125ad(Office.14).aspx</i> )	Removes a file name extension from the list of files that can be crawled.
<a href="http://technet.microsoft.com/library/f65e49ee-f481-415b-8699-b79f1b212583(Office.14).aspx">Remove-SPEnterpriseSearchCrawlMapping</a> ( <i>http://technet.microsoft.com/library/f65e49ee-f481-415b-8699-b79f1b212583(Office.14).aspx</i> )	Deletes a crawl mapping.
<a href="http://technet.microsoft.com/library/1388c109-48e1-429c-8985-eb34ee80994f(Office.14).aspx">Remove-SPEnterpriseSearchCrawlRule</a> ( <i>http://technet.microsoft.com/library/1388c109-48e1-429c-8985-eb34ee80994f(Office.14).aspx</i> )	Deletes a crawl rule.
<a href="http://technet.microsoft.com/library/a4104869-c023-41d0-8030-ee5b42b01bed(Office.14).aspx">Remove-SPEnterpriseSearchCrawlTopology</a> ( <i>http://technet.microsoft.com/library/a4104869-c023-41d0-8030-ee5b42b01bed(Office.14).aspx</i> )	Deletes a crawl topology.
<a href="http://technet.microsoft.com/library/216538e0-f729-4d4d-80a9-b34ab892ef44(Office.14).aspx">Set-SPEnterpriseSearchCrawlContentSource</a> ( <i>http://technet.microsoft.com/library/216538e0-f729-4d4d-80a9-b34ab892ef44(Office.14).aspx</i> )	Sets the properties of a crawl content source for a shared search application.
<a href="http://technet.microsoft.com/library/013afca3-9aba-47ee-ad44-b20d1dc17f16(Office.14).aspx">Set-SPEnterpriseSearchCrawlDatabase</a> ( <i>http://technet.microsoft.com/library/013afca3-9aba-47ee-ad44-b20d1dc17f16(Office.14).aspx</i> )	Sets properties of a crawl database for a search service application.
<a href="http://technet.microsoft.com/library/e123808e-f140-4502-886b-031661d8c4ee(Office.14).aspx">Set-SPEnterpriseSearchCrawlRule</a> ( <i>http://technet.microsoft.com/library/e123808e-f140-4502-886b-031661d8c4ee(Office.14).aspx</i> )	Sets properties for a crawl rule.
<a href="http://technet.microsoft.com/library/1d3715d1-96d5-460f-938c-bd620781d802(Office.14).aspx">Set-SPEnterpriseSearchCrawlTopology</a> ( <i>http://technet.microsoft.com/library/1d3715d1-96d5-460f-938c-bd620781d802(Office.14).aspx</i> )	Sets the properties of a crawl topology on a shared search application.

## Service Application

Cmdlet name	Description
<a href="http://technet.microsoft.com/library/fcf865a8-b46b-44fb-89ba-f52e20876f6c(Office.14).aspx">Get-SPEnterpriseSearchService</a> ( <a href="http://technet.microsoft.com/library/fcf865a8-b46b-44fb-89ba-f52e20876f6c(Office.14).aspx">http://technet.microsoft.com/library/fcf865a8-b46b-44fb-89ba-f52e20876f6c(Office.14).aspx</a> )	Returns the search service for a farm.
<a href="http://technet.microsoft.com/library/b8030354-e62d-4723-a809-eb6cf8c301c5(Office.14).aspx">Get-SPEnterpriseSearchServiceApplication</a> ( <a href="http://technet.microsoft.com/library/b8030354-e62d-4723-a809-eb6cf8c301c5(Office.14).aspx">http://technet.microsoft.com/library/b8030354-e62d-4723-a809-eb6cf8c301c5(Office.14).aspx</a> )	Returns the search service application for a farm.
<a href="http://technet.microsoft.com/library/233890cc-6571-4bd3-bb59-2b549a6098c3(Office.14).aspx">Get-SPEnterpriseSearchServiceApplicationProxy</a> ( <a href="http://technet.microsoft.com/library/233890cc-6571-4bd3-bb59-2b549a6098c3(Office.14).aspx">http://technet.microsoft.com/library/233890cc-6571-4bd3-bb59-2b549a6098c3(Office.14).aspx</a> )	Returns the search service application proxy.
<a href="http://technet.microsoft.com/library/309d98e8-a5fa-4cb5-b6e1-bf94380a8212(Office.14).aspx">Get-SPEnterpriseSearchServiceInstance</a> ( <a href="http://technet.microsoft.com/library/309d98e8-a5fa-4cb5-b6e1-bf94380a8212(Office.14).aspx">http://technet.microsoft.com/library/309d98e8-a5fa-4cb5-b6e1-bf94380a8212(Office.14).aspx</a> )	Returns the search service instance for a farm.
<a href="http://technet.microsoft.com/library/3360bbb7-394d-4b13-bf86-e9cd7caa43ba(Office.14).aspx">New-SPEnterpriseSearchServiceApplication</a> ( <a href="http://technet.microsoft.com/library/3360bbb7-394d-4b13-bf86-e9cd7caa43ba(Office.14).aspx">http://technet.microsoft.com/library/3360bbb7-394d-4b13-bf86-e9cd7caa43ba(Office.14).aspx</a> )	Adds a search service application to a farm.
<a href="http://technet.microsoft.com/library/2a074a5a-0af0-48fd-aa1f-edc875f93335(Office.14).aspx">New-SPEnterpriseSearchServiceApplicationProxy</a> ( <a href="http://technet.microsoft.com/library/2a074a5a-0af0-48fd-aa1f-edc875f93335(Office.14).aspx">http://technet.microsoft.com/library/2a074a5a-0af0-48fd-aa1f-edc875f93335(Office.14).aspx</a> )	Adds a new search application proxy to a farm..
<a href="http://technet.microsoft.com/library/acc851e8-bf01-4b46-b0d6-f2deb7c6e0b7(Office.14).aspx">Remove-SPEnterpriseSearchServiceApplication</a> ( <a href="http://technet.microsoft.com/library/acc851e8-bf01-4b46-b0d6-f2deb7c6e0b7(Office.14).aspx">http://technet.microsoft.com/library/acc851e8-bf01-4b46-b0d6-f2deb7c6e0b7(Office.14).aspx</a> )	Deletes a search service application.
<a href="http://technet.microsoft.com/library/a2d77879-9aa7-4986-abc1-051a59dfa59(Office.14).aspx">Remove-SPEnterpriseSearchServiceApplicationProxy</a> ( <a href="http://technet.microsoft.com/library/a2d77879-9aa7-4986-abc1-051a59dfa59(Office.14).aspx">http://technet.microsoft.com/library/a2d77879-9aa7-4986-abc1-051a59dfa59(Office.14).aspx</a> )	Deletes a search service application proxy.
<a href="http://technet.microsoft.com/library/fb717b7b-53cd-44c4-b94d-348c6403d4b2(Office.14).aspx">Restore-SPEnterpriseSearchServiceApplication</a> ( <a href="http://technet.microsoft.com/library/fb717b7b-53cd-44c4-b94d-348c6403d4b2(Office.14).aspx">http://technet.microsoft.com/library/fb717b7b-53cd-44c4-b94d-348c6403d4b2(Office.14).aspx</a> )	Restores a third-party backup of a search application.
<a href="http://technet.microsoft.com/library/858ef0ed-ced5-4b89-bba5-c43e6d0fa539(Office.14).aspx">Resume-SPEnterpriseSearchServiceApplication</a> ( <a href="http://technet.microsoft.com/library/858ef0ed-ced5-4b89-bba5-c43e6d0fa539(Office.14).aspx">http://technet.microsoft.com/library/858ef0ed-ced5-4b89-bba5-c43e6d0fa539(Office.14).aspx</a> )	Resumes a search service application that was suspended.
<a href="http://technet.microsoft.com/library/f8baccd0-21d2-40aa-b700-997ec7ca7011(Office.14).aspx">Set-SPEnterpriseSearchService</a> ( <a href="http://technet.microsoft.com/library/f8baccd0-21d2-40aa-b700-997ec7ca7011(Office.14).aspx">http://technet.microsoft.com/library/f8baccd0-21d2-40aa-b700-997ec7ca7011(Office.14).aspx</a> )	Sets the properties of a search service for a farm.

