

Microsoft System Center 2012 R2

Planning for System Center 2012 R2 Service Manager

Microsoft Corporation

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Authors

Anat Kerry, Bill Anderson, and John Downing

Applies To

System Center 2012 - Service Manager

System Center 2012 Service Pack 1 (SP1) - Service Manager

System Center 2012 R2 Service Manager

Feedback

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Revision History

Release Date	Changes
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Planning for System Center 2012 - Service Manager

Welcome to the System Center 2012 – Service Manager Planning Guide. This guide helps you understand the hardware and software requirements as well as software roles you need to prepare for Service Manager before deploying it for use in your organization. Also in this guide are general guidelines that can help you plan for the better hardware and software performance and scalability.

Planning Guide Topics

- [Planning for System Center 2012 - Service Manager Deployment](#)
Describes the pieces that make up Service Manager, such as the Service Manager management server, the Service Manager database, the data warehouse management server, the data warehouse databases, and the Service Manager console. This section also describes the hardware and software requirements, the databases created by Service Manager, and the port numbers used by Service Manager.
- [Preparing for System Center 2012 - Service Manager Deployment](#)
Describes how to prepare a computer to host Service Manager. For example, the topics in this section describe how to uninstall a previous version of Service Manager and how to make sure that SQL Server Reporting Services (SSRS) is installed. They also describe the account considerations for you to consider.
- [Planning for Performance and Scalability in System Center 2012 - Service Manager](#)
Describes the issues that affect performance and scalability in Service Manager. Also suggests best practices to achieve good performance using suggested hardware configurations.

Other Resources for This Component

- TechNet Library main page for [System Center 2012 – Service Manager](#)
- [Deployment Guide for System Center 2012 – Service Manager](#)
- [Administrator's Guide for System Center 2012 – Service Manager](#)
- [Operations Guide for System Center 2012 – Service Manager](#)

Downloadable Documentation

You can download a [copy of this technical documentation from the Microsoft Download Center](#). Always use the TechNet library for the most up-to-date information.

Planning for System Center 2012 - Service Manager Deployment

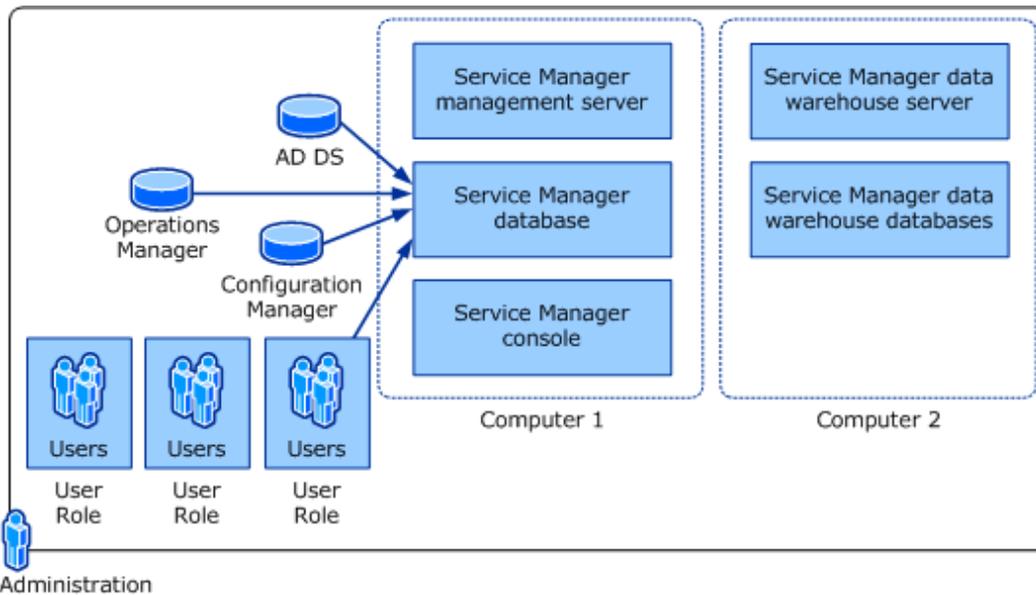
For System Center 2012 – Service Manager, several deployment options are available, and three options are presented in this guide.

