Sharepoint 2013

Administration Essentials

By Destin Joy

Copyright

Message from the Author

Thank you for being a part of C# Corner and the Mindcracker Network, a free online community for IT developers and professionals.

I would also like to thank John Panicker for the design and Hari Kumar for reviewing the book.

We have always been a big believer and advocate of free knowledge and education for all. To continue this belief, we personally have begun writing free distributable books for our members. Please feel free to share this book with your friends and co-workers.

Also, do not forget to share your knowledge and spread the word around about C# Corner and the Mind cracker Network.

Cheers!

Destin Joy
Microsoft MVP, SharePoint Server

About the Author

SharePoint® Developer 2010

Microsoft Office SharePoint® Server 2007, Application Development
SharePoint® 2010, Application Development
SharePoint® 2010, Configuration

Destin Joy, an ardent Tech enthusiastic in SharePoint. For his exuberance in SharePoint arena, he has been awarded with the coveted MVP (**Microsoft Most Valuable professional)** award consecutively for the last three years. With more than 8 years of industrial experience, he is actively involved in various MSDN forums & news groups on a routine basis. Destin also holds membership in **Developer Guidance Web Advisory Council of Microsoft.** He has authored more than 200 articles in SharePoint and also co-authored two **EBooks** Named **SharePoint designer 2013 Essentials, SharePoint 2013 capacity planning.** A Master's Degree holder in Computer Application, Destin is also certified in **MCTS in SharePoint 2007** application development**.** His contributions are mostly featured in C-Sharp Corner. In addition he owns and maintains a SharePoint user group in LinkedIn named SharePoint Server 2013 Experts,.

Contents

Abstract

This EBook provides some information about planning for capacity and performance requirements for deploying SharePoint Server 2013. The book covers server sizing, performance testing and software boundaries. This EBook is intended to, information architects, IT generalists, program managers, and infrastructure specialists who are planning to have a solution based on SharePoint Server 2013. This book will help you to Understand the concepts behind effective capacity management, Define performance and capacity targets for your environment, Select the appropriate data architecture that is suitable for your organization. Later part of the book also covers the configurations that have t o be done on SharePoint 2013

Supported Operating Systems

To install SharePoint Server 2013 in your environment, your infrastructure must leverage the following minimum requirements:

	Windows version/edition (64 bit only)	SharePoint 2013 support
1.	Windows Server 2008 R2 Standard with SP1	Yes
2.	Windows Server 2008 R2 Enterprise with SP1	Yes
3.	Windows Server 2008 R2 Datacenter with SP1	Yes
4.	Windows Server 2012 Standard	Yes
5.	Windows Server 2012 Enterprise	Yes
6.	Windows Server 2012 Datacenter	Yes

Software Requirements:

The SharePoint 2013 requires any of the following SQL Server version. The details of hardware requirement we will discuss in detail later in the book.

- The 64-bit edition of Microsoft SQL Server 2012.
- The 64-bit edition of SQL Server 2008 R2 Service Pack 1

SharePoint Server 2013 capacity management model

Capacity management spreads the concept of capacity planning to prompt a recurring approach in which the capacity of a SharePoint Server 2013 deployment is continually observed and optimized to accommodate changing conditions and requirements.

Capacity management is an ongoing process, because no application remains static in terms of content and usage. You need to plan for growth and change, so that your environment can continue to deliver an effective user experience. SharePoint Server 2013 supports increased flexibility and can be configured to withstand usage scenarios in a wide variety of different scale points.

The following figure 1 show the steps we need to follow while dealing with SharePoint 2013 capacity planning

Model

Modeling is the processes by which we decide the key solutions that we want our environment to support, and establish all important metrics and parameters. We have to take care of the following things when we go ahead with modeling.

- Concurrent users (number of distinct users at any time)
- Requests per Seconds (RPS) – This workload can be hard to estimate but may be gauged through performance testing from use cases or monitoring during a pilot/test phase
- Total daily requests
- Total daily users
- Workload distribution

At the end of our Model Phase the following are the deliverables.

- Understand your expected workload and dataset.
- Set farm performance and reliability targets.
- Analyze the SharePoint Server 2013 IIS logs.

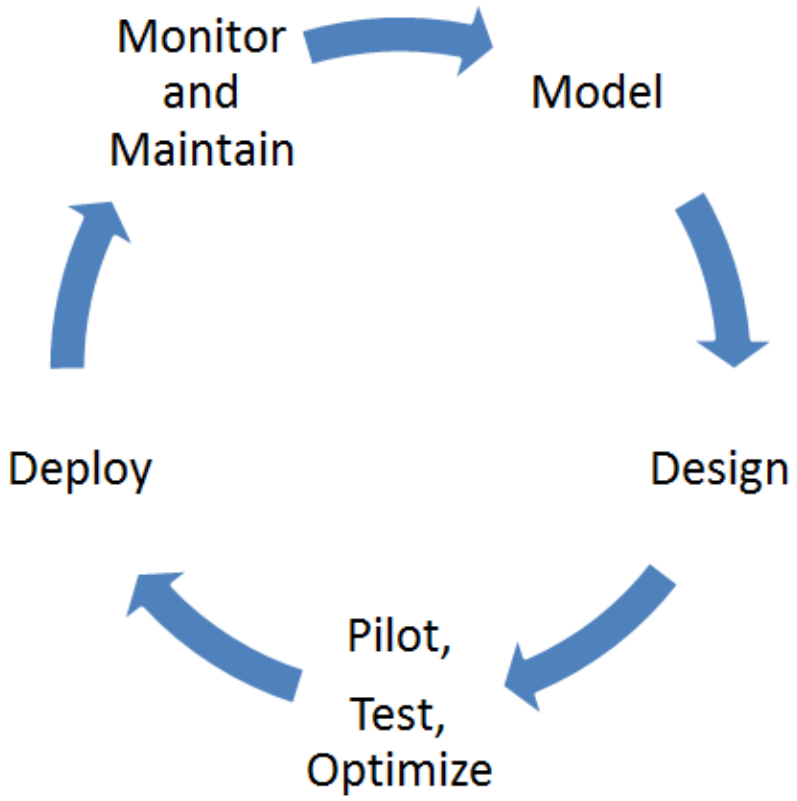


Figure 1

Design

Once we done with Step 1, we can design our farm. Outputs are detailed data architecture and physical and logical topologies. This is one crucial step we need to go through.

- Determine your starting point architecture.
- Select your hardware.

Pilot, Test, and Optimize

Once we have designed a new deployment Architecture, we need to deploy a pilot environment for testing against our workload and expected usage characteristics.. The output from this phase is analysis of test results against targets, and an optimized architecture able to sustain established performance and capacity targets.

- **Pilot:** Deploy a pilot environment.
- **Test**: Test against latency and throughput targets.
- **Optimize:** Gather test results and make any required changes to the farm topology

Deploy

On this phase we have to go with implementing the farm. Output for a new design is a completed deployment to live production, including all content and user migrations.

Monitor and maintain

On this phase we have to set up monitoring, and how to predict and identify blocks and perform regular maintenance and bottleneck moderation activities

Major aspects of sizing SharePoint Farm:

Capacity management focuses on the following four major aspects of sizing your solution:

Latency

Latency is defined as the duration between the time a user initiates an action, such as clicking on a hyperlink, and the time until the last byte is transmitted to the client application or browser.

Throughput

Throughput is defined as the number of concurrent requests that a server or server farm is able to process.

Data scale

Data scale is defined as the content size and data corpus that the system can host. The structure and distribution of the content databases has a significant impact on

the time it takes the system to process requests and the number of concurrent requests it can serve.

Reliability

Reliability is a measurement of the ability of the system to meet the targets set for the latency and throughput over time.

SharePoint Services and resource utilization on Servers

The following table provides a simplified high level description of the resource requirements for the different services on each tier. Please refer the table below for the details

Low – Indicates minimal or insignificant load on the system's resources

Medium – Indicates medium load on the system's resources

High – Indicates high load on the system's resources

Service Application	Web server CPU	Web server RAM	Application server CPU	Application server RAM	SQL Server CPU	SQL Server IOPS	SQL Server storage
SharePoint Foundation Service	High	High			Medium	High	High
Central Admin service			Medium	Medium	Low	Low	Low

Logging Service	Medium	Medium			Medium	High	High
SharePoint Search Service	High	High	High	High	High	High	High
Word Viewing Service Application	Low	Low	High	Medium			
PowerPoint Service	Medium	Medium	High	Medium			
Excel Calculation Service	Medium	Low	Medium	High			
Visio Service	Low	Low	High	High	Low	Low	Low
Access Service	Low	Low	High	Medium	Low	Low	Low
User Profile Service	Low	Medium	Medium	Medium	High	High	Medium
Managed Metadata Service	Low	Medium	Medium	Medium	Low	Low	Medium
Business Connection Service	Medium	Medium	High	High			

InfoPath Forms Service	Medium	Medium	Medium	Medium	Low	Low	Low
Word Conversion Service	Low	Low	High	Medium	Low	Low	Low
Performance Point Service Application	Medium	Medium	High	High	Low	Low	Low
Project Service	Low	Low	Low	Low	High	High	Medium
Sandboxed Solutions	Low	Low	High	High			
Workflow capabilities	High	High					
Timer Service	Medium	Medium	Medium	Medium			
Power Pivot	Low	Low	High	High	Medium	Medium	High

Specifications

Hardware

We should be very careful while selecting the hardware for the SharePoint Farm. Hardware as you know is the computer's physical properties such as processors, memory, and hard disks. This also includes physical network components such as NICs (Network Interface Cards), cables, switches, routers and hardware load balancers. Many performance and capacity issues can be resolved by making sure that the accurate hardware is being used. Conversely, a single mismanagement of a hardware resource, such as insufficient memory on a server, can affect performance across the entire farm.

Topology

Topology is the distribution and relationships of farm hardware and components. There are two kinds of topology

- **Logical topology**: The representation of software components such as services and features in a farm.
- **Physical topology**: The representation of servers and physical resources.

The number of users and usage characteristics determine the physical topology of a farm. The business requirements such as the need to support specific features for expected load determine the logical topology.

Configuration

Configuration describes software settings and how parameters are set. Also, configuration refers to caching, RBS, how configurable limits are set, and any part of the software environment that can be set or modified to meet specific requirements.

Reference architectures

SharePoint Server 2013 is a composite and powerful. Each SharePoint Server 2013 deployment is unique, and is defined by its usage and data characteristics. Every organization needs to achieve a thorough capacity management process and effectively take advantage of the flexibility that the SharePoint Server 2013 system offers to customize a correctly sized solution that best satisfies the organizational needs.

The traditional three-tier roles of a SharePoint 2013 farm can be deployed on a single server or many servers. The three-tier roles include:

Web server role

- Host Web pages, Web services, and Web Parts that are necessary to process requests served by the farm.
- Direct requests to the appropriate application servers.
- This role is necessary for farms that include other SharePoint Server 2013 capabilities. In dedicated search service farms, this role is not necessary because Web servers at remote farms contact query servers directly.

In small farms, this role can be shared on a server with the query component.

Application server role

Application server roles are associated with services that can be deployed to a physical computer.

- Each service represents a separate application service that can potentially reside on a dedicated application server.
- Services with similar usage and performance characteristics can be grouped on a server and scaled out onto multiple servers together. For example, client-related services can be combined into a service group.
- After deployment, look for services that consume a disproportionate amount of resources and consider placing these services on dedicated hardware.

Database server role

In a small farm environment, all databases can be deployed to a single server. In larger environments, group databases by roles and deploy these to multiple database servers.

Service applications

Service applications are services that are shared across sites within a farm (for example, Search and Excel Services). Some service applications can be shared across multiple farms.

In SharePoint 2013 Shared Service Providers (SSP's) are replaced by Service Applications. Services are no longer combined into a SSP. They are running independent as a service

application. The service application architecture is now also built into Microsoft SharePoint Foundation 2013, in contrast to the Shared Services Provider (SSP) architecture that was only part of Office SharePoint Server 2007.

A key benefit here is that all services are installed by default and there is no SSP setup additionally.

- The services architecture is extensible, allowing third-party companies to build and add services to the platform.
- Services are managed directly in Central Administration (In SSP it was a separate administration site).
- Services can be monitored and managed remotely.
- Services can be managed and scripted by Windows PowerShell
- Shared services communications take place over HTTP(S). Shared services do not directly access databases across farms.
- Most new services are built on the Windows Communications Framework. They have optimization built into their protocol, using binary streams instead of XML for data transfer. Test results show improvements in network throughput with this change.

The key limitation of the SSP architecture was that it was configured by using a set of services, and all Web applications associated with the SSP bore the overhead of all the services even if they weren't being used. To change the service configuration for a particular Web application, a new SSP would have to be created.

The service application architecture on the other hand, allows a set of services to be associated with a given Web application and a different set of services to be associated with another Web application. Also, the same service application can be configured differently in different Web applications; therefore, Web sites can be configured to use only the services that are needed, rather than the entire bank of services. Similar to the SSP model in Office SharePoint Server 2007, a single set of services can be shared by all sites in a farm. By publishing a service application (from the sharing group, under

Service application tab), you can share it across server farms. This capability does not apply to all service applications, and some services can be shared only within a single server farm.

The service application model provides a suitable approach to addressing the scalability and delegation issues with SSPs and also is a fundamental enabler for a much wider feature capability in SharePoint 2013. Indeed the service application model pushes Microsoft's most "service orientated" product vastly further ahead in the realm of distributed application platform sanitation.

The service application model allows SharePoint 2013 to scale further than ever before, way further. It also introduces flexibility with respect to deployment that is unmatched in the marketplace.

Services on server

The Services on Server page in Central Administration lists services that are started or stopped on specific servers in the farm:

Some of these services are associated with service applications. You deploy service applications by starting the associated services on the desired server computers.

Some of these services are not associated with service applications.

This model lists these services and indicates the server roles for which the services are recommended.

Limited deployments

Evaluation environments and production environments for limited numbers of users.

One Server Farm: Evaluation or <100 users

Two tier Deployment

In this architecture we have dedicated database server. This will be suitable for users less than 1000.For high availability it is recommended to have clustered or mirrored database servers are recommended

Small farm topologies

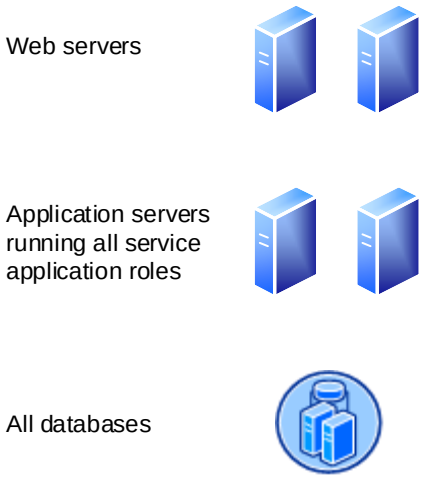
Small farm architectures serve a larger number of users and scale out based on how heavily services are used. Because of the greater number of services, including client Web applications, more requests per user are expected in the new version compared with the old version.

Two-tier small farm

Two Web servers are predicted to serve 10,000-20,000 users.

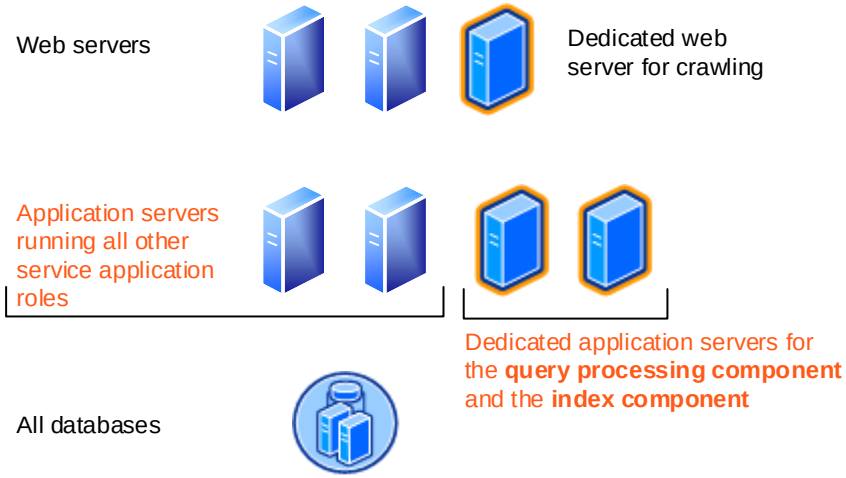
Three-tier small farm

Add a dedicated application server for environments with moderate service usage.



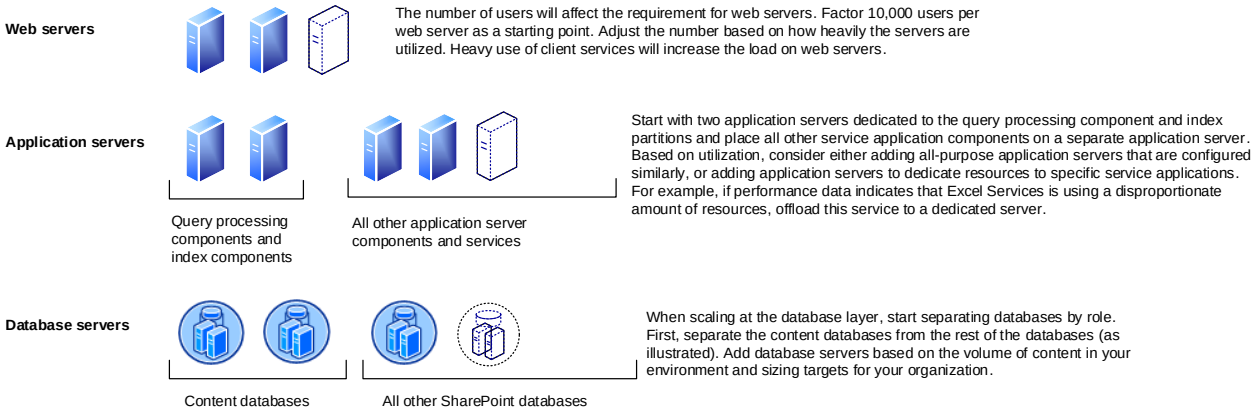
Three-tier small farm optimized for search

With hardware dedicated to search databases, this topology is optimized for search to work well in environments with up to 10 million items.



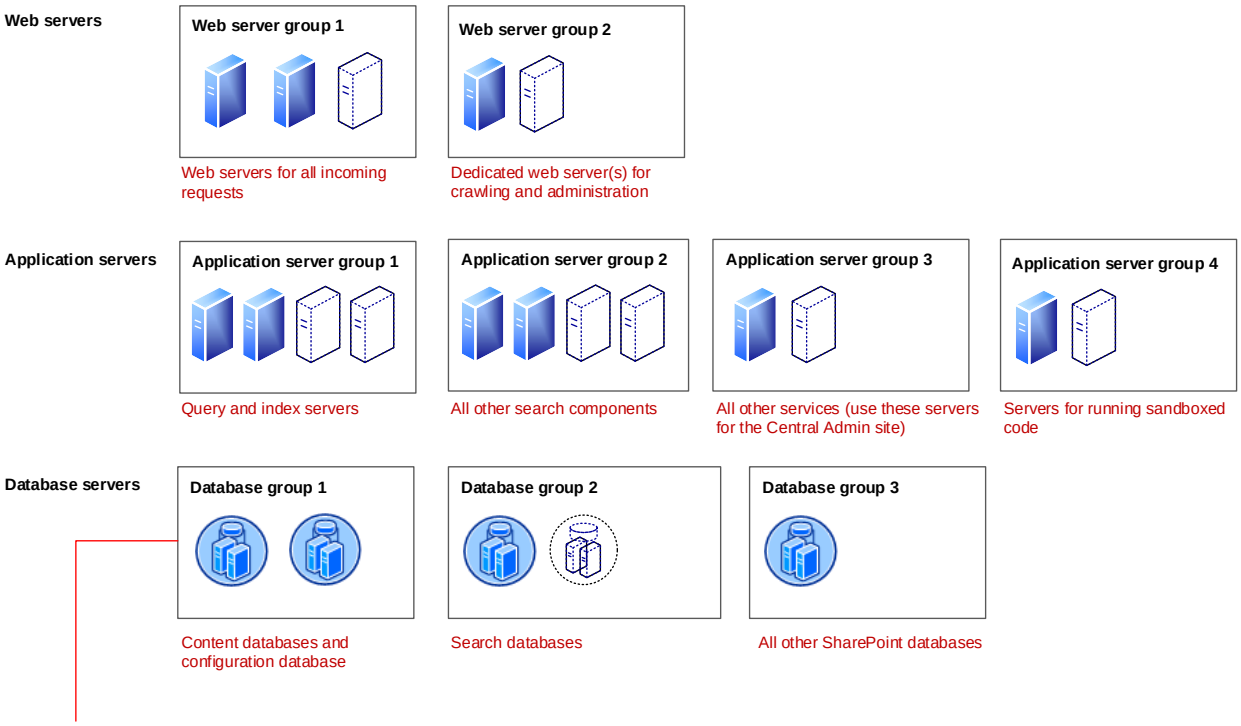
Medium farm architectures

The medium server farm illustrated is scaled for search to serve approximately 40 million items. Beyond this search scale, the recommendation is to deploy a dedicated search farm. Scale out all other servers based on the utilization of other service applications and services within the farm and the volume of content the farm will host.



Topologies with server groups

The recommendation for scaling out a large farm is to group service applications, services, or databases with similar performance characteristics onto dedicated servers and then scale out the servers as a group. The following topology explains a practical example of this concept. The green text lists one possible way to build server groups.



Storage groups

Storage groups is a concept in which similar types of databases are grouped together and scaled out independent of the rest of the databases based on need. All databases within a storage group are treated the same with backup procedures and restore protocols. The best practice is to include the configuration database with the content database group.

- Several service applications federated and consumed from dedicated services farm, typically the User Profile Service, Search, Managed Metadata service, and Web Analytics.
- Most other service applications are enabled locally.
- A user base in the range of hundreds of thousands of users.
- A usage load in the range of hundreds of requests per second.
- A dataset in the range of ten or more terabytes.

Capacity planning for SharePoint Server 2013

In this section, we are going somewhat deep to the steps you should take to undertake effective capacity management for your environment. Each step requires certain information for successful execution, and has a set of deliverables that you will use in the subsequent step. One of the most important things for planning, managing and governing a SharePoint 2013 environment is to understand the boundaries and thresholds that affect performance and maintenance. Capacity Planning is extremely important when architecting a new SharePoint 2013 environment. A lot of times people designing SharePoint environments or creating SharePoint solutions totally forget about how Capacity Planning is directly tied to use cases and business scenarios. Knowing where your limits are and how you plan to grow will affect both your physical topology and logical topology.

Design and configuration SharePoint 2013 storage and database tier

We have to follow the below steps. Each section provides detailed information about each design step, including storage requirements and best practices

Collect storage and SQL Server space and I/O requirements

Several SharePoint Server 2013 architectural factors influence storage design. The amount of content, features and service applications used, number of farms, and availability needs are key factors.

Estimate content database storage

The following process describes how to approximately estimate the storage required for content databases, without considering log files:

1. Calculate the expected number of documents. This value is referred to as D in the formula. How you calculate the number of documents will be determined by the features that you are using. For example, for My Sites or collaboration sites, we

recommend that you calculate the expected number of documents per user and multiply by the number of users. For records management or content publishing sites, you may calculate the number of documents that are managed and generated by a process. If you are migrating from a current system, it may be easier to extrapolate your current growth rate and usage. If you are creating a new system, review your existing file shares or other repositories and estimate based on that usage rate.

2. Estimate the average size of the documents that you will be storing. This value is referred to as S in the formula. It may be worthwhile to estimate averages for different types or groups of sites. The average file size for My Sites, media repositories, and different department portals can vary significantly.

3. Estimate the number of list items in the environment. This value is referred to as **L** in the formula. List items are more difficult to estimate than documents. We generally use an estimate of three times the number of documents (D), but this will vary based on how you expect to use your sites.

4. Determine the approximate number of versions. Estimate the average number of versions any document in a library will have (this value will usually be much lower than the maximum allowed number of versions). This value is referred to as V in the formula.

   The value of V must be above zero.

5. Use the following formula to estimate the size of your content databases:

   Database size = ((D × V) × S) + (10 KB × (L + (V × D)))

the value of 10 KB in the formula is a constant that roughly estimates the amount of metadata required by SharePoint Server 2013. If your system requires significant use of metadata, you may want to increase this constant.

As an example, you can use the below table for content database size calculation. Here we have used around 8000 employees.

No	Item	Size
	Number of documents (D)	1,600,000 (Calculated by assuming 8,000 users times 20 documents)
	Average size of documents KB (S)	300
	List items (L)	600
	Number of non-current versions (V)	4 (Assuming that the maximum versions allowed is 10)
Database size = ((D × V) × S) + (10 KB × (L + (V × D)))		
	Database size (KB)	1,984,006,000.00
	Database size (GB)	1,89.2
	Config	2 GB
	Central Admin Content	1 GB
	Usage and Health data	2 GB

	collection	
	Web Analytics – Staging	100 GB
	Secure Store	40 MB(5 MB /1000 credentials)
	Admin	1 GB
	Crawl(4.6% Content DB)	8.6 GB
	Index Disk Space	26.GB
	Profiles	8000(1 MB per User)
	My site[100MB(Quota)*8000) Sky Drive	800000 MB
	ULS Log	38 GB
	Synchronization DB (630 KB/User)	5 GB(For one year)
	Social tagging • (Approximately 10% of users are considered active. • Active users create 4.5 tags and 1.8 comments per month.	2 GB(For one Year)

Recycle bins

Unless we delete a document is fully from both the first stage and second stage recycle bin, it occupies space in a content database. Calculate how many documents are deleted each month to determine the effect of recycle bins on the size of content databases. You can configure Recycle bins as mentioned below using Central Administration.

Verify that the user account that is performing this procedure is a member of the Farm Administrators SharePoint group.

1) On the SharePoint Central Administration Web site, click Application Management.
2) On the Application Management page, click Manage Web Applications.
3) Click the Web application for which you want to configure Recycle Bin settings. The ribbon becomes active.
4) On the ribbon, click the General Settings drop-down menu, and then click General Settings.
5) On the Web Application General Settings page, in the Recycle Bin section, you can configure the following settings:
6) You can set the Recycle Bins for the Web application to be On or Off. By default, Recycle Bins are turned on.

7) You can specify a time after which items in the Recycle Bins are deleted, or you can specify that these items should never be deleted. By default, items are deleted after 30 days.
8) You can specify a percentage of live site quotas for second-stage deleted items. The default setting is 50 percent. You can also turn off second-stage Recycle Bins. If you select Off, site collection administrators cannot recover items deleted from end-user Recycle Bins. The second-stage Recycle Bin quota percentage must be a value from 1 through 500.
9) After you have finished configuring the Recycle Bins, click OK.

Auditing

Audit data can quickly compound and use large amounts of space in a content database, especially if view auditing is turned on. Rather than letting audit data grow without limit, we recommend that you only enable auditing on the events that are important to meet supervisory needs or internal controls. Use the following guidelines to estimate the space you will need to reserve for auditing data

Estimate the number of new auditing entries for a site, and multiply this number by 2 KB Based on the space that you want to allocate, determine the number of days of audit logs you want to keep.

Capacity planning for tempdb

This session provides guidelines for determining the appropriate amount of disk space that tempdb requires for your SQL Server 2008 R2. We are trying to explains recommendations about how to configure tempdb for optimal performance in a production environment and information about how to monitor tempdb space usage.

The tempdb system database is a global resource that is available to all users that are connected to an instance of SQL Server. The tempdb database is used to store the user objects, internal objects, and version stores.

User Objects

User objects are plainly created by the user. These objects may be in the scope of a user session or in the scope of the routine in which the object is created. User objects can be one of the following.

- User-defined tables and indexes
- System tables and indexes
- Global temporary tables and indexes

- Local temporary tables and indexes
- Table variables
- Tables returned in table-valued functions

Internal Objects

Internal objects are created as necessary by the SQL Server Database Engine to process SQL Server statements. Internal objects are created and dropped within the scope of a statement. Internal objects can be one of the following:

- Work tables for cursor or spool operations and temporary large object (LOB) storage.
- Work files for hash join or hash aggregate operations.

Version Stores

A version store is a collection of data pages that hold the data rows that are required to support the features that use row versioning. There are two version stores: a common version store and an online-index-build version store.

Row versions that are generated by data modification transactions for features such as: online index operations, Multiple Active Result Sets (MARS), and AFTER triggers.

Ideally, place the tempdb, content databases, and SQL Server 2008 transaction logs on separate physical hard disks.

It is recommended practice that the number and size of data files allocated for the tempdb should be equal to the number and size of core CPUs.

Optimal Tempdb data file sizes can be calculated using the following formula

[MAX DB SIZE (KB)] X [.25] / [# CORES] = DATA FILE SIZE (KB)

Monitor tempdb Use

Running out of disk space in tempdb can cause significant disruptions in the SQL Server production environment and can prevent applications that are running from completing operations. You can use the sys.dm_db_file_space_usage dynamic management view to monitor the disk space that is used by these features in the tempdb files. Additionally, to monitor the page allocation or deallocation activity in tempdb at the session or task level, you can use the sys.dm_db_session_space_usage and sys.dm_db_task_space_usage dynamic management views. These views can be used to identify large queries, temporary tables, or table variables that are using lots of tempdb disk space. There are also several counters that can be used to monitor the free space that is available in tempdb and also the resources that are using tempdb. For more information, see Troubleshooting Insufficient Disk Space in tempdb.

Optimizing SQL for SharePoint

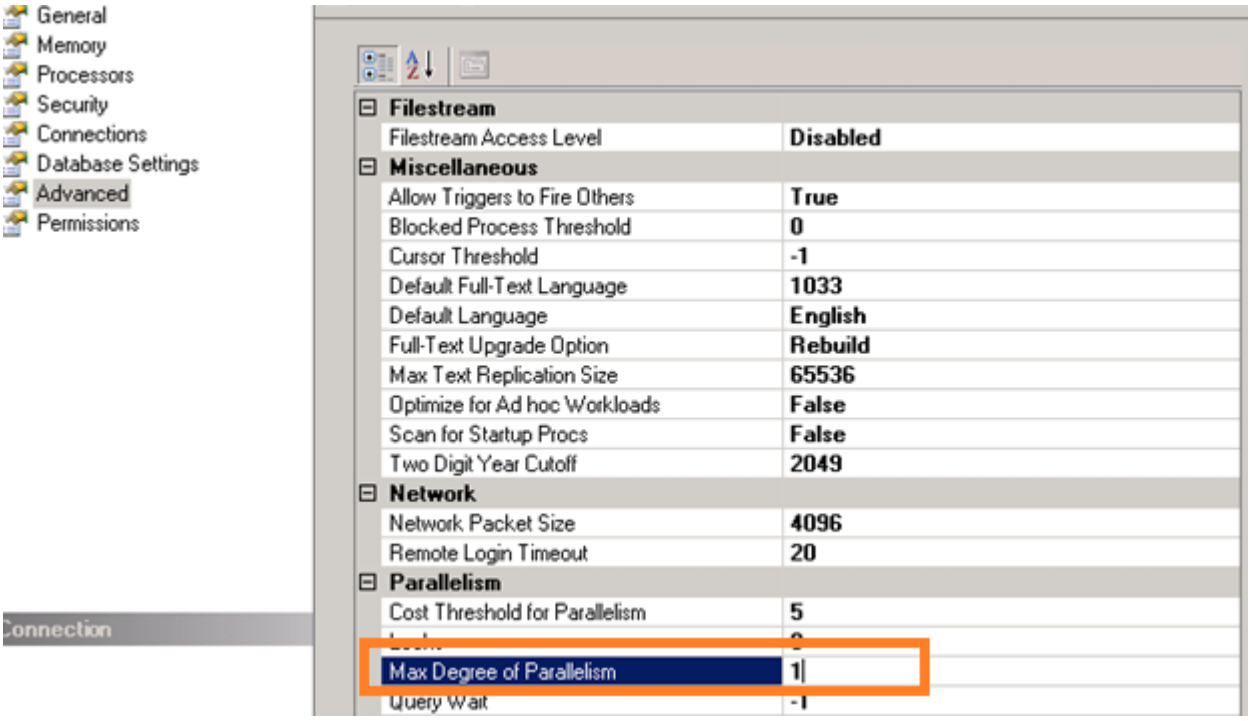
Here we are discussing some point on how we can make SQL server for optimal performance with SharePoint 2013.There are two factors we need to consider for the same.

1) MAXDOP
2) AUTO_UPDATE_STATISTICS & AUTO_CREATE_STATISTICS

MAXDOP

MAXDOP should be set to 1 on the SQL Server instance.When SQL Server runs on a computer with more than one microprocessor or CPU, it detects the best degree of

parallelism, that is, the number of processors employed to run a single statement, for each parallel plan execution. You can use the max degree of parallelism option to limit the number of processors to use in parallel plan execution. To enable the server to determine the maximum degree of parallelism, set this option to 0, the default value. Setting maximum degree of parallelism to 0 allows SQL Server to use all the available processors up to 64 processors. To suppress parallel plan generation, set max degree of parallelism to 1. Set the value to a number greater than 1 to restrict the maximum number of processors used by a single query execution. The maximum value for the degree of parallelism setting is controlled by the edition of SQL Server, CPU type, and operating system. If a value greater than the number of available processors is specified, the actual number of available processors is used. If the computer has only one processor, the max degree of parallelism value is ignored.



AUTO_UPDATE_STATISTICS & AUTO_CREATE_STATISTICS

There some confusion about these two settings that are set per database. The reason for the confusion is, that these settings are different per SharePoint version, for SharePoint 2007 it is recommended to enable AUTO_UPDATE_STATISTICS & AUTO_CREATE_STATISTICS. However, since the release of SP2 for SharePoint 2007, the product team introduced a new timer job called "Database statistics" which itself takes care in updating the statistics for the databases. This timer job is also available in SharePoint 2013 therefore we recommended disabling AUTO_UPDATE_STATISTICS. When a new content database is created, the AUTO_CREATE_STATISTICS is set to be disabled which is the recommendation. It can happen, after a migration from SharePoint 2007 to 2013 that this option is still enabled and therefore should be set to disabled as well.

In short, SharePoint 2013, both should be set to be disabled.

Configure SQL Server security for SharePoint 2013

Please make below settings to make sure SharePoint 2013 is configured wih maximum SQL Server security

- Block UDP port 1434.
- Configure named instances of SQL Server to listen on a nonstandard port (other than TCP port 1433 or UDP port 1434).
- For additional security, block TCP port 1433 and reassign the port that is used by the default instance to a different port.
- Configure SQL Server client aliases on all front-end web servers and application servers in the server farm. After you block TCP port 1433 or UDP port 1434, SQL Server client aliases are necessary on all computers that communicate with the computer that is running SQL Server.

To configure a SQL Server instance to listen on a non-default port

Verify that the user account that is performing this procedure is a member of either the sysadmin or the serveradmin fixed server role.

1. On the computer that is running SQL Server, open SQL Server Configuration Manager.In the navigation pane, expand **SQL Server Network Configuration**.
2. Click the corresponding entry for the instance that you are configuring.
3. The default instance is listed as **Protocols for MSSQLSERVER**. Named instances will appear as **Protocols for named_instance**.
4. In the main window in the **Protocol Name** column, right-click **TCP/IP**, and then click **Properties**.
5. Click the **IP Addresses** tab.
6. For every IP address that is assigned to the computer that is running SQL Server, there is a corresponding entry on this tab. By default, SQL Server listens on all IP addresses that are assigned to the computer.
7. To globally change the port that the default instance is listening on, follow these steps:
8. For each IP address except **IPAll**, clear all values for both **TCP dynamic ports** and **TCP Port**.
9. For **IPAll**, clear the value for **TCP dynamic ports**. In the **TCP Port** field, enter the port that you want the instance of SQL Server to listen on. For example, enter 40000.
10. To globally change the port that a named instance is listening on, follow these steps:
11. For each IP address including **IPAll**, clear all values for **TCP dynamic ports**. A value of 0 for this field indicates that SQL Server uses a dynamic TCP port for the IP address. A blank entry for this value means that SQL Server will not use a dynamic TCP port for the IP address.
12. For each IP address except **IPAll**, clear all values for **TCP Port.**
13. For **IPAll**, clear the value for **TCP dynamic ports**. In the **TCP Port** field, enter the port that you want the instance of SQL Server to listen on. For example, enter 40000.
14. Click **OK**.
15. A message indicates that that the change will not take effect until the SQL Server service is restarted. Click **OK**.
16. Close SQL Server Configuration Manager.

17. Restart the SQL Server service and confirm that the computer that is running SQL Server is listening on the port that you selected.
18. You can confirm this by looking in the Event Viewer log after you restart the SQL Server service. Look for an information event similar to the following event:

Event Type:Information

Event Source:MSSQL$MSSQLSERVER

Event Category:(2)

Event ID:26022

Date:3/6/2008

Time:1:46:11 PM

User:N/A

Computer:*computer_name*

Description:

Server is listening on ['any' <ipv4>50000]

Configure Windows Firewall to open manually assigned ports

1. Verify that the user account that is performing this procedure is a member of either the sysadmin or the serveradmin fixed server role.
2. In **Control Panel**, open **System and Security**.
3. Click **Windows Firewall**, and then click **Advanced Settings** to open the **Windows Firewall with Advanced Security** dialog box.
4. In the navigation pane, click **Inbound Rules** to display the available options in the **Actions** pane.
5. Click **New Rule** to open the **New Inbound Rule Wizard**.
6. Use the wizard to complete the steps that are required to allow access to the port that you defined

Software boundaries and limits

In SharePoint Server 2013, there are certain limits that are by design and cannot be exceeded, and other limits that are set to default values that may be changed by the farm administrator. There are also certain limits that are not represented by a configurable value, such as the number of site collections per Web application.

Boundaries are absolute limits that cannot be exceeded by design. It is important to understand these limits to ensure that you do not make incorrect assumptions when you design your farm.

An example of a boundary is the 2 GB document size limit; you cannot configure SharePoint Server to store documents that are larger than 2 GB. This is a built-in absolute value, and cannot be exceeded by design.

Thresholds are those that have a default value that cannot be exceeded unless the value is modified. Thresholds can, in certain circumstances, be exceeded to accommodate variances in your farm design, but it is important to understand that this may affect the performance of the farm in addition to the effective value of other limits.

The default value of certain thresholds can only be exceeded up to an absolute maximum value. A good example is the document size limit. By default, the default document size threshold is set to 50MB, but can be changed to support the maximum boundary of 2GB.

Some supported limits are configurable parameters that are set by default to the recommended value, while other supported limits relate to parameters that are not represented by a configurable value.

An example of a supported limit is the number of site collections per Web application. The supported limit is 250,000, which is the largest number of site collections per Web application that met performance benchmarks during testing.

If there is an increase in certain limits, such as the number of site collections per Web application may only result in a fractional decrease in farm performance. However, in most cases, operating at or near an established limit is not a best practice, as acceptable performance and reliability targets are best achieved when a farm's design provides for a reasonable balance of limits values.

Thresholds and supported limits guidelines are determined by performance. In other words, you can exceed the default values of the limits, but as you increase the limit value, farm performance and the effective value of other limits may be affected. Many limits in SharePoint Server can be changed, but it is important to understand how changing a given limit affects other parts of the farm.

Limit	Maximum value	Limit type
Web application	20 per farm	Supported
Zone	5 per web application	Boundary
Managed path for host-named site collections	20 per farm	Supported
Managed path for path-based site collections	20 per web application	Supported
Solution cache size	300 MB per web application	Threshold

Web server and application server limits

The following table lists the recommended guidelines for web servers on the farm.

Limit	Maximum value	Limit type
Application pools	10 per web server	Threshold

Content database limits

The following table lists the recommended guidelines for content databases.

Limit	Maximum value	Limit type
Number of content databases	500 per farm	Supported
Content database size (general usage scenarios)	200 GB per content database	Supported
Content database size (all usage scenarios)	4 TB per content database	Supported
Content database size (document archive scenario)	No explicit content database limit	Supported
Content database items	60 million items including documents and list items	Supported
Site collections per content database	10,000 maximum (2,500 non-Personal site collections and 7,500 Personal Sites, or 10,000 Personal Sites alone)	Supported
Remote BLOB Storage (RBS) storage subsystem on Network Attached Storage (NAS)	Time to first byte of any response from the NAS cannot exceed 20 milliseconds	Boundary

Site collection limits

The following table lists the recommended guidelines for site collections.