Cmdlet name	Description
<a href="http://technet.microsoft.com/library/77868ee0-716d-48a4-81dc-016b28652710(Office.14).aspx">Set-SPEnterpriseSearchServiceApplication</a> ( <a href="http://technet.microsoft.com/library/77868ee0-716d-48a4-81dc-016b28652710(Office.14).aspx">http://technet.microsoft.com/library/77868ee0-716d-48a4-81dc-016b28652710(Office.14).aspx</a> )	Sets the properties of a search service application for a farm.
<a href="http://technet.microsoft.com/library/460f7977-117b-4c9b-8085-d97ad30214dd(Office.14).aspx">Set-SPEnterpriseSearchServiceApplicationProxy</a> ( <a href="http://technet.microsoft.com/library/460f7977-117b-4c9b-8085-d97ad30214dd(Office.14).aspx">http://technet.microsoft.com/library/460f7977-117b-4c9b-8085-d97ad30214dd(Office.14).aspx</a> )	Sets properties of a search service application proxy.
<a href="http://technet.microsoft.com/library/88f14d64-e018-44f7-99d3-1f0d4594c4f2(Office.14).aspx">Set-SPEnterpriseSearchServiceInstance</a> ( <a href="http://technet.microsoft.com/library/88f14d64-e018-44f7-99d3-1f0d4594c4f2(Office.14).aspx">http://technet.microsoft.com/library/88f14d64-e018-44f7-99d3-1f0d4594c4f2(Office.14).aspx</a> )	Sets the properties of a search service instance.
<a href="http://technet.microsoft.com/library/55060c1d-4024-438e-b31d-6854df8b00d5(Office.14).aspx">Start-SPEnterpriseSearchServiceInstance</a> ( <a href="http://technet.microsoft.com/library/55060c1d-4024-438e-b31d-6854df8b00d5(Office.14).aspx">http://technet.microsoft.com/library/55060c1d-4024-438e-b31d-6854df8b00d5(Office.14).aspx</a> )	Starts an instance of a search service.
<a href="http://technet.microsoft.com/library/985591b0-951f-4274-aead-a184398bba41(Office.14).aspx">Stop-SPEnterpriseSearchServiceInstance</a> ( <a href="http://technet.microsoft.com/library/985591b0-951f-4274-aead-a184398bba41(Office.14).aspx">http://technet.microsoft.com/library/985591b0-951f-4274-aead-a184398bba41(Office.14).aspx</a> )	Stops an instance of a search manager service.
<a href="http://technet.microsoft.com/library/184af23d-deda-44d9-bdfe-4879cbf13fc4(Office.14).aspx">Suspend-SPEnterpriseSearchServiceApplication</a> ( <a href="http://technet.microsoft.com/library/184af23d-deda-44d9-bdfe-4879cbf13fc4(Office.14).aspx">http://technet.microsoft.com/library/184af23d-deda-44d9-bdfe-4879cbf13fc4(Office.14).aspx</a> )	Suspends a search service application, pausing all crawls and search operations, to perform a task such as system maintenance.
<a href="http://technet.microsoft.com/library/d864545d-2b27-4cc0-9c56-e421fb8d0641(Office.14).aspx">Upgrade-SPEnterpriseSearchServiceApplication</a> ( <a href="http://technet.microsoft.com/library/d864545d-2b27-4cc0-9c56-e421fb8d0641(Office.14).aspx">http://technet.microsoft.com/library/d864545d-2b27-4cc0-9c56-e421fb8d0641(Office.14).aspx</a> )	Upgrades a search service application.