The first deployment option uses one physical computer and one virtual computer. The physical computer hosts the Service Manager management server, the Service Manager database, and the data warehouse databases, and it also hosts the virtual server. The virtual computer hosts the data warehouse management server. This deployment is used primarily for lightweight or first-impression evaluation of Service Manager. No scalability or performance estimates are available for this scenario.

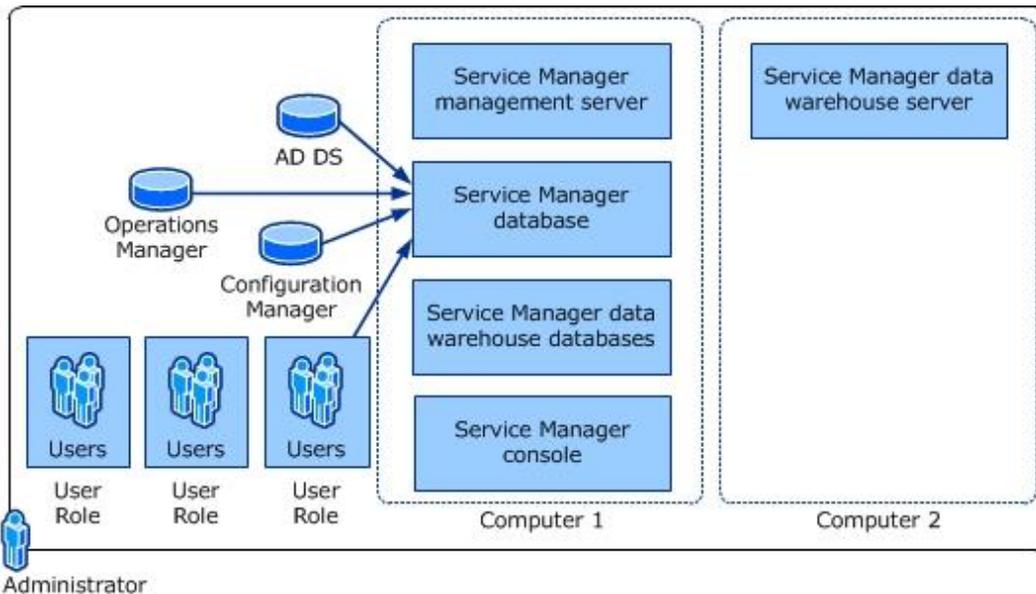
A second deployment option requires the use of two computers. The first computer hosts the Service Manager management server and the Service Manager database. The second computer hosts the data warehouse management server and the data warehouse databases. If you do not need reporting services, you can—at an absolute minimum—install Service Manager on one computer that hosts both the Service Manager management server and the Service Manager database.

A third deployment option maximizes performance and scalability by using four computers. Two computers host the management servers, and the remaining two computers host the databases. The computers hosting the databases are the only two computers in this scenario that require the installation of Microsoft SQL Server 2008.

You might decide that, for the evaluation phase, you will choose the option to install Service Manager on two computers. After installing Service Manager in the lab, you can import data from Active Directory Domain Services (AD DS) and System Center Configuration Manager, and then you can import data and alerts from Operations Manager. You would then configure User Roles within Service Manager and, if necessary, manually add users that were not imported from AD DS. The following illustration represents an overview of this installation and initial configuration.



You can limit the number of SQL Server licenses that you need by placing all of the Service Manager databases on the same computer, as shown in the following illustration.



You continue the deployment process by creating several templates; configuring initial parameters; creating queues, lists, and groups; and then creating a management pack to save these custom objects.

After the evaluation phase is complete, you might install Service Manager in a production environment and select the deployment scenario in which Service Manager is installed on four computers.

Multiple Service Manager Management Servers and One Data Warehouse

The Service Manager management server and its associated Service Manager database make up a Service Manager management group. The data warehouse management server and its associated databases make up a data warehouse management group. After deploying Service Manager, you will register the Service Manager management group with the data warehouse management group.