Limit	Maximum value	Limit type
Site collections per farm	750,000 (500,000 Personal Sites and 250,000 other sites per farm)	Supported
Web site	250,000 per site collection	Supported
Site collection size	Maximum size of the content database	Supported
Number of device channels per publishing site collection	10	Boundary

List and library limits

The following table lists the recommended guidelines for lists and libraries

Limit	Maximum value	Limit type

List row size	8,000 bytes per row	Boundary
File size	2 GB	Boundary
Documents	30,000,000 per library	Supported
Major versions	400,000	Supported
Minor versions	511	Boundary
Items	30,000,000 per list	Supported
Rows size limit	6 table rows internal to the database used for a list or library item	Supported
Bulk operations	100 items per bulk operation	Boundary
List view lookup threshold	8 join operations per query	Threshold
List view threshold	5,000	Threshold
List view threshold for auditors and administrators	20,000	Threshold
Subsite	2,000 per site view	Threshold
Coauthoring in Word and PowerPoint for .docx, .pptx and .ppsx files	10 concurrent editors per document	Threshold
Security scope	50,000 per list	Threshold

Column limits

SharePoint Server 2013 data is stored in SQL Server tables. To allow for the maximum number of possible columns in a SharePoint list, SharePoint Server 2013 will create several rows in the database when data will not fit on a single row. This is called row wrapping.

Limit	Maximum value	Limit type	Size per column
Single line of text	276	Threshold	28 bytes
Multiple Lines of Text	192	Threshold	28 bytes
Choice	276	Threshold	28 bytes
Number	72	Threshold	12 bytes
Currency	72	Threshold	12 bytes
Date and Time	48	Threshold	12 bytes

Lookup	96	Threshold	4 bytes
Yes / No	96	Threshold	5 bytes
Person or group	96	Threshold	4 bytes
Hyperlink or picture	138	Threshold	56 bytes
Calculated	48	Threshold	28 bytes
GUID	6	Threshold	20 bytes
Int	96	Threshold	4 bytes
Managed metadata	94	Threshold	40 bytes for the first, 32 bytes for each subsequent

For more details about the software boundaries please refer the below TechNet article

http://technet.microsoft.com/en-us/library/cc262787.aspx

If you change the maximum size of documents to 1 GB to accommodate videos or other large objects, the number of documents your library can serve to users efficiently is reduced accordingly. For example, a given farm's hardware configuration and topology may support 1 million documents up to 60 MB. However, the same farm with the same number of documents cannot meet the same latency and throughput targets if the farm is serving a larger average document size because the file size limit was set to 1 GB. So keep in mind these points when you design the farm.

Virtualization planning

SharePoint 2013 requires the deployment of multiple services, such as web servers, application servers, and database servers as discussed above. In many corporate environments, these services are deployed on separate physical servers to ensure effective response times, high availability, and scalability with business needs. This can result in underused resources as we are using dedicated physical servers for each tier. The server sits idle and consumes space, power, and support while "waiting for some other services to happen." By deploying physical hardware to support each component

and service of SharePoint Server, organizations peril increased costs and more complex management.

With virtualization technologies, organizations can consolidate workloads across multiple underused servers onto a smaller number of servers. Having fewer physical machines can help to reduce costs through lower hardware, power, and management overhead.

The factors like high availability, greater flexibility, and improved manageability is the driving force behind the virtualization of the SharePoint infrastructure

A virtual environment consists of two interrelated layers, one physical and one virtual. A configuration change in either of these layer effects servers in the other layer. This interrelationship becomes evident when you plan for, deploy, and use SharePoint Server 2013 in a virtual environment.

We have the following three major tasks to determine the scope of virtualization.

- Identify all the farms that are required to implement your solution. Take into consideration the fact that most solutions have several farm components. For example, an Internet-facing Web portal typically has a publishing farm, an authoring farm and a testing or quality assurance farm.
- For each farm, determine the number of servers that are required as well as the role that each server will have in the farm.
- Identify which farms you want to deploy in in a virtual environment.

We have the following three major tasks to Identify capacity requirements for each farm server.

- Memory
- Number of processors and minimum clock speed
- Number and size of hard disks
- Number of network adapters and their required throughput speed

A well-designed architecture is required for a successful solution. For SharePoint Server 2013, a basic three-tier topology provides the foundation for all the solutions. The

following elements form a good design that is based on the recommended foundation topology

- Good overall performance
- Ease of maintenance and upgrade
- Flexibility
- Scalability
- High availability

Advantages of Virtualization

Virtualizing SharePoint and its server components can provide many business and technical benefits. With virtualization, you can consolidate hardware and effortlessness server management and provisioning. This will helps to promote cost savings, business continuity, and agile management. SharePoint virtualization is ideal for organizations that have more than one SharePoint farm, such as those with high availability production, testing, and development environments.

Hardware consolidation essentially allows us to run different SharePoint servers and various server components sharing the same hardware set. Hardware consolidation yields a variety of benefits.

Resource utilization and balancing

With SharePoint virtualization and the built-in enhancements of the Hyper-V 64-bit multiprocessor and multicore technology, we can run multiple workloads on different, isolated virtual machines. This will helps to use and balance resources more efficiently. Because you manage only a single physical server that runs isolated virtual machines, it is easier to provision and balance various resources, such as RAM and disk space, for different SharePoint server components.

Reduced costs for physical infrastructure, maintenance, power, and cooling

Server consolidation reduces server count, which, in turn, reduces the cost of SharePoint infrastructure and maintenance. Consequently, cooling needs and power consumption are also reduced.

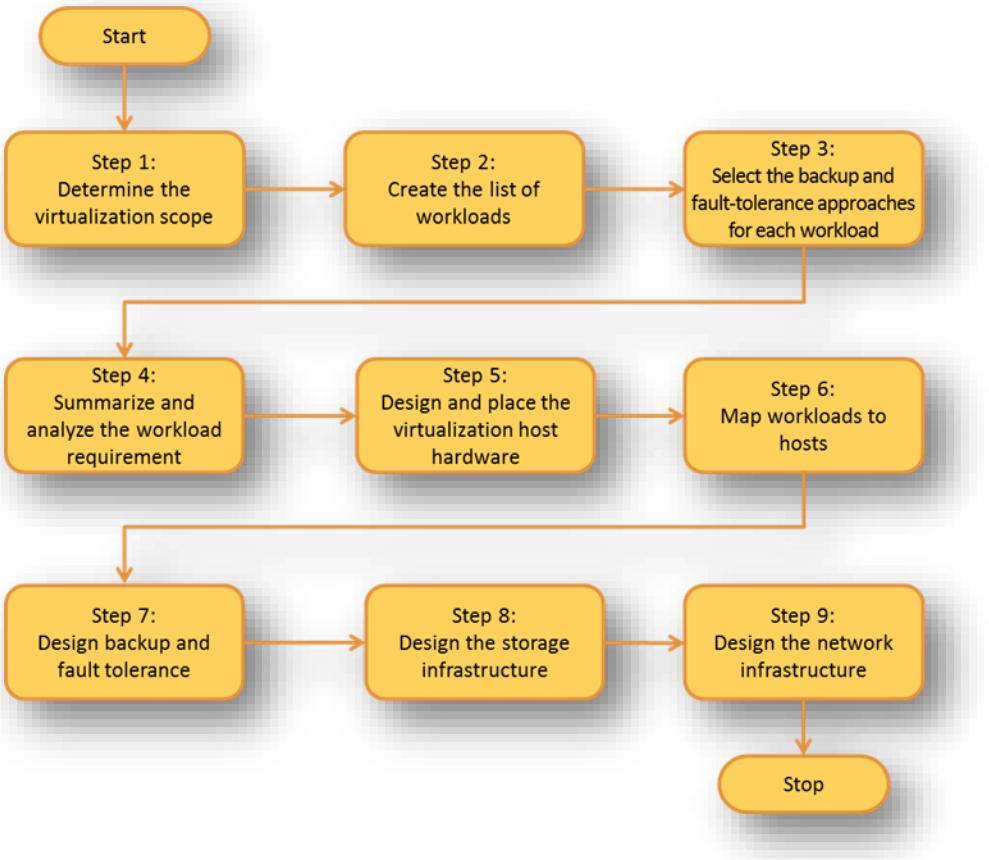
Less physical space

By virtualizing SharePoint farms you can provide required capabilities with less servers, thereby freeing up space originally allotted for servers.

Virtual Deployment

Planning for a SharePoint deployment largely focuses on the physical architecture. In virtualized deployments, each virtual machine should be viewed as a physical machine. The physical architecture, consisting of one or more servers and the network infrastructure, enables you to implement the logical architecture for a SharePoint Server solution.

After planning a physical farm, you have all the information necessary to design virtualization architecture. To plan a virtual farm, you follow nearly the same steps as you would for a physical farm. Most, if not all, requirements for deploying SharePoint Server 2013 on physical servers also apply to virtual machines. Any decisions you make, such as minimum processor or memory requirements, have a direct bearing on the number of virtualization hosts needed, as well as their ability to adequately support the virtual machines identified for the farm. Below figure shows a well-planned implementation of Windows Server 2008 Hyper-V for server virtualization.



Hardware and Software Requirements

The hardware and software requirements for virtualizing SharePoint Server 2013 and its components are described in the table below.

Component	Requirements
Hardware	Processor: Virtualization technology (Intel VT) or AMD virtualization (AMD-V) technology

	Hardware-enforced data execution prevention (DEP) available and enabled
Software (one product required)	Windows Server 2008 R2 SP1 Windows Server 2012
	Windows Server 2008 R2 SP1 Windows Server 2012
	Microsoft Hyper-V Server
	Hyper-V Server

Physical and Virtual Topology

SharePoint deployment planning give emphasis to physical architecture, so for virtualized deployments, you should view each virtual machine as a physical machine. The physical architecture enables you to implement the logical architecture for a SharePoint Server solution. The physical architecture is typically described in two ways

Size: Can be measured in several ways, such as the number of users or documents, and is used to categorize a farm as small, medium, or large.

Topology: Uses the idea of tiers or server groups to define a logical arrangement of farm servers.

The following table describes possible mapping of physical-to-virtual architecture in the context of SharePoint virtualization.(More details can be found in SharePoint 2013 Virtualization Guidance and Recommendations)

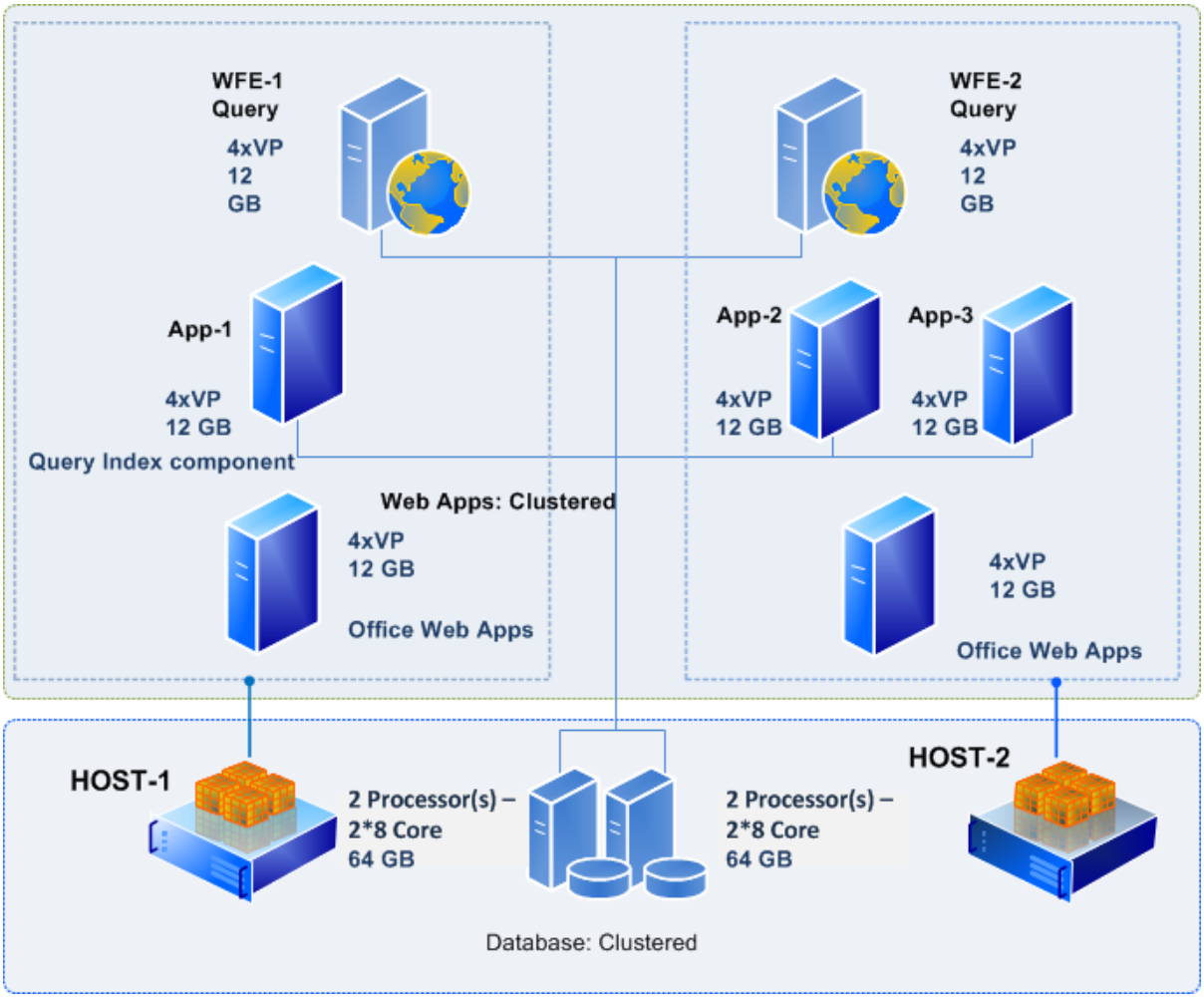
Deployment Specifications			
Server	Memory	Processor	Disk
Virtual Host	24GB RAM	2 quad-core (8 cores)	C: drive-OS, Windows Server 2008 R2 SP1 or Windows Server 2012 with Hyper-V, 100GB dedicated volume D: drive-Dedicated volume for OS VHDs E: drive-500GB dedicated volume for SQL Server database VHDs F: drive-100GB dedicated volume for SQL Server log VHDs
SQL Server	12GB RAM	4 virtual processors	C: drive-OS, fixed-size VHD (100GB) D: drive-Fixed-size VHD (100GB) for SQL Server logs E: drive-Fixed-size VHD (500GB) for SQL Server data
SharePoint Web/ /App	10GB RAM	4 virtual processors	C: drive-OS and transport queue logs, fixed-size VHD (100GB) E: drive-Fixed-size VHD (100GB)

Capacity management and high availability in a virtual environment

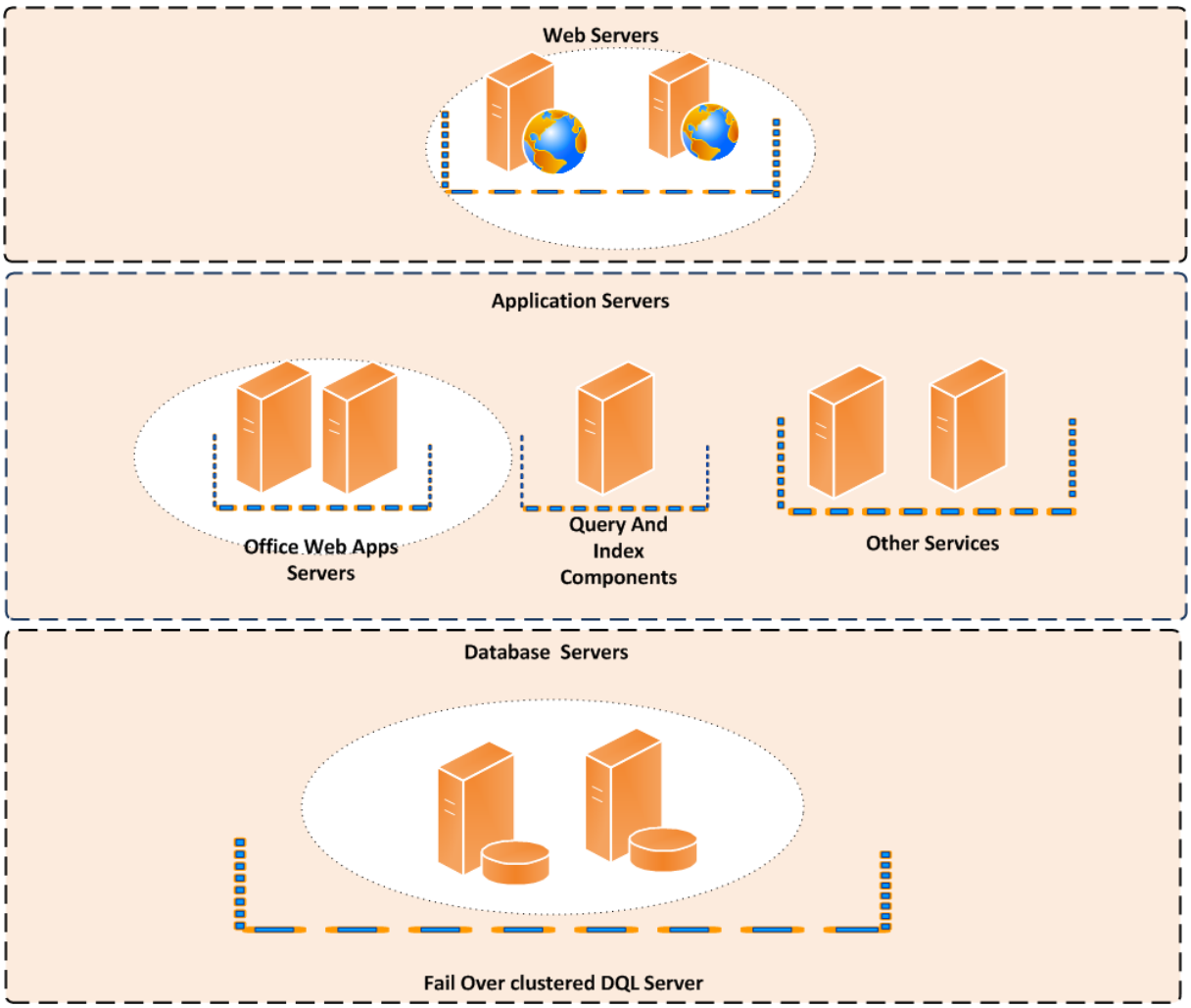
From our recommendations it is best practice to use virtual server for application and web frontend servers. We suggest using physical server for database servers. A typical architecture that can support 15000 users is shown in the below diagram.

Oversubscribing a virtualization host in response to a performance issue or a failed virtual machine is acceptable as a short-term solution. The recommended approach is to ensure that you alleviate this scenario by having adequate host capacity before putting the farm into production. There are several ways to ensure that you have extra capacity on the hosts, such as:

- Deploy hosts with 16 or more processor cores.
- Add one or more 8-core hosts to the environment.
- Consider deploying a dedicated services farm to offload services that have high resource requirements, such as search.



The following figure shows the physical architecture of the same.

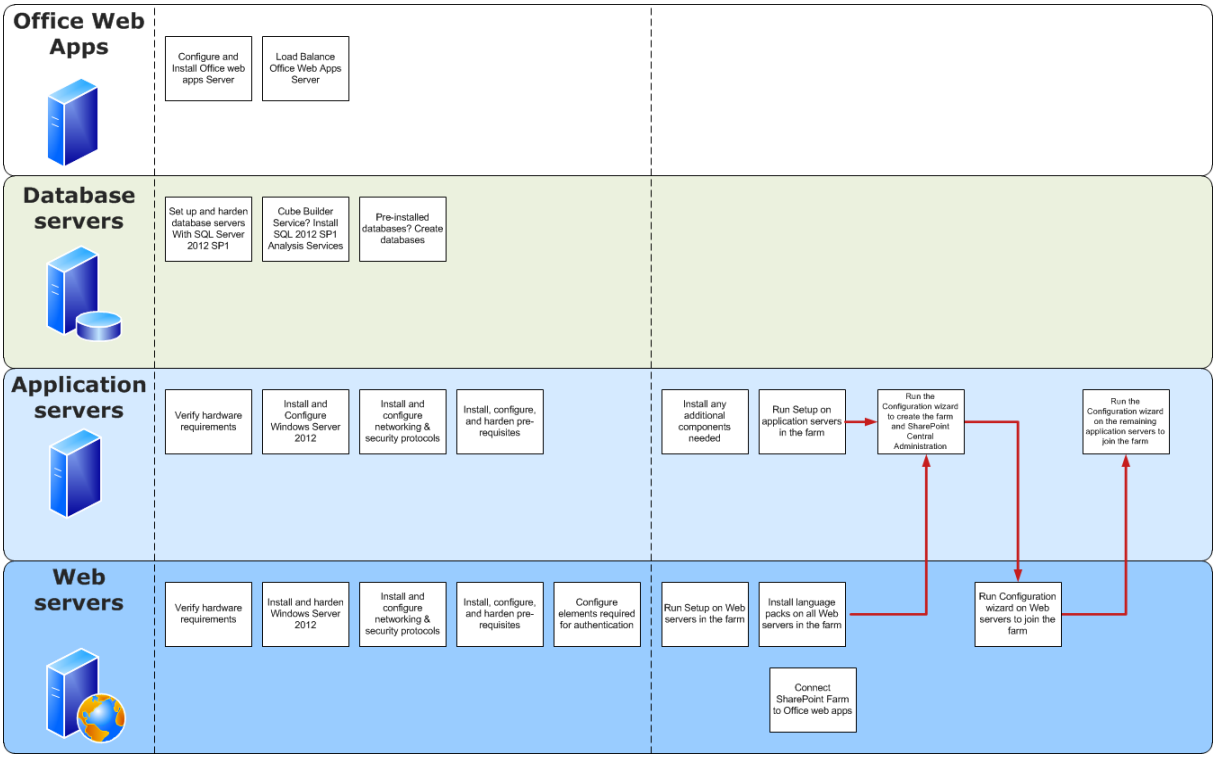


Recommended Best Practice

Windows Server 2008 R2/Microsoft Hyper-V Server 2008 R2 is recommended. Windows Server 2008 R2 Enterprise provides the scalability necessary to meet the most demanding Microsoft SharePoint Server 2013 deployments. It also includes improved scale-up and performance capabilities, such as Live Migration for moving a running virtual machine from one cluster node to another, enhanced processor support, improved virtual machine storage, and richer networking support.

Deployment stages and environments

Over the course of planning, developing, testing, and rolling out SharePoint 2013 Products, you perform several deployments, such as an initial proof of concept, a pilot or pre-production environment, and your production environment. In the first phase you should get your servers ready to host the product.



Planning

Before you can deploy, you must plan the solution you want to deploy. We have to complete the following tasks in this phase.

- Perform business analysis
- Determine goals and objectives
- Determine infrastructure requirements

Development

In this phase we are developing applications and solutions for SharePoint 2013 Products. We have to complete the following tasks in this phase.

- Deploy development computers or farm
- Develop solution
- Test and evaluate solution
- Refine solution

Proof of concept (POC)

Used for determining whether a solution will meet business needs and to determine an appropriate infrastructure plan. We have to complete the following tasks in this phase.

- Deploy pilot farm
- Deploy pilot solution
- Collect benchmark data
- Evaluate pilot
- Refine goals and infrastructure requirements
- Determine operations plan

User acceptance test (UAT)

A pre-production environment used for testing solutions against a subset or complete copy of production data. Also used for validating the backups or operational procedures. We have to complete the following tasks in this phase.

- Deploy UAT farm
- Deploy UAT solution
- Implement operations plan
- Evaluate solution
- Evaluate operations plan
- Test for capacity and performance

Production

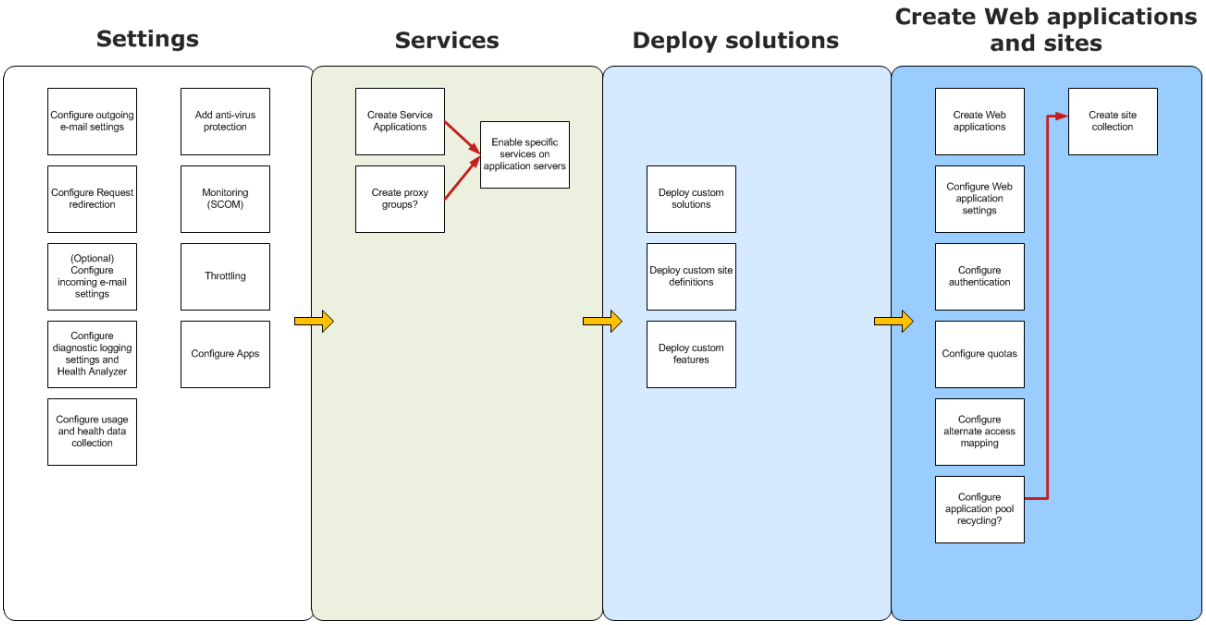
This is the live environment that your users interact with. We have to complete the following tasks in this phase

- Deploy production farm
- Deploy production solution
- Implement operations plan
- Deploy additional environments:
- Authoring and staging farms
- Geo-distributed farms
- Services farms

Configure settings, services, solutions, and sites

In this phase, you prepare the farm to host your site content by configuring global settings, creating services applications, deploying customizations, and creating and populating the sites.

You can use the Farm Configuration Wizard to these configuration steps, or you can perform them by using either the SharePoint Central Administration Web site or Windows PowerShell. Configuration steps are not isolated to a specific tier in the server infrastructure.



Read Only Farm or Site in SharePoint 2013

Here we will learn how to run a Microsoft SharePoint Server 2013 farm in which some or all databases are set to be read-only. This will be useful in the case of migration your content databases from one server to another. In SharePoint 2013 you can create a Read-Only Farm/site or site-collection by setting the Content database as Read-only. In a read-only farm, only content databases are read-only. All other databases, including the configuration database, Central Administration content database, and search database, are read/write. The site collection that is associated with a read-only content database is automatically set to be read-only.

The farm is considered to be read-only if any of the following are true:

- All content databases are set to read-only.
- Service application databases are set to read-only.

Use of read-only databases

If you plan to provide users with access to a read-only site or farm, you should set expectations for what they will be able to do on the site and how the user interface will

differ.

Sites that use read-only content databases

The user experience of a site that uses a content database that is set to read-only is characterized by the following:

- Common tasks that do not require writing to the content database are fully available.
- Most of the common tasks that require writing to the content database are not available, either because they have been disabled in the UI, or because the user is no longer allowed to apply changes.
- Some common tasks that require writing to the content database appear to be available, but return errors.

Farms that use read-only service application databases

The user experience of a farm that uses service application databases that are set to read-only is characterized by the following:

- Common tasks that do not require writing to the service databases are fully available.
- All common tasks that require writing to the service databases appear to be available, but return errors.

How to find the content databases to set read only

Before you set content databases to be read-only, you may need to determine which content database is associated with a particular site collection. To determine which content database is associated with a site collection

1. On the Start menu, click All Programs.
2. Click Microsoft SharePoint 2013 Products.
3. Click SharePoint 2013 Management Shell.

4. At the Windows PowerShell command prompt (PS C:\>), type the following command, and then press ENTER:
5. Get-SPContentDatabase -Site <Site URL>

   -Site specifies the site collection for which you want to know the associated content database.
6. The command returns the content database associated with the site.

To set content databases to be read-only

1. Verify that you have the following administrative credentials: You must be a member of the db_owner fixed database role in each database.
2. Open SQL Server Management Studio.
3. Right-click the content database that you want to change to read-only, and then click Properties.
4. Select the Options page, and, in the Other options list, scroll to the State section.
5. In the Database Read-Only row, click the arrow next to False, select True, and then click OK.

Repeat for all other content databases.

Set service application databases to be read-only

It is possible to set any service application database to be read-only. However, some service applications do not function when their databases are set to read-only, including those associated with Search and Project Server.

1. To set service application databases to be read-only Verify that you have the following administrative credentials: You must be a member of the db_owner fixed database role in each database.
2. Open SQL Server Management Studio.
3. Right-click the database that you want to change to read-only, and then click Properties.
4. Select the Options page, and, in the other options list, scroll to the State section.

5. In the Database Read-Only row, click the arrow next to False, select True, and then click OK.

Repeat for other service application databases as appropriate.

Quiesce the SharePoint Server during maintenance Window

In SharePoint, quiesce allows us to reduce the number of users that are connected and takes long running apps slowly offline. It prevents the loss of data. It is a very good practice when performing server maintenance. It has 3 statuses:

I. Normal
II. Quiescing

Quiescing

Quiescing is when the connections are being reduced; when the status is Quiesced new connections aren't started. Not all features in SharePoint environment are affected when we Quiesce the farm. There are two features that make use of Quiescing: Microsoft Office InfoPath Forms Services (IPFS) and Microsoft Office Excel Services. Many other features and operations do not need to use Quisecing because they do not have long running sessions where users enter data over multiple server requests without having to save information. For instance, when editing an item in a SharePoint list, SharePoint handles that in a single transaction to the database, storing the information. However, in IPFS, a form filling session may require several communications with a server as the form posts back for server-side data processing for operations such as view switching. Data from the session is usually not saved until the finish when a user submits or saves the form that he or she is filling.

If an administrator takes the farm offline while some users were already filling it out, the users would lose all of the data gathered so far in their session. Therefore, if an administrator is going to bring the farm offline, in order to preserve their customer data, they would first quiesce the farm. This prevents new requests from coming in to start filling out new forms, but it allows existing form filling sessions to continue. When the sessions are all completed, or when an administrator-specified time elapses, the farm enter the quiesced state where no new requests are accepted. The farm can then be safely taken offline at this point without causing any data loss to the users.

- In Central Administration, under Operations you'll find the Quiecse feature for SharePoint.
- Enter the time-period that our farm should be Quiescing, and click on the Start button. It will start the process, and will be fully quiesced at the end of the time span.
- When your farm is done with its maintenance period, you can un-quiesce the farm by clicking on the Reset Farm button.

Managed Accounts in SharePoint 2013

To reduce the load of managing various service accounts in Microsoft SharePoint Server 2013, the concept of Managed Accounts has been introduced. Much like managed accounts in Windows Server 2008, they allow a SharePoint Server to take control of all the service accounts we use.

To understand it more clearly let me give you a small example; consider having an applicton pool account, for example called DOMAIN\SharePointAdmin. And we are using this account for a large number of web applications. Suppose if we want to change the password for that account; you would need to go into each and every web application and reset the password after the change, not to mention that the applications you haven't changed yet will stop working. This was the scenario in SharePoint 2007. SharePoint 2013 introduces the managed account. In short, rather than specifying the user name and password on every occasion, you create a managed

account and set the password there. Then, when you need to enter a user account you simply select which managed account to use and you don't need to know the password. This also allows farm administrators to set up the service accounts so that others do not need to know the password for the account.

Managed Account credentials are encrypted using a farm encryption key that is specified when we run PSConfig[ui].exe at farm creation (SharePoint Configuration wizard). The passphrase is stored in a secure registry location so that it can only be accessed by the farm account and encrypted so that only the farm account has access. The farm encryption key later, is stored in the Configuration Database. Another benefit of managed accounts is, suppose an administrator would like to create a new Web application using Windows PowerShell or SharePoint Central Administration - the administrator only needs to specify the Application Pool account or select the account in the SharePoint Central Administration (in the case of Central admin screen) user interface as opposed to both having to know the domain\username and associated password. This was the limitation with earlier SharePoint versions.

Get Managed Accounts using SharePoint Central Administration

1. To view existing Managed Accounts using SharePoint Central Administration, select Security from the SharePoint Central Administration homepage.
2. On the Security page select Configure managed accounts under General Security.
3. The Managed Accounts page will list all Managed Accounts registered in SharePoint.

Register Managed Accounts using SharePoint Central Administration

1. To register new Managed Accounts using SharePoint Central Administration, select Security from the SharePoint Central Administration homepage.
2. On the Security page select Configure managed accounts under General Security.
3. On the Managed Accounts page select Register Managed Account.

4. On the Register Managed Account page (see illustration below) specify the credentials and select the password change policies as desired.

Service Application Framework in SharePoint 2013

The Service Application Framework provides a platform that allows developers to build scalable applications that are hosted in SharePoint 2013. These services can provide data or processing resources to other SharePoint features. The Service Application Framework enables services to be shared between computers on a server farm; it also helps load manages the services in SharePoint. The Service Application Framework provides over 20 services that are built into the core product.. The Service Application Framework is an API that is provided to build services that are hosted by back-end application servers and consumed by front-end Web servers. The Service Application Framework replaces the Shared Services Provider in Microsoft Office SharePoint Server 2007. The Service Application Framework model is much more flexible than the Shared Services Provider model. Service applications can be used by a single server farm or shared across farms, allowing centralized shared computing investments. Service Application Framework applications are easily scaled out for load balancing high-demand service applications.

Reasons to use the Service Application Framework include the following:

1. To provide specialized computations and analytics those are consumable by multiple SharePoint Web applications

2. To share data across sites and site collections, providing multiple instances of your application in a farm for hosting scenarios

3. To execute long-running operations

4. To use the common management and provisioning infrastructure provided by the Service Application Framework

In order to use a Shared Service, a Service Application must be provisioned. A Service Application is a farm level instance, "logical instance", of a Shared Service. A Service Application consists of the following:

1. Administrative interface
2. Application Pool
3. Databases
4. Physical Instance

As mentioned above not all Service Applications are the same. Each one is unique and may or may not contain the above components listed. For Example: SharePoint OOB comes with Excel Shared Service. Until you deploy and create a service application, you cannot consume that shared service. Service Applications can be provisioned automatically using the Farm Configuration Wizard or manually by using Central Administrator\Manage Service Application page. Power Shell can also be used to create Service Applications.

Redundancy Built-in

Multiple application servers can run a physical instance of the same Service Application. This provides redundancy in that requests from WFE's pass through a built in load balancer to locate available application server running a physical instance.

Load Balancing

It uses Use Round robbing load balancing Service application proxy method invocations must be routed thru the front end web server to an appropriate app server by using a load balancing tool. Calls between front-end and app servers to require separate external load balancer than the load balancing for front-end web servers

Management and Administration Services plug their management UI into SharePoint Service Management page. This has a Common admin tools such as upgrade, backup,

restore and account management .Common UI to manage, start, stop, group, associate, federate and backup SharePoint services. It can define specialized admin roles and can be delegated to users who are not farm admins.

Monitoring features of SharePoint 2013

Here we are seeing some of the monitoring features of SharePoint 2013.Diagnostic logging capture data about the state of the system, whereas health and usage data collection uses specific timer jobs to perform monitoring tasks, collecting information such as Performance Counter Factors, Event Log Data, Timer Service Data, Search Usage Data, Metrics For Site Collections and Sites.

The monitoring features in Microsoft SharePoint Server 2013 help you to understand how the SharePoint Server 2013 system is running, analyze and repair problems, and view metrics for the sites. Monitoring the SharePoint Server 2013 environment includes the following tasks:

- Configuring the various aspects of monitoring to suit business needs.
- Monitoring the environment and resolving any problems that might arise.
- Viewing reports and logs of the environment activity.

Regular performance tests

SharePoint Health Analyzer checks for potential configuration, performance, and usage problems in SharePoint Server 2013. It runs predefined health rules against servers in the farm and returns a status that tells you the outcome of the test.

Receive auto alerts

SharePoint Health Analyzer also creates an alert in the Health Analyzer Reports list in Central Administration. You can click an alert to view more information about the problem and see steps to resolve the problem.

Configuring monitoring

SharePoint Server 2013 comes installed with default settings for its monitoring features. However, you might want to change some of these settings to better suit the business needs. The aspects that you might change configuration settings for include diagnostic logging and health and usage data collection.

Diagnostic logging

SharePoint Server 2013 collects data in the diagnostic log that can be useful in troubleshooting. The default settings are sufficient for most situations, but depending upon the business needs and lifecycle of the farm, you might want to change these settings. For example, if you are deploying a new feature or making large-scale changes to the environment, you might want to change the logging level to either a more verbose level, to capture as much data about the state of the system during the changes, or to a lower level to reduce the size of the log and the resources needed to log the data.

The SharePoint Server 2013 environment might require configuration of the diagnostic loggings settings after initial deployment or upgrade and possibly throughout the system's life cycle. The guidelines in the following list can help you form best practices for the specific environment.

- Change the drive that logging writes to. By default, diagnostic logging is configured to write logs to the same drive and partition that SharePoint Server 2013 was installed on. Because diagnostic logging can use lots of drive space and writing to the logs can affect drive performance, you should configure logging to write to a drive that is different from the drive on which SharePoint Server 2013 was installed. You should also consider the connection speed to the drive that logs are written to. If verbose-level logging is configured, lots of log data is recorded. Therefore, a slow connection might result in poor log performance.

- Restrict log disk space usage. By default, the amount of disk space that diagnostic logging can use is not limited. Therefore, limit the disk space that logging uses to make sure that the disk does not fill up, especially if you configure logging to write verbose-level events. When the disk restriction is used up, the oldest logs are removed and new logging data information is recorded.

Use the Verbose setting sparingly. You can configure diagnostic logging to record verbose-level events. This means that the system will log every action that SharePoint Server 2013 takes. Verbose-level logging can quickly use drive space and affect drive and server performance. You can use verbose-level logging to record a greater level of detail when you are making critical changes and then re-configure logging to record only higher-level events after you make the change.

- Regularly back up logs. The diagnostic logs contain important data. Therefore, back them up regularly to make sure that this data is preserved. When you restrict log drive space usage, or if you keep logs for only a few days, log files are automatically deleted, starting with the oldest files first, when the threshold is met.

Enable event log flooding protection. Enabling this setting configures the system to detect repeating events in the Windows event log. When the same event is logged

repeatedly, the repeating events are detected and suppressed until conditions return to a typical state.

Health and usage data collection

The monitoring features in SharePoint Server 2013 use specific timer jobs to perform monitoring tasks and collect monitoring data. The health and usage data might consist of performance counter data, event log data, timer service data, metrics for site collections and sites, search usage data, or various performance aspects of the Web servers. The system uses this data to create health reports, Web Analysis reports, and administrative reports. The system writes usage and health data to the logging folder and to the logging database.

A timer job is a trigger to start to run a specific Windows service for one of the SharePoint 2013 products. It contains a definition of the service to run and specifies how frequently the service should be started. The Windows SharePoint Services Timer v4 service (SPTimerV4) runs timer jobs. Many features in SharePoint 2013 products rely on timer jobs to run services according to a schedule.

You might want to change the schedules that the timer jobs run on to collect data more frequently or less frequently. You might even want to disable jobs that collect data that you are not interested in. You can perform the following tasks on timer jobs:

- Modify the schedule that the timer job runs on.
- Run timer jobs immediately.
- Enable or disable timer jobs.
- View timer job status. You can view currently scheduled jobs, failed jobs, currently running jobs, and a complete timer job history.

Monitoring the farm and resolving problems by using SharePoint Health Analyzer

SharePoint Server 2013 includes a new, integrated health analysis tool that is named SharePoint Health Analyzer that enables you to check for potential configuration, performance, and usage problems. SharePoint Health Analyzer runs predefined health rules against servers in the farm. A health rule runs a test and returns a status that tells you the outcome of the test. When any rule fails, the status is written to the Health Reports list in SharePoint Server 2013 and to the Windows Event log. The SharePoint Health Analyzer also creates an alert in the Health Analyzer Reports list on the Review problems and solutions page in Central Administration. You can click an alert to view more information about the problem and see steps to resolve the problem. You can also open the rule that raised the alert and change its settings.

Like all SharePoint Server 2013 lists, you can edit Health Analyzer Reports list items, create custom views, export the list items into Microsoft Excel, subscribe to the RSS feed for the list, and many other tasks. Each health rule falls in one of the following categories: Security, Performance, Configuration, or Availability.