## Querying

Cmdlet name	Description
<a href="http://technet.microsoft.com/library/245a4b7a-98d7-4fa0-a99a-ebb3c4be821b(Office.14).aspx">Get-SPEnterpriseSearchQueryAndSiteSettingsService</a> ( <a href="http://technet.microsoft.com/library/245a4b7a-98d7-4fa0-a99a-ebb3c4be821b(Office.14).aspx">http://technet.microsoft.com/library/245a4b7a-98d7-4fa0-a99a-ebb3c4be821b(Office.14).aspx</a> )	Returns the search manager service.
<a href="http://technet.microsoft.com/library/f1438a74-92fb-498d-aac1-66743403f3bc(Office.14).aspx">Get-SPEnterpriseSearchQueryAndSiteSettingsServiceInstance</a> ( <a href="http://technet.microsoft.com/library/f1438a74-92fb-498d-aac1-66743403f3bc(Office.14).aspx">http://technet.microsoft.com/library/f1438a74-92fb-498d-aac1-66743403f3bc(Office.14).aspx</a> )	Returns the service manager service instance.
<a href="http://technet.microsoft.com/library/08f5f0f9-4319-4faf-9468-7e0cd7aef9a4(Office.14).aspx">Get-SPEnterpriseSearchQueryAndSiteSettingsServiceProxy</a> ( <a href="http://technet.microsoft.com/library/08f5f0f9-4319-4faf-9468-7e0cd7aef9a4(Office.14).aspx">http://technet.microsoft.com/library/08f5f0f9-4319-4faf-9468-7e0cd7aef9a4(Office.14).aspx</a> )	Returns the search manager service proxy.

Cmdlet name	Description
<a href="http://technet.microsoft.com/library/2ba641eb-34f9-4026-a350-543fd7787aa5(Office.14).aspx">Get-SPEnterpriseSearchQueryAuthority</a> (http://technet.microsoft.com/library/2ba641eb-34f9-4026-a350-543fd7787aa5(Office.14).aspx)	Returns an authoritative page.
<a href="http://technet.microsoft.com/library/127236f0-7090-4220-8b79-937570fd1b4d(Office.14).aspx">Get-SPEnterpriseSearchQueryComponent</a> (http://technet.microsoft.com/library/127236f0-7090-4220-8b79-937570fd1b4d(Office.14).aspx)	Returns a query component.
<a href="http://technet.microsoft.com/library/3307ecb3-be25-4fc8-b863-ea561af780d1(Office.14).aspx">Get-SPEnterpriseSearchQueryDemoted</a> (http://technet.microsoft.com/library/3307ecb3-be25-4fc8-b863-ea561af780d1(Office.14).aspx)	Returns a demoted site rule.
<a href="http://technet.microsoft.com/library/0dcc571f-cc53-4838-9f32-cf0baab4306f(Office.14).aspx">Get-SPEnterpriseSearchQueryKeyword</a> (http://technet.microsoft.com/library/0dcc571f-cc53-4838-9f32-cf0baab4306f(Office.14).aspx)	Returns a keyword term.
<a href="http://technet.microsoft.com/library/228495d6-4716-4627-b46f-2b85eaa8edbc(Office.14).aspx">Get-SPEnterpriseSearchQueryScope</a> (http://technet.microsoft.com/library/228495d6-4716-4627-b46f-2b85eaa8edbc(Office.14).aspx)	Returns a query results scope.
<a href="http://technet.microsoft.com/library/534965fd-2b40-4973-94a5-5b56e26a01c5(Office.14).aspx">Get-SPEnterpriseSearchQueryScopeRule</a> (http://technet.microsoft.com/library/534965fd-2b40-4973-94a5-5b56e26a01c5(Office.14).aspx)	Returns a shared scope rule.
<a href="http://technet.microsoft.com/library/456b9bad-3b38-4688-958c-90a59a43cf3a(Office.14).aspx">Get-SPEnterpriseSearchQuerySuggestionCandidates</a> (http://technet.microsoft.com/library/456b9bad-3b38-4688-958c-90a59a43cf3a(Office.14).aspx)	Returns a list of queries.
<a href="http://technet.microsoft.com/library/1650b736-8edc-4bb7-975a-9265bd7be083(Office.14).aspx">Get-SPEnterpriseSearchQueryTopology</a> (http://technet.microsoft.com/library/1650b736-8edc-4bb7-975a-9265bd7be083(Office.14).aspx)	Returns a query topology.
<a href="http://technet.microsoft.com/library/86e09226-2821-4c28-83a4-c4d5dd496222(Office.14).aspx">Get-SPEnterpriseSearchRankingModel</a> (http://technet.microsoft.com/library/86e09226-2821-4c28-83a4-c4d5dd496222(Office.14).aspx)	Returns a ranking model.
<a href="http://technet.microsoft.com/library/60fd124a-e678-4440-9e37-852372a6d977(Office.14).aspx">Get-SPEnterpriseSearchSecurityTrimmer</a> (http://technet.microsoft.com/library/60fd124a-e678-4440-9e37-852372a6d977(Office.14).aspx)	Returns a custom security trimmer.
<a href="http://technet.microsoft.com/library/81be139d-d4ed-4390-b782-292fc9b15637(Office.14).aspx">New-SPEnterpriseSearchQueryAuthority</a> (http://technet.microsoft.com/library/81be139d-d4ed-4390-b782-292fc9b15637(Office.14).aspx)	Adds an authoritative page to a shared search application.
<a href="http://technet.microsoft.com/library/3b02336b-673f-4dde-9c4a-8f8e961c8373(Office.14).aspx">New-SPEnterpriseSearchQueryComponent</a> (http://technet.microsoft.com/library/3b02336b-673f-4dde-9c4a-8f8e961c8373(Office.14).aspx)	Adds a query component to a query topology.