In your enterprise, you might create multiple Service Manager management groups. You can centralize reporting for multiple Service Manager management groups by registering multiple Service Manager management groups with a single data warehouse management group. For more information, see [How to Run the Data Warehouse Registration Wizard](#).

Planning for Deployment Topics

- [System Center 2012 - Service Manager Parts](#)
Describes the six major parts of a Service Manager installation.
- [SQL Server Requirements for System Center 2012 - Service Manager](#)
Describes the two SQL Server roles that are used by Service Manager, SQL Server Analysis Services (SSAS) and SQL Server Reporting Services (SSRS).
- [System Center 2012 - Service Manager Evaluation, Retail, and Select Editions](#)
Describes the retail and select editions of Service Manager and what effect selecting the 180-day evaluation installation has on these two editions.
- [Supported Configurations for System Center 2012 - Service Manager](#)
Describes the hardware and software requirements for Service Manager. Specific considerations about the software that you need to install to support Service Manager are included.
- [Operations Manager Considerations in System Center 2012 - Service Manager](#)
Describes information that you need to know if you are planning to deploy Service Manager in an environment that hosts Operations Manager 2007.
- [Language Support for System Center 2012 - Service Manager](#)
Describes the languages that are supported in Service Manager.
- [Databases Created by System Center 2012 - Service Manager](#)
Describes the four databases that will be created as a result of deploying Service Manager.
- [Port Assignments for System Center 2012 - Service Manager](#)
Describes the TCP/IP ports that Service Manager uses.

Other Resources for This Component

- TechNet Library main page for [System Center 2012 – Service Manager](#)
- [Planning Guide for System Center 2012 – Service Manager](#)

- [Deployment Guide for System Center 2012 – Service Manager](#)
- [Administrator's Guide for System Center 2012 – Service Manager](#)
- [Operations Guide for System Center 2012 – Service Manager](#)

System Center 2012 - Service Manager Parts

There are six major parts of a System Center 2012 – Service Manager installation, as described in the following table.

Service Manager part	Description
Service Manager management server	Contains the main software part of a Service Manager installation. You can use the Service Manager management server to manage incidents, changes, users, and tasks.
Service Manager database	The database that contains Service Manager configuration items (CI) from the IT Enterprise; work items, such as incidents, change requests, and the configuration for the product itself. This is the Service Manager implementation of a Configuration Management Database (CMDB).
Data warehouse management server	The computer that hosts the server piece of the data warehouse.
Data warehouse databases	Databases that provide long-term storage of the business data that Service Manager generates. These databases are also used for reporting.
Service Manager console	The user interface (UI) piece that is used by both the help desk analyst and the help desk administrator to perform Service Manager functions, such as incidents, changes, and tasks. This part is installed automatically when you deploy a Service Manager management server. In addition, you can manually install the Service Manager console as a stand-alone part on a computer.
Self-Service Portal	A web-based interface into Service Manager.



Important

All computers that host any part of Service Manager must be domain joined.

SQL Server Requirements for System Center 2012 - Service Manager

Microsoft® SQL Server® hosts the databases that System Center 2012 – Service Manager creates. In addition, Service Manager requires SQL Server Analysis Services (SSAS) to work with Microsoft Online Analytical Processing (OLAP) cubes. SQL Server Reporting Services (SSRS) is required to support Service Manager reporting.

All SQL Server requirements are listed at [SQL Server](#) and SQL Server editions are listed at [Operating System and Database Edition Support](#).



Note

Service Manager 2012 with no service pack is supported on SQL Server 2008 R2 without a service pack. Service Manager 2012 SP1 requires SQL Server 2008 R2 SP1 or later.

SQL Server 2012 Standard and Enterprise Editions

SQL Server 2012 is available in Standard, Enterprise, and Business Intelligence editions. Service Manager will function with all editions. However, there are additional features available in SQL Server 2012 Enterprise that can enhance your experience with the Service Manager data warehouse:

- **Analysis Services Files:** In the Enterprise and Business Intelligence editions of SQL Server 2012, you can decide where Analysis Services database files will be stored. In the Standard edition, there is only one default location for the files.
- **Cube Processing:** In the Enterprise and Business Intelligence editions, cubes are processed incrementally each night. In the Standard edition, the entire cube is processed each night and therefore, the amount of processing time required will increase as more data is accumulated. Cubes can still be queried when being processed however, reporting performance will be reduced.
- **Measure Group Partitions:** In the Enterprise and Business Intelligence editions, measure groups are partitioned on a monthly basis, instead of as one large partition. This reduces the amount of time it takes to process the partition.
- **PowerPivot:** In the Enterprise and Business Intelligence editions, you can use Microsoft SQL Server PowerPivot for SharePoint.