A health rule can be run on a defined schedule or on an impromptu basis. All health rules are available through Central Administration, on the Monitoring page, for either immediate or scheduled execution.

Farm administrators can configure specific health rules to do the following:

- Enable or disable rules.
- Configure rules to run on a predefined schedule.
- Define the scope where the rules run.
- Receive e-mail alerts when problems are found.
- Run rules an impromptu basis.

View and use reports

SharePoint Server 2013 can be configured to collect data and create reports about server status and site use. You perform the following using reporting:

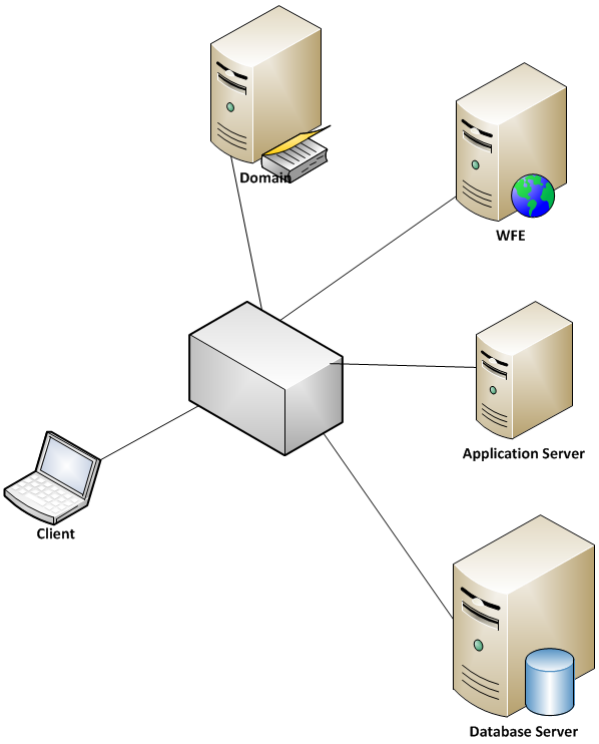
- View administrative reports, such as search reports.
- Create and review Information Management Policy Usage reports.
- View health reports that include slowest pages and top active pages.
- View Web Analytics reports that include Web site traffic reports, search query reports, and customized reports.

Configure Three-Tier Farm for SharePoint Server 2013

Here we are taking the farm architecture which containing the following Servers.

- **Domain(DC1):**One computer running Windows Server 2008 R2 Enterprise Edition that is configured as an intranet domain controller
- **Database Server** (**SQL1)**: One intranet member server running Windows Server 2008 R2 Enterprise Edition that is configured as a SQL database server.
- **Application Server (APP1):** One intranet member server running Windows Server 2008 R2 Enterprise Edition that is configured as the SharePoint Server 2013 Preview application server.
- **Web Frontend Server (WFE1):** One intranet member server running Windows Server 2008 R2 Enterprise that is configured as the SharePoint front-end web server.
- **Client Machine:** One member client computer running Windows 7 Enterprise.

The below architecture diagram explains the farm described above. I am not covering the part of installation of windows on servers as well as the domain configurations. Here we are covering only the SharePoint and SQL server part. All over the document I am using a generic user id and password. You can use different generic account for production purpose.



Install SQL Server 2012 on Database Server

Install SQL Server Prerequisites

1. To install the .NET Framework 3.5
2. On APP1 (or the computer on which SQL Server 2012 Enterprise is being installed), log on with the Service account.
3. In **Server Manager**, click **Features**, and then click **Add Features**. This will launch the **Add Features Wizard** and you will see the **Select Features** screen.
4. Select **.NET Framework 3.5.1 Features**. This will bring up a box that asks states: **You cannot install .NET Framework 3.5.1 Features unless the required role services and features are also installed**. Click **Add Required Features**. The box will disappear. On the Select Features screen, click **Next**.
5. On the **Web Server (IIS)** screen, click **Next**.
6. On the **Role Services** screen, click **Next**.
7. On the **Confirm Installation Selections** screen, click **Install**. This will begin the installation.
8. On the **Installation Results** screen, click **Close**.

Install SQL Server 2012 Enterprise

In this procedure, you install SQL Server 2012 Enterprise.

To install SQL Server 2012 Enterprise

1. On APP1 (or the computer on which SQL Server 2012 Enterprise is being installed), navigate to the directory that contains the SQL Server 2012 Enterprise binaries and double-click Setup.EXE. This will launch the SQL Server Installation Center.
2. On the SQL Server Installation Center, on the left, click Installation.
3. On the right, click New installation or add features to an existing installation. This will launch the SQL Server 2012 Setup.
4. On the Setup Support Rules screen, click OK. This will close the Setup Support Rules screen and will bring up the Product Key screen. From Specify a free version, select Evaluation. Click Next.
5. On the License Terms screen, read the Licensing terms, place a check in the box next to I accept the license terms and click Next.
6. On the Setup Support Files screen, click Install. This will take a few moments to complete. Once this completes the Setup Support Rules screen will appear again.
7. On the Setup Support Rules screen, click Next.
8. On the Setup Role screen, select SQL Server Feature Installation and click Next.
9. On the Feature Selection screen, under Instance Features place a check in Database Engine Services, under Shared Features place a check in Management Tools – Basic and Management Tools – Complete. Click Next.
10. On the Installation Rules screen, click Next.
11. On the Instance Configuration screen, click Next.
12. On the Disk Space Requirements screen, click Next.
13. On the Server Configuration screen, next to SQL Service Agent under Account Name, Service account and Password.
14. On the Server Configuration screen, next to SQL Server Database Engine under Account Name, Service account and Password.
15. Click Next.

16. On the Database Engine Configuration screen, click Add Current User and click Next.
17. On the Error Reporting screen, click Next.
18. On the Installation Configuration Rules screen, click Next.
19. On the Ready to install screen, click Install.
20. On the Installation Progress screen, wait until the installation completes.
21. On the Complete screen, click Close.
22. Close the SQL Server Installation Center.

Next we can n verify the installed SQL Server services are running.

To verify installed SQL Server services are running

1. Click Start, select Administrative Tools, and click Services.
2. Scroll down to SQL Server (MSSQLSERVER) and verify that it has a status of Started.
3. In Services, right-click SQL Server Agent (MSSQLSERVER), and click Start. This will start the SQL Server Agent.
4. When this completes, verify the SQL Server Agent (MSSQLSERVER) has a status of Started.
5. Close Services.

To connect to SQL Server 2012 Enterprise using SQL Server Management Studio

1. Click Start, click All Programs, click Microsoft SQL Server 2012, and click SQL Server Management Studio.
2. On the Connect to Server dialog box, under Server Type: select Database Engine.
3. On the Connect to Server dialog box, under Server name: select APP1 (or the computer on which SQL Server 2012 Enterprise is being installed).
4. On the Connect to Server dialog box, under Authentication: select Windows Authentication.
5. Click Connect. This should be successful and the database information will be displayed on the left. The SQL Server Agent should have a green arrow.

6. Close Microsoft SQL Server Management Studio.

Configure the Windows Firewall for an inbound rule

1. On SQL1, log on using the Service account.
2. From the desktop, click Start, point to Administrative Tools, and then click Windows Firewall with Advanced Security.
3. In the tree pane, right-click Inbound Rules, and then click New Rule.
4. On the Rule Type page, click Port, and then click Next.
5. On the Protocols and Ports page, type 1433-1434 in Specific local ports, and then click OK.
6. On the Action page, click Next.
7. On the Profile page, click Next.
8. On the Name page, types SQL Server TCP ports in Name, and then click Finish.

Install SharePoint Server 2013 Preview on APP1

In this procedure, you install the prerequisite software components for SharePoint Server 2013 Preview on APP1.

To install the SharePoint Server 2013 Preview prerequisite software

1. On APP1, log on using the service account.
2. Connect APP1 to a network that has Internet access and configure the TCP/IP protocol on the Local Area Connection as needed. The SharePoint Server 2013 Preview prerequisite installer must download and install components from the Microsoft Download Center.
3. On APP1, navigate to the location that contains the SharePoint Server 2013 Preview installation files and double-click SharePointServer.exe (for the downloaded evaluation version) or **default.hta o**n the SharePoint Server 2013 Preview product media.
4. On the SharePoint Server 2013 Preview Start page, click Install software prerequisites.
5. On the Welcome to the Microsoft SharePoint Products Preparation Tool page, click Next.
6. On the License Terms for software product page, review the terms, select the I accept the terms of the License Agreement(s) check box, and then click Next.

7. On the Installation Complete page, click Finish.
8. On the Installation Complete page, click Finish.

To install SharePoint Server 2013 Preview

1. Click Start, click All Programs, click Microsoft SQL Server 2012, and then click SQL Server Management Studio.
2. In Connect to Server, click Connect.
3. In SQL Server Management Studio, in the tree pane, open Security.
4. Right-click Logins, and click New Login.
5. In Login – New, Service account and password
6. In the Select a page pane, click Server Roles.
7. In the Server Roles pane, select dbcreator, and then click OK.
8. Close SQL Server Management Studio.
9. On the SharePoint Server 2013 Preview Start page, click Install SharePoint Server.
10. On the Enter Your Product Key page, enter your product key as needed, and then click Continue.
11. On the Read the Microsoft Software License Terms page, review the terms, select the I accept the terms of this agreement check box, and then click Continue.
12. On the Server Type tab, click Complete, and then click Install Now.
13. When Setup finishes, a dialog box prompts you to complete the configuration of your server. Ensure that the Run the SharePoint Products and Technologies Configuration Wizard now check box is selected.
14. Click Close to start the configuration wizard.
15. On the Welcome to SharePoint Products page, click Next.
16. In the dialog box that notifies you that some services might need to be restarted during configuration, click Yes.
17. On the Connect to a server farm page, click Create a new server farm, and then click Next.
18. On the Specify Configuration Database Settings page, type SQL1 in Database server, type Service account and Password, and then click Next.
19. On the Specify Farm Security Settings page, type the Passphrase and Confirm passphrase, and then click Next.

20. On the Configure SharePoint Central Administration Web Application page, click Next.
21. On the Completing the SharePoint Products Configuration Wizard page, click Next.
22. On the Configuration Successful page, click Finish. Internet Explorer launches with a tab named Initial Farm Configuration Wizard.
23. The Working on it page might display for a while before it completes.
24. In the Help Make SharePoint Better dialog box, click No, I don't wish to participate, and then click OK.
25. On the Configure your SharePoint farm page, in Service account, click Use existing managed account, and then click Next.
26. On the Create Site Collection page, click Skip.
27. On the This completes the Farm Configuration Wizard page, click Finish. The Internet Explorer tab shows the SharePoint 2013 Central Administration site, from which you can configure and manage the SharePoint server. Leave Internet Explorer open.

To install the Web Server (IIS) server role on WFE1

1. In the console tree of Server Manager, click **Roles**. In the details pane, click **Add Roles**, and then click Next.
2. On the Select Server Roles page, select Web Server (IIS), and then click Next three times.
3. Click Install.
4. Verify that the installation was successful, and then click Close.

Install SharePoint Server 2013 Preview on WFE1

Here we can install the prerequisite software components for SharePoint Server 2013 Preview on WFE1.

1. On WFE1, log on using the Service account.
2. Connect WFE1 to a network that has Internet access and configure the TCP/IP protocol on the Local Area Connection as needed. The SharePoint Server 2013

Preview prerequisite installer must download and install components from the Microsoft Download Center. For example, if the network that has access to the Internet uses DHCP, configure the Internet Protocol version 4 (TCP/IPv4) component from the properties of the Local Area Connection in the Network Connections folder to use automatic addressing and to automatically configure a DNS server.

3. On WFE1, navigate to the drive or folder that contains the SharePoint Server 2013 Preview installation files and double-click SharePointServer.exe (for the evaluation version) or **default.hta (from** the SharePoint Server 2013 Preview product media).
4. On the SharePoint Server 2013 Preview Start page, click Install software prerequisites.
5. On the Welcome to the Microsoft SharePoint 2013 Preview Products Preparation Tool page, click Next.
6. On the License Terms for software product page, review the terms, select the I accept the terms of the License Agreement(s) check box, and then click Next.
7. On the Installation Complete page, click Finish.
8. The computer might restart to install some of the prerequisites. After it does the Products Preparation Tool will run again and install the remaining prerequisites. The computer must be restarted again to install these prerequisites.
9. On the Installation Complete page, click Finish.

To install SharePoint Server 2013 Preview

1. On the SharePoint Server 2013 Preview Start page, click Install SharePoint Server.
2. On the Enter Your Product Key page, enter your product key as needed, and then click Continue.
3. On the Read the Microsoft Software License Terms page, review the terms, select the I accept the terms of this agreement check box, and then click Continue.
4. On the Server Type tab, click Complete, and then click Install Now.
5. When Setup finishes, a dialog box prompts you to complete the configuration of your server. Ensure that the Run the SharePoint Products and Technologies Configuration Wizard now check box is selected.
6. Click Close to start the configuration wizard.

7. On the Welcome to SharePoint Products page, click Next.
8. In the dialog box that notifies you that some services might need to be restarted during configuration, click Yes.
9. On the Connect to a server farm page, click Connect to an existing server farm, and then click Next.
10. On the Specify Configuration Database Settings page, type SQL1 in Database server, and then click Retrieve Database Names.
11. Click SharePoint_Config in the Database name list, and then click Next.
12. On the Specify Farm Security Settings page, type Passphrase, and then click Next.
13. On the Completing the SharePoint Products Configuration Wizard page, click Next.
14. On the Configuration Successful page, click Finish. The Internet Explorer tab shows the SharePoint 2013 Central Administration site. Leave Internet Explorer open.
15. On APP1, in the Internet Explorer window for SharePoint Central Administration, in System Settings, click Manage servers in this farm and verify that WFE1 is part of the farm.
16. On WFE1, from Internet Explorer and the Central Administration tab, for How do you want to configure your SharePoint farm?, click Start the Wizard. The Working on it page might display for a while before it completes and you might have to start the wizard again.
17. On the Configure your SharePoint farm page, click Next.
18. On the Create Site Collection page, in Title and description, from the URL list select"/" and then click OK.
19. This step creates a team site
20. On the This completes the Farm Configuration Wizard page, click Finish.
21. The Internet Explorer tab shows the SharePoint 2013 Central Administration site, from which you can configure and manage the SharePoint server.

Enterprise Search Configuration in SharePoint 2013

In this session we can learn how we can configure SharePoint 2013 Search. In SharePoint 2013 the two Search Engines "SharePoint Search" and "FAST Search Server for SharePoint" was combined in one Search Engine. Much of the search enhancement is due to Analytics moving into search. This will make Analytics Processing Component in SharePoint Server 2013 runs different analytics jobs to analyze content in the search index and user actions that were performed on a site to identify items that users perceive as more relevant than others

Search components

Index

Index component — The index component is the logical representation of an index replica.

Index partitions

- You can divide the index into discrete portions called index partitions, each holding a separate part of the index.
- An index partition is stored in a set of files on a disk.
- The search index is the aggregation of all index partitions.

Index replicas

- Each index partition holds one or more index replicas that contain the same information.
- You have to provision one index component for each index replica.
- To achieve fault tolerance and redundancy, create additional index replicas for each index partition and distribute the index replicas over multiple application servers.

Query processing

Query processing component
Analyzes and processes search queries and results.

Search administration

Search administration component

- Runs system processes that are essential to search.
- Only one search administration component can be active per Search service application.

Crawl

Crawl component

- Crawls content based on what is specified in the crawl databases.
- Add crawl components to address capacity requirements and to increase crawl performance.

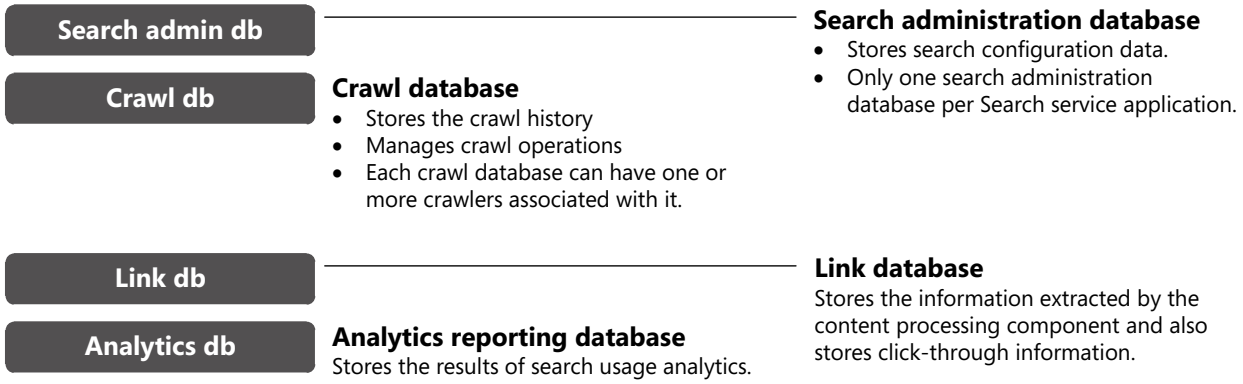
Content processing

Content processing component
Carries out various processes on the crawled items, such as document parsing and property mapping, before feeding the items to the index component.

Analytics

Analytics processing component
Carries out search analytics and usage analytics.

Search databases



Crawl component

The crawl component crawls the content sources. You can crawl a wide variety of content sources, for example file shares, SharePoint content, line of business applications and many more. To retrieve information, the crawl component connects to the content sources by invoking the appropriate indexing connector or protocol handler. After retrieving the content, the crawl component passes crawled items to the content processing component.

Content processing component

The content processing component processes crawled items and sends these items to the index component. The content processing component performs operations such as document parsing and property mapping. It also performs linguistics processing such as language detection and entity extraction. The component transforms crawled items into artifacts that are included in the search index. The content processing component also writes information about links and URLs to the link database. In turn, the analytics processing component writes information related to the relevance of these links and URLs to the search index through the content processing component.

Analytics processing component

The analytics processing component analyzes crawled items, which is referred to as search analytics, and how users interact with search, which is referred to as usage analytics. Examples of search analytics are links, anchor texts and metadata. An example of usage analytics is the number of times an item is viewed. The analytics processing component analyzes search analytics and usage analytics. Search analytics information is stored in the link database and usage analytics information in the analytics reporting database.

Index component

The index component is the logical representation of an index replica. In the search topology, you have to provision one index component for each index replica. The index component receives processed items from the content processing component and writes those items to an index file. Index files are stored on a disk in an index replica. The index component receives queries from the query processing component and returns result sets. You can divide the search index into discrete portions, called index partitions. Each index partition holds one or more index replicas. The search index is the aggregation of all index partitions.

Query processing component

The query component analyzes and processes queries and results. When the query processing component receives a query, it analyzes and processes the query to optimize precision, recall and relevance. The processed query is submitted to the index component. The index component returns a result set based on the processed query to the query processing component, which in turn processes that result set, before returning it to the front-end.

Search administration component

The search administration component runs the system processes for search. This component performs provisioning, which is to add and initialize instances of the other search components.

Crawl database

The crawl database stores tracking information and details about crawled items. For example, it stores information about the last crawl time, the last crawl ID and the type of update during the last crawl.

Link database

The link database stores information extracted by the content processing component. It also stores information about the number of times people have clicked on a search result. The information is stored unprocessed; the analytics processing component performs the analysis.

Analytics reporting database

The analytics reporting database stores the results of usage analytics and extracts information from the link database when it is required.

Search administration database

The search administration database stores search configuration data and the access control list (ACL) for the crawl component. There can be only one search administration database per search service application.

Configure a Search service application in SharePoint Server 2013

In this session, we have to follow the below main tasks

1. **Create accounts** — certain domain user accounts are required specifically for a Search service application.
2. **Create a Search service application** — A Search service application provides enterprise search features and functionality.
3. **Configure the Search service application** — Basic configuration of a Search service application includes configuring a default content access account, an email contact, and content sources.

4. **Configure the Search service application topology** — you can deploy search components on different servers in the farm. You can also specify which instance of SQL Server is used to host the search-related databases.

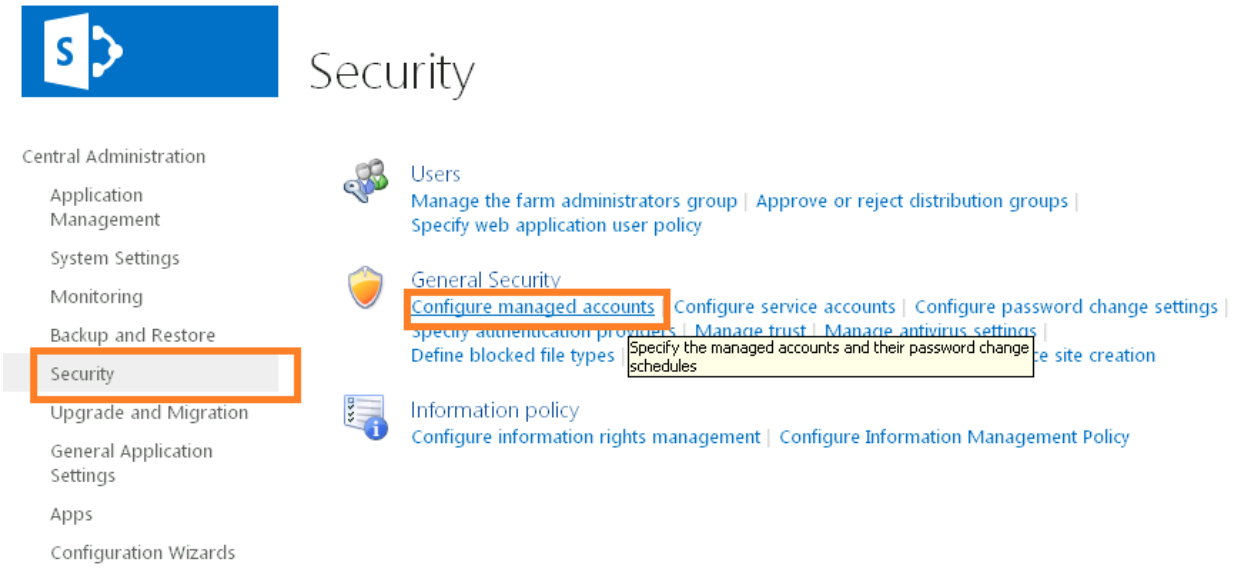
Create accounts that are required for a SharePoint Search service application

The following table lists the accounts that are required when a Search service application is created.

Account	Description	Notes
Search service	Windows user credentials for the SharePoint Server Search service, which is a Windows service	This setting applies to all Search service applications in the farm. You can change this account at any time by clicking **Configure service accounts** in the **Security** section on the Central Administration home page.
• Search Admin Web Service application pool • Search Query and Site Settings Web Service application pool	Windows user credentials	For each of these accounts, you can use the same credentials that you specified for the Search service. Or, you can assign different credentials to each account according to the principle of least-privilege administration.
Default content access	Windows user credentials for the Search service application to use to access content when crawling	We recommend that you specify a separate account for the default content access account according to the principle of least-privilege administration.

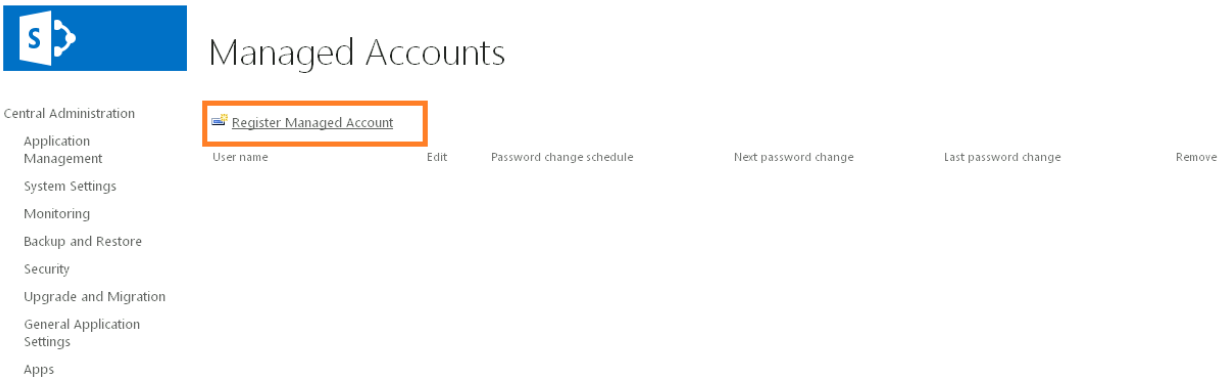
To register a managed account

1. On the Central Administration home page, in the Quick Launch, click Security.

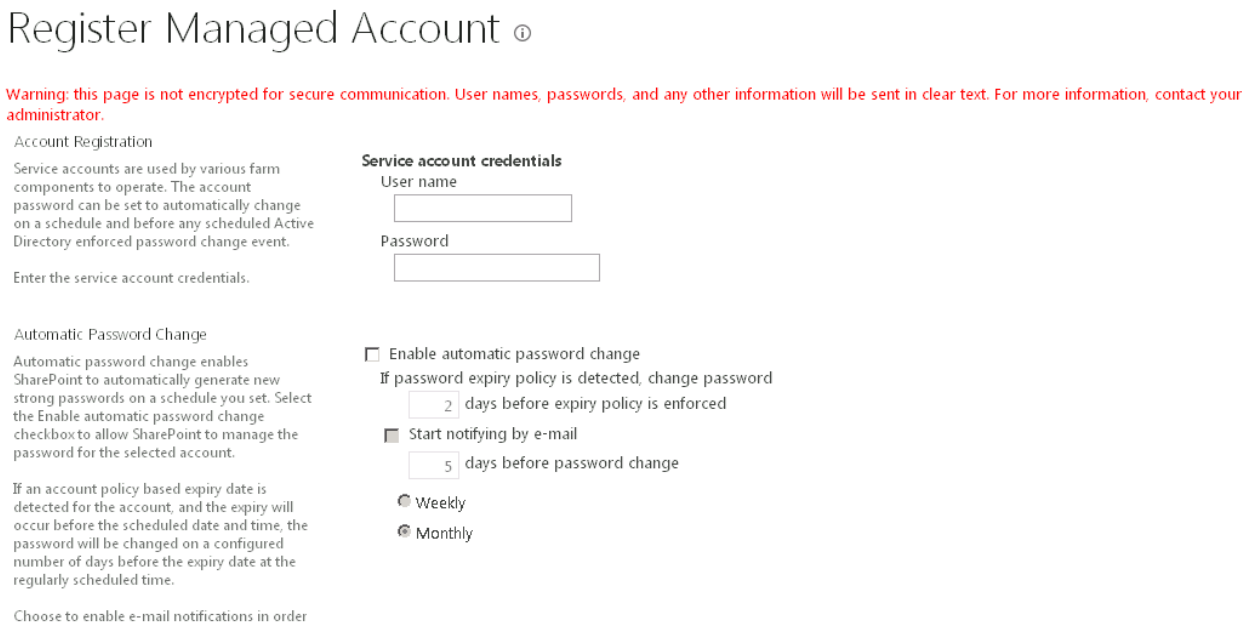


2. On the Security page, in the General Security section, click Configure managed accounts.

3. On the Managed Accounts page, click Register Managed Account.



4. On the Register Managed Account page, in the Account Registration section, type the user name and password that you want to use as credentials for the service account.



5. If you want SharePoint Server 2013 to manage password changes for this account, select the Enable automatic password change check box and configure the parameters for automatic password change.

6. Click OK.

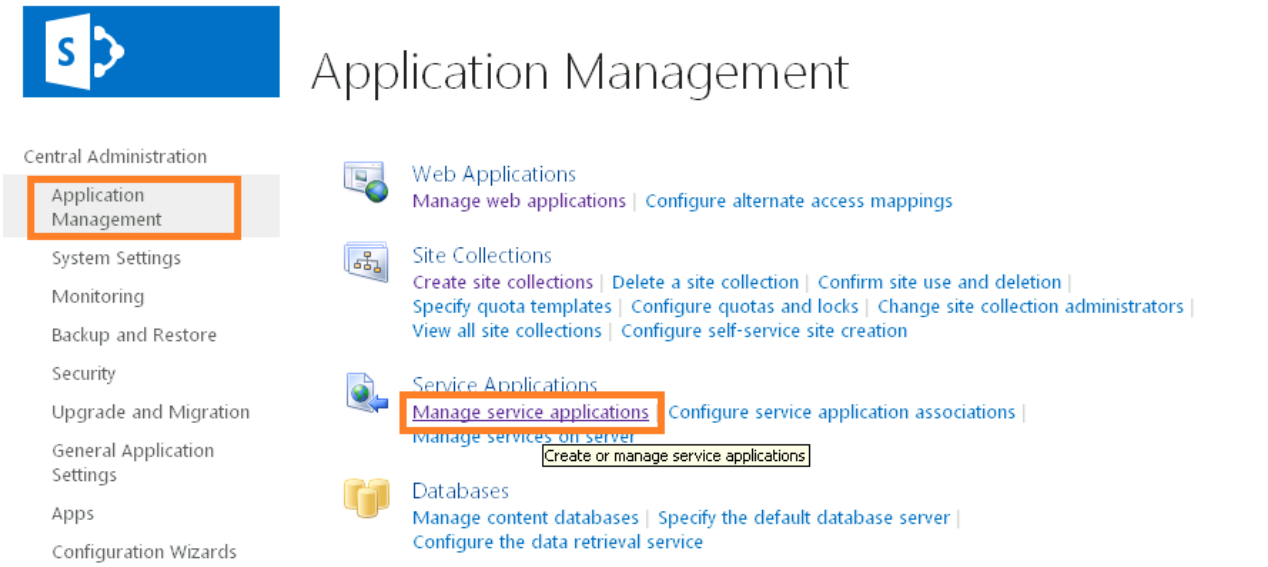
Create a SharePoint Search service application

Each Search service application has a separate content index. You can create multiple Search service applications if you want to have different content indexes for different sets of content. For example, if you want to segregate sensitive content (such as employee benefits information) into a separate content index, you can create a separate Search service application to correspond to that set of content.

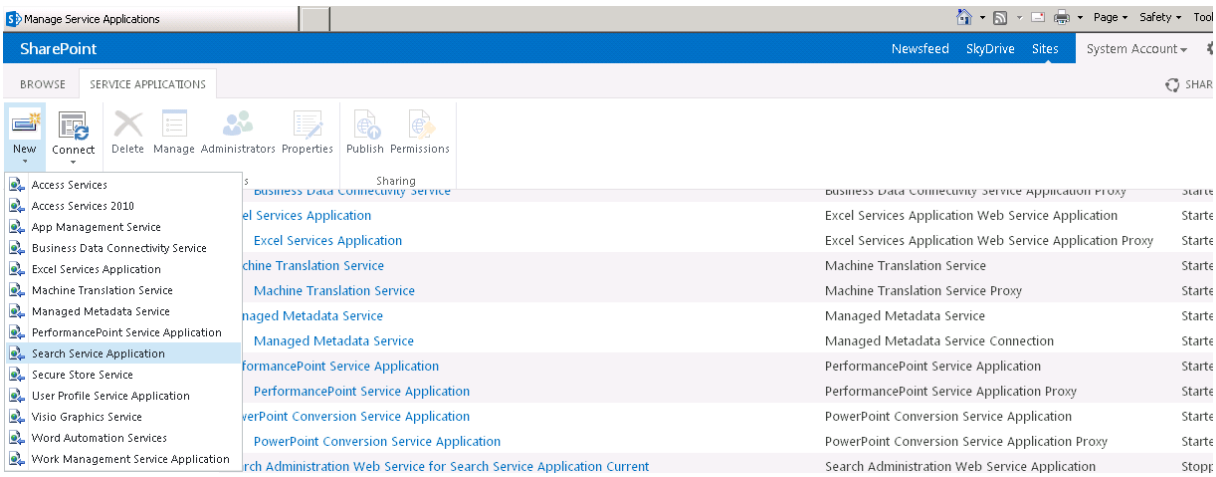
Steps to create a Search service application

1. Verify that the user account that is performing this procedure is a member of the Farm Administrators group for the farm for which you want to create the service application.

2. On the Central Administration home page, in the **Application Management** section, click **Manage service applications**.

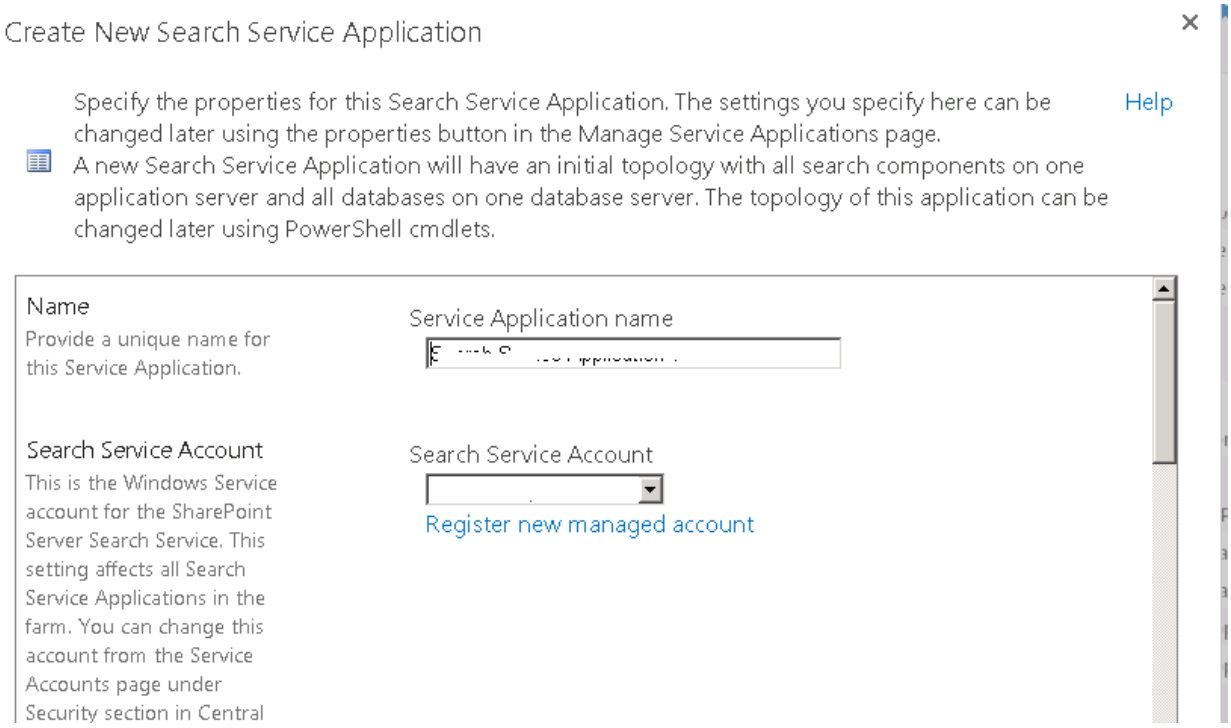


1. On the Manage Service Applications page, on the ribbon, click **New**, and then click **Search Service Application**.



On the Create New Search Service Application page, do the following:

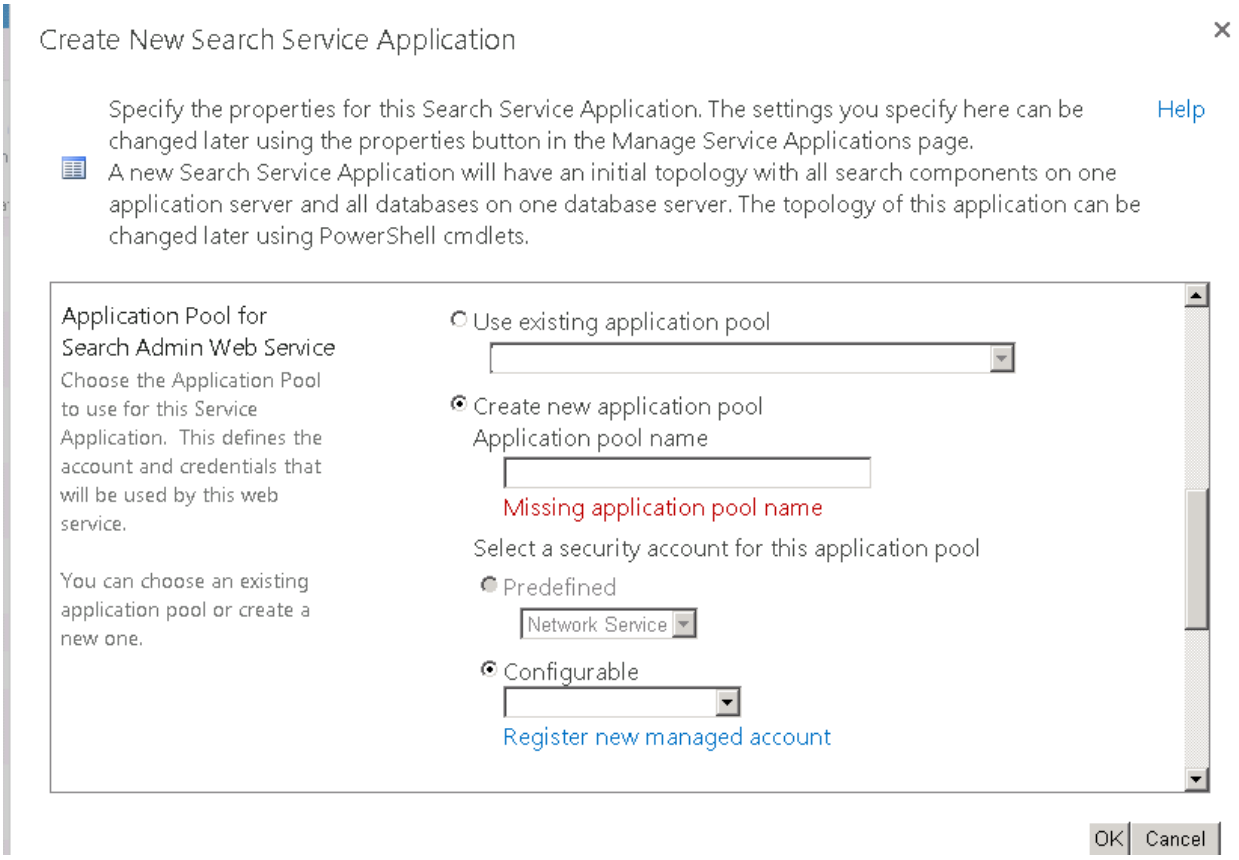
3. Accept the default value for **Service Application name**, or type a new name for the Search service application.



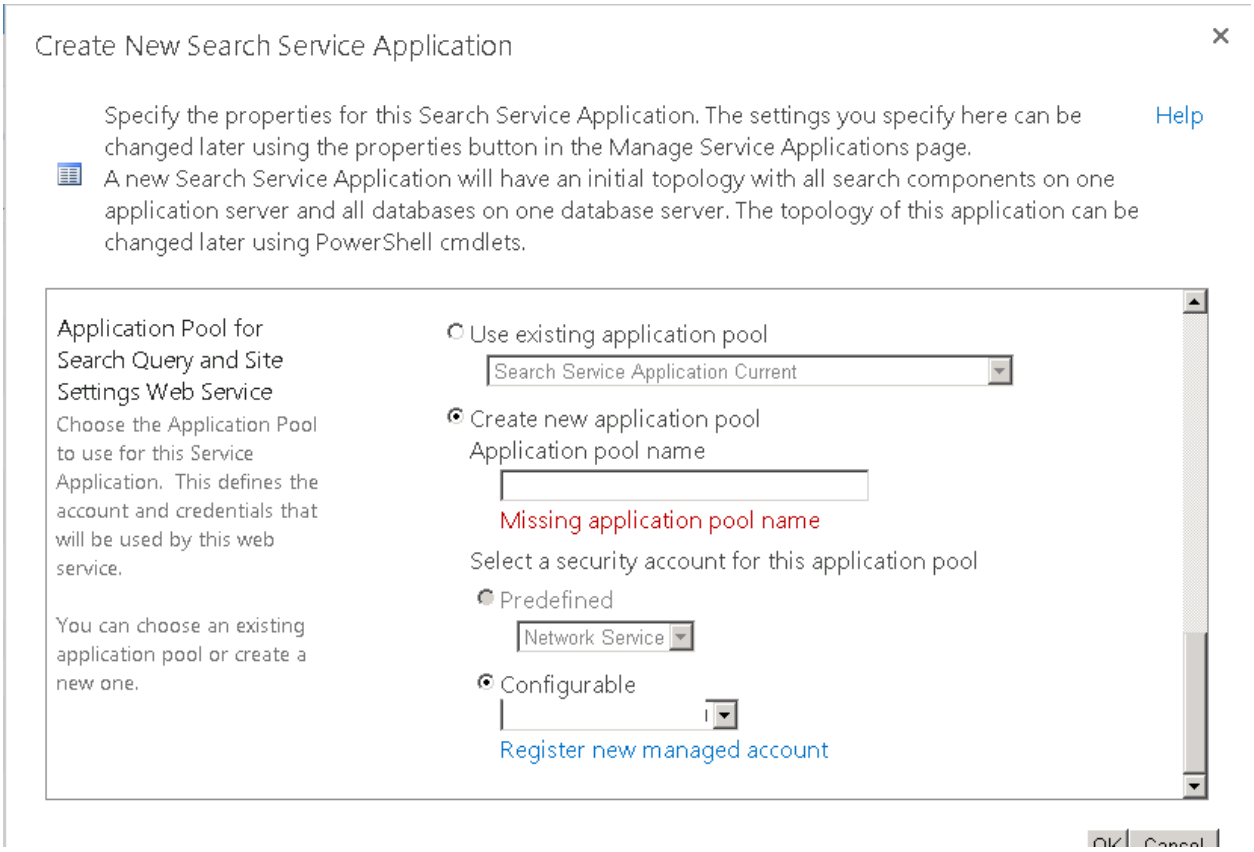
   In the **Search Service Account** list, select the managed account that you registered in the previous procedure to run the Search service.