Cmdlet name	Description
<a href="http://technet.microsoft.com/library/1fdc5255-a026-47f1-ad07-291694211a75(Office.14).aspx">New-SPEnterpriseSearchQueryDemoted</a> ( <a href="http://technet.microsoft.com/library/1fdc5255-a026-47f1-ad07-291694211a75(Office.14).aspx">http://technet.microsoft.com/library/1fdc5255-a026-47f1-ad07-291694211a75(Office.14).aspx</a> )	Adds a demoted site rule to a shared search application.
<a href="http://technet.microsoft.com/library/57a4e37e-462a-4b1b-8bea-39fcfe9ed34e(Office.14).aspx">New-SPEnterpriseSearchQueryKeyword</a> ( <a href="http://technet.microsoft.com/library/57a4e37e-462a-4b1b-8bea-39fcfe9ed34e(Office.14).aspx">http://technet.microsoft.com/library/57a4e37e-462a-4b1b-8bea-39fcfe9ed34e(Office.14).aspx</a> )	Adds a keyword term to a shared search application.
<a href="http://technet.microsoft.com/library/d466ffbc-daae-48a3-a376-9beb38f0fd26(Office.14).aspx">New-SPEnterpriseSearchQueryScope</a> ( <a href="http://technet.microsoft.com/library/d466ffbc-daae-48a3-a376-9beb38f0fd26(Office.14).aspx">http://technet.microsoft.com/library/d466ffbc-daae-48a3-a376-9beb38f0fd26(Office.14).aspx</a> )	Adds a query results scope to a shared search application.
<a href="http://technet.microsoft.com/library/fbcd7080-339c-470d-8bed-2509c99df204(Office.14).aspx">New-SPEnterpriseSearchQueryScopeRule</a> ( <a href="http://technet.microsoft.com/library/fbcd7080-339c-470d-8bed-2509c99df204(Office.14).aspx">http://technet.microsoft.com/library/fbcd7080-339c-470d-8bed-2509c99df204(Office.14).aspx</a> )	Adds a shared scope rule to a query scope.
<a href="http://technet.microsoft.com/library/8617b936-812d-4369-aac4-c2cdab2f9d41(Office.14).aspx">New-SPEnterpriseSearchQueryTopology</a> ( <a href="http://technet.microsoft.com/library/8617b936-812d-4369-aac4-c2cdab2f9d41(Office.14).aspx">http://technet.microsoft.com/library/8617b936-812d-4369-aac4-c2cdab2f9d41(Office.14).aspx</a> )	Adds a query topology to a shared search application.
<a href="http://technet.microsoft.com/library/80fdbeb4-356f-4212-8798-ef99839e94ce(Office.14).aspx">New-SPEnterpriseSearchRankingModel</a> ( <a href="http://technet.microsoft.com/library/80fdbeb4-356f-4212-8798-ef99839e94ce(Office.14).aspx">http://technet.microsoft.com/library/80fdbeb4-356f-4212-8798-ef99839e94ce(Office.14).aspx</a> )	Adds a ranking model to a shared search application.
<a href="http://technet.microsoft.com/library/493d9d19-ae43-43ce-b75f-916535881b35(Office.14).aspx">New-SPEnterpriseSearchSecurityTrimmer</a> ( <a href="http://technet.microsoft.com/library/493d9d19-ae43-43ce-b75f-916535881b35(Office.14).aspx">http://technet.microsoft.com/library/493d9d19-ae43-43ce-b75f-916535881b35(Office.14).aspx</a> )	Adds a custom security trimmer to a shared search application.
<a href="http://technet.microsoft.com/library/452c5cca-e16c-44c0-a5c5-e1dbedcae1c1(Office.14).aspx">Remove-SPEnterpriseSearchQueryAuthority</a> ( <a href="http://technet.microsoft.com/library/452c5cca-e16c-44c0-a5c5-e1dbedcae1c1(Office.14).aspx">http://technet.microsoft.com/library/452c5cca-e16c-44c0-a5c5-e1dbedcae1c1(Office.14).aspx</a> )	Deletes an authoritative page.
<a href="http://technet.microsoft.com/library/cc095fb3-f999-4971-80f5-3b48cf3e0a3b(Office.14).aspx">Remove-SPEnterpriseSearchQueryComponent</a> ( <a href="http://technet.microsoft.com/library/cc095fb3-f999-4971-80f5-3b48cf3e0a3b(Office.14).aspx">http://technet.microsoft.com/library/cc095fb3-f999-4971-80f5-3b48cf3e0a3b(Office.14).aspx</a> )	Deletes a query component.
<a href="http://technet.microsoft.com/library/f6c1d5ce-1c6b-4736-b9a3-d45f5dbb9b61(Office.14).aspx">Remove-SPEnterpriseSearchQueryDemoted</a> ( <a href="http://technet.microsoft.com/library/f6c1d5ce-1c6b-4736-b9a3-d45f5dbb9b61(Office.14).aspx">http://technet.microsoft.com/library/f6c1d5ce-1c6b-4736-b9a3-d45f5dbb9b61(Office.14).aspx</a> )	Deletes a demoted site rule.
<a href="http://technet.microsoft.com/library/0967401b-8688-48cc-bbec-cd4dea8f5f3b(Office.14).aspx">Remove-SPEnterpriseSearchQueryKeyword</a> ( <a href="http://technet.microsoft.com/library/0967401b-8688-48cc-bbec-cd4dea8f5f3b(Office.14).aspx">http://technet.microsoft.com/library/0967401b-8688-48cc-bbec-cd4dea8f5f3b(Office.14).aspx</a> )	Deletes a query keyword.
<a href="http://technet.microsoft.com/library/e5ba8abc-f858-40d2-87ac-eb6a2f6ce701(Office.14).aspx">Remove-SPEnterpriseSearchQueryScope</a> ( <a href="http://technet.microsoft.com/library/e5ba8abc-f858-40d2-87ac-eb6a2f6ce701(Office.14).aspx">http://technet.microsoft.com/library/e5ba8abc-f858-40d2-87ac-eb6a2f6ce701(Office.14).aspx</a> )	Deletes a query scope.