You must make your decision to use either the Standard, Enterprise, or Business Intelligence editions of SQL Server 2012 before you install Service Manager. It is possible to use a combination of editions for the Service Manager database and use a different edition for the data warehouse databases.

For more information comparing SQL Server editions, see [SQL Server 2012 Editions](#).



Note

Service Manager was tested using the Standard and Enterprise editions of SQL Server 2012.

For information about the specific versions of SQL Server that are supported in Service Manager see [Software Requirements for System Center 2012 - Service Manager](#).

SQL Server 2008 R2 Standard and Enterprise Editions

SQL Server 2008 R2 is available in both Standard and Enterprise editions. Service Manager will function with both editions. However, there are additional features available in SQL Server 2008 Enterprise that can enhance your experience with the Service Manager data warehouse:

- **Analysis Services Files:** In the Enterprise edition of SQL Server 2008, you can decide where Analysis Services database files will be stored. In the Standard edition, there is only one default location for the files.
- **Cube Processing:** In the Enterprise edition, cubes are processed incrementally each night. In the Standard edition, the entire cube is processed each night and therefore, the amount of processing time required will increase as more data is accumulated. Cubes can still be queried when being processed however, reporting performance will be reduced.
- **Measure Group Partitions:** In the Enterprise edition, measure groups are partitioned on a monthly basis, instead of as one large partition. This reduces the amount of time it takes to process the partition.
- **PowerPivot:** In the Enterprise edition, you can use Microsoft SQL Server PowerPivot for SharePoint.

You must make your decision to use either the Standard or Enterprise editions of SQL Server 2008 before you install Service Manager. It is possible to use SQL Server 2008 Standard for the Service Manager database and use SQL Server 2008 Enterprise for the data warehouse databases.

For more information comparing SQL Server editions, see [Microsoft SQL Server 2008 Enterprise and Standard Feature Compare](#). (Adobe Reader is required.)



Note

Service Manager was tested using both the Standard and Enterprise editions of SQL Server 2008. No other editions of SQL Server are supported.

For information about the specific versions of SQL Server that are supported in Service Manager see [Software Requirements for System Center 2012 - Service Manager](#).

Allow Updates

To either install or upgrade Service Manager, computers running SQL Server that host databases must be configured to allow updates. If updates are not allowed, Service Manager Setup will not complete and the following error message will appear at the **Create database** stage of the installation:

"An error occurred while executing a customer action: _ExecuteSqlScripts. This upgrade attempt has failed before permanent modifications were made. Upgrade has successfully rolled back to the original state of the system. Once the corrections are made, you can retry upgrade for this role."

You can check the status of **allow updates** on SQL Server by executing the following stored procedure from within SQL Server Management Studio:

```
sp_configure 'allow updates'
```

In the results table, examine the value for "run_value". If the value of "run value" is 1, set it back to 0 with the following stored procedure, and then run Setup again.

```
sp_configure 'allow updates',0 reconfigure with override
```

AlwaysOn Availability Groups Considerations for Service Manager Databases

SQL Server AlwaysOn Availability Groups functionality is supported by all versions of System Center 2012 – Service Manager for the default server instance. However, SQL AlwaysOn Availability Groups functionality is not supported for a named instance.

When considering SQL Server AlwaysOn Availability Groups for the Service Manager database or the DWDataMart, you should determine whether availability replica should support either or both of the following active-secondary capabilities:

- Read-only connection access which enables read-only connections to the replica to access and read its databases when it is running as a secondary replica.
- Performing backup operations on its databases when it is running as a secondary replica.

For more information about about installing Service Manager with AlwaysOn availability groups on [TechNet](#).