In the **Application Pool for Search Admin Web Service** section, do the following:

4. Select the **Create new application pool** option, and then specify a name for the application pool in the **Application pool name** text box.



5. In the **Select a security account for this application pool** section, select the **Configurable** option, and then from the list select the account that you registered to run the application pool for the Search Admin Web Service.

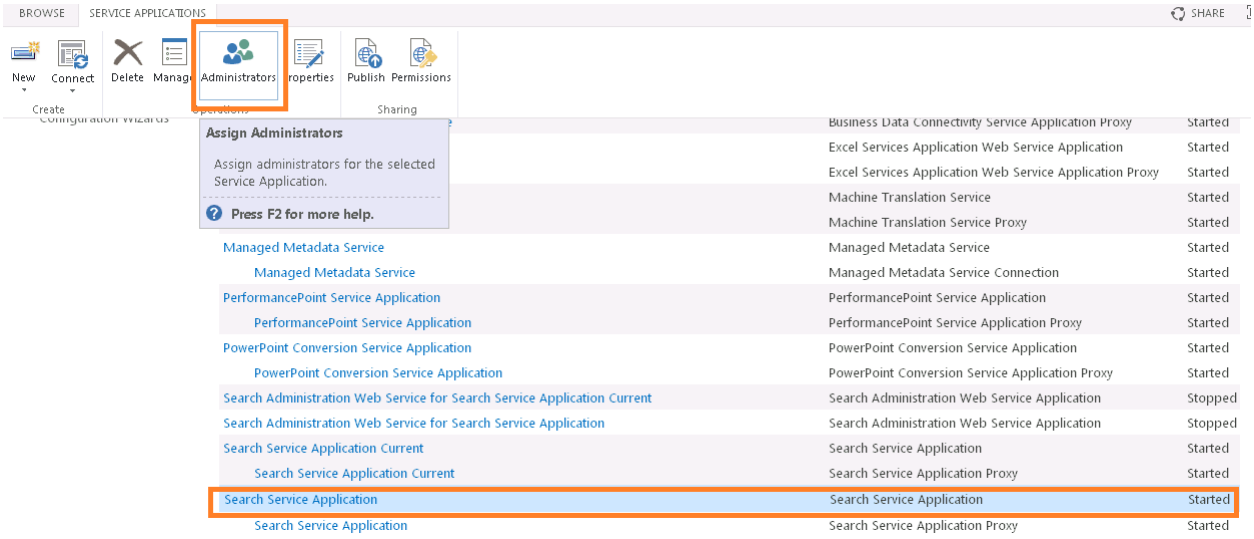


6. In the **Application Pool for Search Query and Site Settings Web Service** section, do the following:
7. Choose the **Create new application pool** option, and then specify a name for the application pool in the **Application pool name** text box.
8. In the **Select a security account for this application pool** section, select the **Configurable** option, and then from the list select the account that you registered to run the application pool for the Search Query and Site Settings Web Service.
9. Click **OK**.

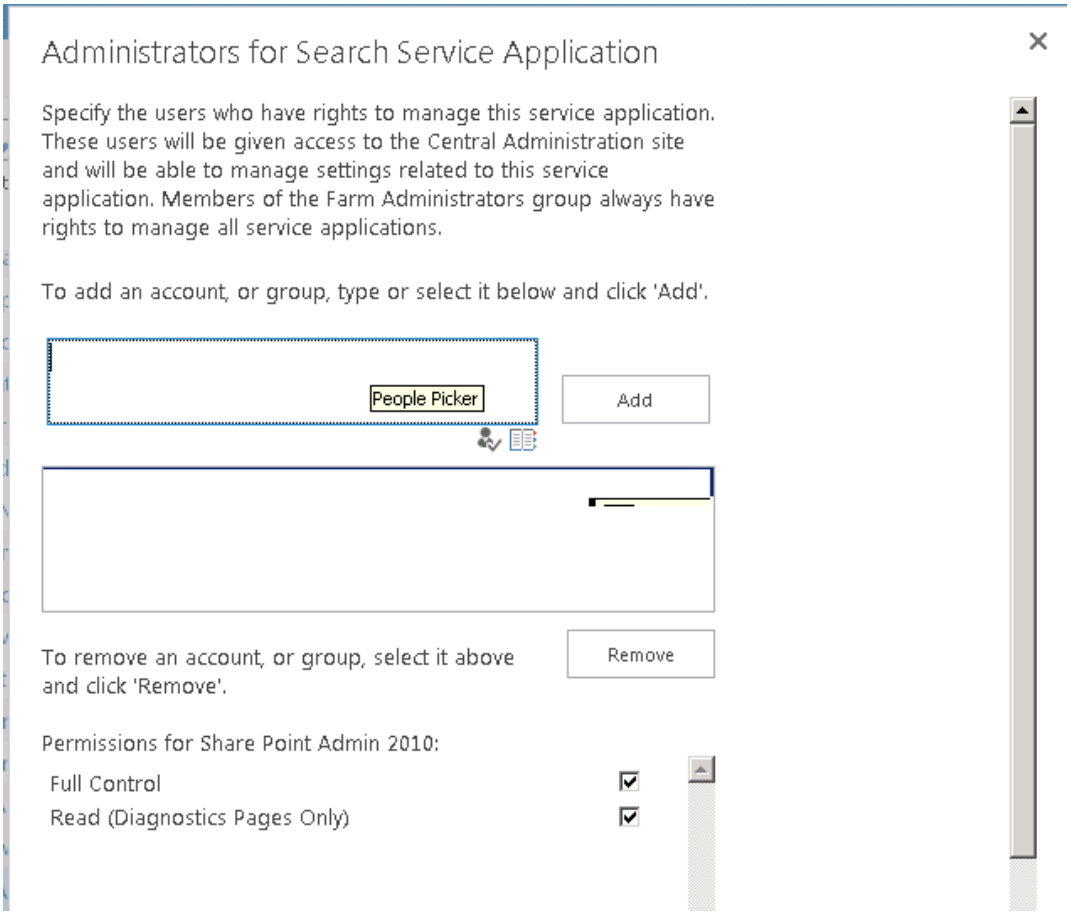
Configure the SharePoint Search service application

You configure a Search service application on the Search Administration page for that service application. Use the following procedure to go to the Search Administration page for a particular Search service application.

1. Go to the Search Administration page
2. Verify that the user account that is performing this procedure is an administrator for the Search service application that you want to configure.



3. Please add the administrator account on the next screen.



4. On the home page of the Central Administration website, in the Application Management section, click Manage service applications.
5. On the Manage Service Applications page, click the Search service application that you want to configure.

On the Search Administration page, configure the settings as described in the following sections:

- ✓ Specify the default content access account
- ✓ Specify the contact email address
- ✓ Create content sources

Specify the default content access account

When you create a Search service application, the account that you specify for the Search service is automatically configured as the default content access account. The crawler uses this account to crawl content that does not have an associated 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 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. If you have to crawl certain content by using a different account, you can create a crawl rule and specify a different account for crawling. For information about how to create a crawl rule, see Manage crawl rules (SharePoint Server 2013 Preview).

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

Specify the default content access account

1. On the Search Administration page, in the System Status section, click the link in the Default content access account row.
2. In the Default Content Access Account dialog box, in the Account box, type the account that you created for content access in the form domain\user name.
3. Type the password for this account in the Password and Confirm Password boxes.
4. Click OK.

Specify the contact email address

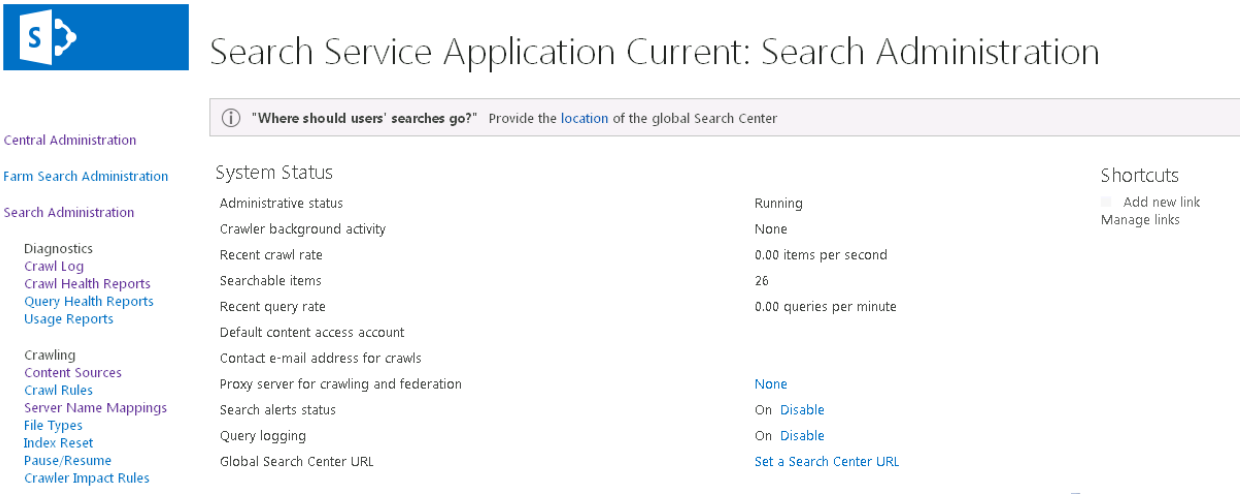
The Search service writes the contact email address to the logs of crawled servers. The default contact email address, someone@example.com, is a placeholder. We recommend that you change this to an account that an external administrator can contact when a crawl might be contributing to a problem such as a decrease in performance on a server that the search system is crawling.

Specify the contact email address

1. On the Search Administration page, in the System Status section, click the link for the Contact e-mail address.

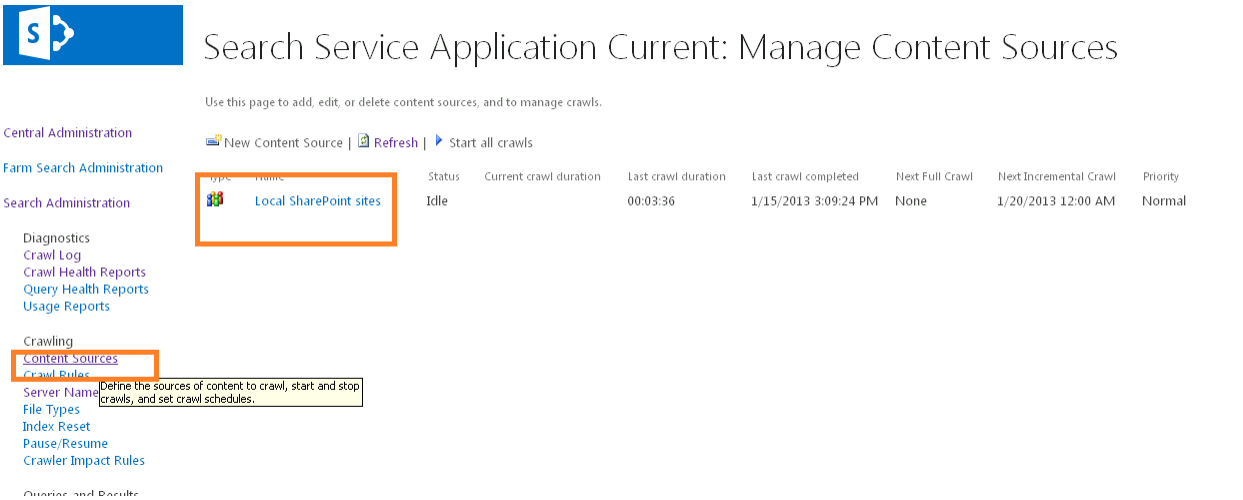
2. In the Search E-mail Setting dialog box, in the E-mail Address box, type the email address that you want to appear in the logs of servers that are crawled by the search system.

3. Click OK.

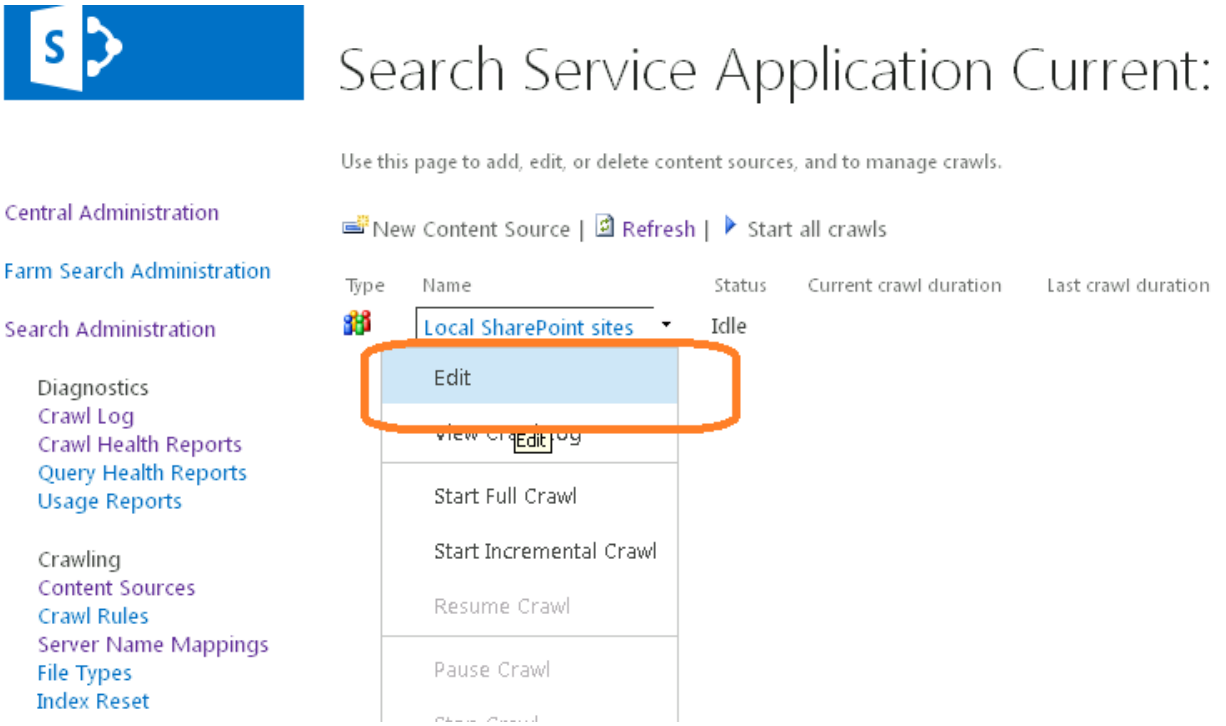


Configure Content Source

1. Click on the content source on right side as shown below

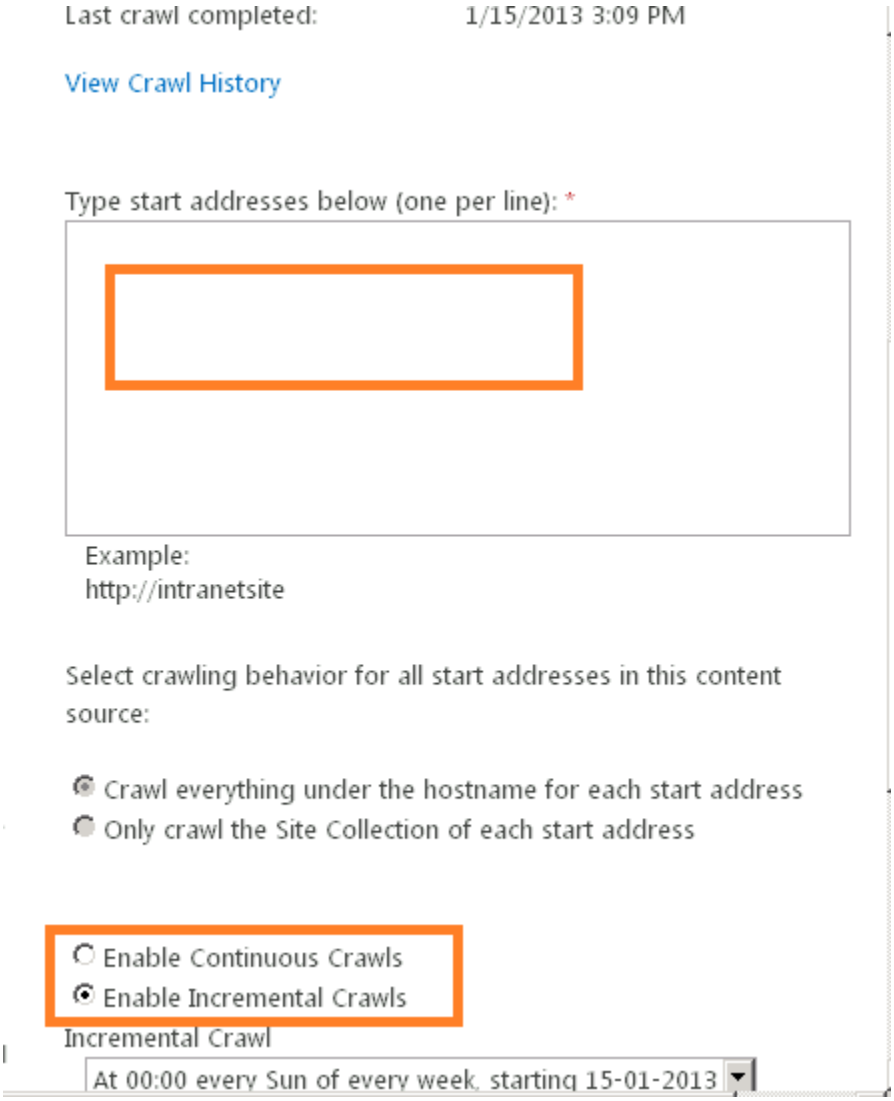


2. Click on the Edit as shown below for the Local SharePoint Sites



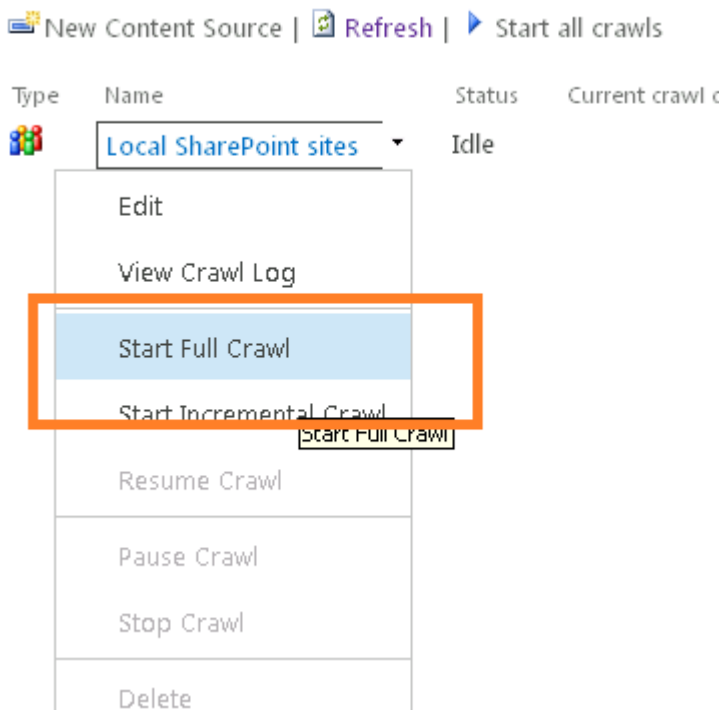
3. Please make sure you have added your site url in the below rectangular space with each site in separate new line

4. Please configure incremental crawl and full crawl

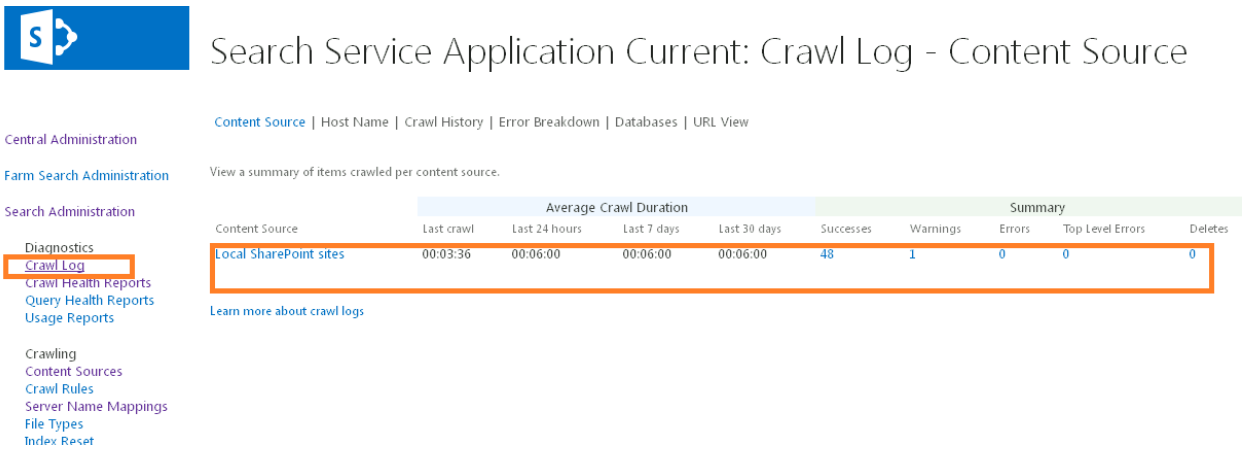


5. Once you have done with above steps, please start a full crawl.

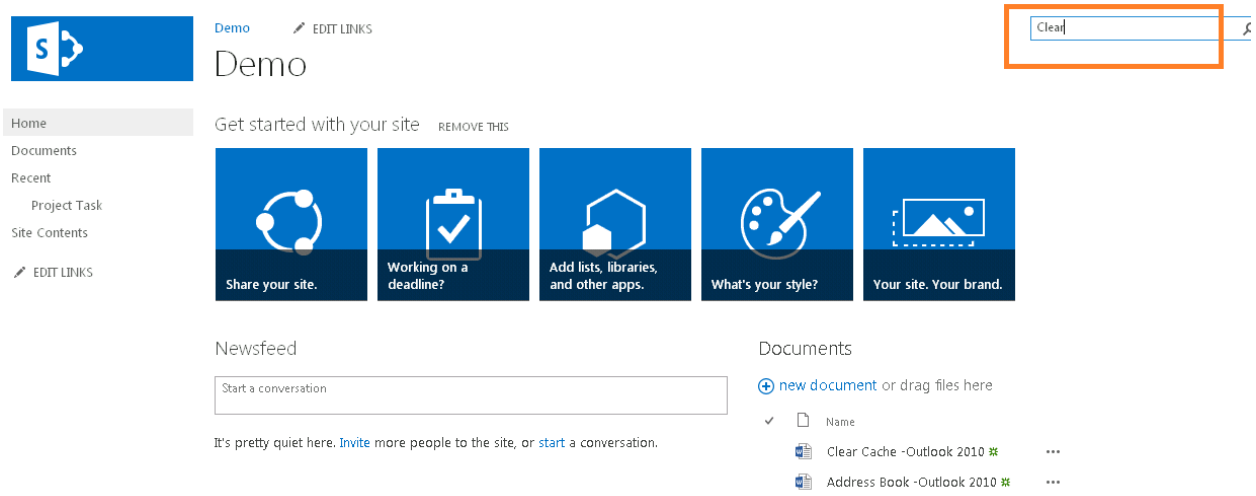
6. Please wait till the crawl over. It will take some time to finish the crawl



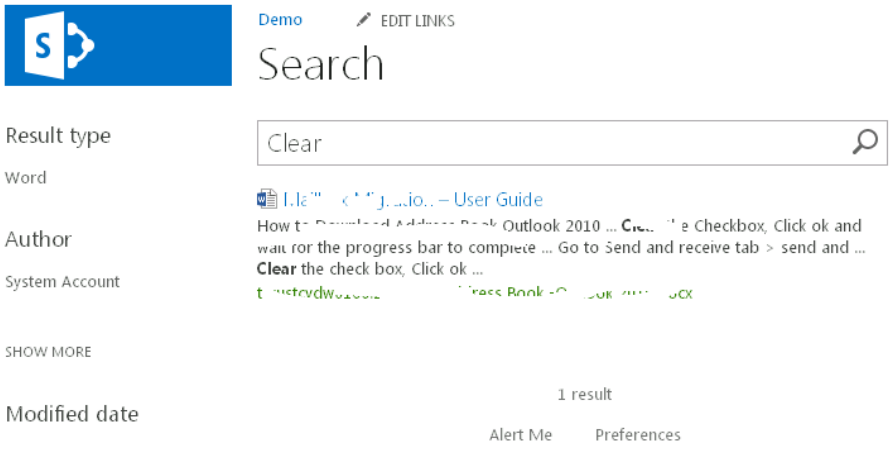
7. You can click on Crawl Log, you can see the contents got crawled



8. Now go to the site which we have added in content source and type something to search as shown below



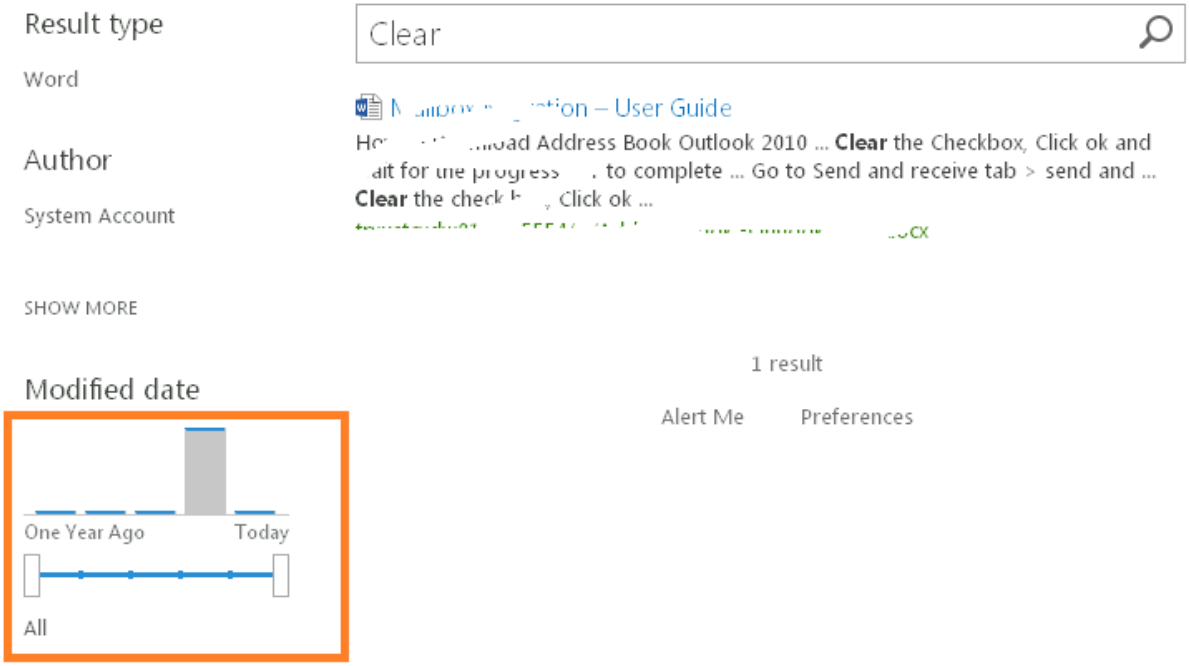
9. You can see the results once search button is clicked



10. We even can now apply filters with a progress bar. Great thing. Even, when you wait on a searched element, you will be prompted by a new great tool where you can:

- ✓ Open the searched element
- ✓ View the library

✓ Send the searched element.



Configure Office Web apps for SharePoint 2013

In this session we can learn how we can deploy office web apps Server. To deploy Office Web Apps Server, you install prerequisite software, server roles, services, and features, and then install Office Web Apps Server. Next, you use Windows PowerShell to configure the Office Web Apps Server farm.

Office Web Apps Server overview

Prepare servers to run Office Web Apps Server

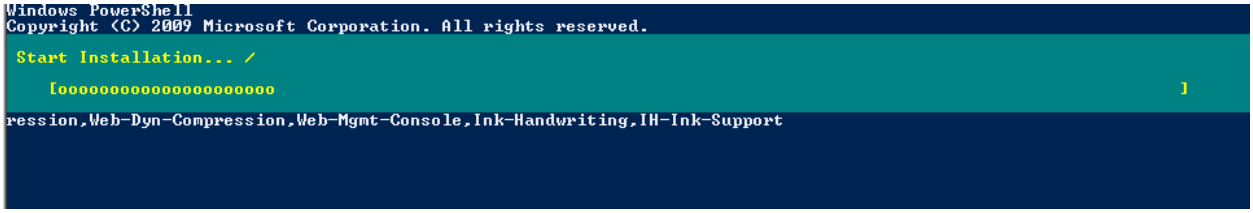
1. Install the following software:

   - ✓ Windows Server 2008 R2 Service Pack 1
   - ✓ .NET Framework 4.5
   - ✓ Windows PowerShell 3.0
   - ✓ KB2592525

2. Next, open the Windows PowerShell prompt as an administrator and run the following example commands to install the required roles and services.

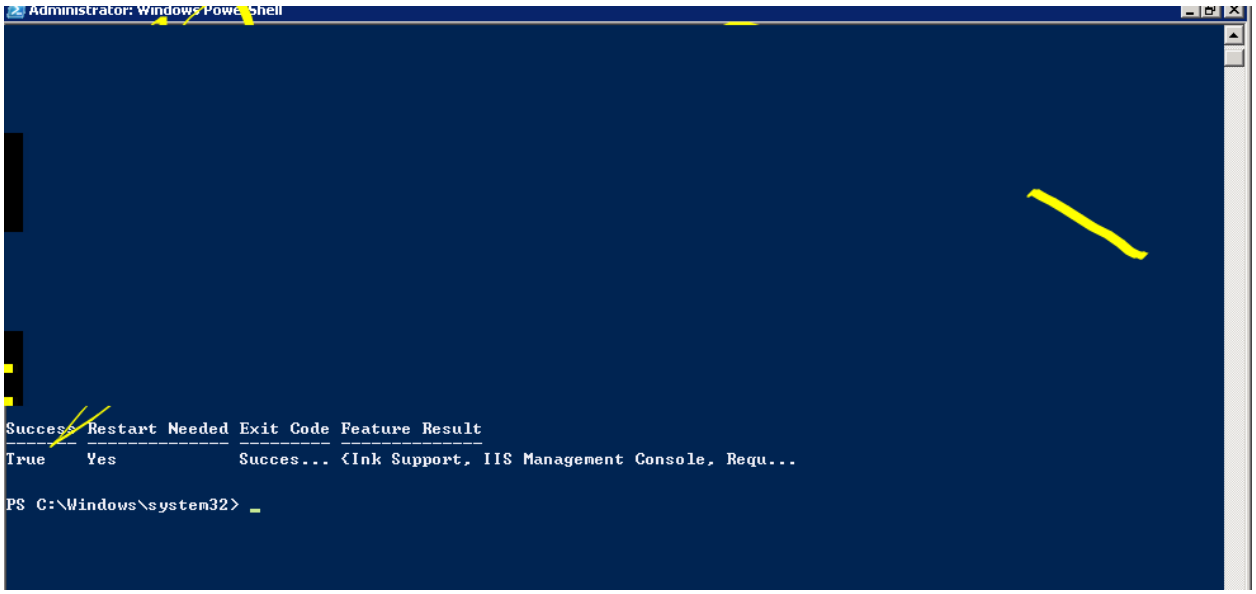
For Windows Server 2008 R2

```
Import-Module ServerManager
```



3. And then run the follow example commands:

Add-WindowsFeature Web-Server,Web-WebServer,Web-Common-Http,Web-Static-Content,Web-App-Dev,Web-Asp-Net,Web-Net-Ext,Web-ISAPI-Ext,Web-ISAPI-Filter,Web-Includes,Web-Security,Web-Windows-Auth,Web-Filtering,Web-Stat-Compression,Web-Dyn-Compression,Web-Mgmt-Console,Ink-Handwriting,IH-Ink-Support



4. If you are prompted, restart the server when the command finishes.

Windows Server 2012

5. Open the Windows PowerShell prompt as an administrator and run the following example commands to install the required roles and services.

Add-WindowsFeature Web-Server,Web-Mgmt-Tools,Web-Mgmt-Console,Web-WebServer,Web-Common-Http,Web-Default-Doc,Web-Static-Content,Web-Performance,Web-Stat-Compression,Web-Dyn-Compression,Web-Security,Web-Filtering,Web-Windows-Auth,Web-App-Dev,Web-Net-Ext45,Web-Asp-Net45,Web-ISAPI-Ext,Web-ISAPI-Filter,Web-Includes,InkandHandwritingServices

Install Office Web Apps Server

1. Download Office Web Apps Server from the Microsoft Download Center.
2. Take one of the following actions:

    - ✓ For Windows Server 2012, open the .img file directly and run Setup.exe (double-click it).
    - ✓ For Windows Server 2008 R2 SP1, use a program that can mount or extract .img files. Then run Setup.exe (double-click it).

3. In the Office Web Apps Server 2013 Wizard, on the Read the Microsoft Software License Terms page, select I accept the terms of this agreement and then select Continue.
4. On the Choose a file location page, select the folder where you want the Office Web Apps Server files to be installed (for example, C:\Program Files\Microsoft Office Web Apps), and then select Install Now. Note that, if this folder does not exist

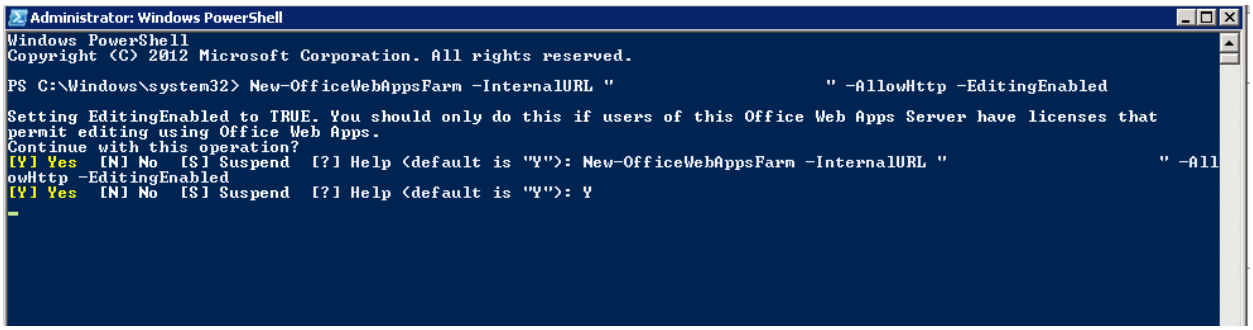
Deploy a single-server Office Web Apps Server farm

The information here will help you install a single-server Office Web Apps Server farm that uses HTTP in a test environment. You don't need a certificate or load balancer, but you do need a dedicated physical server or virtual machine instance that is not running any other server application. You can use this Office Web Apps Server farm to provide Office Web Apps functionality to SharePoint 2013 and Exchange Server 2013, but be aware of the following limitations:

- ✓ The environment can be accessed only by internal users. No external URL is configured.
- ✓ The environment can't be used with Lync Server 2013, which requires HTTPS

The code in the following example creates a new Office Web Apps Server farm that consists of a single server. The URL you specify for –InternalURL is the name of the server that runs Office Web Apps Server, such as http://servername. The –AllowHttp parameter configures the farm to use HTTP, and the –EditingEnabled parameter enables editing in Office Web Apps when it is used together with SharePoint 2013. The –EditingEnabled parameter is not used by Lync Server 2013 or Exchange Server 2013 because those hosts don't support editing.

```
New-OfficeWebAppsFarm –InternalURL "http://servername" –AllowHttp -EditingEnabled
```



Verify that the Office Web Apps Server farm was created successfully

After the farm is created, details about the farm are displayed in the Windows PowerShell prompt. To verify that Office Web Apps Server is installed and configured correctly, use a web browser to access the Office Web Apps Server discovery URL, as shown in the following example. The discovery URL is composed of the value that you assigned to the InternalUrl parameter when you configured your Office Web Apps Server farm, and it is followed by /hosting/discovery

http://servername/hosting/discovery

If Office Web Apps Server works as expected, you should see a Web app Open Platform Interface (WOPI)-discovery XML file in your web browser. The first few lines of that file should resemble the following example

```
<?xml version="1.0" encoding="utf-8" ?>
<wopi-discovery>
- <net-zone name="internal-http">
  + <app name="Excel" favIconUrl="...../x/_layouts/images/FavIcon_Excel.ico" checkLicense="true">
  - <app name="OneNote" favIconUrl="                /o/resources/1033/FavIcon_OneNote.ico" checkLicense="true">
      <action name="view" progid="OneNote.Notebook" requires="cobalt,containers" urlsrc="                    /onenoteframe.aspx?
        edit=0&<ui=UI_LLCC&><rs=DC_LLCC&><showpagestats=PERFSTATS&>" />
      <action name="view" ext="one" requires="cobalt,containers" urlsrc="              'o/onenoteframe.aspx?
        edit=0&<ui=UI_LLCC&><rs=DC_LLCC&><showpagestats=PERFSTATS&>" />
      <action name="view" ext="onetoc2" useParent="true" requires="cobalt,containers" urlsrc="                    /o/onenoteframe.aspx?
        edit=0&<ui=UI_LLCC&><rs=DC_LLCC&><showpagestats=PERFSTATS&>" />
      <action name="edit" progid="OneNote.Notebook" default="true" requires="cobalt,containers,update" urlsrc="                    /o/onenoteframe.aspx?
        <ui=UI_LLCC&><rs=DC_LLCC&><showpagestats=PERFSTATS&>" />
      <action name="edit" ext="one" default="true" requires="cobalt,containers,update" urlsrc="                    /o/onenoteframe.aspx?
        <ui=UI_LLCC&><rs=DC_LLCC&><showpagestats=PERFSTATS&>" />
      <action name="edit" ext="onetoc2" useParent="true" default="true" requires="cobalt,containers,update" urlsrc="                    'o/onenoteframe.aspx?
        <ui=UI_LLCC&><rs=DC_LLCC&><showpagestats=PERFSTATS&>" />
      <action name="editnew" progid="OneNote.Notebook" requires="cobalt,containers,update" newprogid="OneNote.Notebook"
        urlsrc="l    . . .          '/o/onenoteframe.aspx?edit=1&new=1&<ui=UI_LLCC&><rs=DC_LLCC&><showpagestats=PERFSTATS&>" />
      <action name="editnew" ext="one" requires="cobalt,containers,update" newprogid="OneNote.Notebook"
        urlsrc="                    /o/onenoteframe.aspx?edit=1&new=1&<ui=UI_LLCC&><rs=DC_LLCC&><showpagestats=PERFSTATS&>" />
      <action name="editnew" ext="onepkg" requires="cobalt,containers,update" newprogid="OneNote.Notebook"
        urlsrc="    .          o/onenoteframe.aspx?edit=1&new=1&<ui=UI_LLCC&><rs=DC_LLCC&><showpagestats=PERFSTATS&>" />
    </app>
```

Configure SharePoint 2013 to use Office Web Apps Server

Certain conditions must be met before you can successfully configure SharePoint 2013 to use Office Web Apps Server. Review the following requirements before you continue.

Verify that all SharePoint 2013 web applications use claims-based authentication. Office Web Apps rendering and editing will not work on SharePoint 2013 web applications that use classic mode authentication. Learn more in SharePoint authentication requirements for Office Web Apps.