Cmdlet name	Description
<a href="#">Remove-SPEnterpriseSearchQueryScopeRule</a> ( <a href="http://technet.microsoft.com/library/b0f1de66-7272-4dc4-bf5e-408a5f11ef42(Office.14).aspx">http://technet.microsoft.com/library/b0f1de66-7272-4dc4-bf5e-408a5f11ef42(Office.14).aspx</a> )	Deletes query results scope rules.
<a href="#">Remove-SPEnterpriseSearchQueryTopology</a> ( <a href="http://technet.microsoft.com/library/edd73871-82d5-4d15-93c7-1c6f2ffd365a(Office.14).aspx">http://technet.microsoft.com/library/edd73871-82d5-4d15-93c7-1c6f2ffd365a(Office.14).aspx</a> )	Deletes a query topology.
<a href="#">Remove-SPEnterpriseSearchRankingModel</a> ( <a href="http://technet.microsoft.com/library/b52a90c9-aad4-4849-ba3d-0089ba2fde42(Office.14).aspx">http://technet.microsoft.com/library/b52a90c9-aad4-4849-ba3d-0089ba2fde42(Office.14).aspx</a> )	Deletes a ranking model.
<a href="#">Remove-SPEnterpriseSearchSecurityTrimmer</a> ( <a href="http://technet.microsoft.com/library/5dd04c24-6a23-4092-b0ab-7a41f13831d9(Office.14).aspx">http://technet.microsoft.com/library/5dd04c24-6a23-4092-b0ab-7a41f13831d9(Office.14).aspx</a> )	Deletes a custom security trimmer.
<a href="#">Restart-SPEnterpriseSearchQueryComponent</a> ( <a href="http://technet.microsoft.com/library/47e0d4d3-c998-4387-8cfd-764ff700ec63(Office.14).aspx">http://technet.microsoft.com/library/47e0d4d3-c998-4387-8cfd-764ff700ec63(Office.14).aspx</a> )	Restarts a failed query component.
<a href="#">Set-SPEnterpriseSearchQueryAuthority</a> ( <a href="http://technet.microsoft.com/library/4985f5e3-c922-45cb-b964-ec169e93f56c(Office.14).aspx">http://technet.microsoft.com/library/4985f5e3-c922-45cb-b964-ec169e93f56c(Office.14).aspx</a> )	Sets the properties of an authoritative page for a shared search application.
<a href="#">Set-SPEnterpriseSearchQueryComponent</a> ( <a href="http://technet.microsoft.com/library/77b67eb7-008d-4abe-bfef-1826557b5c28(Office.14).aspx">http://technet.microsoft.com/library/77b67eb7-008d-4abe-bfef-1826557b5c28(Office.14).aspx</a> )	Modifies properties for a query component.
<a href="#">Set-SPEnterpriseSearchQueryKeyword</a> ( <a href="http://technet.microsoft.com/library/6dc6b5a5-56d9-4ae2-b0f4-f4cb85bc4dec(Office.14).aspx">http://technet.microsoft.com/library/6dc6b5a5-56d9-4ae2-b0f4-f4cb85bc4dec(Office.14).aspx</a> )	Sets the properties of a keyword term for a shared search application.
<a href="#">Set-SPEnterpriseSearchQueryScope</a> ( <a href="http://technet.microsoft.com/library/894ba5fd-66e8-4b15-840d-14539bbb5859(Office.14).aspx">http://technet.microsoft.com/library/894ba5fd-66e8-4b15-840d-14539bbb5859(Office.14).aspx</a> )	Sets the properties of a query results scope for a shared search application.
<a href="#">Set-SPEnterpriseSearchQueryScopeRule</a> ( <a href="http://technet.microsoft.com/library/f7d7a893-134a-4c92-a5a9-9226fd62b2e8(Office.14).aspx">http://technet.microsoft.com/library/f7d7a893-134a-4c92-a5a9-9226fd62b2e8(Office.14).aspx</a> )	Sets the properties of a shared scope rule for a query scope.
<a href="#">Set-SPEnterpriseSearchQueryTopology</a> ( <a href="http://technet.microsoft.com/library/1528de19-f862-4afe-88bc-8d1f8d3247af(Office.14).aspx">http://technet.microsoft.com/library/1528de19-f862-4afe-88bc-8d1f8d3247af(Office.14).aspx</a> )	Sets the properties of a query topology for a shared search application.
<a href="#">Set-SPEnterpriseSearchRankingModel</a> ( <a href="http://technet.microsoft.com/library/67e3898f-1232-4149-9edd-eab8ba8cdc57(Office.14).aspx">http://technet.microsoft.com/library/67e3898f-1232-4149-9edd-eab8ba8cdc57(Office.14).aspx</a> )	Sets the properties of a ranking model for a shared search application.

Cmdlet name	Description
<a href="#">Start-SPEnterpriseSearchQueryAndSiteSettingsServiceInstance</a> ( <a href="http://technet.microsoft.com/library/362fe4d2-417d-4c5d-9a9f-046580980182(Office.14).aspx">http://technet.microsoft.com/library/362fe4d2-417d-4c5d-9a9f-046580980182(Office.14).aspx</a> )	Starts an instance of a search manager service.
<a href="#">Stop-SPEnterpriseSearchQueryAndSiteSettingsServiceInstance</a> ( <a href="http://technet.microsoft.com/library/ca0e1528-4e67-4e34-87db-e34e373df740(Office.14).aspx">http://technet.microsoft.com/library/ca0e1528-4e67-4e34-87db-e34e373df740(Office.14).aspx</a> )	Stops an instance of a search manager service.

## Metadata

Cmdlet name	Description
<a href="#">Get-SPEnterpriseSearchMetadataCategory</a> ( <a href="http://technet.microsoft.com/library/37317ac8-89c3-493f-a685-b44bbddf49c9(Office.14).aspx">http://technet.microsoft.com/library/37317ac8-89c3-493f-a685-b44bbddf49c9(Office.14).aspx</a> )	Returns a crawled property category.
<a href="#">Get-SPEnterpriseSearchMetadataCrawledProperty</a> ( <a href="http://technet.microsoft.com/library/0aff3f02-ef56-4ac3-8a32-254f3d6365e3(Office.14).aspx">http://technet.microsoft.com/library/0aff3f02-ef56-4ac3-8a32-254f3d6365e3(Office.14).aspx</a> )	Returns a crawled property.
<a href="#">Get-SPEnterpriseSearchMetadataManagedProperty</a> ( <a href="http://technet.microsoft.com/library/048a6d51-71f3-4d47-be19-6fd440f73557(Office.14).aspx">http://technet.microsoft.com/library/048a6d51-71f3-4d47-be19-6fd440f73557(Office.14).aspx</a> )	Returns a managed property.
<a href="#">Get-SPEnterpriseSearchMetadataMapping</a> ( <a href="http://technet.microsoft.com/library/840b9079-bd0d-4574-ab9b-515e8cf7cbf4(Office.14).aspx">http://technet.microsoft.com/library/840b9079-bd0d-4574-ab9b-515e8cf7cbf4(Office.14).aspx</a> )	Returns the current state of a managed property mapping.
<a href="#">New-SPEnterpriseSearchMetadataCategory</a> ( <a href="http://technet.microsoft.com/library/86994e75-e13f-49a9-8147-42b3729ea328(Office.14).aspx">http://technet.microsoft.com/library/86994e75-e13f-49a9-8147-42b3729ea328(Office.14).aspx</a> )	Adds a crawled property category to a search service application.
<a href="#">New-SPEnterpriseSearchMetadataCrawledProperty</a> ( <a href="http://technet.microsoft.com/library/c3015484-e301-48b1-88ba-4f3a01bf13e4(Office.14).aspx">http://technet.microsoft.com/library/c3015484-e301-48b1-88ba-4f3a01bf13e4(Office.14).aspx</a> )	Adds a crawled property to a search application crawled property category.
<a href="#">New-SPEnterpriseSearchMetadataManagedProperty</a> ( <a href="http://technet.microsoft.com/library/dd049d48-4379-41ec-ae51-e0a8b3d35a49(Office.14).aspx">http://technet.microsoft.com/library/dd049d48-4379-41ec-ae51-e0a8b3d35a49(Office.14).aspx</a> )	Adds a managed property to a shared search application.