For more information about about AlwaysOn Availability Groups, see [AlwaysOn Availability Groups \(SQL Server\)](#).

System Center 2012 - Service Manager Evaluation, Retail, and Select Editions

System Center 2012 – Service Manager is available as both a retail edition and a select edition. Both editions offer the same functionality. The retail edition is purchased separately, and it includes a product key that you enter during setup. The select edition is delivered as part of a Microsoft Volume Licensing plan, and a product key is not required.

During setup of the retail edition of System Center 2012 – Service Manager, you have the option of performing the installation without a product key and instead installing Service Manager as an evaluation edition. The evaluation edition times out 180 days after installation. If you start with an evaluation version of Service Manager and you rerun Setup and install the retail edition or select edition, and you decide to use the existing databases that you created originally, your installation will time out after the original expiration date.

The following table describes the interactions between the various editions of Service Manager.

If you started with ...	And then rerun Setup to install ...	Will the new installation time out?
Evaluation Edition	Retail Edition	Yes
Evaluation Edition	Select Edition	Yes
Retail Edition	Evaluation Edition	No
Retail Edition	Select Edition	No
Select Edition	Retail Edition	No

Supported Configurations for System Center 2012 - Service Manager

This section includes information about the hardware and software requirements for System Center 2012 – Service Manager. Service Manager has been tested up to the workload described in this topic, based on the recommended hardware requirements in this guide. This environment contains one Service Manager management server supporting 80 to 100 concurrent Service Manager consoles. High-performance storage using 15,000-RPM SCSI drives is used on the database servers.

The hardware and software requirements described in this section are based on the following system environment and conditions:

- Up to 20,000 users, with up to 40 to 50 IT analysts providing concurrent support. Up to 50,000 users and up to 80 to 100 IT analysts can be supported if 32 gigabytes (GB) of memory is installed on the servers running Microsoft SQL Server.
- Up to 20,000 supported computers, assuming up to 10 to 12 configuration items (installed software, software updates, and hardware components) per computer. Up to 50,000 computers can be supported if 32 GB of memory is installed on the servers running SQL Server.
- 5,000 incidents per week with three months of retention, for a total of 60,000 incidents in the Service Manager database for the 20,000-computer configuration, and 2.5 times that for the 50,000-computer configuration.
- 1,000 change requests a week with three months of retention, for a total of 12,000 change requests in the Service Manager database for the 20,000-computer configuration, and 2.5 times that for the 50,000-computer configuration.

Using a slow storage subsystem or insufficient memory can reduce Service Manager performance significantly.

Supported Configuration Topics

- [Hardware Requirements for System Center 2012 - Service Manager](#)
Describes the hardware requirements for Service Manager.
- [Software Requirements for System Center 2012 - Service Manager](#)

Describes the software requirements for Service Manager.

Other Resources for This Component

- TechNet Library main page for [System Center 2012 – Service Manager](#)
- [Planning Guide for System Center 2012 – Service Manager](#)
- [Deployment Guide for System Center 2012 – Service Manager](#)
- [Administrator’s Guide for System Center 2012 – Service Manager](#)
- [Operations Guide for System Center 2012 – Service Manager](#)

Hardware Requirements for System Center 2012 - Service Manager

This topic describes the hardware requirements for System Center 2012 – Service Manager.

Hardware Requirements

The following table lists the recommended hardware requirements for the individual parts of Service Manager. These computers can be physical servers or virtual servers.

For System Center 2012 SP1 only: The hardware requirements for Service Manager in System Center 2012 Service Pack 1 (SP1) are unchanged from its initial release.