To enable users to edit (not just read) Office documents in a web browser, verify that you have the necessary editing licenses and that you have enabled editing on the Office Web Apps Server farm. You can learn more about licensing requirements in Licensing Office Web Apps for editing Office files.

If you log into SharePoint 2013 by using the System Account, you will be unable to test the connection between SharePoint 2013 and Office Web Apps Server. You will have to log on by using a different account to test the connection.

Low memory conditions can cause Office document previews to fail in Office Web Apps. Verify that the server or servers that run Office Web Apps Server have sufficient memory by reviewing the Hardware requirements

Before you start the following procedures, make sure that you have set up Office Web Apps Server by using the steps in Deploy a single-server Office Web Apps Server farm in a test environment. Specifically, you must have configured the Office Web Apps Server farm to use an internal URL and HTTP.

- Open the SharePoint 2013 Management Shell
- Choose the procedure that corresponds to your server operating system.

To open an elevated SharePoint 2013 Management Shell in Windows Server 2008 R2

1. On the Start menu, select All Programs.
2. Select Microsoft SharePoint 2013 Products.
3. Choose (right-click) SharePoint 2013 Management Shell to display the short-cut menu.
4. From the short-cut menu, choose Run as administrator.

To open an elevated SharePoint 2013 Management Shell in Windows Server 2012

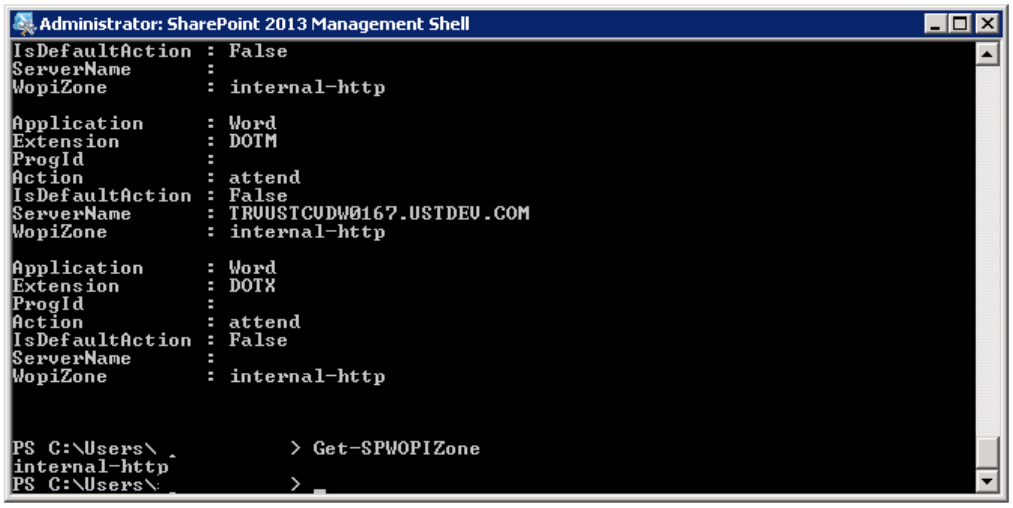
1. Swipe in from the edge of the screen to show the charms and then choose Search to see all the applications that are installed on the computer.
2. Choose (right-click) SharePoint 2013 Management Shell to display the app bar.
3. In the app bar, select Run as administrator.

Create the binding between SharePoint 2013 and Office Web Apps Server

Run the following command, where <WacServerName> is the fully qualified domain name (FQDN) of the URL that you set for the internal URL. This is the point of entry for Office Web Apps Server traffic. For this test environment, you must specify the –AllowHTTP parameter to allow SharePoint 2013 to receive discovery information from the Office Web Apps Server farm by using HTTP. If you forget to specify –AllowHTTP, SharePoint 2013 will try to use HTTPS to communicate with the Office Web Apps Server farm and this command will fail.

New-SPWOPIBinding -ServerName <WacServerName> -AllowHTTP

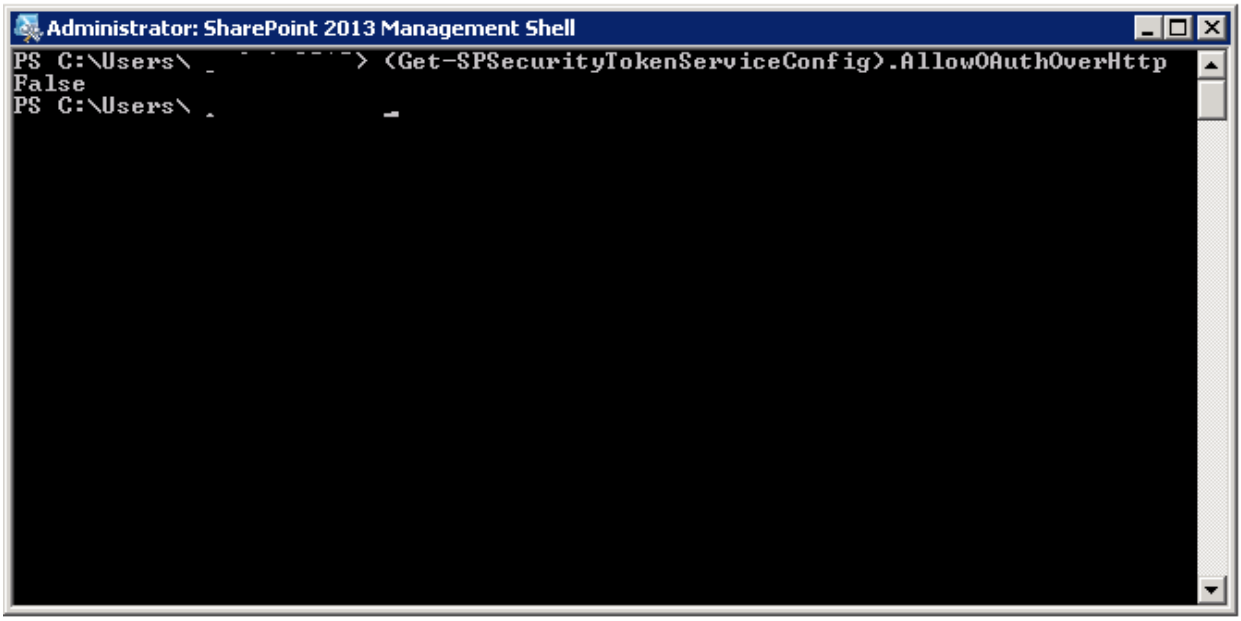
```
New-SPWOPIBinding -ServerName http://[redacted]7 -AllowHTTP
```



View the WOPI zones for the SharePoint bindings

Office Web Apps Server uses the concept of zones to determine which URL (internal or external) and which protocol (HTTP or HTTPS) to use when it communicates with the host, which in this case is SharePoint 2013. By default, SharePoint Server 2013 uses the internal-https zone. Verify that this is the current zone by running the following command:

Get-SPWOPIZone



Change the WOPI zone to internal-http

If the result from above step was internal-https, run the following command to change the zone to internal-http. You must make this change because the zone of SharePoint 2013 must match the zone of the Office Web Apps Server farm.

Set-SPWOPIZone –zone "internal-http"

Verify that the new zone is internal-http by running the following command:

Get-SPWOPIZone

Change the AllowOAuthOverHttp setting in SharePoint 2013 to True

To use Office Web Apps with SharePoint 2013 over HTTP in a test environment, you must set AllowOAuthOverHttp to True. Otherwise Office Web Apps will not work. You can check the current status by running the following example

(Get-SPSecurityTokenServiceConfig).AllowOAuthOverHttp

If this command returns False**, run the following commands to set this to** True**.**

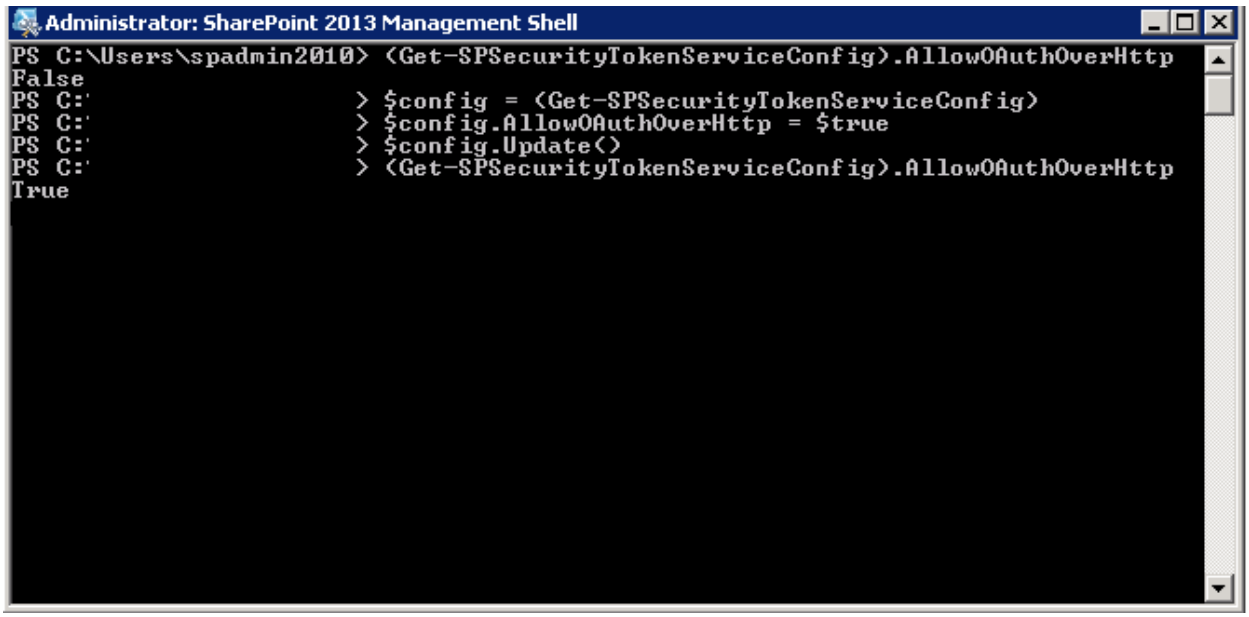
$config = (Get-SPSecurityTokenServiceConfig)

$config.AllowOAuthOverHttp = $true

$config.Update()

Run the following command again to verify that the AllowOAuthOverHttp setting is now set to True.

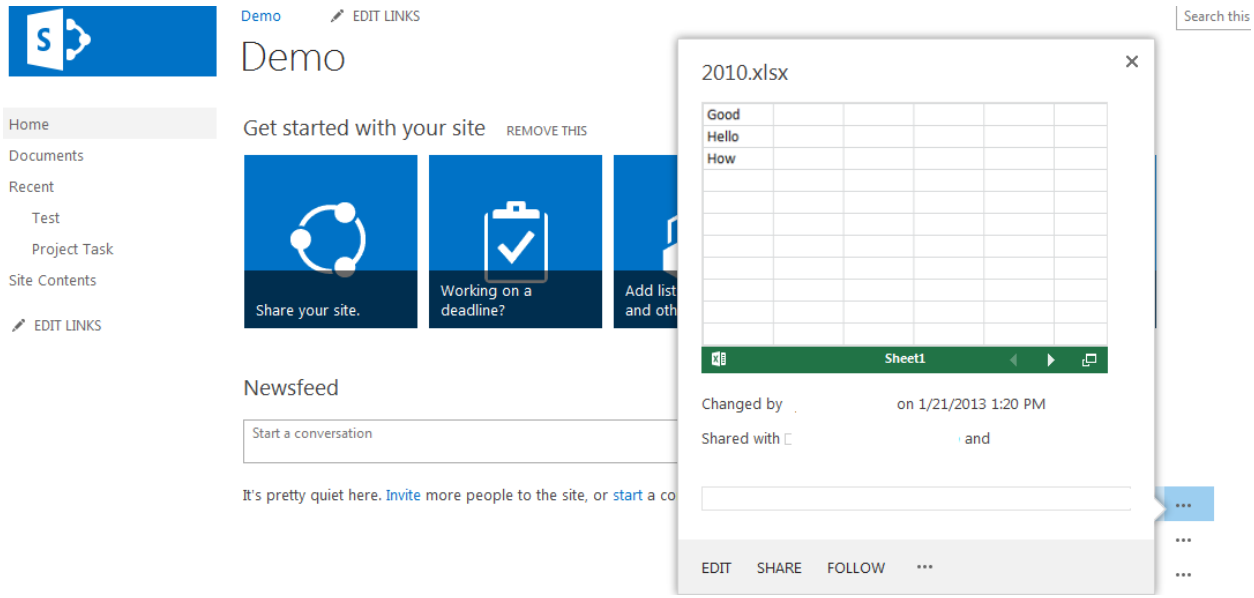
(Get-SPSecurityTokenServiceConfig).AllowOAuthOverHttp



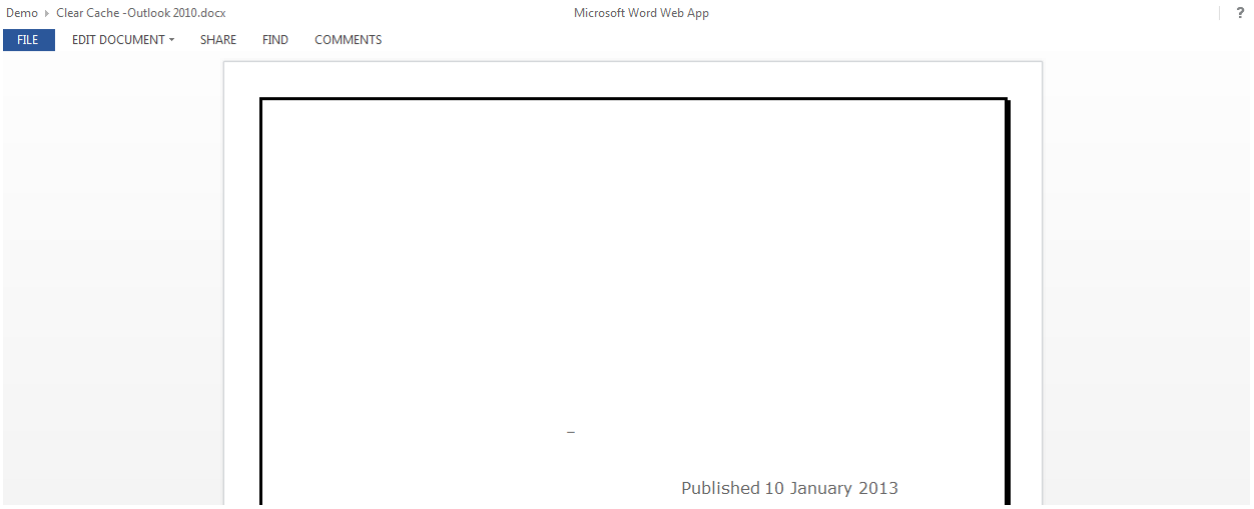
Verify that Office Web Apps is working

In SharePoint 2013, make sure that you are not logged in as System Account. (Whenever the currently logged on user name appears as system Account, that user can't edit or view the documents by using Office Web Apps.) Go to a SharePoint 2013 document library that contains Office documents and view a Word, PowerPoint, Excel, or OneNote file. The document should open in a browser that displays the file by using Office Web Apps.

You can see the preview by just clicking on the ..icon as seen below



If you click on the document will open the document in browser as shown below



You should have more options to save the document or translate the document. For translation you should install the language pack for office web apps

Architecture of Search Schema in SharePoint 2013

In this session we can see some very good information about the Search Schema of SharePoint 2013.The search index is one of the determines what people will find when they look for information by entering search queries or by most important elements in search architecture. What is in our search index interacting with internet or intranet pages?

To include content in the search index, you must first crawl the content. There are various content sources that you can crawl, for example SharePoint sites, file shares or user profiles. The contents and metadata of the items that you crawl are represented as crawled properties in the search service application. To include the contents of the crawled properties in the search index, you map crawled properties to managed properties. There is a set of default mappings, but often you want to use the search schema to, for example, change the default mappings, create new mappings or create new managed properties. The way the search index is structured depends on the settings on the managed properties.

Search schema

In SharePoint Server 2013 we can create multiple search schemas. The main search schema is defined in the Search Service Application, and you can edit it in the Central Administration. In addition, both site collection administrators and tenant administrators can modify the search schema for a particular site collection or tenant. For example, by modifying the search schema, a site collection administrator can customize what is included in the search index for the content of that site collection and customize the search experience in that site collection. The search schema contains the crawled properties, the managed properties and their settings, and the mappings between crawled and managed properties.

Each item that has been crawled and passed on to the content processing pipeline has crawled properties associated with it. You can think of properties such as Author, Title and Creation Date, for example. If the crawled property is new and hasn't been crawled before, the crawled property will be discovered automatically. Crawled properties are grouped into categories that are based on the IFilter or protocol handler of the item.

Example categories are Office (containing crawled properties from Word documents, Excel worksheets, and so on), Business Data (containing crawled properties from for example databases) and Web (containing crawled properties from web sites).

You can map crawled properties to managed properties to include the contents of the crawled property in the search index. You can map multiple crawled properties to a single managed property, for example you can map both the crawled properties "Writer" and "Author" to the "Author" managed property, or you can 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 those crawled properties, the order in which the crawled properties are mapped to the managed property determines the content of the managed property.

When you create a new managed property, a full crawl must complete before the managed property and its value is included in the search index.

Overview of managed property settings

Settings on the managed properties determine which indexing structure is used, that is how content is saved in the search index.

Site administrators can read the search schema, such as the mappings between crawled and managed properties on the site collection level, but they can't edit the search schema. Administrators using Central Administration, Site Collection Administration and Tenant Administration can edit the search schema. Which settings are available for each administrator role is shown in the following table.

Managed property setting	What it does	Example	Available in
Searchable	Enables querying against the content of the managed property. The content of this managed property is	If the property is "author", a	Central Administration/Site

	included in the full-text index.	simple query for "Smith" returns items that contain the word "Smith" and items whose author property contains "Smith".	Collection Administration /Tenant Administration
Query able	Enables querying against the specific managed property. The managed property name must be included in the query, either specified in the query itself or included in the query programmatically.	If the managed property is "author", the query must contain "author:Destin".	Central Administration /Site Collection Administration /Tenant Administration
Retrievable	Enables the content of this managed property to be returned in search results. Enable this setting for managed properties that are relevant to present in search results.		Central Administration /Site Collection Administration /Tenant Administration
Allow multiple values	Allows multiple values of the same type in this managed property.	If this is the "author" managed property, and a document has multiple authors, each author name	Central Administration

		will be stored as a separate value in this managed property.	
Refinable	Yes - active: Enables using the property as a refiner for search results in the front end. You must manually configure the refiner in the web part. Yes - latent: Enables switching refinable to active later, without having to do a full re-crawl when you switch. Both options require a full crawl to take effect.		Central Administration
Sortable	Yes – active: Enables sorting the result set based on the property before the result set is returned. Yes – latent: Enables switching sorting to active later without having to do a full re-crawl when you switch. Both options require a full crawl to take effect.	Use for large result sets that cannot be sorted and retrieved at the same time.	Central Administration
Alias	Defines an alias for a managed property if you want to use the alias instead of the managed	Use an alias if you don't want to or don't	Central Administration /Site Collection

	property name in queries and in search results. Use the original managed property and not the alias to map to a crawled property.	have permission to create a new managed property.	Administration /Tenant Administration
Token normalization	Enables returning results independent of letter casing and diacritics used in the query.	The query 'curacao' will also match 'Destin', 'DESTIN' and 'DEstin'.	Central Administration
Complete matching	Queries will only be matched against the exact content of the property.	If you have a managed property "ID" that contains the string "1-23-456#7", complete matching only returns results on the query ID:"1-23-456#7", and not on ID:"1-23" or ID:"1 23 456 7".	Central Administration
Mappings to crawled properties	The list shows all the crawled properties that are mapped to this managed property. A managed property can get its content from one or more		Central Administration /Site Collection Administration /Tenant

	crawled properties. You can either include content from all crawled properties or include content from the first crawled property that is not empty, based on a specified order.	Administration
Extraction of company names	Enables the system to extract company name entities from the managed property when crawling new or updated items. Afterwards, the extracted entities can be used to set up refiners in the web part. There is one pre-populated dictionary for company name extraction. The system saves the original managed property content unchanged in the index and, in addition, copies the extracted entities to the managed property "companies". The "companies" managed property is configured to be searchable, queryable, retrievable, sortable and refinable. You can edit the company name dictionary in the Term Store.	Central Administration/Site Collection Administration /Tenant Administration

Custom entity extraction	Enables one or more custom entity extractors to be associated with this managed property. This enables the system to extract entities from the managed property when crawling new or updated items. Afterwards, the extracted entities can be used to set up refiners in the web part. There are four types of custom extraction dictionaries. You create your own, separate custom entity extraction dictionaries that you deploy using the PowerShell cmdlet Import-SPCustomExtractionDictionary. The system saves the original managed property content unchanged in the index and, in addition, copies the extracted entities to the managed properties "WordCustomRefiner1" through 5, "WordPartCustomRefiner1" through 5, "WordExactCustomRefiner" and/or "WordPartExactCustomRefiner"	Central Administration/Site Collection Administration

	respectively. These managed properties are configured to be searchable, queryable, retrievable, sortable and refinable.	

Overview of crawled property settings

Crawled property setting	What it does	Example	Available in
Name and information	Name and description of the crawled property. This information about the crawled property is emitted by the filter or protocol handler.		Central Administration /Site Collection Administration /Tenant Administration
Mappings to managed properties	Maps this crawled property to one or more managed properties.		Central Administration /Site Collection Administration /Tenant Administration
Include in full-text index	Includes the content of this crawled property in the full-text index. This enables searching for the content of this crawled property	For example, if the crawled property is "reviewer", simple queries such as "Destin" will return both	Central Administration

	without mapping it to a managed property. Use this setting if the content of this crawled property may be relevant for end-user queries, but you do not see a need for a managed property that contains this content. Note: Including unnecessary properties in the full-text index may adversely affect search relevance and performance.	items containing the word "Destin" and items whose reviewer crawled property contains "Destin". When not enabled, you must specify a managed property mapping, and users must specify a property filter in the query (reviewer:destin) to find the same items.

Search schema tasks

The following table provides an overview of the most common tasks related to crawled and managed properties:

Task	Available in
Create a new managed property	Central Administration
Create a new resource intensive managed property (refinable/sortable/other types other than text)	Central Administration
Edit an existing managed property	Central Administration

Map crawled properties to managed properties	Central Administration
View crawled and managed properties and their mapping	Central Administration
Edit crawled property categories	Central Administration
View crawled property categories	Central Administration

Manage the search schema in the Central Administration

Create a new managed property

1. Verify that the user account that is performing this procedure is an administrator for the Search Service Application.
2. In SharePoint Server 2013 Central Administration, in the **Application Management** section, click **Manage service applications**.
3. Click **Search Service Application**.
4. On the Search Administration page, in the Quick Launch, under **Queries and Results**, click **Search Schema**.
5. On the Managed Properties page, click **New Managed Property**.
6. In the New Managed Property page, select the options that you want and then click **OK**.

Edit a managed property

1. Verify that the user account that is performing this procedure is an administrator for the Search Service Application.
2. In SharePoint 2013 Central Administration, in the Application Management section, click Manage service applications.
3. Click Search Service Application.
4. On the Search Administration page, in the Quick Launch, under Queries and Results, click Search Schema.

1. Find the managed property that you want to edit in the list that is displayed on the **Managed Properties** page, or find it by typing the name of the managed property in the **Filter** box.
2. Click the managed property or point to the managed property that you want to edit, click the arrow that appears, and then click **Edit/Map property**.
3. Select the options that you want and then click **OK**.

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. In SharePoint 2013 Central Administration, in the **Application Management** section, click **Manage service applications**.
3. Click **Search Service Application**.
4. On the Search Administration page, in the Quick Launch, under **Queries and Results**, click **Search Schema**.
5. Do one of the following:

a. Use the Managed Properties page:
b. Find the managed property that you want to map to a crawled property in the list that is displayed on the Managed Properties page, or find it by typing the name of the managed property in the Filter box.
c. Click the managed property or point to the managed property that you want to map, click the arrow that appears, and then click Edit/Map property.
d. Add the mapping and optionally the order in the Mappings to crawled properties section.
e. Click OK.

f. Use the Crawled Properties page:
g. Find the crawled property that you want to map to a managed property in the list that is displayed on the Crawled Properties page, or find it by typing the name of the crawled property in the Filter box.
h. Click the crawled property or point to the crawled property that you want to map, click the arrow that appears, and then click Edit/Map property.

i. Add the mapping in the Mappings to managed properties section.
j. Click OK.

View crawled to managed property mappings

1. Verify that the user account that is performing this procedure is an administrator for the Search Service Application.
2. In SharePoint 2013 Central Administration, in the **Application Management** section, click **Manage service applications**.
3. Click **Search Service Application**.
4. On the Search Administration page, in the Quick Launch, under **Queries and Results**, click **Search Schema**.
5. On the **Managed Properties** page, you can see an overview of all the managed properties, an overview of the settings on the managed properties and the crawled properties they are currently mapped to.

Manage crawled property categories

1. Verify that the user account that is performing this procedure is an administrator for the Search Service Application.
2. In SharePoint 2013 Central Administration, in the **Application Management** section, click **Manage service applications**.
3. Click **Search Service Application**.
4. On the Search Administration page, in the Quick Launch, under **Queries and Results**, click **Search Schema**.
5. Click **Categories**.
6. Point to the crawled property category that you want to edit, click the arrow that appears, and then click **Edit category**.
7. Make the changes that you want and then click **OK**.

Configure usage and health data collection SharePoint 2013

This session provides information about how to configure usage and health data collection in Microsoft SharePoint 2013.SharePoint 2013 writes usage and health data to the logging folder and to the logging database. You have to use the Central Administration Web site to configure health data collection settings.

Usage and Health Data Collection Service Application collects Data about Usage and Health of your farm. This information is used for Health Monitoring and this is also required for running the Web Analytics Service. If you do not have a Usage and Health Data Collection Service Application or your Usage and Health Data Collection Proxy is stopped, you will not see any data in the Web Analytics Report.

You can create it by following steps. You need to navigate to Monitoring, Click on Configure Usage and Health Data Collection, check the box for "Enable usage data collection", select the Events to Log, Put in the log file location, SQL information and you are done. Now you have Health Data Collection Service Application.

Configure usage and health data collection by using Central Administration

The usage and health data settings are farm-wide and cannot be set for individual servers in the farm.

To configure usage and health data collection by using Central Administration

1. Verify that you have the following administrative credentials:
2. The user account that performs this procedure has to be a member of the Farm Administrators group.
3. In Central Administration, on the Home page, click **Monitoring**.
4. On the Monitoring page, in the **Reporting** section, click **Configure usage and health data collection**.
5. On the Configure usage and health data collection page, in the **Usage Data Collection** section, select the **Enable usage data collection** check box.
6. In the **Event Selection** section, select the check boxes of the events that you want to log.

7. Logging uses system resources and can affect performance and disk usage. Only log those events for which you want regular reports. For impromptu reports or investigations, enable logging for specific events, and then disable logging for the events after the report or investigation completes.
8. In the **Usage data collection settings** section, type the path of the folder to which you want usage and health information written in the **Log file location** box. The path that you specify must exist on each server in the farm.
9. These settings are applied to all events. To set event collection settings for individual event types, you must use Windows PowerShell.
10. Type the maximum disk space (between 1 and 20 GB) for the logs in the **Maximum log file size** box.
11. In the **Health data collection** section, select the **Enable health data collection** check box. To change the collection schedules, click **Health Logging Schedule**. A list of timer jobs that collect health data is listed. Click any of the timer jobs to change its schedule, or disable that timer job.
12. In the **Logging Database Server** section, to change the authentication method, select either the **Windows authentication** or **SQL authentication** option.
13. To change the **Database Server** and **Database Name** values, you must use Windows PowerShell.

Configure usage data collection by using Windows PowerShell

To configure usage data collection by using Windows PowerShell

1. Adds a user to the **SharePoint_Shell_Access** role for the specified database.
2. **Add-SPShellAdmin [-UserName] <String> [-AssignmentCollection <SPAssignmentCollection>] [-Confirm [<SwitchParameter>]] [-database <SPDatabasePipeBind>] [-WhatIf [<SwitchParameter>]]**
3. On the Start menu, click All Programs.
4. Click Microsoft SharePoint 15 Products.
5. Click SharePoint 15 Management Shell.
6. At the Windows PowerShell command prompt (that is, PS C:\>), type the following command, and then press ENTER:
7. **Set-SPUsageService [-LoggingEnabled {1 | 0}] [-UsageLogLocation <Path>] [-UsageLogMaxSpaceGB <1-20>] [-Verbose]**

For UsageLogLocation, specify a path that exists on each computer in the farm.

Enable usage data logging by typing -LoggingEnabled 1. Specify the maximum amount of drive space used for logging with the UsageLogMaxSpaceGB parameter.

Configure usage data collection for a specific event type by using Windows PowerShell

The event types listed on the Configure usage and health data collection page in Central Administration are the same as Usage Definitions in Windows PowerShell. You can use only Windows PowerShell to configure usage definitions individually. Moreover, you can configure only the DaysRetained setting.

To configure usage data logging for a specific event type using Windows PowerShell

1. Verify that you meet the following minimum requirements: See Add-SPShellAdmin (http://technet.microsoft.com/en-us/library/ff607596.aspx).
2. On the Start menu, click All Programs.
3. Click Microsoft SharePoint 15 Products.
4. Click SharePoint 15 Management Shell.
5. At the Windows PowerShell command prompt (that is, PS C:\>), type the following command, and then press ENTER:

Set-SPUsageDefinition -Identity <GUID> [-Enable] [-DaysRetained <1-30>] [-Verbose]

The Identity parameter specifies the usage definition object that you want to update. The type must be a valid GUID, in the form 12345678-90ab-cdef-1234-567890bcdefgh; a valid name of a usage Use the Enable switch to enable usage logging for this usage definition. Use DaysRetained to specify how long the usage data is retained in the log before being deleted. The range is 1 to 30 days. To view the progress of the command, use the Verbose parameter.

Log usage data in a different logging database by using Windows PowerShell

You use Windows PowerShell to change this setting.

To log usage data in a different logging database by using Windows PowerShell

1. Verify that you meet the following minimum requirements: See Add-SPShellAdmin (http://technet.microsoft.com/en-us/library/ff607596.aspx).
2. On the Start menu, click All Programs.
3. Click Microsoft SharePoint 15 Products.
4. Click SharePoint 15 Management Shell.

5. At the Windows PowerShell command prompt (that is, PS C:\>), type the following command, and then press ENTER:

Set-SPUsageApplication -DatabaseServer <Database server name> -DatabaseName <Database name> [-DatabaseUsername <User name>] [-DatabasePassword <Password>] [-Verbose]

You must specify the value for the DatabaseServer parameter, even if the new database is on the same database server as the old one. You must use both the DatabaseUsername and the DatabasePassword parameters if the database owner is a different user account from the one with which you logged on. To view the progress of the command, use the verbose parameter.

Configuring SharePoint 2013 and Exchange Server 15 to support eDiscovery

Electronic discovery, or eDiscovery, is the process of locating and managing content that you might need to provide as part of a legal case or an audit. SharePoint 2013 and Microsoft Exchange Server 15 work together to enable eDiscovery.To allow SharePoint 2013 Exchange Server 15 to communicate; you must configure a trust relationship between the computers that are running the two servers. You must also perform several additional steps to grant users the appropriate permissions. This article contains the procedures for configuring SharePoint Server 2013 Technical Preview and Exchange Server 15 Technical Preview to support eDiscovery.

Before we begin

Please ensure the following prerequisites are met:

- SharePoint Server 15 Technical Preview and Exchange Server 15 Technical Preview must be installed in the same domain or the same forest.
- The Exchange Web Services Managed API must be installed on every server that is running SharePoint Server 15 Technical Preview. Download the Exchange Web Services from Microsoft Connect. When you install the Exchange Web Services Managed API, be sure to install it for everyone, not just the current user. Reset Internet Information Server (IIS) after installing the Exchange Web Services Managed API.
- You must have the appropriate permissions to run the SharePoint Server 15 Technical Preview

- You must be a member of the Administrators group on the computer that is running Exchange Server 15 Technical Preview. You must also be a member of the Organization Management role group.

Before you begin configuring the computers, gather and record the following information:

- eDiscovery users: The account names, in the format <domain>\<user> of the users who will manage eDiscovery cases.
- Discoverable mailboxes: The account names of all users whose mailboxes might contain discoverable content and should be searched.
- Realm: A word or phrase that will represent the connection between the computers that run SharePoint Server 15 Technical Preview and Exchange Server 15 Technical Preview. This value can be anything.
- Exchange trusted root authority: A word or phrase that will represent the Exchange Server computer's trusted root authority. This value can be anything.

Configuration procedure

Use the following procedure to configure SharePoint Server 15 Technical Preview and Exchange Server 15 Technical Preview to support eDiscovery.

Do not use this procedure if you have installed apps from the SharePoint Marketplace on the SharePoint farm.

1. Perform the following steps on the computer that is running SharePoint Server 15 Technical Preview Central Administration.
2. On the **Start** menu, click **All Programs**, click **Microsoft SharePoint 2013 Products**, right-click **SharePoint 2013 Management Shell**, and then click **Run as administrator**.
3. At the Windows PowerShell command prompt, type the following commands:
4. $farm = Get-SPFarm
5. $farm.AuthenticationRealm = "<*RealmName*>"
6. $farm.Update()
7. Where <*RealmName*> is the name of the realm that you recorded earlier.
8. At the Windows PowerShell command prompt, type the following command:
9. Set-SPEnterpriseSearchCrawlLogReadPermission -SearchApplication (Get-SPEnterpriseSearchServiceApplication) -UserNames "<*eDiscoveryUsers*>"

Where <*eDiscoveryUsers*> is a semicolon-delimited list of the account names, including the domain, of the users who will manage eDiscovery cases.

a. At the Windows PowerShell command prompt, type the following commands:

$spCert = (Get-SPSecurityTokenServiceConfig).LocalLoginProvider.SigningCertificate
$spCert.export("Cert") | Set-Content "<*PathAndFile*>" -Encoding Byte

Where <*PathAndFile*> is the location to which you want to export the certificate, for example “c:\certificate”.

b. Copy the certificate that you exported to a location that is accessible to the computer that is running Exchange Server 15 Technical Preview.

2. Perform the following steps on the computer that is running Exchange Server 15 Technical Preview.

a. On the **Start** menu, click **All Programs**, click **Microsoft Exchange Server 2010**, and then click **Exchange Management Shell**.

b. At the Windows PowerShell command prompt, type the following commands:

$cert = New-Object System.Security.Cryptography.x509Certificates.x509Certificate2 "<*PathAndFile*>"
Set-PartnerApplication SharePoint -CertificateRawString ([Convert]::ToBase64String($cert.GetRawCertData()))

Where <*PathAndFile*> is the location to which you copied the certificate.

c. At the Windows PowerShell command prompt, type the following commands:

Set-PartnerApplication SharePoint -Realm "<*RealmName*>"
Set-AuthConfig –Realm "<*RealmName*>"
Set-AuthConfig -ServiceName 00000003-0000-0ff1-ce00-000000000000
New-ManagementRoleAssignment -SecurityGroup "Discovery Management" -Role ApplicationImpersonation

Where <*RealmName*> is the name of the realm that you recorded earlier.

d. At the Windows PowerShell command prompt, type the following command once for each of the eDiscovery users that you recorded earlier:

Add-RoleGroupMember "Discovery Management" -member "<*eDiscoveryUser*>"

Where <*eDiscoveryUser*> is the account name, including the domain, of a user who will manage eDiscovery cases.

e. At the Windows PowerShell command prompt, type the following command once for each combination of discoverable mailbox and eDiscovery user:

Add-MailboxPermission -Identity "<*Mailbox*>" -User "<*eDiscoveryUser*>" -AccessRights FullAccess

Where:

- <*Mailbox*> is the account name of a user whose mailbox should be searchable.
- <*eDiscoveryUser*> is the account name of a user who will manage eDiscovery cases.

f. Open Microsoft Internet Explorer and navigate to https://<*ExchangeServerName*>/owa, where <*ExchangeServerName*> is the name of the computer that is running Exchange Server 15 Technical Preview.

g. On the **Certificate Error: Navigation Blocked** page, click **Continue to this website (not recommended)**.

h. In the Security Status bar (next to the Address bar), click **Certificate Error**.

i. In the **Untrusted Certificate** box, click **View certificates.**

j. On the **Details** tab of the **Certificate** dialog box, click **Copy to File**.

k. In the **Certificate Export Wizard** dialog box, on the **Welcome to the Certificate Export Wizard** page, click **Next**.

l. On the **Export File Format** page, select **Base-64 encoded X.509 (.CER)**, and then click **Next**.

m. On the **File to Export** page, select a location to store the certificate, type a name for the file, and then click **Next**.

n. On the **Completing the Certificate Export Wizard** page, click **Finish**.

o. In the **Certificate Export Wizard** dialog box, click **OK**.

p. In the **Certificate** dialog box, click **OK**.

q. Copy the certificate that you exported to a location that is accessible to the computer that is running SharePoint Server 15 Technical Preview.

3. Perform the following steps on the computer that is running SharePoint Server 15 Technical Preview Central Administration.

a. On the **Start** menu, click **All Programs**, click **Microsoft SharePoint 2013 Products**, right-click **SharePoint 2013 Management Shell**, and then click **Run as Administrator**.

b. At the Windows PowerShell command prompt, type the following commands:

```
$exCert = New-Object System.Security.Cryptography.X509Certificates.X509Certificate2
$exCert.import("<ExchangeCertificateLocation>.cer")
New-SPTrustedRootAuthority -Name "<ExchangeRootAuthority>" -Certificate $exCert
```

Where:

- <*ExchangeCertificateLocation*> is the location to which you copied the certificate.
- <*ExchangeRootAuthority*> is the name of the Exchange Server computer's trusted root authority that you recorded earlier.

c. From SharePoint Central Administration, click **Manage service applications**, and then click **Search Service Application**.

d. On the Search Administration page, click **Result Sources** on the left.

e. On the Manage Result Sources page, click **New Source**.

f. On the Edit Result Source page, in the **Source Name** box, enter a name for search results that come from Exchange Server 15 Technical Preview, for example "Exchange".

g. From the **Source Protocol** list, select **Exchange Index**.

h. In the **Exchange Source URL** box, type the following:

https://<*ExchangeServerName*>/ews/exchange.asmx

Where <*ExchangeServerName*> is the fully qualified name of the computer that is running Exchange Server 15 Technical Preview.

i. Click **OK**.

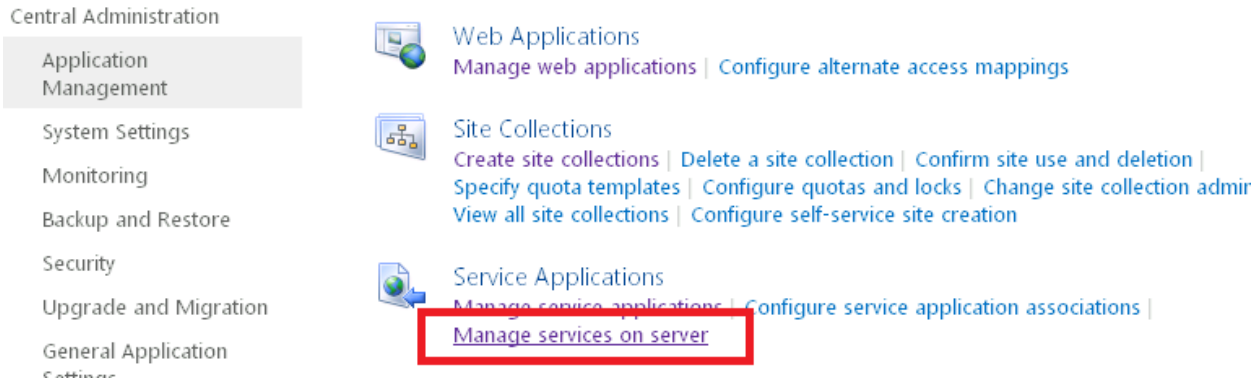
Configure Business Data Connectivity Service SharePoint 2013

In this article we learn about how to configure Business Data Connectivity Service in SharePoint 2013. Business Connectivity Services (BCS) was introduced in SharePoint Server 2010 as an evolution of the Business Data Catalog released in Office SharePoint Server 2007. BCS enables SharePoint 2013 to work with data that is hosted externally. Possible sources can include databases, web services, Windows Communication Foundation (WCF) services, Open Data Protocol (OData) sources, and other proprietary data that is accessed by using custom .NET assemblies.

With BCS, you can bring information into SharePoint from many different sources. For example, you can bring data from an external SQL Server database, a traditional web service, a WCF service, proprietary systems, and OData services.