Cmdlet name	Description
<a href="http://technet.microsoft.com/library/9d6a7ce8-78df-4c04-91f2-5c2f4e0296c1(Office.14).aspx">New-SPEnterpriseSearchMetadataMapping</a> ( <a href="http://technet.microsoft.com/library/9d6a7ce8-78df-4c04-91f2-5c2f4e0296c1(Office.14).aspx">http://technet.microsoft.com/library/9d6a7ce8-78df-4c04-91f2-5c2f4e0296c1(Office.14).aspx</a> )	Adds a managed property mapping to a shared search application.
<a href="http://technet.microsoft.com/library/2232f886-49bc-4745-84f6-fadb4cd91e56(Office.14).aspx">Remove-SPEnterpriseSearchMetadataCategory</a> ( <a href="http://technet.microsoft.com/library/2232f886-49bc-4745-84f6-fadb4cd91e56(Office.14).aspx">http://technet.microsoft.com/library/2232f886-49bc-4745-84f6-fadb4cd91e56(Office.14).aspx</a> )	Deletes a crawled property category.
<a href="http://technet.microsoft.com/library/0d1e9ea8-2e36-4e9a-9fa8-1ab6dc4c29b1(Office.14).aspx">Remove-SPEnterpriseSearchMetadataManagedProperty</a> ( <a href="http://technet.microsoft.com/library/0d1e9ea8-2e36-4e9a-9fa8-1ab6dc4c29b1(Office.14).aspx">http://technet.microsoft.com/library/0d1e9ea8-2e36-4e9a-9fa8-1ab6dc4c29b1(Office.14).aspx</a> )	Deletes a metadata managed property.
<a href="http://technet.microsoft.com/library/6e686288-92ec-447d-ae0d-506816d43119(Office.14).aspx">Remove-SPEnterpriseSearchMetadataMapping</a> ( <a href="http://technet.microsoft.com/library/6e686288-92ec-447d-ae0d-506816d43119(Office.14).aspx">http://technet.microsoft.com/library/6e686288-92ec-447d-ae0d-506816d43119(Office.14).aspx</a> )	Deletes a metadata mapping from a managed property.
<a href="http://technet.microsoft.com/library/cd69f7af-dabe-4a09-88a9-b0bcbb2fa9e(Office.14).aspx">Set-SPEnterpriseSearchMetadataCategory</a> ( <a href="http://technet.microsoft.com/library/cd69f7af-dabe-4a09-88a9-b0bcbb2fa9e(Office.14).aspx">http://technet.microsoft.com/library/cd69f7af-dabe-4a09-88a9-b0bcbb2fa9e(Office.14).aspx</a> )	Sets properties of a crawled property category for a shared search application.
<a href="http://technet.microsoft.com/library/59540fb5-c246-4732-83c5-eeeb17c9b7a1(Office.14).aspx">Set-SPEnterpriseSearchMetadataCrawledProperty</a> ( <a href="http://technet.microsoft.com/library/59540fb5-c246-4732-83c5-eeeb17c9b7a1(Office.14).aspx">http://technet.microsoft.com/library/59540fb5-c246-4732-83c5-eeeb17c9b7a1(Office.14).aspx</a> )	Sets the properties of a metadata crawled property for a shared search application.
<a href="http://technet.microsoft.com/library/8f4af923-59c4-47fb-a34e-74370b67e94f(Office.14).aspx">Set-SPEnterpriseSearchMetadataManagedProperty</a> ( <a href="http://technet.microsoft.com/library/8f4af923-59c4-47fb-a34e-74370b67e94f(Office.14).aspx">http://technet.microsoft.com/library/8f4af923-59c4-47fb-a34e-74370b67e94f(Office.14).aspx</a> )	Sets the properties of a metadata managed property.
<a href="http://technet.microsoft.com/library/aff22bea-cb4d-418e-bd54-507958f06580(Office.14).aspx">Set-SPEnterpriseSearchMetadataMapping</a> ( <a href="http://technet.microsoft.com/library/aff22bea-cb4d-418e-bd54-507958f06580(Office.14).aspx">http://technet.microsoft.com/library/aff22bea-cb4d-418e-bd54-507958f06580(Office.14).aspx</a> )	Sets the properties of a managed property mapping for a shared search application.

## Topology

Cmdlet name	Description
<a href="http://technet.microsoft.com/library/ff9d8da2-60c8-4331-a1c9-222aa38b5565(Office.14).aspx">Import-SPEnterpriseSearchTopology</a> ( <a href="http://technet.microsoft.com/library/ff9d8da2-60c8-4331-a1c9-222aa38b5565(Office.14).aspx">http://technet.microsoft.com/library/ff9d8da2-60c8-4331-a1c9-222aa38b5565(Office.14).aspx</a> )	Imports and activates a topology from an XML file.
<a href="http://technet.microsoft.com/library/90fd0de0-1495-43f6-b71f-e40665c28f9b(Office.14).aspx">Export-SPEnterpriseSearchTopology</a> ( <a href="http://technet.microsoft.com/library/90fd0de0-1495-43f6-b71f-e40665c28f9b(Office.14).aspx">http://technet.microsoft.com/library/90fd0de0-1495-43f6-b71f-e40665c28f9b(Office.14).aspx</a> )	Exports an existing search topology.