Hardware requirements table

Service Manager database	8-core 2.66 gigahertz (GHz) CPU 8 gigabytes (GB) of RAM for 20,000 users, 32 GB of RAM for 50,000 users (See the Hardware Performance section in this guide.) 80 GB of available disk space RAID Level 1 or Level 10 drive*
Service Manager management server	4-Core 2.66 GHz CPU 8 GB of RAM (See the Hardware Performance section in this guide.) 10 GB of available disk space
Service Manager console	2-core 2.0 GHz CPU 4 GB of RAM 10 GB of available disk space
Data warehouse management server	4-Core 2.66 GHz CPU 8 GB of RAM (See the Hardware Performance section in this guide.) When a data warehouse management group and SQL Server Analysis Services are hosted on a single server, it should contain at least 16

	GB RAM. 10 GB of available disk space
Data warehouse databases	8-core 2.66 GHz CPU 8 GB of RAM for 20,000 users, 32 GB of RAM for 50,000 users (See the Hardware Performance section in this guide.) 400 GB of available disk space RAID Level 1 or Level (1+0) drive
Self-Service Portal: Web Content Server with SharePoint Web Parts	8-Core 2.66 GHz CPU 8-core, 64-bit CPU for medium deployments 16 GB of RAM for 20,000 users, 32 GB of RAM for 50,000 users (See the Hardware Performance section in this guide.) 80 GB of available hard disk space

* For more information, see [RAID levels and Microsoft SQL Server](#).

** Hardware requirements are based on SharePoint specifications. For more information, see [Hardware and Software Requirements \(SharePoint Server 2010\)](#).

Software Requirements for System Center 2012 - Service Manager

This topic describes the software requirements for Service Manager in System Center 2012, System Center 2012 Service Pack 1 (SP1), and System Center 2012 R2 Service Manager. Where applicable to a specific Service Manager version, items are noted accordingly.

Software Requirements

All software requirements for System Center 2012 R2 Service Manager are listed at [System Requirements for System Center 2012 R2](#).

All software requirements for System Center 2012 Service Pack 1 (SP1) are listed at [System Requirements for System Center 2012 SP1](#).

The software requirements for System Center 2012 – Service Manager with no service pack are the same as System Center 2012 R2 Service Manager, except that System Center 2012 – Service Manager is not supported on Windows Server 2012 or where noted. Additional requirements and related information is shown in the following table and sections.

Note

The Service Manager management server and data warehouse management server must be installed on the 64-bit edition of the Windows operating system. The Service Manager console can be installed on both the 32-bit and 64-bit editions of Windows.

Service Manager 2012 with no service pack is supported on SQL Server 2008 R2 without a service pack, however it is not supported with SQL Server 2012. Service Manager 2012

SP1 and System Center 2012 R2 Service Manager require SQL Server 2008 R2 SP1 or later.

Software requirements table

<p>Service Manager management server</p>	<p>In addition to the System Requirements for System Center 2012 R2, the Service Manager management server requires:</p> <ul style="list-style-type: none"> • ADO.NET Data Services Update for .NET Framework 3.5 SP1 for Windows Server 2008 R2 • SQL Server 2008 R2 Native Client or SQL Server 2012 Native client • Microsoft Report Viewer Redistributable, which is available with the Service Manager media. For more information, see How to Install the Microsoft Report Viewer Redistributable Security Update in the Deployment Guide for System Center 2012 – Service Manager.
<p>Data warehouse management server</p>	<p>In addition to the System Requirements for System Center 2012 R2, the data warehouse management server requires:</p> <ul style="list-style-type: none"> • SQL Server 2008 R2 Native Client or SQL Server 2012 Native client
<p>Service Manager or data warehouse databases</p>	<p>In addition to the System Requirements for System Center 2012 R2, the Service Manager or data warehouse databases require:</p> <ul style="list-style-type: none"> • SQL Server Reporting Services (SSRS) • The SQL Server and Analysis Services collation settings must be the same for the computers hosting the Service Manager database, data warehouse database, analysis services database, and Reporting Services database. • For Service Manager in System Center 2012 SP1 and System Center 2012 R2 Service Manager: SQL Server 2012 Analysis Management Objects, which are part of the SQL Server 2012 Feature Pack, are required regardless of the SQL Server version that you use • For System Center 2012 only: SQL Server 2008 R2 Analysis Management Objects
<p>Service Manager console</p>	<p>In addition to the System Requirements for System</p>