Start the Business Data Connectivity service

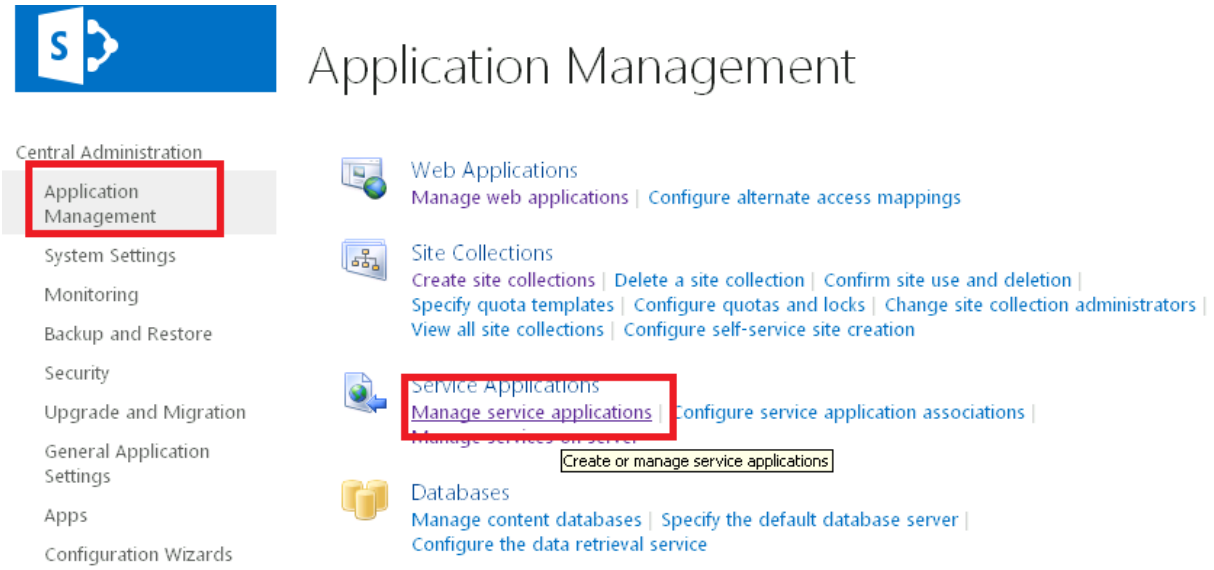
1. Open the SharePoint Central Administration website for the server farm that contains your BCS solution.
2. On the Quick Launch, click System Settings.
3. On the System Settings page, under Servers, click Manage services on server.



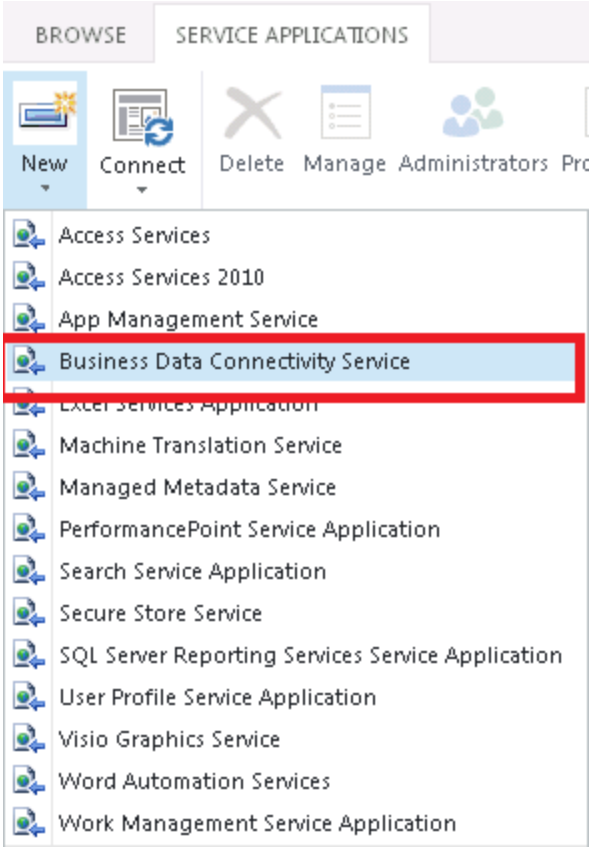
4. Check the value in the Server field. If the server name shown there is not the server that you want running the Business Data Connectivity Service on, click on the down arrow, click Change Server and select the correct server.
5. If necessary, next to Business Data Connectivity Service, under the Action column, click Start.

Create a new Business Data Connectivity Services service application

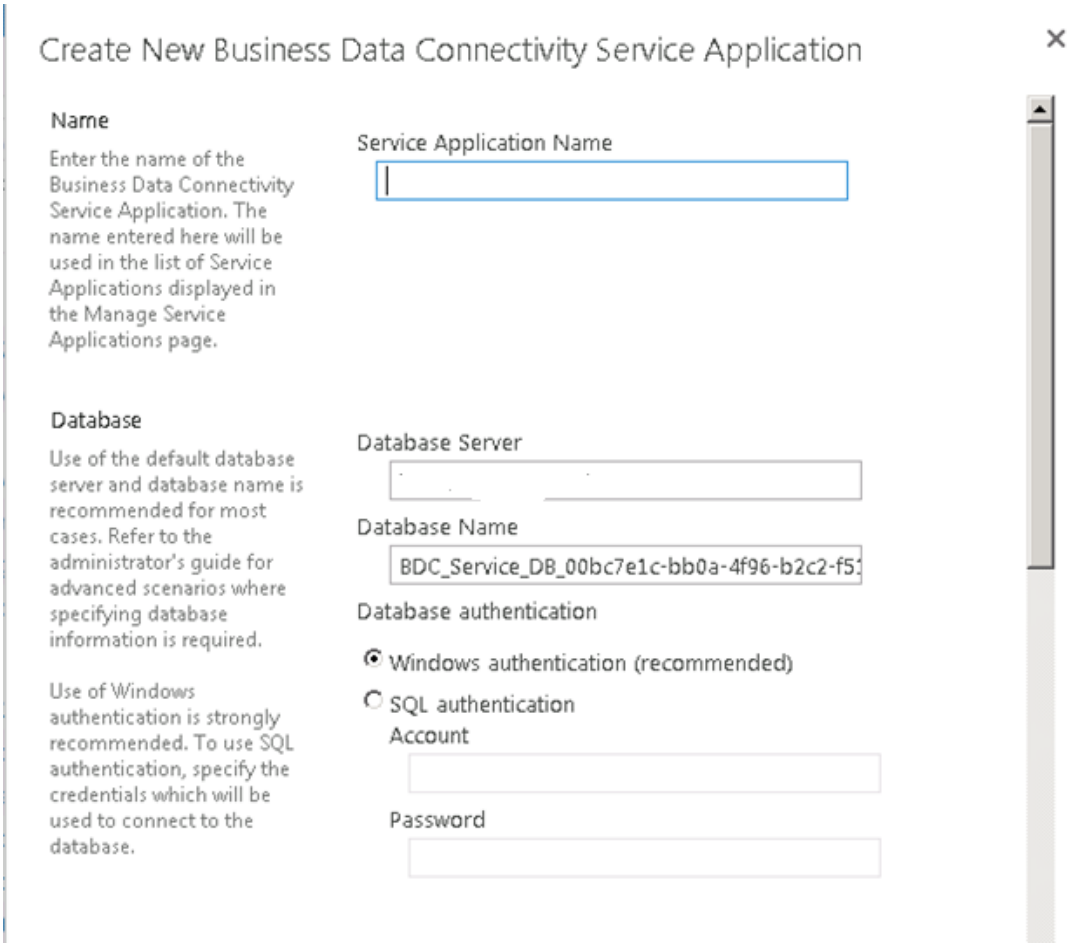
1. Open the SharePoint Central Administration website for your farm with a Farm administrator account. This must be the farm in which you started the Business Data Connectivity Service in the Start the Business Data Connectivity service for a Business Connectivity Services on-premises solution in SharePoint 2013 procedure.
2. On the Quick start, click, Application Management.
3. On the Application Management page under Service Applications, click Manage service applications.



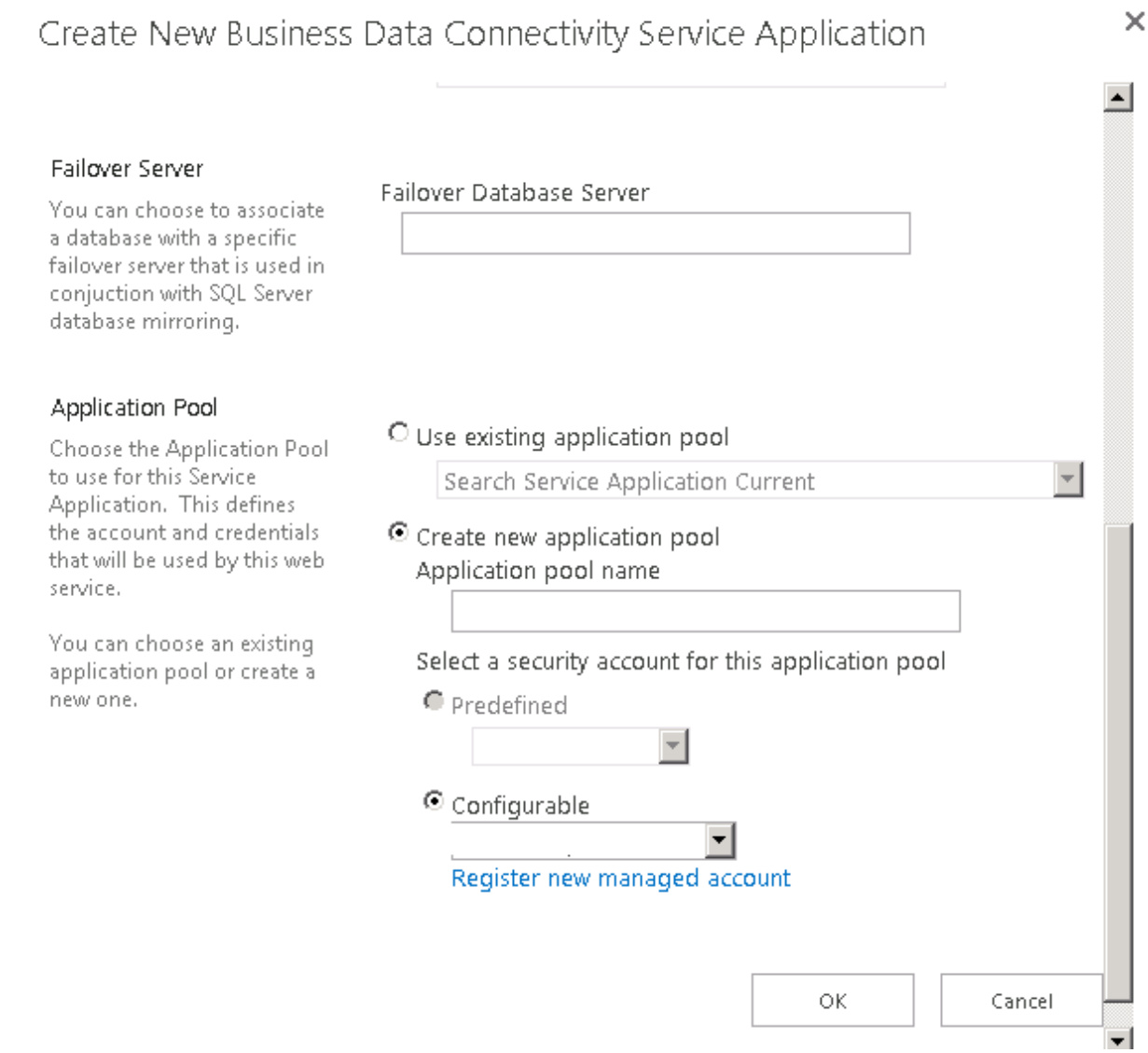
4. If an instance of the Business Data Connectivity Service Application that you will use for this solution is already there, you can skip the rest of this procedure. If not, follow the rest of this procedure to create one.
5. On the SERVICE APPLICATIONS tab, click New and click Business Data Connectivity Service.



1. Configure the setting in the Create New Business Data Connectivity Service Application configuration page as follows:
2. In the Service Application Name box enter the name you want the service to appear as on the Manage Service Applications page. This BCS service application can be used by multiple BCS solutions.
3. In the Database area, leave the prepopulated values for Database Server, Database Name, and Database authentication, which is Windows authentication (recommended) unless you have specific design needs to change them.



1. If you have SQL Server database mirroring configured and you want to include the Business Data Connectivity Service database in mirroring, provide the name of the failover database server in the Failover Database Server box.



.

2. If you have not already created a new application pool for your service applications, enter a name for a new application pool in the Application pool name box, for example, "SharePointServiceApps". You can use this application pool for all your service applications. For more information on planning, creating and configuring service applications, see Manage service applications in SharePoint 2013.

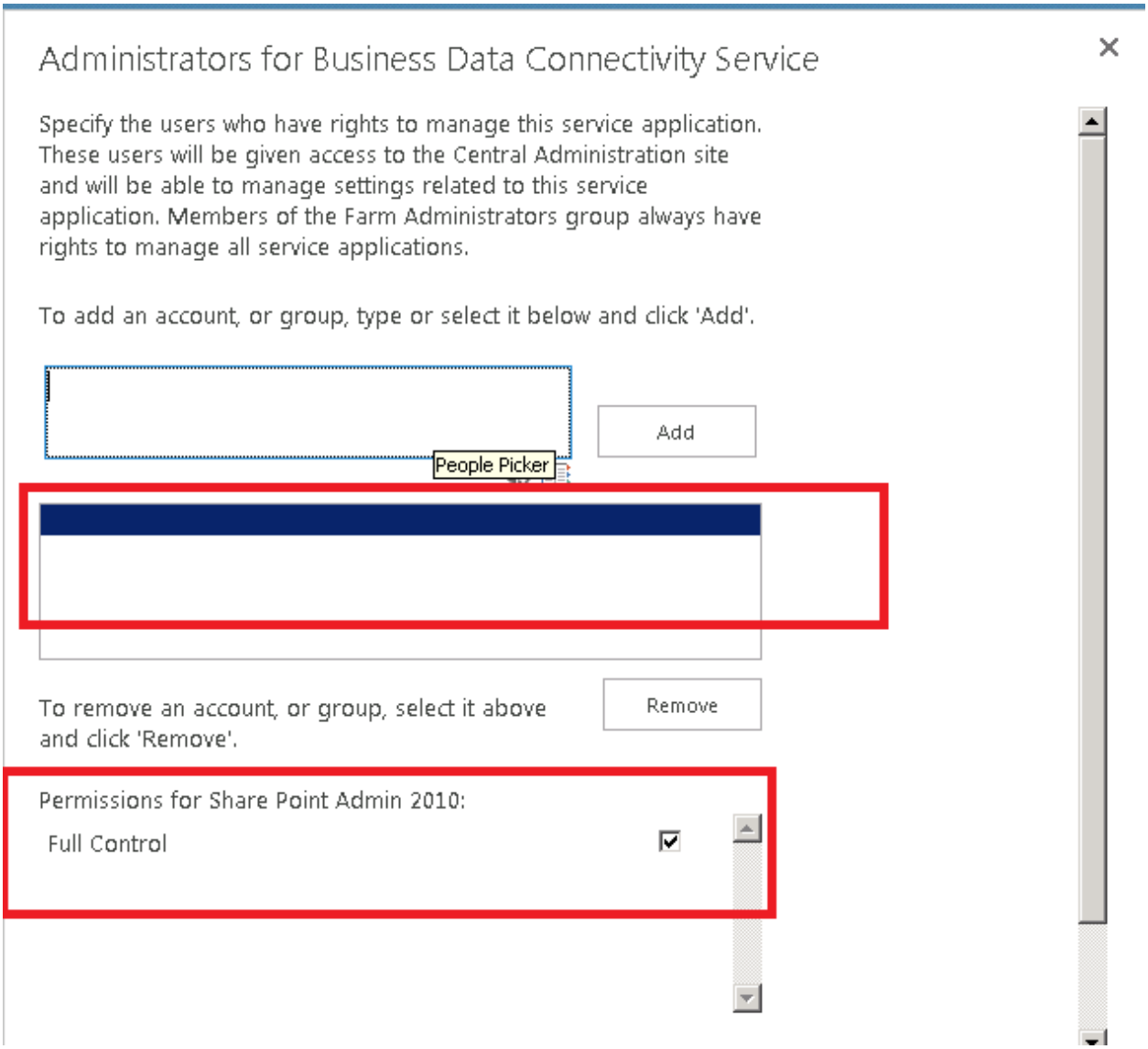
3. Select the account that you configured in the Prerequisites for deploying a Business Connectivity Services on-premises solution in SharePoint 2013 procedure as the SharePoint products application services account in the Configurable drop down.

4. Click OK to create the new Business Data Connectivity Service Application and click OK again.

5. Select the row that the Business Data Connectivity Service Application is in, not the proxy row.

6. 

7. Click Administrators in the Operations area and add any accounts that you want to be able to administer the Business Data Connectivity service application granting them full control. When these individuals open Central Administration they will only be able to administer the Business Data Connectivity service application.


Administrators for Business Data Connectivity Service
Specify the users who have rights to manage this service application. These users will be given access to the Central Administration site and will be able to manage settings related to this service application. Members of the Farm Administrators group always have rights to manage all service applications.
To add an account, or group, type or select it below and click 'Add'.
People Picker
Add
To remove an account, or group, select it above and click 'Remove'.
Remove
Permissions for Share Point Admin 2010:
Full Control

Configure Excel Services in SharePoint 2013

Excel Services in SharePoint Server 2013 is enabled by creating an Excel Services Application service application in Central Administration. This article walks you through the steps of deploying Excel Services in your SharePoint Server 2013 farm.

Excel Services in SharePoint Server 2013 is a shared service that you can use to publish Excel 2013 workbooks on SharePoint Server. The published workbooks can be managed and secured according to your organizational needs and shared among SharePoint Server 2013 users, who can render the workbooks in a browser. Excel Services was introduced in Office SharePoint Server 2007 and is available only in the Enterprise edition of SharePoint Server 2013.Excel Services is used primarily for business intelligence scenarios. Excel workbooks can be connected to external data sources, reports created, and then the workbook can be published to a SharePoint document library. When a user opens the workbook from the document library, it is rendered in the browser by using Excel Services. The external data connection is maintained and the data is refreshed if necessary. This allows broad sharing of reports throughout an organization.

Excel Services consists of Excel Calculation Services, the Excel Web Access Web Part, and Excel Web Services for programmatic access. It supports sharing, securing, managing, and using Excel 2013 workbooks in a browser by providing the following:

- Global settings for managing workbooks, which include settings for security, load balancing, session management, memory utilization, workbook caches, and external data connections.
- Trusted file locations (which allow you to define which document libraries are trusted by Excel Services) together with session management, workbook size, calculation behavior, and external data settings of workbooks stored in those locations.

While users can interact with Excel workbooks in a browser through Excel Services, the workbooks cannot be edited in the browser by using Excel Services. Programmatic options are available. Looking at several specific scenarios can help you understand how best to take advantage of Excel Services:

- **Sharing workbooks** Users can save Excel 2013 workbooks to a SharePoint Server document library to give other users browser-based access to the server-calculated version of the workbook. When the workbook is accessed, Excel Services loads the workbook, refreshes the external data if it is necessary, calculates it if it is necessary, and sends the resulting output view back through the browser. A user can interact with Excel-based data by sorting, filtering, expanding, or collapsing PivotTables, and by passing in parameters. This provides the ability to perform analysis on published workbooks. A user does not have to have Excel 2013 installed to view the workbook. Users will always view the latest version of a workbook, and they can interact with it in a browser. Security permissions can be set to limit what access is provided to which user.

- **Building business intelligence (BI) dashboards** Browser-based dashboards can be created by using Excel and Excel Services together with the Excel Web Access Web Part. PerformancePoint Services can also use Excel Services workbooks as a data source.

- **Reuse of logic encapsulated in Excel workbooks in custom applications** besides a browser-based interface with the server, Excel Services provides a Web-service–based interface so that a published workbook can be accessed programmatically by any application that uses Web services. The Web service applications can change values, calculate the workbook, and retrieve some or the entire updated workbook by using that interface according to what security permissions is set for the published workbook.

- **Report Building** one of the most useful features of Excel Services is report building. By publishing data-connected workbooks to a SharePoint document

library and making them available through Excel Services, you can make reports that you have created in Excel available to others in your organization. Instead of multiple users having separate copies of the workbooks on their computers, the workbooks can be created and changed by a trusted author in a central location that is trusted by Excel Services. The correct version of the worksheet is easier to find, share, and use from Excel, SharePoint Server, and other applications.

Start the Excel Calculation Services service

1. On the Central Administration home page, in the System Settings section, click Manage services on server.

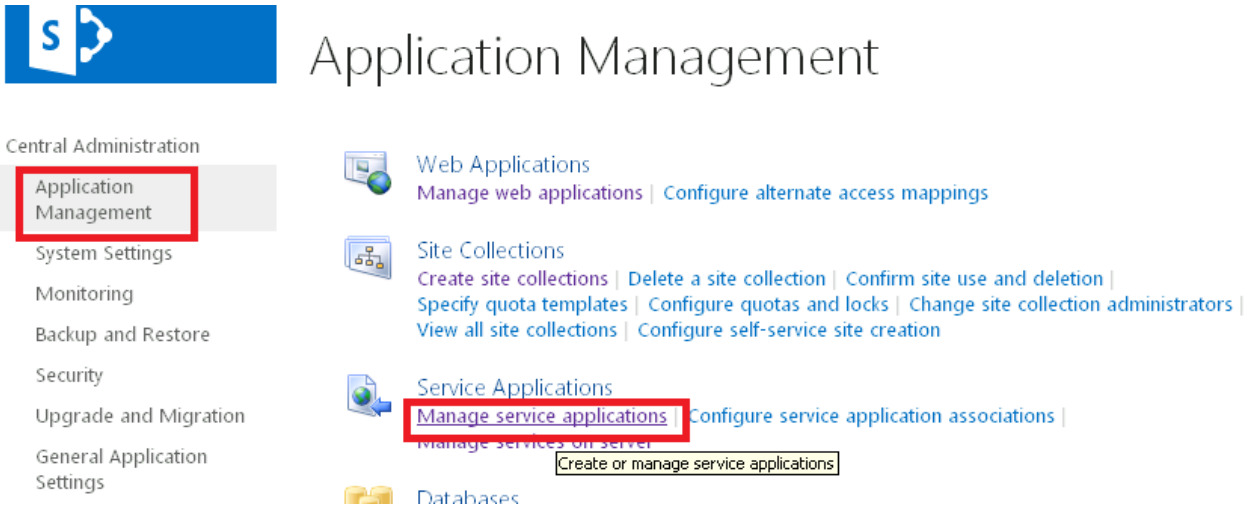
2. To select the server where you want to start the service, above the Service list, click the Server drop-down list, and then click Change Server and choose the appropriate server.

3. In the Service list, click Start next to Excel Calculation Services.

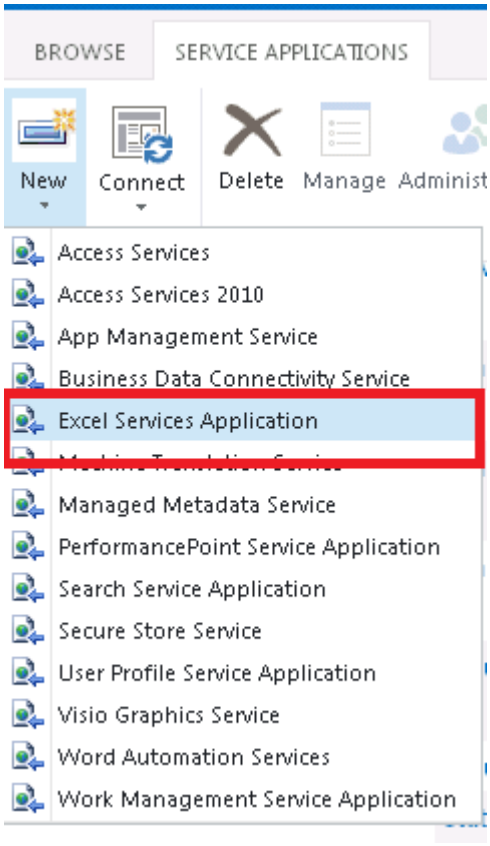
4. After the Excel Calculation Services service has been started, the next step is to create an Excel Services service application.

Create an Excel Services service application

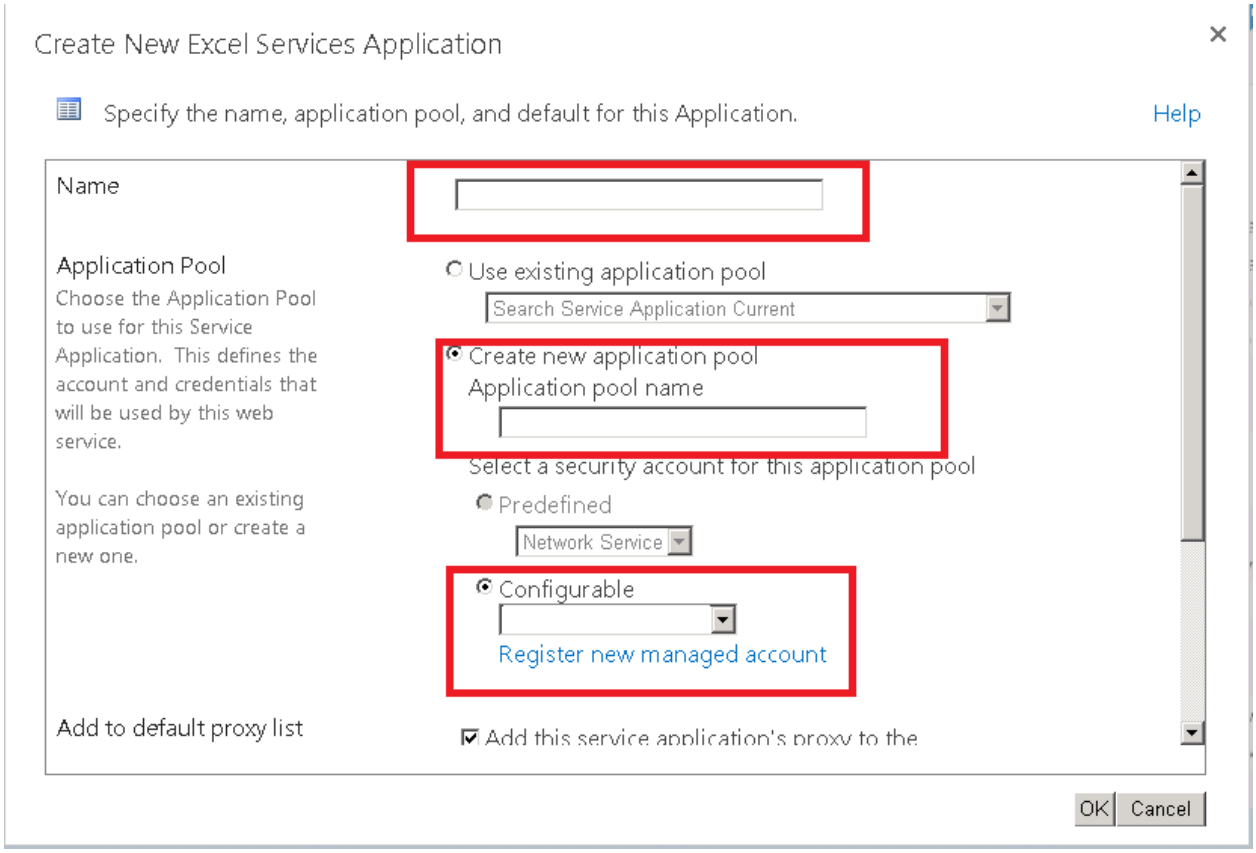
1. On the Central Administration home page, under Application Management, click Manage service applications.



2. On the Manage Service Applications page, click New, and then click Excel Services Application.



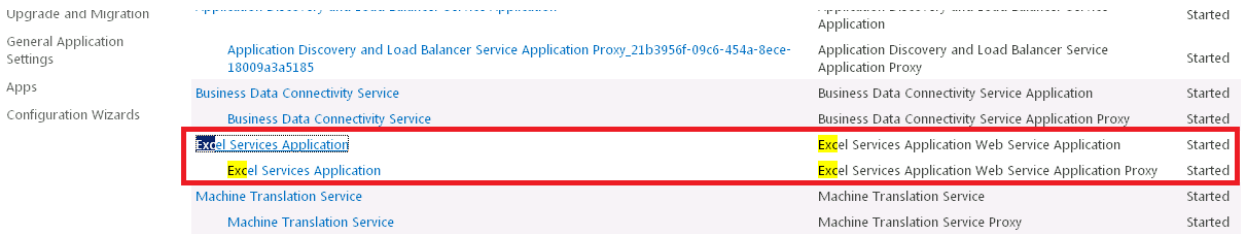
3. In the Name section, type a name for the service application in the text box.
4. Select the Create new application pool option and type a name for the application pool in the text box.
5. Select the Configurable option, and from the drop-down list, select the account that you created to run the application pool.



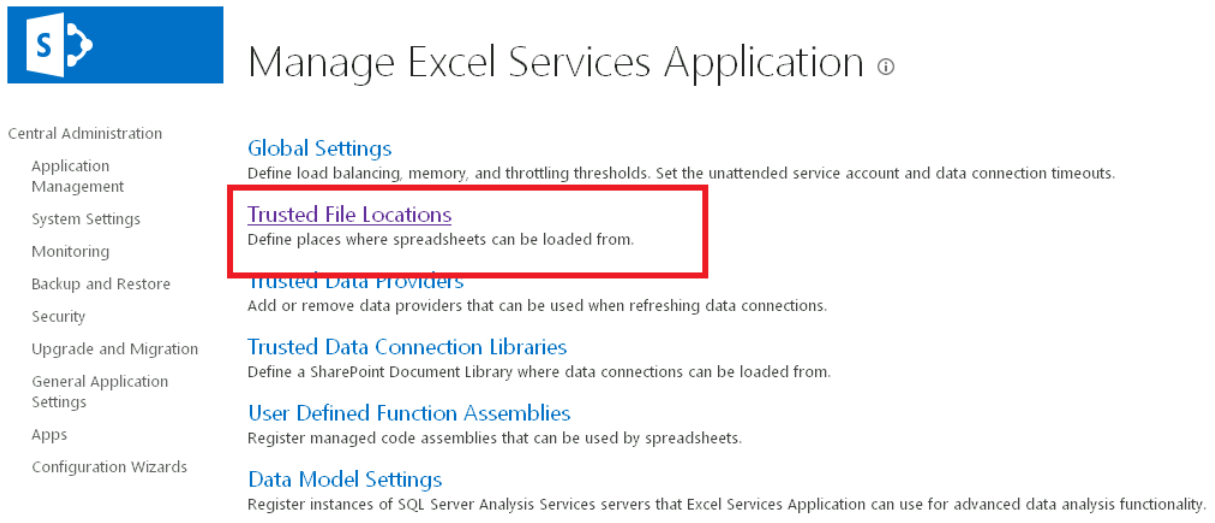
6. Click OK.

7. On the SharePoint Central Administration website home page, in the Application Management section, click Manage service applications.

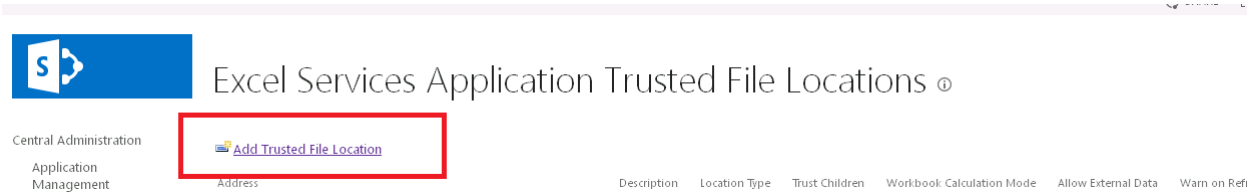
8. On the Manage service applications page, click the Excel Services service application that you want to configure.



9. On the Manage Excel Services Application page, click Trusted File Locations.



10. Click on add trusted File Location



11. In the Address column, click the trusted file location that you want to configure.

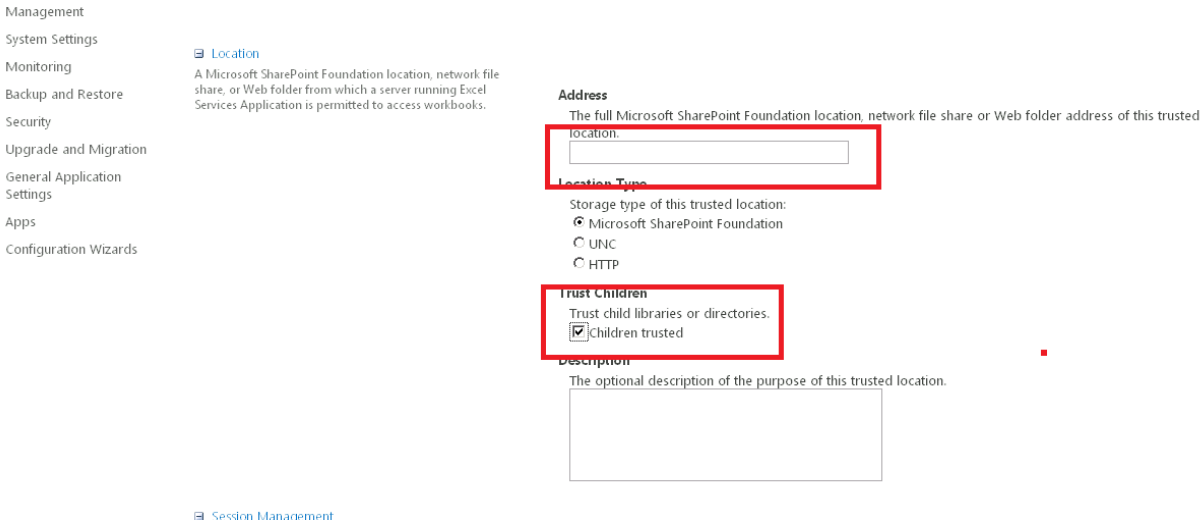
12. Configure the settings as described in the following table:

Option	**Description**
Address	The location of the Excel documents that you want Excel Services to trust.
Location Type	If the document library is stored in the SharePoint Foundation 2013 content database, select **Microsoft SharePoint Foundation**. If the document library is stored in a network file share, select **UNC**. If the document library is stored in a Web folder address, select **HTTP**.
Trust Children	Select **Children trusted** if you want to trust all child libraries or directories.
Description	Text description of the file location you specified.
Session Timeout	Value in seconds that an Excel Calculation Services session can stay

	open and inactive before it is shut down, as measured from the end of each open request. The default is 450 seconds.
Short Session Timeout	Value in seconds that an Excel Services session stays open and inactive, before any user interaction, before it is shut down. This is measured from the end of the original open request. The default is 450 seconds.
New Workbook Session Timeout	Value in seconds that an Excel Calculation Services session for a new workbook stays open and inactive before it is shut down, as measured from the end of each request. The default value is 1,800 seconds (30 minutes).
Maximum Request Duration	Value in seconds for the maximum duration of a single request in a session. The default is 300 seconds.
Maximum Chart Render Duration	Value in seconds for the maximum time that is spent rendering any single chart. The default is 3 seconds.
Maximum Workbook Size	Value in megabytes (MB) for the maximum size of workbooks that Excel Calculation Services can open. The default size is 10 megabytes.
Maximum Chart or Image Size	Value in megabytes (MB) for the maximum size of charts or images that Excel Calculation Services can open. The default size is 1 megabyte.
Volatile Function Cache Lifetime	Value in seconds that a computed value for a volatile function is cached for automatic recalculations. The default is 300 seconds.
Workbook Calculation Mode	Select **File** to perform calculations as specified in the file. Select **Manual** if you want recalculation to occur only when a Calculate request is received. Select **Automatic** if you want any change to a value to cause the recalculation of all other values that depend on that value. Also, volatile functions are called if their time-out has expired. Select **Automatic except data tables** if you want any change to a value to cause the recalculations of all other values dependent on that value (the values cannot be in a data table.) Also, volatile functions are called if their time-out has expired.
Allow External Data	Select **None** to disable all external data connections for the trusted file location.

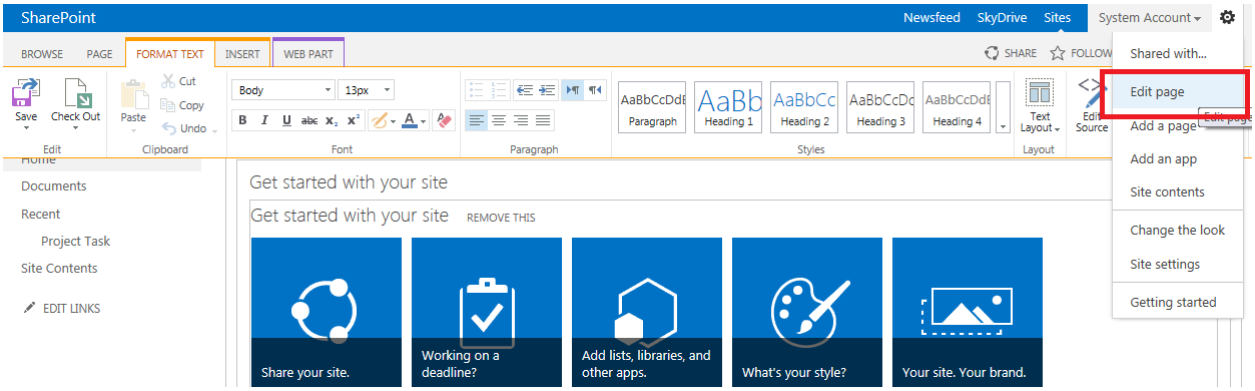
	Select **Trusted data connection libraries only** to only enable using connections to data sources that are stored in a trusted data connection library. The server will ignore settings embedded in the worksheet. Select **Trusted data connection libraries and embedded** to enable connections that are embedded in the workbook file or connections that are stored in a trusted data connection library. If you do not have to have tight control or restrictions on the data connections that are used by workbooks on the server, consider selecting this option.
Warn on Refresh	Select the **Refresh warning enabled** check box to display a warning before refreshing external data for files in this location. When you select this option, you make sure that external data is not automatically refreshed without user interaction.
Display Granular External Data Errors	Select the **Granular External Data Errors** check box to display specific error messages when external data failures occur for files in this location. Displaying specific error messages can help troubleshoot data connectivity issues if they occur.
Stop When Refresh on Open Fails	Select the **Stopping open enabled** check box to prevent users from viewing files that are configured to refresh on open, if the refresh fails. This prevents users from seeing cached information in the workbook. This option is only effective if the user does not have Open Item permissions on the workbook. (A user with Open Item permissions on the workbook can open the workbook in Excel and thus has access to any cached information.)
External Cache Lifetime (Automatic Refresh)	In the **Automatic refresh (periodic / on-open)** box, type a value in seconds for the maximum time that the system can use external data query results for automatically refreshed external query results. The default is 300 seconds.
External Cache Lifetime (Manual Refresh)	In the **Manual refresh** box, type a value in seconds for the maximum time that the system can use external data query results for automatically refreshed external query results. To prevent data refresh after the first query, type **-1**. The default is 300 seconds.
Maximum Concurrent Queries Per Session	Type a value for the maximum number of queries that can run at the same time during a single session. The default is 5 queries.

Allow External Data Using REST	Select the **Data refresh from REST enabled** check box to all requests from the REST API to refresh external data connections. Note that this setting has no effect if Allow External Data is set to **None**. Note too, that this setting has no effect if Warn on Refresh is enabled.
Allow User-Defined Functions	Select **User-defined functions allowed** if you want to allow user-defined functions in Excel Calculation Services for workbooks from this location.