## General

Cmdlet name	Description
<a href="#">Get-SPEnterpriseSearchIndexPartition</a> ( <a href="http://technet.microsoft.com/library/27f89cc1-82a6-4213-9249-c643bcf7c917(Office.14).aspx">http://technet.microsoft.com/library/27f89cc1-82a6-4213-9249-c643bcf7c917(Office.14).aspx</a> )	Returns an index partition for a query topology.
<a href="#">Get-SPEnterpriseSearchLanguageResourcePhrase</a> ( <a href="http://technet.microsoft.com/library/eefb089d-aed8-475c-825d-80eaea17a9f7(Office.14).aspx">http://technet.microsoft.com/library/eefb089d-aed8-475c-825d-80eaea17a9f7(Office.14).aspx</a> )	Returns a language resource phrase.
<a href="#">Get-SPEnterpriseSearchPropertyDatabase</a> ( <a href="http://technet.microsoft.com/library/37261042-043f-40f8-88b8-61f59ae391ad(Office.14).aspx">http://technet.microsoft.com/library/37261042-043f-40f8-88b8-61f59ae391ad(Office.14).aspx</a> )	Returns a property store.
<a href="#">Get-SPEnterpriseSearchSiteHitRule</a> ( <a href="http://technet.microsoft.com/library/ba0d415d-5b7e-4392-9a80-c73292b2294e(Office.14).aspx">http://technet.microsoft.com/library/ba0d415d-5b7e-4392-9a80-c73292b2294e(Office.14).aspx</a> )	Returns the shared site hit rule.
<a href="#">New-SPEnterpriseSearchLanguageResourcePhrase</a> ( <a href="http://technet.microsoft.com/library/c1a18869-1996-4a36-9f1e-884d158ddc0b(Office.14).aspx">http://technet.microsoft.com/library/c1a18869-1996-4a36-9f1e-884d158ddc0b(Office.14).aspx</a> )	Adds a language resource phrase to a shared search application.
<a href="#">New-SPEnterpriseSearchPropertyDatabase</a> ( <a href="http://technet.microsoft.com/library/a5ec08de-112c-483c-9d62-1c31dd3b5634(Office.14).aspx">http://technet.microsoft.com/library/a5ec08de-112c-483c-9d62-1c31dd3b5634(Office.14).aspx</a> )	Creates a new property store for use by a search service application.
<a href="#">New-SPEnterpriseSearchSiteHitRule</a> ( <a href="http://technet.microsoft.com/library/b7a7b3f5-bc2c-4592-9168-7ff465768e79(Office.14).aspx">http://technet.microsoft.com/library/b7a7b3f5-bc2c-4592-9168-7ff465768e79(Office.14).aspx</a> )	Adds a new site hit rule for a search application.
<a href="#">Remove-SPEnterpriseSearchLanguageResourcePhrase</a> ( <a href="http://technet.microsoft.com/library/135519df-dc6e-446d-9a61-0cd8fee4ca1a(Office.14).aspx">http://technet.microsoft.com/library/135519df-dc6e-446d-9a61-0cd8fee4ca1a(Office.14).aspx</a> )	Deletes a language resource phrase from a shared search application.
<a href="#">Remove-SPEnterpriseSearchPropertyDatabase</a> ( <a href="http://technet.microsoft.com/library/02fb3ddb-47d6-45ed-b7a3-982319dd081f(Office.14).aspx">http://technet.microsoft.com/library/02fb3ddb-47d6-45ed-b7a3-982319dd081f(Office.14).aspx</a> )	Deletes a property store.
<a href="#">Remove-SPEnterpriseSearchSiteHitRule</a> ( <a href="http://technet.microsoft.com/library/5551df7f-5f62-4c67-ae59-96b89e95a60a(Office.14).aspx">http://technet.microsoft.com/library/5551df7f-5f62-4c67-ae59-96b89e95a60a(Office.14).aspx</a> )	Deletes a site hit rule.
<a href="#">Set-SPEnterpriseSearchIndexPartition</a>	Sets properties of an index partition for a query

Cmdlet name	Description
( <a href="http://technet.microsoft.com/library/05c9abce-473d-4fc4-ad7a-e904e18e20d0(Office.14).aspx">http://technet.microsoft.com/library/05c9abce-473d-4fc4-ad7a-e904e18e20d0(Office.14).aspx</a> )	topology.
<a href="http://technet.microsoft.com/library/8911564e-5880-4fe7-a8ae-566674a36ebf(Office.14).aspx">Set-SPEnterpriseSearchPropertyDatabase</a> ( <a href="http://technet.microsoft.com/library/8911564e-5880-4fe7-a8ae-566674a36ebf(Office.14).aspx">http://technet.microsoft.com/library/8911564e-5880-4fe7-a8ae-566674a36ebf(Office.14).aspx</a> )	Modifies properties for a property store.

## Microsoft FAST Search Server 2010 for SharePoint

Microsoft FAST Search Server 2010 for SharePoint can replace SharePoint Server search features in environments where scale and performance requirements exceed the capabilities of SharePoint Server search. FAST Search Server 2010 for SharePoint can be deployed across multiple servers for redundancy and to increase performance and capacity. Deployment and management take place primarily through command-line operations — not the SharePoint Central Administration Web site — and can be scripted by using Windows PowerShell. FAST Search Server 2010 for SharePoint is only available with a SharePoint Server Enterprise Client Access License (CAL).

The following table describes the cmdlets for FAST Search Server 2010 for SharePoint.

Cmdlet name	Description
<a href="http://technet.microsoft.com/library/f061446c-8de1-48d4-b777-88bcdd268117(Office.14).aspx">Get-SPEnterpriseSearchExtendedConnectorProperty</a> ( <a href="http://technet.microsoft.com/library/f061446c-8de1-48d4-b777-88bcdd268117(Office.14).aspx">http://technet.microsoft.com/library/f061446c-8de1-48d4-b777-88bcdd268117(Office.14).aspx</a> )	Returns the value of the property of the search service application.
<a href="http://technet.microsoft.com/library/876b902c-caf3-41f9-85e0-1c830f952b97(Office.14).aspx">New-SPEnterpriseSearchExtendedConnectorProperty</a> ( <a href="http://technet.microsoft.com/library/876b902c-caf3-41f9-85e0-1c830f952b97(Office.14).aspx">http://technet.microsoft.com/library/876b902c-caf3-41f9-85e0-1c830f952b97(Office.14).aspx</a> )	Adds new Extended Connector properties.
<a href="http://technet.microsoft.com/library/9a80a9c2-4366-462f-973d-703a0a971bb1(Office.14).aspx">Set-SPEnterpriseSearchExtendedConnectorProperty</a> ( <a href="http://technet.microsoft.com/library/9a80a9c2-4366-462f-973d-703a0a971bb1(Office.14).aspx">http://technet.microsoft.com/library/9a80a9c2-4366-462f-973d-703a0a971bb1(Office.14).aspx</a> )	Sets the value of an <b>ExtendedConnector</b> object.
<a href="http://technet.microsoft.com/library/ee5bbb96-6ac1-4720-ab46-2fb1eea4a4f1(Office.14).aspx">Remove-SPEnterpriseSearchExtendedConnectorProperty</a> ( <a href="http://technet.microsoft.com/library/ee5bbb96-6ac1-4720-ab46-2fb1eea4a4f1(Office.14).aspx">http://technet.microsoft.com/library/ee5bbb96-6ac1-4720-ab46-2fb1eea4a4f1(Office.14).aspx</a> )	Removes properties of search service applications of <b>ExtendedConnector</b> type.
<a href="http://technet.microsoft.com/library/4ff4d0af-f23a-4b0d-97f8-191fd9b8d75a(Office.14).aspx">Set-SPEnterpriseSearchExtendedQueryProperty</a> ( <a href="http://technet.microsoft.com/library/4ff4d0af-f23a-4b0d-97f8-191fd9b8d75a(Office.14).aspx">http://technet.microsoft.com/library/4ff4d0af-f23a-4b0d-97f8-191fd9b8d75a(Office.14).aspx</a> )	Sets FAST Search for SharePoint service-specific properties.
<a href="http://technet.microsoft.com/library/33e39289-24de-4beb-b796-">Get-SPEnterpriseSearchExtendedQueryProperty</a> ( <a href="http://technet.microsoft.com/library/33e39289-24de-4beb-b796-">http://technet.microsoft.com/library/33e39289-24de-4beb-b796-</a> )	Returns the properties used for connecting SharePoint to a FAST

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Cmdlet name	Description
06829b41034c(Office.14).aspx	Search for SharePoint service.
<a href="http://technet.microsoft.com/library/1a9ab408-12a9-4b26-b0df-f93fb1105712(Office.14).aspx">Get-SPEnterpriseSearchExtendedClickThroughExtractorJobDefinition</a> ( <a href="http://technet.microsoft.com/library/1a9ab408-12a9-4b26-b0df-f93fb1105712(Office.14).aspx">http://technet.microsoft.com/library/1a9ab408-12a9-4b26-b0df-f93fb1105712(Office.14).aspx</a> )	Gets an object representing the click-through extractor-job instance of a specific FAST Search for SharePoint search service application.

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# SharePoint Foundation 2010 Search cmdlets (Search Server 2010)

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Search for Microsoft SharePoint Foundation 2010 provides embedded search for site collections. Typically, Search for SharePoint Foundation 2010 is scoped to a single site collection and does not crawl external data sources. Most search capabilities are configured automatically, and search crawls happen automatically without scheduling and without administrator control.

Cmdlet name	Description
<a href="#">Get-SPSearchService</a> ( <a href="http://technet.microsoft.com/library/90160cc4-60c3-4983-8b4a-674cbf4c4f9c(Office.14).aspx">http://technet.microsoft.com/library/90160cc4-60c3-4983-8b4a-674cbf4c4f9c(Office.14).aspx</a> )	Returns a search service.
<a href="#">Set-SPSearchService</a> ( <a href="http://technet.microsoft.com/library/664d55c9-c436-4096-a385-446c920f4df1(Office.14).aspx">http://technet.microsoft.com/library/664d55c9-c436-4096-a385-446c920f4df1(Office.14).aspx</a> )	Sets properties of a search service.
<a href="#">Get-SPSearchServiceInstance</a> ( <a href="http://technet.microsoft.com/library/d0fcee38-4403-4ef6-b3ed-c28cec050557(Office.14).aspx">http://technet.microsoft.com/library/d0fcee38-4403-4ef6-b3ed-c28cec050557(Office.14).aspx</a> )	Returns an instance of a search service.
<a href="#">Set-SPSearchServiceInstance</a> ( <a href="http://technet.microsoft.com/library/85dce2d2-1b01-4f7f-86d0-5523c432efe6(Office.14).aspx">http://technet.microsoft.com/library/85dce2d2-1b01-4f7f-86d0-5523c432efe6(Office.14).aspx</a> )	Sets properties of a search service instance.

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## Language packs (Search Server 2010)

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This article lists the language packs that are available for Microsoft Search Server 2010. Language packs enable you to create sites and site collections in multiple languages without requiring separate installations of Search Server 2010 in each language. The language packs can be downloaded at [2010 Server Language Packs for SharePoint Server 2010, Project Server 2010, Search Server 2010, and Office Web Apps 2010](http://go.microsoft.com/fwlink/?LinkID=192105&clcid=0x409) (<http://go.microsoft.com/fwlink/?LinkID=192105&clcid=0x409>).

The following table lists the language packs that are available for Search Server 2010:

Language	Language ID
Arabic	1025
Chinese (Simplified)	2052
Chinese (Traditional)	1028
Danish	1030
Dutch	1043
English	1033
French	1036
German	1031
Hebrew	1037
Hindi	1081
Italian	1040
Japanese	1041
Korean	1042
Polish	1045
Portuguese (Brazil)	1046
Russian	1049
Spanish	3082
Swedish	1053
Thai	1054