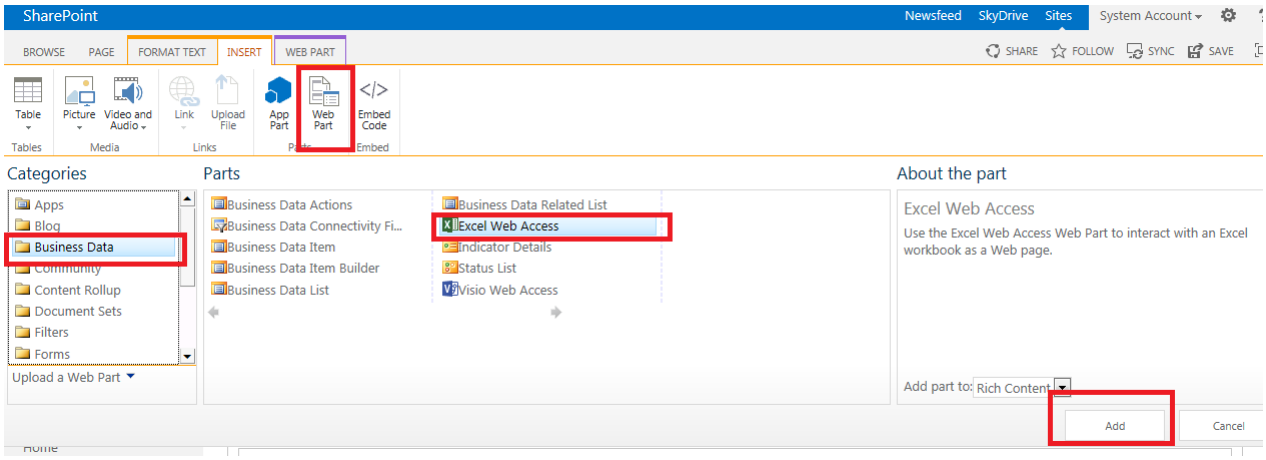


13. Click **OK**.

14. On the site Click on Edit page

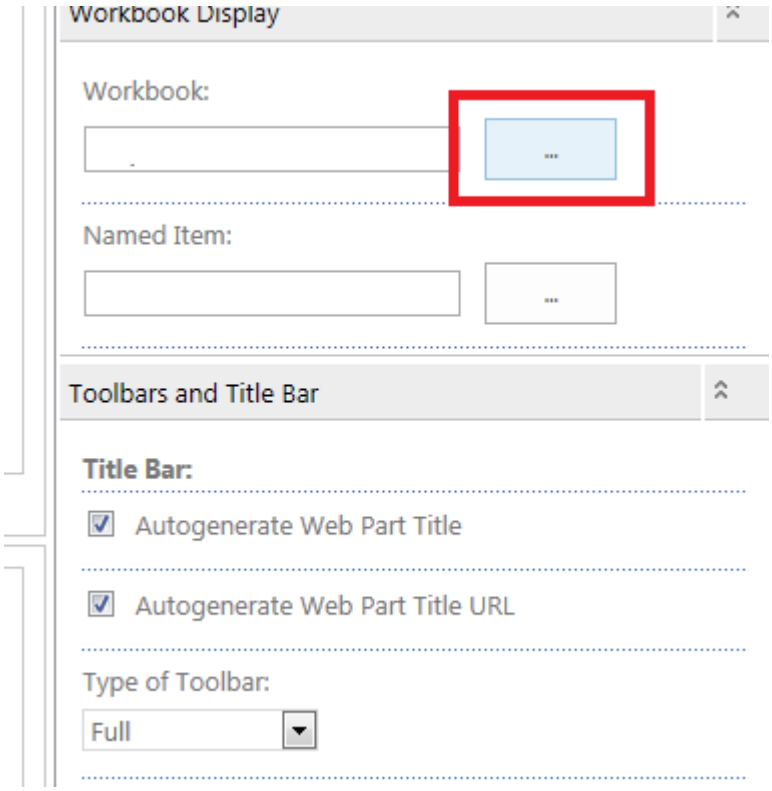


15. Click on Insert→Web part and select Excel Web Access web part

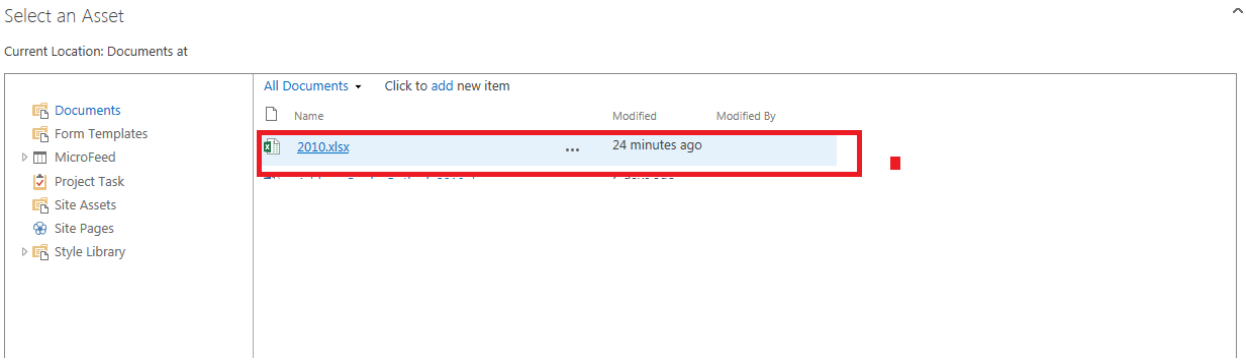


16. Open this web part in Edit mode and give the document library locations

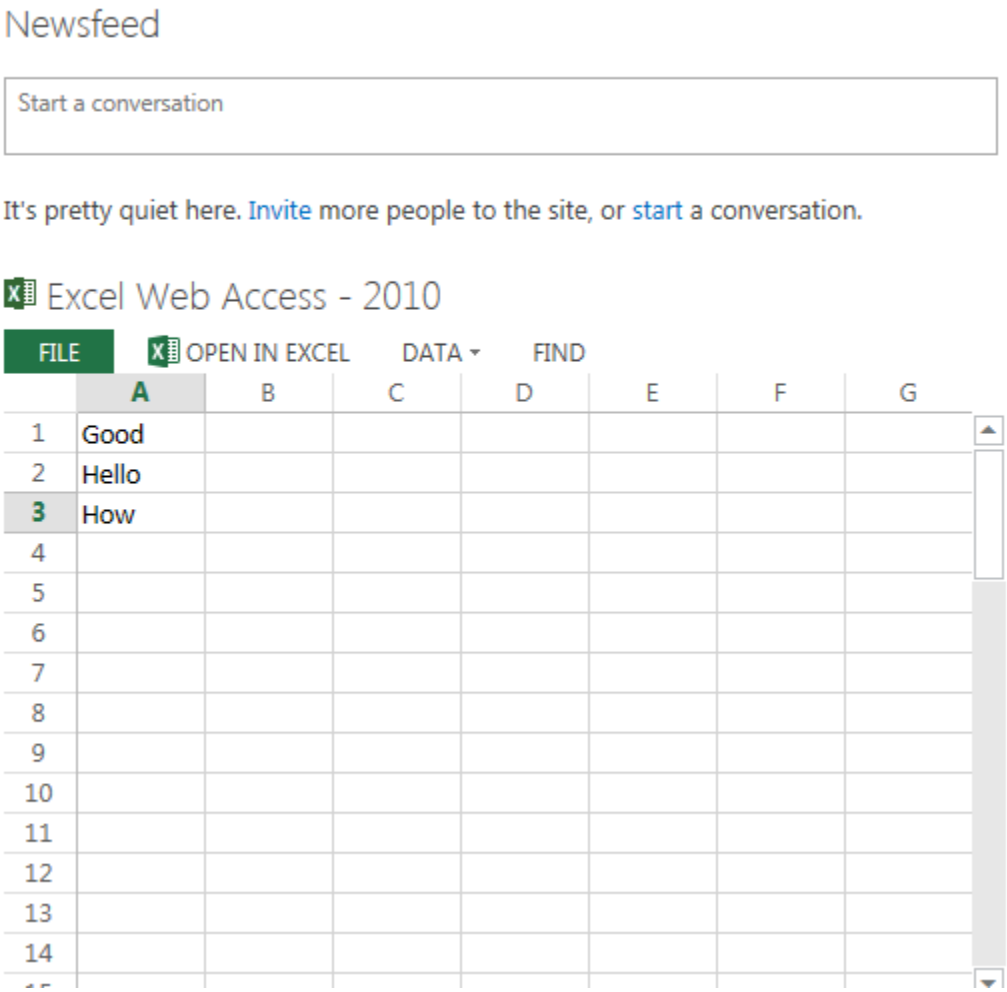
17. Give the document library location and click on the rectangle as shown below



18. You will be populated with document library details.
19. Select the document you want to add to Excel Web Access
20. Click insert.



21. Once successfully inserted you can see the Excel file rendering in the Excel Web Access



Configure User Profile Service and My site in SharePoint 2013

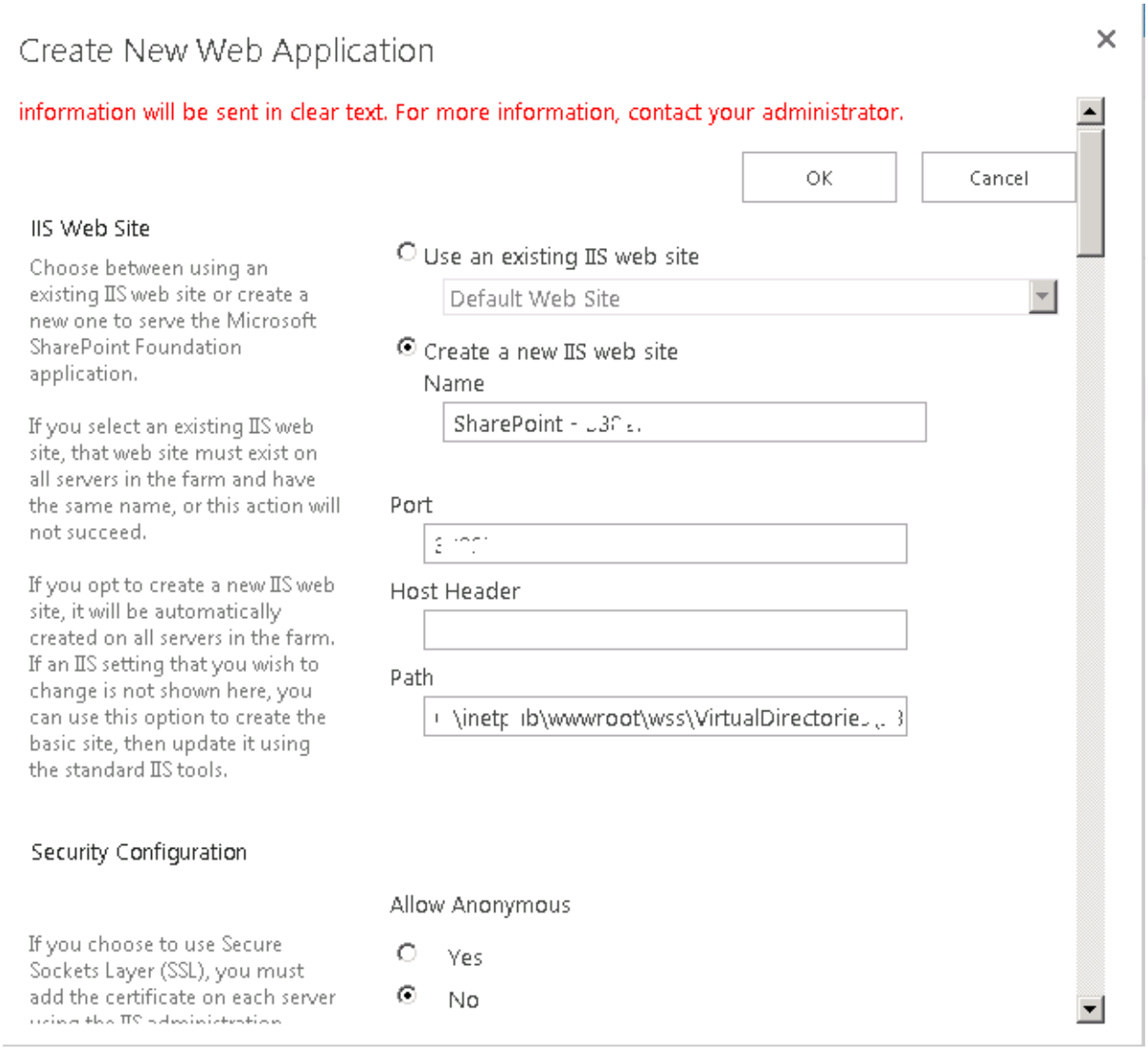
In this session we learn about how to configure user Profile and My site configuration in SharePoint 2013. In earlier versions of SharePoint, each user had a profile and a personal site (e.g., My Site). The 2013 version of SharePoint splits My Site into three sections: Newsfeed, SkyDrive, and Sites. A global navigation bar provides access to each section. These social features are tightly integrated into SharePoint 2013, so you no longer need to launch a Web browser to access them

My Site Host site collection

1. Verify that the user account that is performing this procedure has the following credentials:

   - The user account that performs this procedure is a farm administrator
   - The user account that performs this procedure is a member of the Administrators group on the computer that is running SharePoint Server.

2. First we have to create a web application for my site



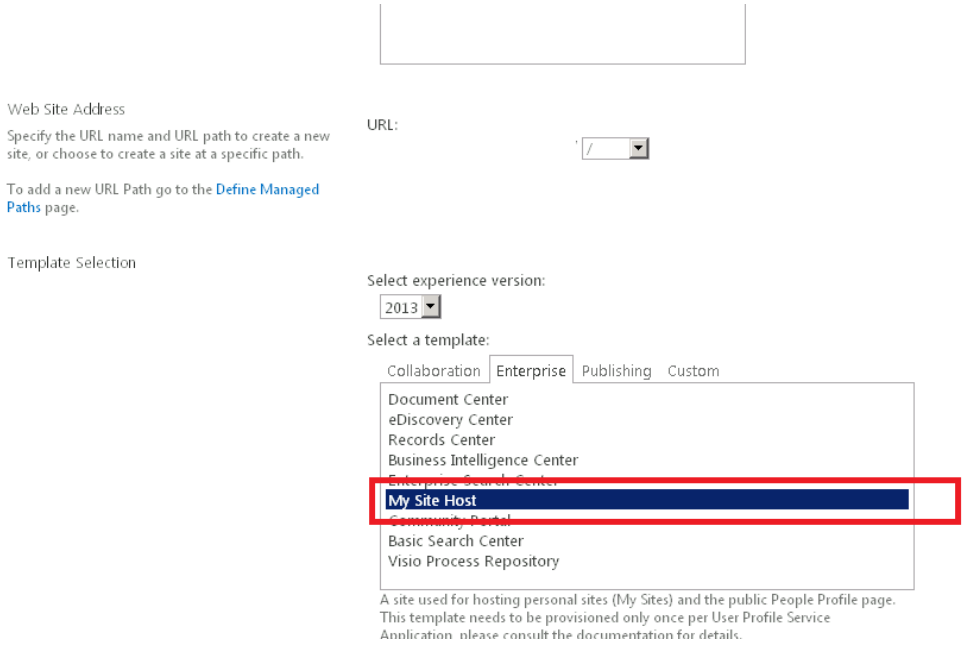
3. On Central Administration, in the Application Management section, click Create site collections.

4. On the Create Site Collection page, in the Web Application section, select the My Site web application.

5. In the Title and Description section, type the title and description for the site collection.

6. In the Web Site Address section, select the path of the URL for the My Site host. In most cases, you can use the root directory (/).

In the Template Selection section, click the Enterprise tab, and then select My Site Host.



7. In the Primary Site Collection Administrator section, type the user name (in the form <DOMAIN>\<user name>) for the user who will be the site collection administrator.

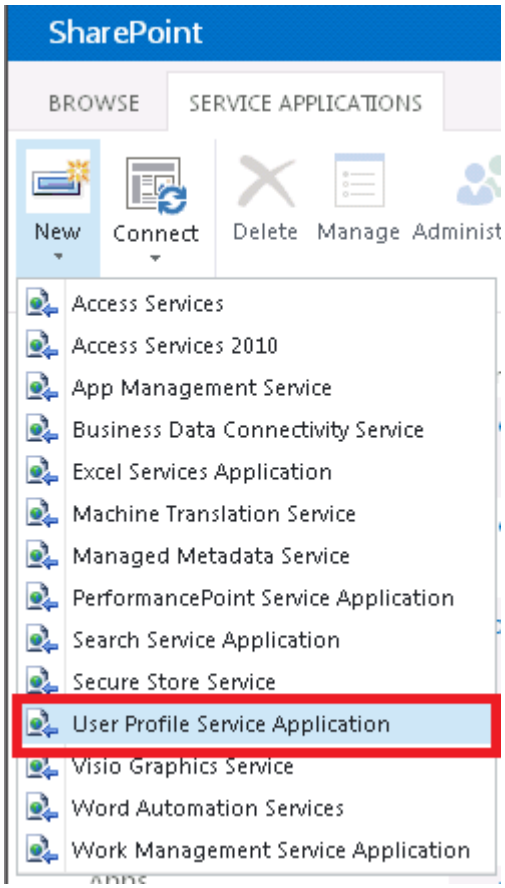
8. In the Secondary Site Collection Administrator section, type the user name for the secondary administrator of the site collection.

9. If you are using quotas to manage storage for site collections, in the Quota Template section, click a template in the Select a quota template list.

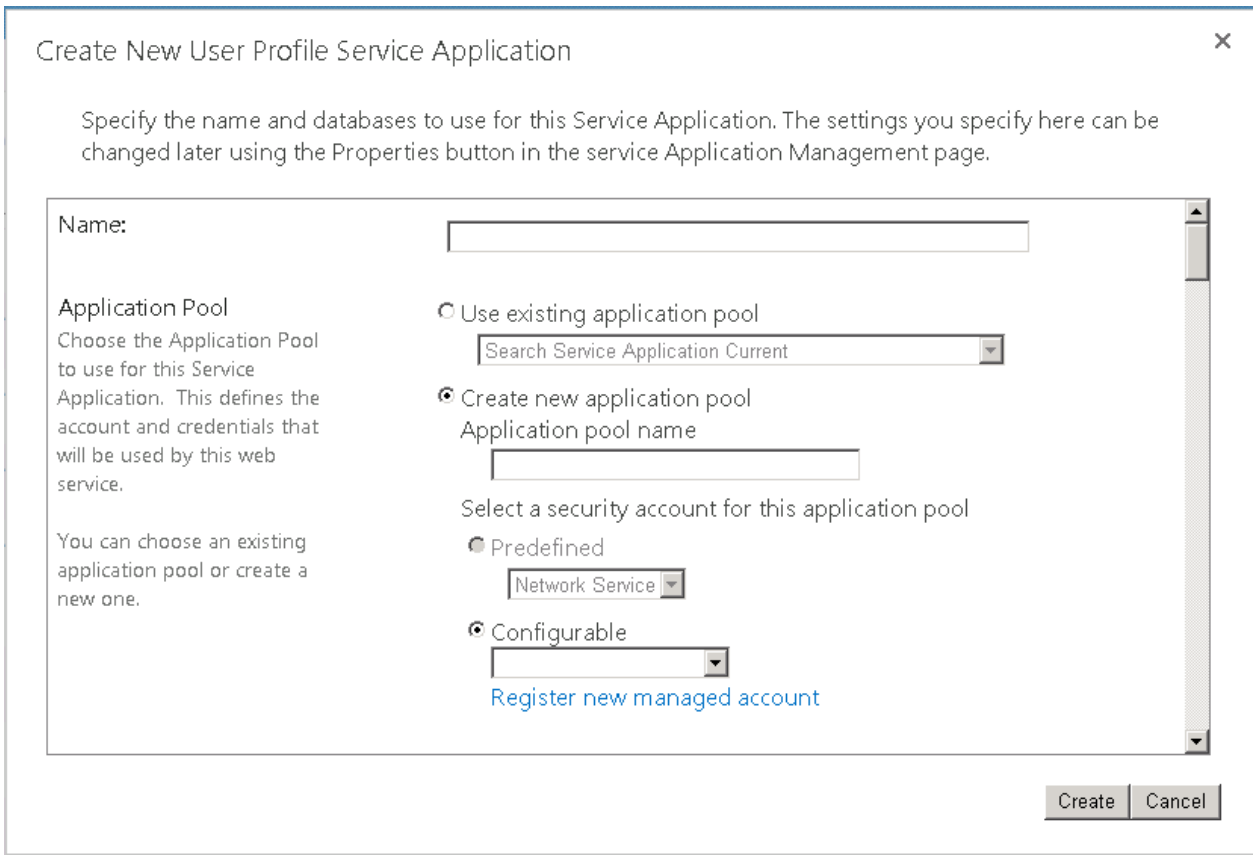
10. Click OK.

How to create a User Profile Service application

1. Verify that the user account that is performing this procedure has the following credentials:
    - The user account that performs this procedure is a farm administrator
    - The user account that performs this procedure is a member of the Administrators group on the computer that is running SharePoint Server.
2. On Central Administration, in the Application Management section, click Manage service applications.
3. On the Manage Service Application page, on the ribbon, click New, and then click User Profile Service Application.



4. In the Name section, type the User Profile service application name



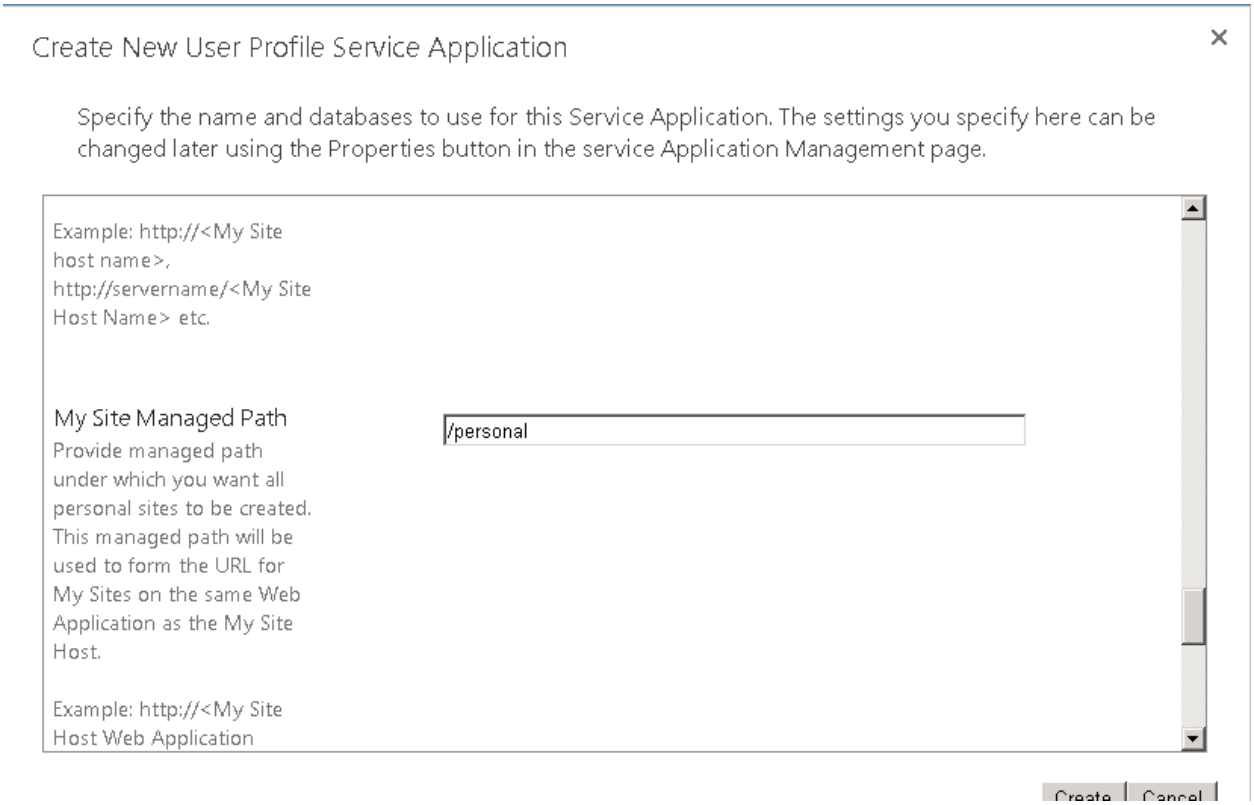
5. In the Application Pool section, select the application pool that the User Profile service application will run in (if it exists), or create a new application pool.

6. Accept the default settings for the profile database, the synchronization database, and the social tagging database (unless you want different names), and specify failover servers if you are using them.

7. In the Profile Synchronization Instance section, select the synchronization server

8. In the My Site Host URL section, enter the My Site Host site collection URL that you created in the previous step.

9. In the My Site Managed Path section, enter the part of the path which, when appended to the My Site host URL, will give the path of users' My Sites. For example, if the My Site host URL is http://server:12345/ and you want each user's My Site to be at http://server:12345/personal/<user name>, enter /personal for the My Site managed path. The managed path that you enter is created automatically. There does not already have to be a managed path with the name that you provide.



10. In the Site Naming Format section, select a naming scheme.
11. In the Default Proxy Group section, select whether you want the proxy of this User Profile Service to be a part of the default proxy group on this farm.
12. Click Create.
13. When the Create New User Profile Service Application page displays the message Profile Service Application successfully created, click OK.

How enable NetBIOS domain names for user profile synchronization

If the NetBIOS name of any domain with which you are synchronizing differs from its fully-qualified domain name, you must enable NetBIOS domain names on the User Profile service application. If all NetBIOS names are the same as the domain names, you may skip this procedure.

To enable NetBIOS domain names for user profile synchronization by using Windows PowerShell

1. Verify that you have the following memberships:
    - securityadmin fixed server role on the SQL Server instance.
    - db_owner fixed database role on all databases that are to be updated.
    - Administrators group on the server on which you are running Windows PowerShell cmdlets.

2. An administrator can use the Add-SPShellAdmin cmdlet to grant permissions to use SharePoint 2013 cmdlets
3. Paste the following code into a text editor, such as Notepad:

```
$ServiceApps = Get-SPServiceApplication

$UserProfileServiceApp = ""

foreach ($sa in $ServiceApps)

 {if ($sa.DisplayName -eq "<UPSA Name>")

     {$UserProfileServiceApp = $sa}
```

}

$UserProfileServiceApp.NetBIOSDomainNamesEnabled = 1

$UserProfileServiceApp.Update()

4. Replace <UPSA Name> with the name of the User Profile service application.
5. Save the file and add the .ps1 extension, such as UPSA.ps1.
6. Start the SharePoint 2013 Management Shell.
    - **For Windows Server 2008 R2:**

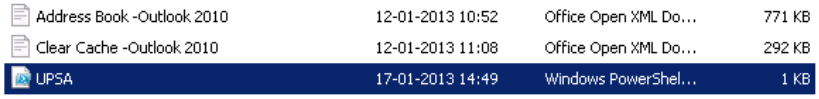
      On the Start menu, click All Programs, click Microsoft SharePoint 2013 Products, and then click SharePoint 2013 Management Shell.

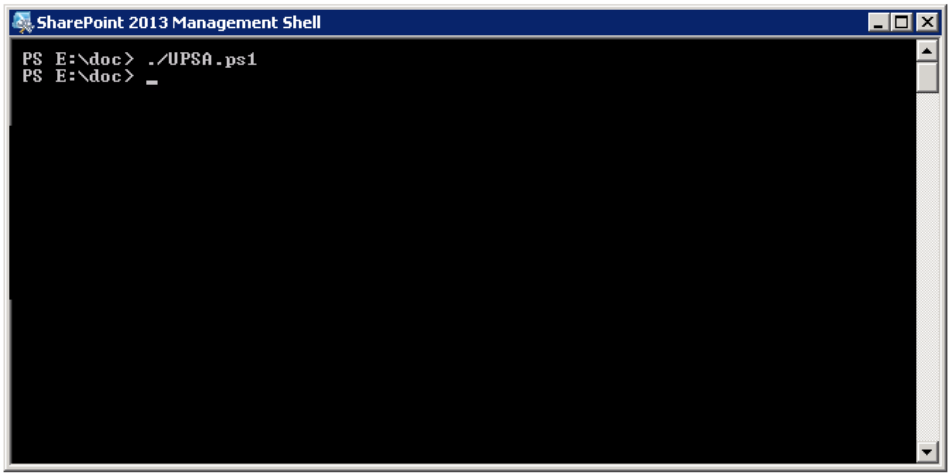
    - **For Windows Server 2012:**

      On the Start screen, click SharePoint 2013 Management Shell.

      If SharePoint 2013 Management Shell is not on the Start screen:
7. Right-click Computer, clicks all apps, and then clicks SharePoint 2013 Management Shell.
8. Run the below PowerShell script
9. Change to the directory where you saved the file.
10. At the Windows PowerShell command prompt, type the following command:

    ./EnableNetBIOS.ps1





To start the User Profile service

1. Verify that the user account that is performing this procedure has the following credentials:
    - The user account that performs this procedure is a farm administrator
    - The user account that performs this procedure is a member of the Administrators group on the computer that is running SharePoint Server.
2. On Central Administration, in the System Settings section, click Manage services on server.
3. On the Services on Server page, in the Server box, select the synchronization server
4. Find the row whose Service column value is User Profile Service. If the value in the Status column is stopped, click Start in the Action column.

Start the User Profile synchronization service

During this phase, you start the User Profile synchronization service.

This phase involves the following tasks:

Start the User Profile synchronization service

1. Remove unnecessary permissions
2. Reset IIS

To perform the tasks in this phase, you must be a member of the Farm Administrators SharePoint group and a member of the Administrators group on the computer that is running SharePoint Server.

Start the User Profile synchronization service

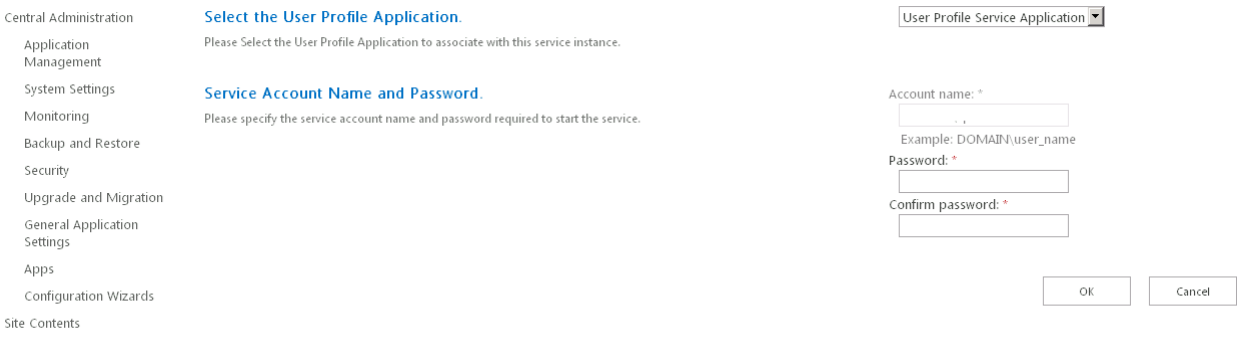
1. Verify that the user account that is performing this procedure has the following credentials:

- The user account that performs this procedure is a farm administrator
- The user account that performs this procedure is a member of the Administrators group on the computer that is running SharePoint Server.

2. On Central Administration, in the System Settings section, click Manage services on server.
3. On the Services on Server page, in the Server box, select the synchronization server.

4. Find the row whose Service column value is User Profile Synchronization Service. If the value in the Status column is stopped, click Start in the Action column.
5. On the User Profile Synchronization Service page, in the Select the User Profile Application section, select the User Profile service application.

6. In the Service Account Name and Password section, the farm account is already selected. Enter the password for the farm account in the Password box, and enter it again in the Confirm Password box.



7. Click OK.

The Services on Server page shows that the User Profile synchronization service has a status of Starting. When you start the User Profile synchronization service, SharePoint Server provisions FIM to participate in synchronization. This may take 10 minutes. To determine whether the User Profile synchronization service has started, refresh the Services on Server page.

Remove unnecessary permissions

After you start the User Profile synchronization service, for day to day operations, the farm account is not required to be a member of the Administrators group on the computer that is running the synchronization service. To improve the security of your SharePoint Server installation, remove the farm account from the Administrators group on the computer that is running the synchronization service. However, when you perform a backup of the User Profile application, the synchronization service provisions the User Profile application again. During the course of provisioning the User Profile application, the farm account must stop and start the synchronization service. To do this, the farm account must be a member of the Administrators group on the computer that is running the synchronization service. So, before you perform a backup, add the farm account to the Administrators group on the computer that is running the synchronization service. After the backup has finished running, you can remove the farm account from the Administrators group.

RESET IIS

1. Verify that the user account that is performing this procedure has the following credentials:
    - The user account that performs this procedure is a farm administrator
    - The user account that performs this procedure is a member of the Administrators group on the computer that is running SharePoint Server.
2. Start a Command Prompt with elevated privileges.
    - For Windows Server 2008 R2:
        - On the synchronization server, click **Start**, click **All Programs**, expand **Accessories**, right-click **Command Prompt**, and then click **Run as administrator**.
    - For Windows Server 2012:
        - On the synchronization server, on the **Start** screen, right-click **Command Prompt**, and then click **Run as administrator**.

          If **Command Prompt** is not on the **Start** screen:

        - Right-click **Computer**, click **All apps**, right-click **Command Prompt**, and then click **Run as administrator**.
3. In the **User Account Control** dialog box, click **Yes**.
4. In the **Administrator: Command Prompt** window, type **iisreset** and then press ENTER.
5. When the message **Internet services successfully restarted** is displayed, close the **Administrator: Command Prompt** window.

Configure connections and import data from directory services

To import profiles, you must have at least one synchronization connection to a directory service. During this phase, you create a synchronization connection to each directory service that you want to import profiles from. You can synchronize after you create each connection, or you can synchronize one time, after you have created all of the connections. Synchronizing after each connection will take longer, but doing this makes it easier to troubleshoot any problems that you might encounter. You must be a farm administrator or an administrator of the User Profile service application to perform these

procedures. If you are not a farm administrator, start each procedure by using the Manage Profile Service page.

This phase involves the following tasks:

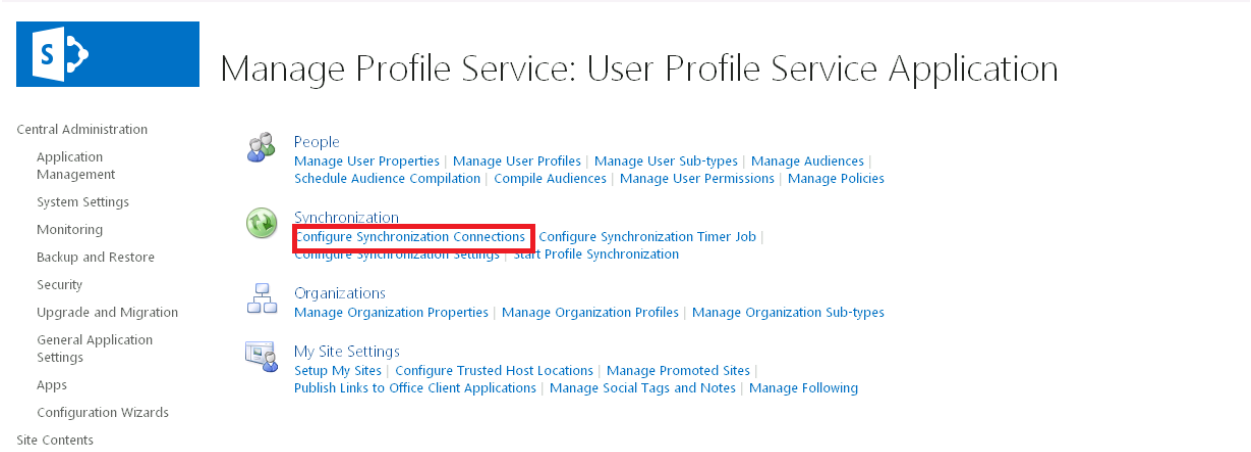
1. Create a synchronization connection to a directory service
2. Define exclusion filters for a synchronization connection
3. Map user profile properties
4. Start profile synchronization

Create a Profile synchronization connection to a directory service

Verify that the user account that is performing this procedure has the following credentials:

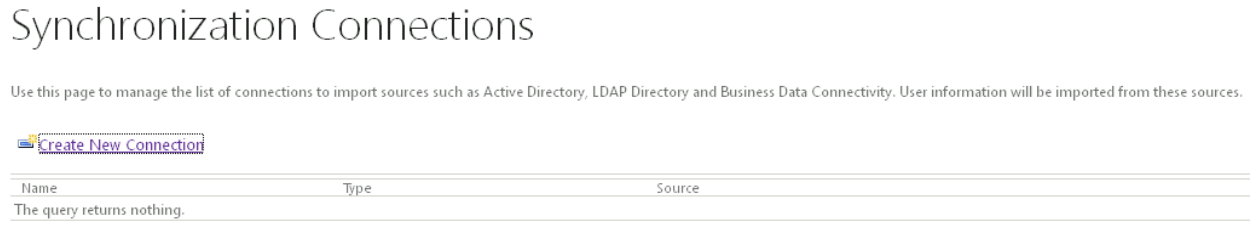
- The user account that performs this procedure is a farm administrator or an administrator of the User Profile service application.
- The user account that performs this procedure is a member of the Administrators group on the computer that is running SharePoint Server.

1. If the user account that is performing this procedure is a farm administrator, complete these steps.
2. On Central Administration, in the Application Management section, click Manage service applications.
3. On the Manage Service Applications page, select the User Profile service application.

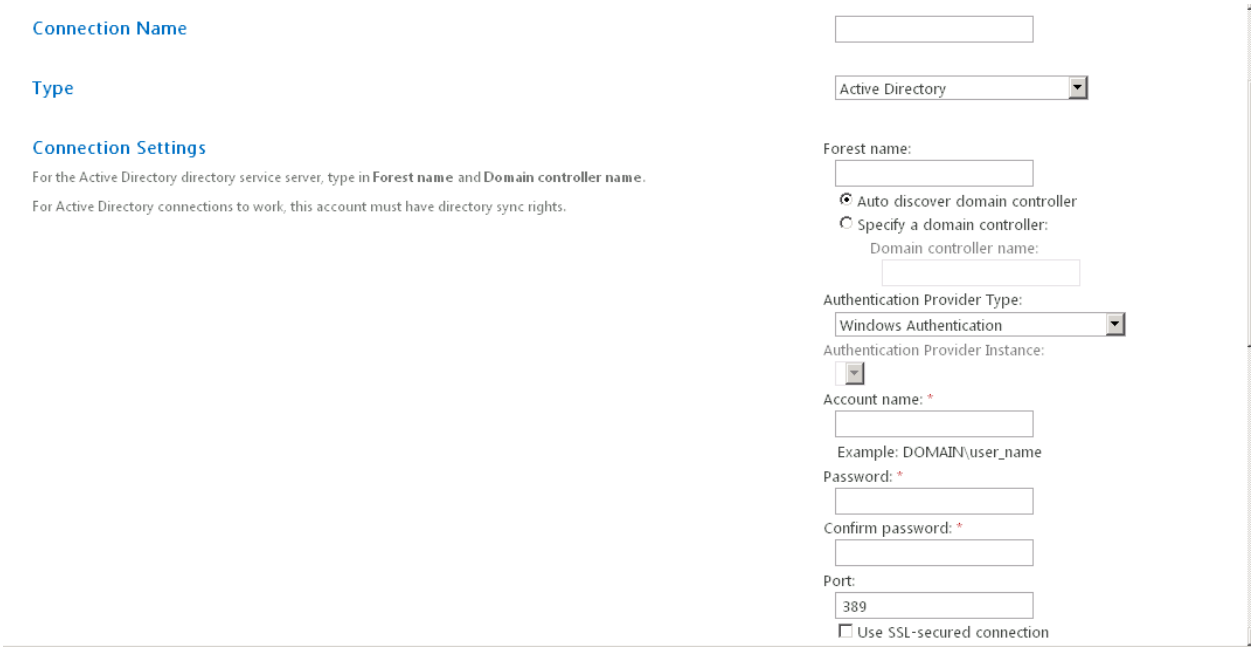


4. On Central Administration, on the Manage Profile Service page, in the Synchronization section, click Configure Synchronization Connections.

5. On the Synchronizations Connections page, click Create New Connection.



6. On the Add new synchronization connection page, type the synchronization connection name in the Connection Name box.



7. From the Type list, select the type of directory service to which you want to connect.

8. Fill in the Connection Settings section according to the directory service to which you are creating a connection.
9. In the Account name box, type the synchronization account.
10. In the Password box, type the password for the synchronization account.
11. In the Confirm Password box, type the password for the synchronization account again.
12. In the Port box, enter the connection port.

Working on it...

This shouldn't take long.

To start profile synchronization

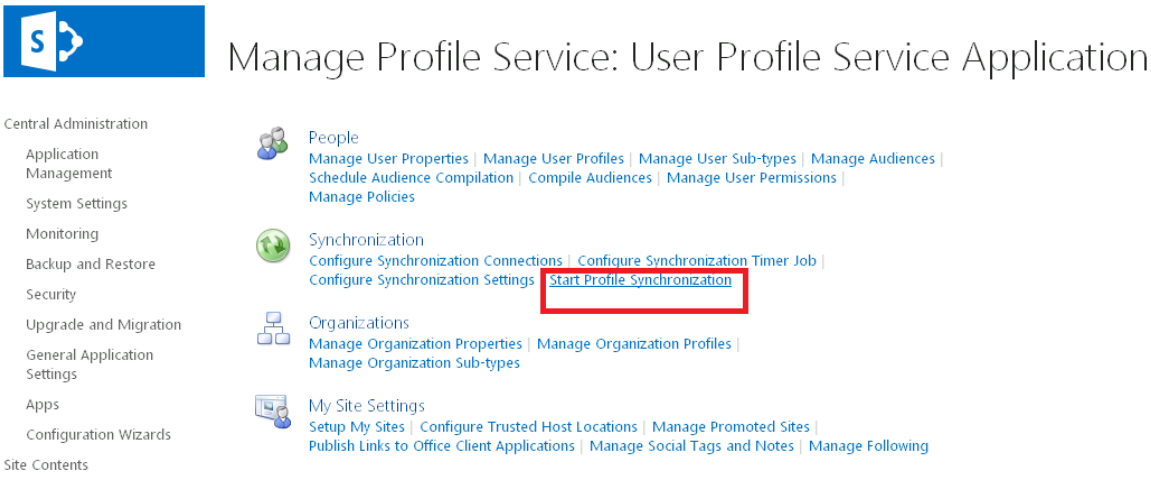
Verify that the user account that is performing this procedure has the following credentials:

- The user account that performs this procedure is a farm administrator or an administrator of the User Profile service application.
- The user account that performs this procedure is a member of the Administrators group on the computer that is running SharePoint Server.

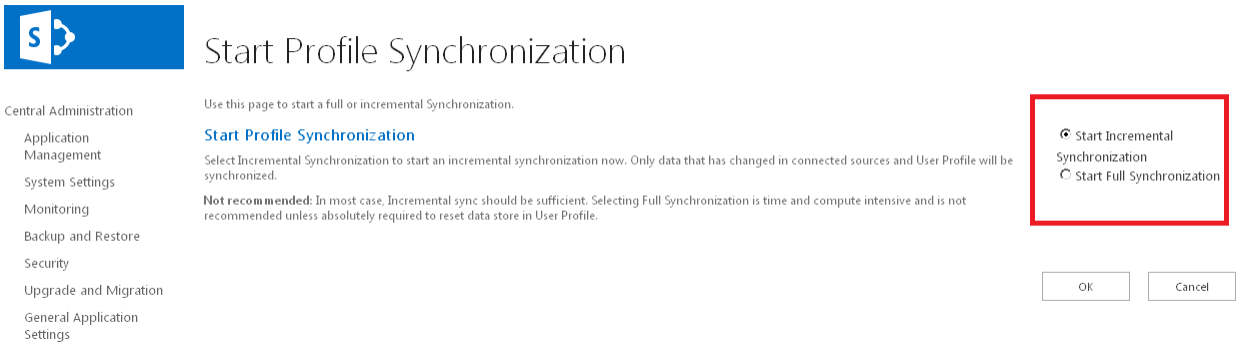
1. If you have already imported users or created My Sites, and you have enabled NetBIOS domain names, you must disable the My Site cleanup timer job before you start profile synchronization. For information about this timer job, see the Timer job reference (SharePoint Server 2010). For information about the Windows PowerShell cmdlets that you use to enable and disable this timer job, see Use Windows PowerShell cmdlets to manage timer jobs in SharePoint 2013.

2. If the user account that is performing this procedure is a farm administrator, complete these steps.
3. On Central Administration, in the Application Management section, click Manage service applications.
4. On the Manage Service Applications page, select the User Profile service application.

5. On Central Administration, on the Manage Profile Service page, in the Synchronization section, click Start Profile Synchronization.



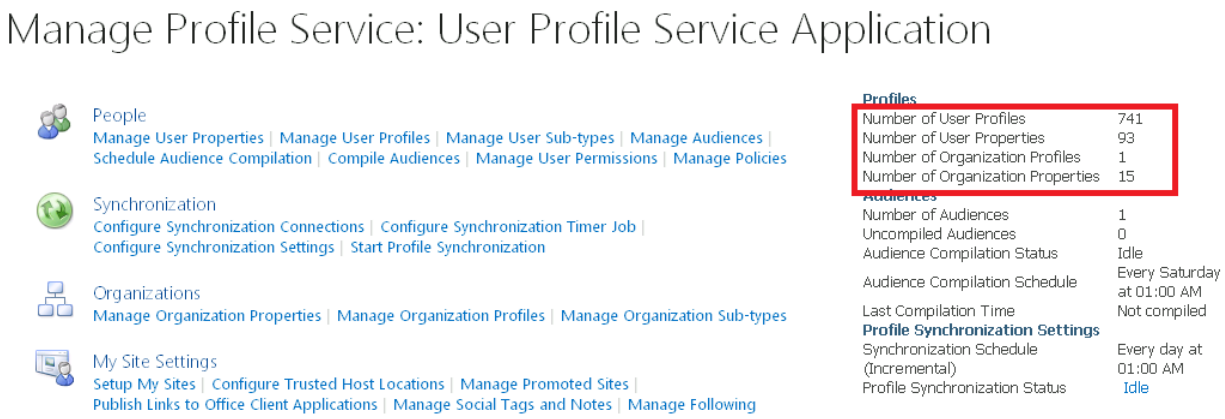
6. On the Start Profile Synchronization page, select Start Full Synchronization if this is the first time that you are synchronizing or if you have added or changed any synchronization connections or property mappings since the last time that you synchronized. Select Start Incremental Synchronization to synchronize only information that has changed since the last time that you synchronized.



7. Click OK.

8. The Manage Profile Service page is displayed

9. You can wait for some time it will take some time to complete the synchronization.
10. Once done you can see on the right hand side number of user profiles increasing.



SharePoint 2013 upgrade from SharePoint 2010

In this session we can see how we can upgrade SharePoint 2007 to SharePoint 2010.When you upgrade from SharePoint 2010 Products to SharePoint 2013, you must use a database attach upgrade, which means that you upgrade only the content for your environment and not the configuration settings. After you have configured a new SharePoint 2013 environment, you can copy the content and service application databases from the SharePoint 2010 Products environment to the SharePoint 2013 environment. You use a backup and restore process to copy the database, and you can also choose to set the databases to read-only in the SharePoint 2010 Products environment so that users can continue to access their information, but not change it

Back up the SharePoint 2010 Products databases by using SQL Server tools

1. Verify that the user account that is performing this procedure is a member of the db_owner fixed database role for the databases.

2. In Management Studio, in Object Explorer, connect to an instance of the Database Engine, expand the server, and then expand Databases.

3. Right-click the database that you want to back up, point to Tasks, and then click Back Up.

4. The Back up Database dialog box appears.

5. In the Source area, in the Database box, verify the database name.

6. In the Backup type box, select Full.

7. Under Backup component, select Database.

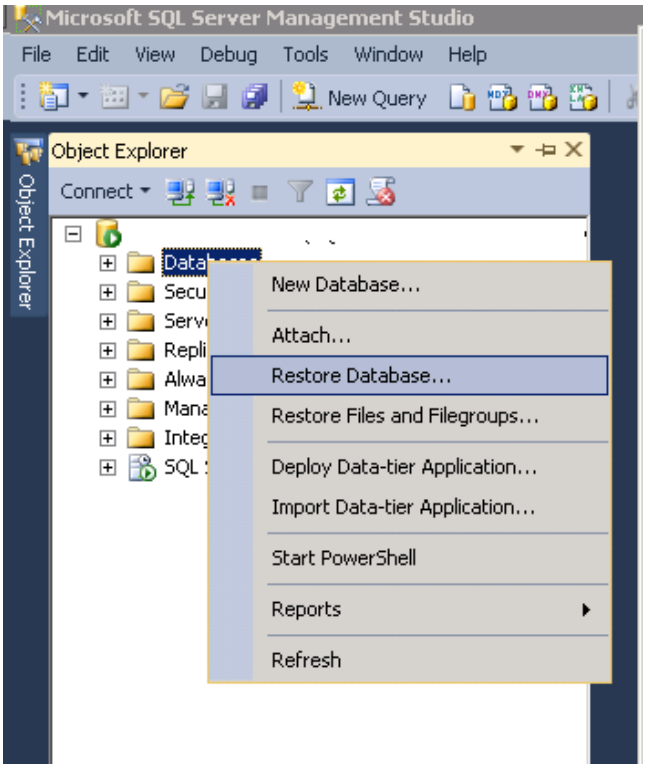
8. In the Backup set area, in the Name box, either accept the backup set name that is suggested or type a different name for the backup set.

9. In the Destination area, specify the type of backup destination by selecting Disk or Tape, and then specify a destination. To create a different destination, click Add.

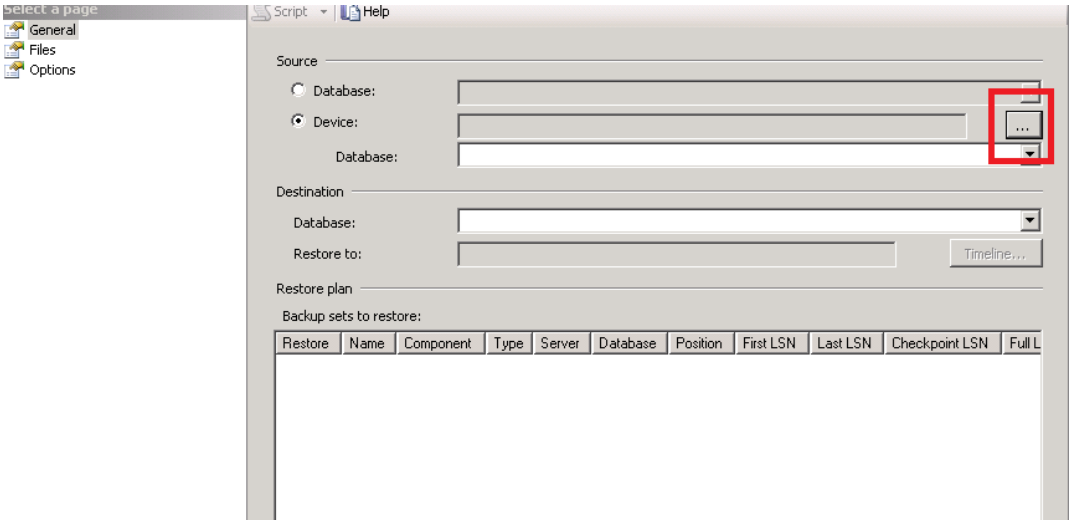
10. Click OK to start the backup process.

Restore a backup copy of the database

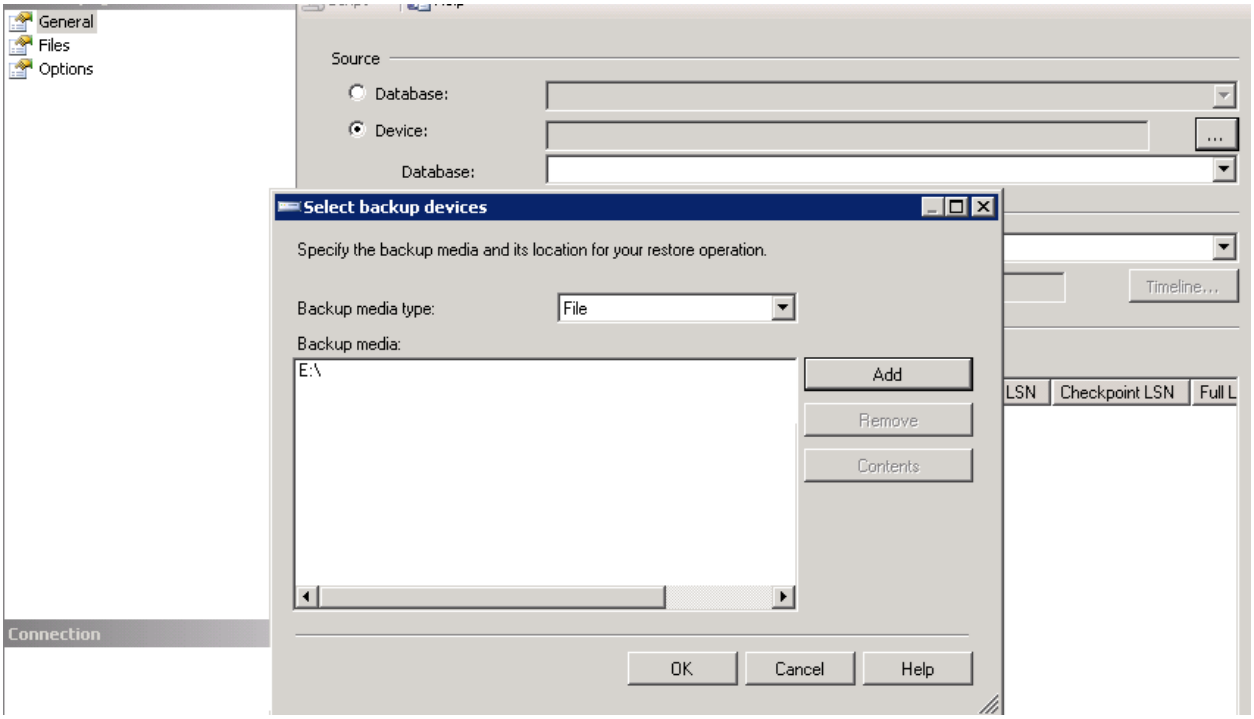
1. Verify that the user account that is performing this procedure is a member of the db_owner fixed database role for the databases.
2. After you connect to the appropriate instance of the SQL Server 2008 Database Engine, in Object Explorer, expand the server name.
3. Right-click Databases and then click Restore Database.



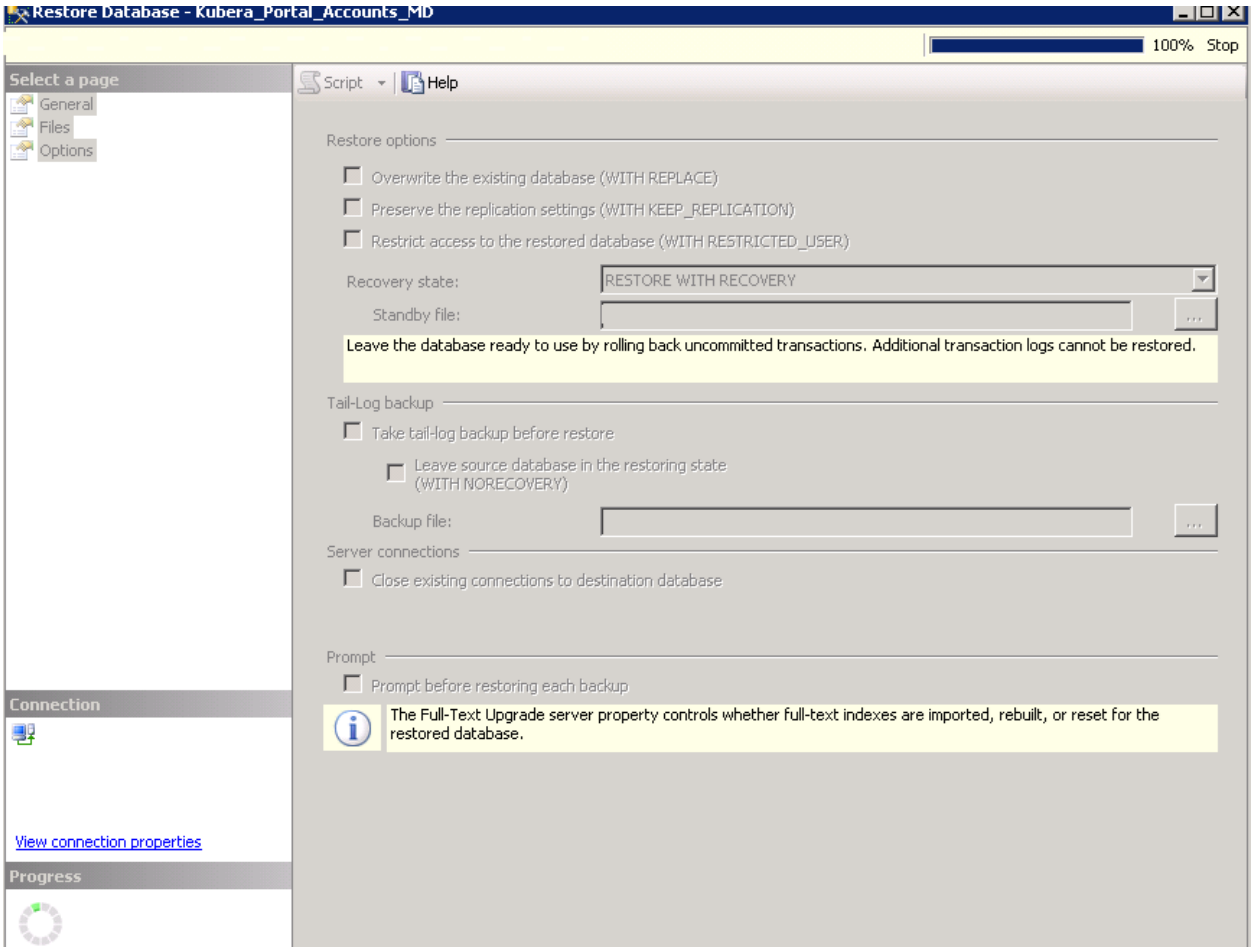
1. The Restore Database dialog box appears.



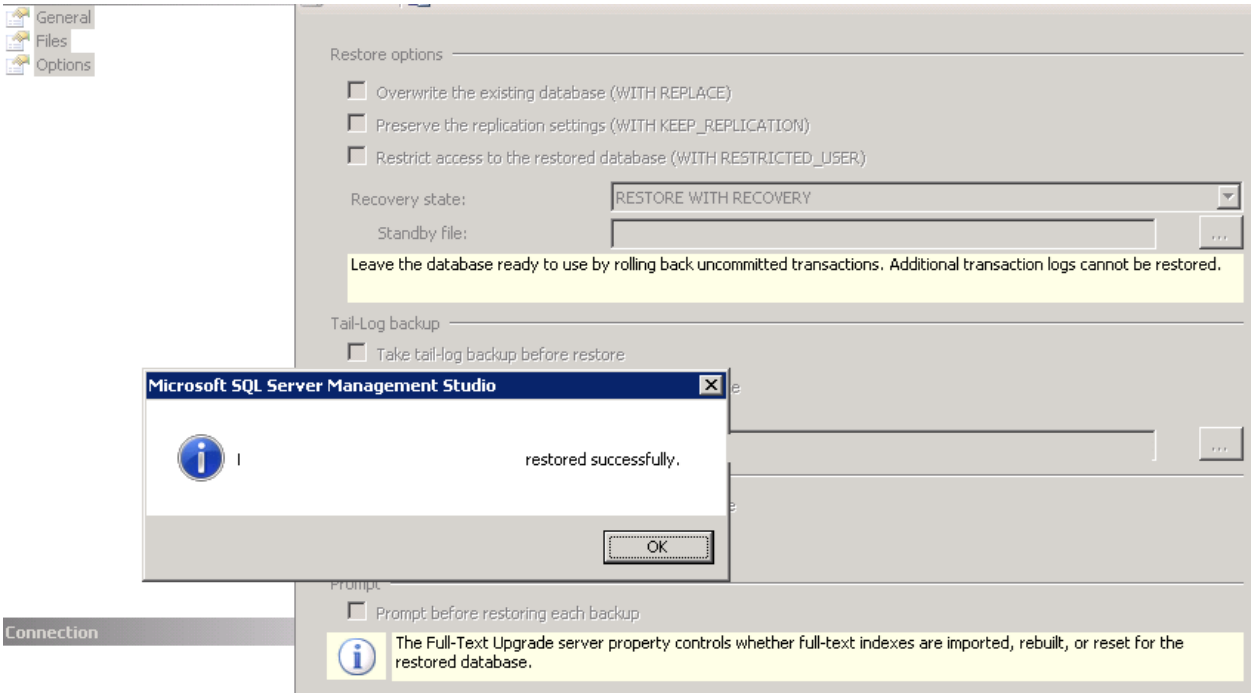
2. In the Restore Database dialog box, on the General page, type the name of the database to be restored in the To database list.
3. In the To a point in time text box, keep the default (Most recent possible).
4. To specify the source and location of the backup sets to restore, click From device, and then use the ellipsis (...) to select the backup file.
5. In the Specify Backup dialog box, in the Backup media box, be sure that File is selected.



6. In the Backup location area, click Add.
7. In the Locate Backup File dialog box, select the file that you want to restore, click OK, and then, in the Specify Backup dialog box, click OK.
8. In the Restore Database dialog box, under select the backup sets to restore grid, select the Restore check box next to the most recent full backup.
9. In the Restore Database dialog box, on the Options page, under Restore options, select the Overwrite the existing database check box.



10. Click OK to start the restore process.

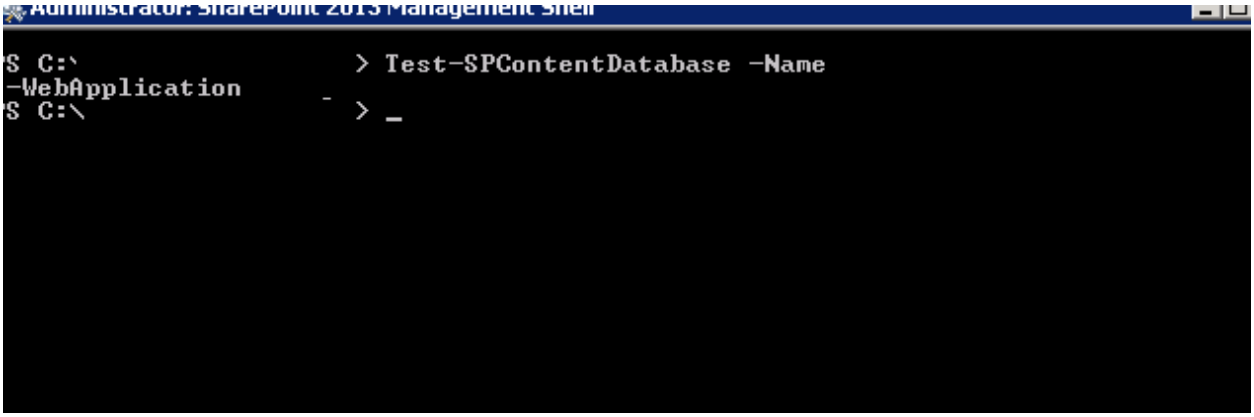


To attach a content database to a web application by using Windows PowerShell

Verify that you have the following memberships:

- Securityadmin fixed server role on the SQL Server instance.
- db_owner fixed database role on all databases that are to be updated.
- Administrators group on the server on which you are running the Windows PowerShell cmdlets.

11. Start the SharePoint 2013 Management Shell.
12. For Windows Server 2008 R2:
13. On the Start menu, click All Programs, click Microsoft SharePoint 2013 Products, and then click SharePoint 2013 Management Shell.
14. For Windows Server 2012:
15. On the Start screen, click SharePoint 2013 Management Shell.
16. If SharePoint 2013 Management Shell is not on the Start screen:
17. Right-click Computer, click all apps, and then click SharePoint 2013 Management Shell.
18. At the Windows PowerShell command prompt, type the following command and then press ENTER:



Mount-SPContentDatabase -Name DatabaseName -DatabaseServer ServerName -WebApplication URL

Where:

- Database Name is the name of the database that you want to upgrade.
- Server Name is server on which the database is stored.
- URL is the URL for the web application that will host the sites.

To view the Upgrade Status page

1. Verify that the user account that is performing this procedure is a member of the db_owner fixed database role for the databases.

2. In Central Administration, click Upgrade and Migration, and then click Check upgrade status.

To view the upgrade log file

The upgrade error log file and the upgrade log file are located at %COMMONPROGRAMFILES%\Microsoft Shared\web server extensions\15\LOGS. The upgrade log file contains more detailed information than the upgrade error log. Be sure to check the summary at the bottom of the log files for information about the overall status and a count of the warnings and errors in the file.

- The logs are text files named in the following format:
- Upgrade-YYYYMMDD-HHMMSS-SSS-error.log
- Upgrade-YYYYMMDD-HHMMSS-SSS.log

Where

YYYYMMDD is the date

HHMMSS-SSS is the time (hours in 24-hour clock format, minutes, seconds, and milliseconds)

An example for an upgrade error log is Upgrade-20120105-132126-374-error.log, and an example for an upgrade log is Upgrade-20120105-132126-374.log.

To attach a content database to a web application by using Windows PowerShell

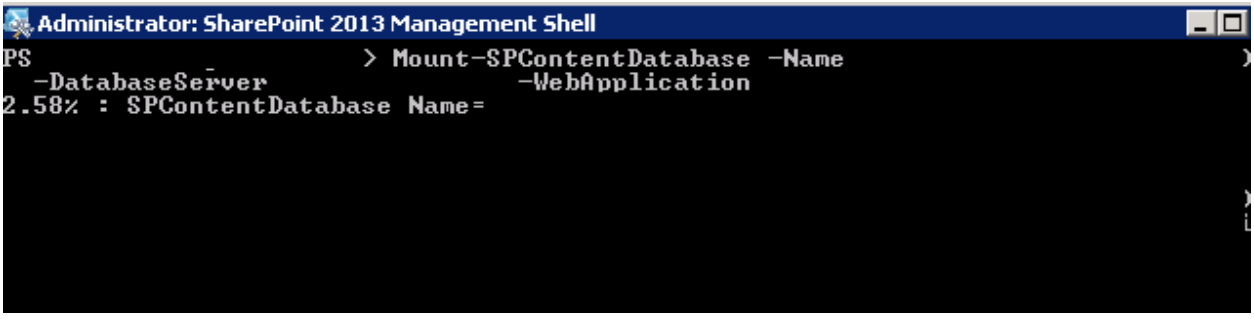
Verify that you have the following memberships:

- securityadmin fixed server role on the SQL Server instance.
- db_owner fixed database role on all databases that are to be updated.
- Administrators group on the server on which you are running the Windows PowerShell cmdlets.
- An administrator can use the Add-SPShellAdmin cmdlet to grant permissions to use SharePoint 2013 cmdlets.

Start the SharePoint 2013 Management Shell.

1. For Windows Server 2012:
2. On the Start screen, click SharePoint 2013 Management Shell.
3. If SharePoint 2013 Management Shell is not on the Start screen:
4. Right-click Computer, clicks All apps, and then click SharePoint 2013 Management Shell.
5. For more information about how to interact with Windows Server 2012, see Common Management Tasks and Navigation in Windows Server 2012.
6. At the Windows PowerShell command prompt, type the following command and then press ENTER:

Mount-SPContentDatabase -Name DatabaseName -DatabaseServer ServerName -WebApplication URL

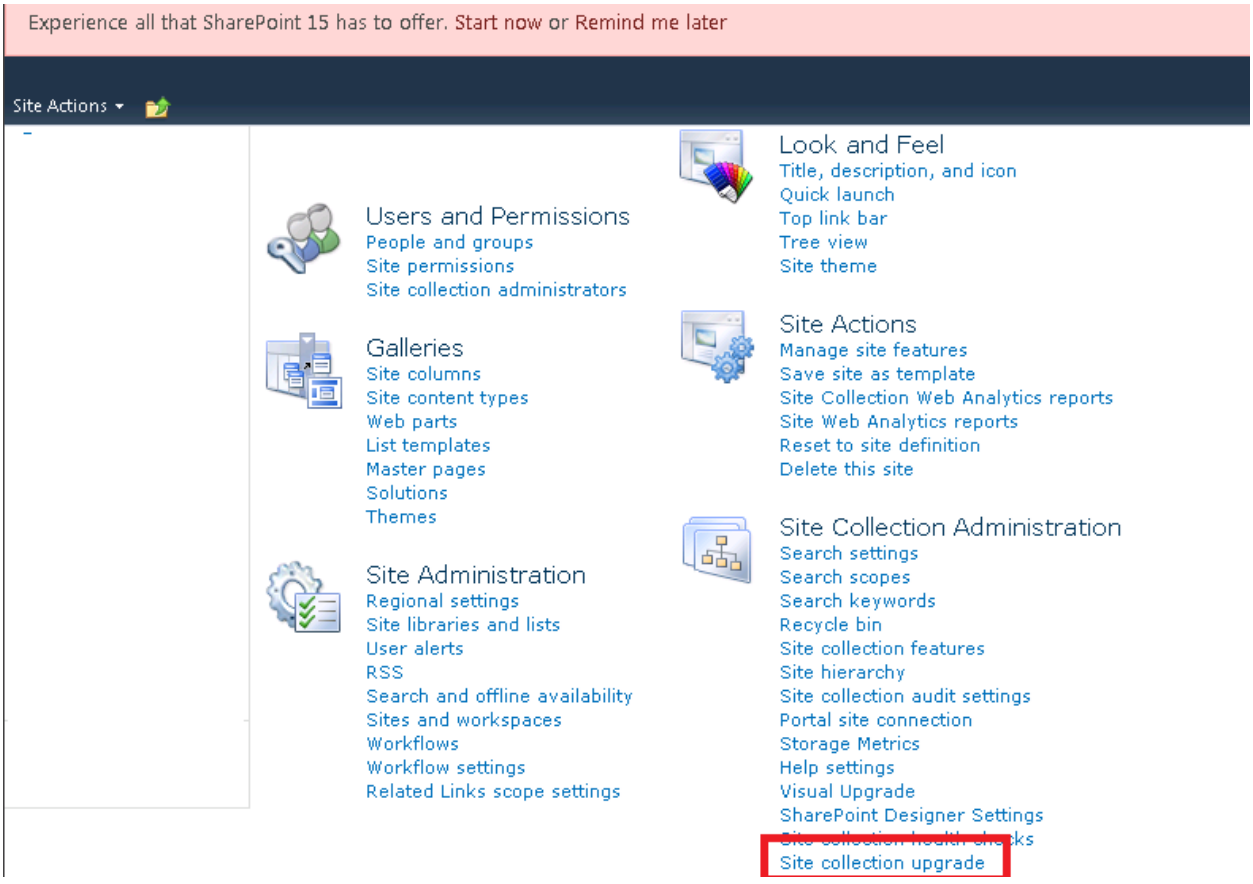


Where:

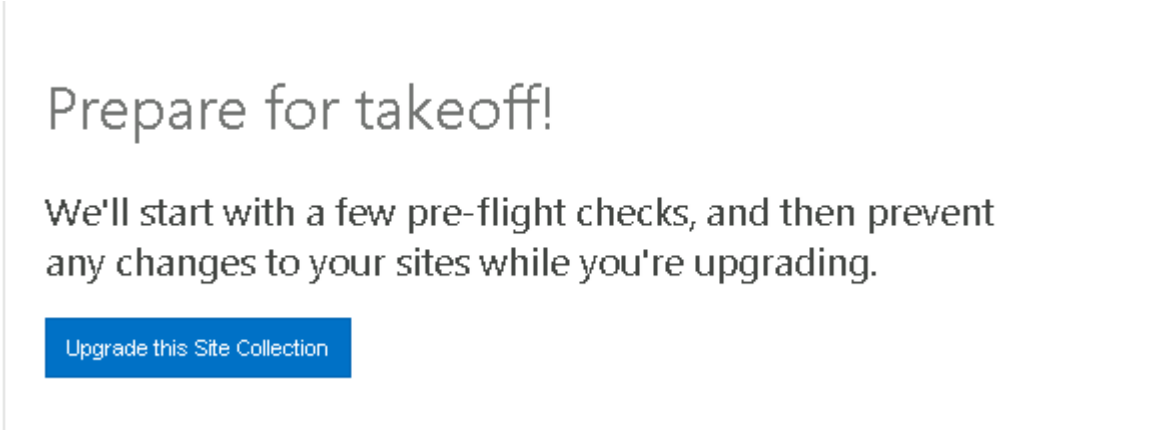
- DatabaseName is the name of the database that you want to upgrade.
- ServerName is server on which the database is stored.
- URL is the URL for the web application that will host the sites.

Upgrade a site collection

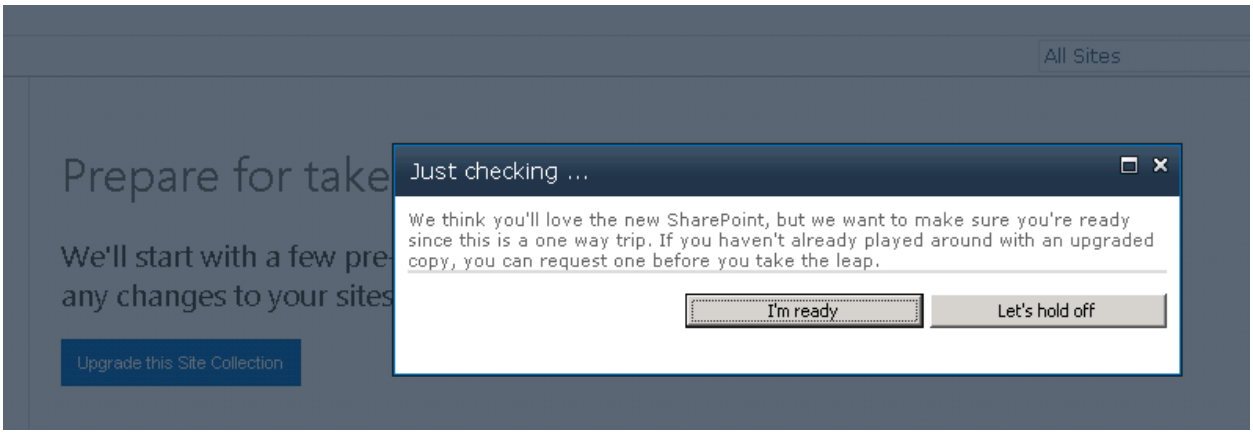
1. To upgrade a site collection
2. Verify that the user account that performs this procedure is a site collection administrator.
3. On the Site Settings page for the site collection, in the Site Collection Administration section, click Site collection upgrade.
4. On the Site Collection Upgrade page, click Upgrade this Site Collection.



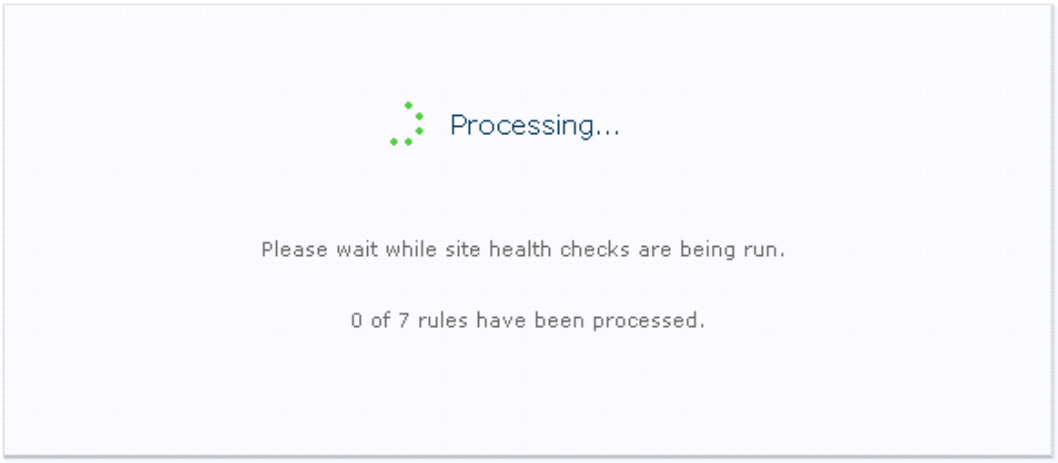
1. This option starts the process of upgrading your site collection. A box opens to verify that you want to start the process.



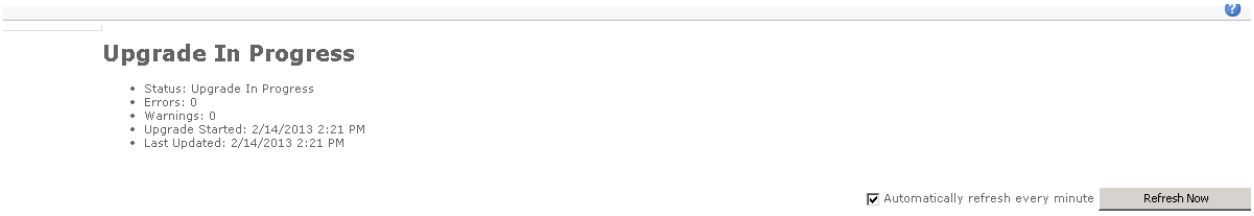
2. Click I'm ready to start the actual upgrade.



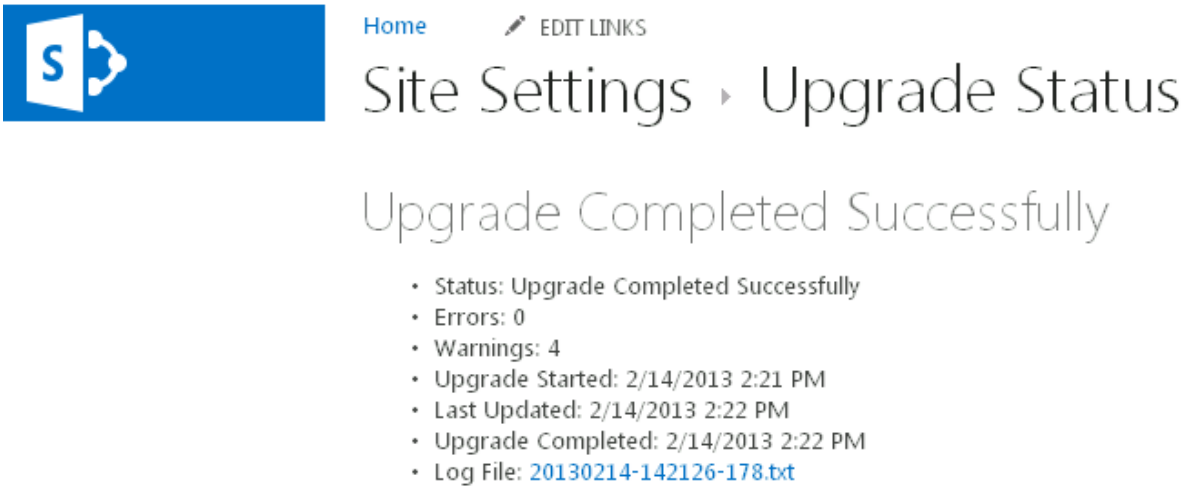
3. The upgrade starts, and the Upgrade status page for the site collection is displayed. This page automatically updates while the upgrade is in progress and displays information about the process, such as the following:



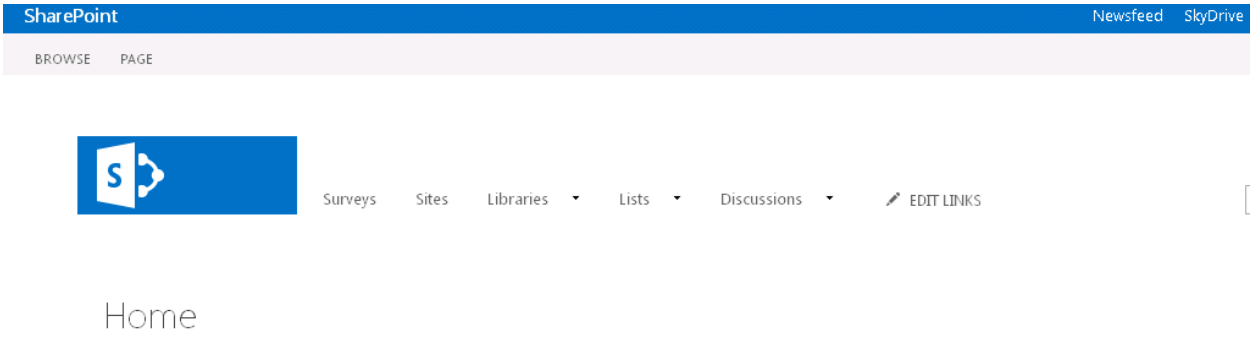
4. Upgrade will show you the progress as shown below



5. Once done with the upgrade page will display the information as shown below



6. Once successfully migrated you will get the 2007 site upgraded with SharePoint 2010 as shown below


SharePoint
Newsfeed
SkyDrive
BROWSE
PAGE
Surveys
Sites
Libraries
Lists
Discussions
EDIT LINKS
Home

Conclusion

These are our recommendations and viewpoints on SharePoint 2013 administration and planning. Please use this as a starting guide for your environment setup. You can arrive at right configuration only after proper testing and piloting.

This is my second book and I am sincerely expressing my heartfelt thanks to my guide Mr. Mahesh Chand. I also would like to extend my thanks to my friends Aneesh Bhargavan and Jibin Koshy for all their help. Also, I would like to thank John Panicker for the design work and Hari Kumar for the proof reading and editing.