	<p>Center 2012 R2, the Service Manager console requires:</p> <ul style="list-style-type: none"> • Microsoft Report Viewer Redistributable, which is available with the System Center 2012 – Service Manager media. For more information, see How to Install the Microsoft Report Viewer Redistributable Security Update in the Deployment Guide for System Center 2012 – Service Manager. • You must have Microsoft Excel 2007 or later installed in order view OLAP data cubes on the computer running the Service Manager console. • ADO.NET Data Services Update for .NET Framework 3.5 SP1 for Windows Server 2008 R2. * • For Service Manager in System Center 2012 SP1 and System Center 2012 R2 Service Manager: SQL Server 2012 Analysis Management Objects are required regardless of the SQL Server version that you use • For System Center 2012 only: SQL Server 2008 R2 Analysis Management Objects
Self-Service Portal: Web Content Server	<p>In addition to the System Requirements for System Center 2012 R2, the Self-Service Portal Web Content Server requires:</p> <ul style="list-style-type: none"> • Microsoft Internet Information Services (IIS) 7 with IIS 6 metabase compatibility installed. • A Secure Sockets Layer (SSL) certificate can be used on the IIS server that hosts the Self-Service Portal. • For Service Manager in System Center 2012 SP1 and System Center 2012 R2 Service Manager: SQL Server 2012 Analysis Management Objects are required regardless of the SQL Server version that you use • For System Center 2012 only: SQL Server 2008 R2 Analysis Management Objects
Self-Service Portal: SharePoint Web Parts	<p>One of the following versions of Microsoft SharePoint:</p> <ul style="list-style-type: none"> • Microsoft SharePoint Foundation 2010 • Microsoft SharePoint Server 2010 • Microsoft SharePoint 2010 for Internet Sites

	<p>Enterprise</p> <ul style="list-style-type: none"> If your Service Manager database uses SQL Server 2012, then you must have Service Pack 1 applied to your SharePoint 2010 installation. <p>Software requirements for SharePoint Web Parts for the Self-Service Portal are based on Microsoft SharePoint Server 2010 specifications. For more information, see Hardware and Software Requirements (SharePoint Server 2010).</p> <p>You must install the English language pack in non-English SharePoint installations so that the Self-Service Portal installs correctly.</p> <p> Note Windows Server 2012 is not supported on the server hosting the SharePoint Web Parts.</p> <p>SharePoint 2013 is not supported on the server hosting the SharePoint Web Parts.</p>
Excel Services in SharePoint Server 2010	Excel Services in SharePoint Server 2010 is required for hosting dashboards for advanced analytical reports. For more information about installing and configuring Excel Services, see Configure Excel Services for a BI test environment .
Computers accessing the Self-Service Portal	All Self-Service Portal web console requirements are listed at Self-Service Web Console Support
SQL Server Reporting Services	In a deployment topology where the computer hosting SSRS is not on the same computer that hosts the data warehouse management server, you have to add Microsoft.EnterpriseManagement.Reporting.Code to the global assembly cache. For more information, see Manual Steps to Configure the Remote SQL Server Reporting Services in the Service Manager for System Center 2012 Deployment Guide .

* For more information about the ADO.NET Data Service Update, see [ADO.NET Data Services Update for .NET Framework 3.5 SP1 for Windows 7 and Windows Server 2008 R2](#).

Microsoft SQL Server 2008

To download trial software of the English versions of either Microsoft SQL Server 2008 Standard Edition or SQL Server 2008 Enterprise Edition, see [SQL Server 2008](#).

To download SP1 for SQL Server 2008, see [SQL Server 2008 Service Pack 1](#).

To download the trial software for the English version of SQL Server 2008 R2, see [SQL Server 2008 R2](#).

To download Service Pack 1 for Microsoft SQL Server 2008 R2, see [Microsoft® SQL Server® 2008 R2 Service Pack 1](#)

Use the following configuration with SQL Server 2008 SP1:

- SQL Server full-text search: Full-text search must be selected during installation on the computers running SQL Server that will host the Service Manager and data warehouse databases. For more information about FTS, see [SQL Server 2008 Full-Text Search: Internals and Enhancements](#).
- SQL Server configured to use case-insensitive databases.
- Service Account configured in accordance with your organization's requirements.
- The SQL Server Reporting Services (MSSQLSERVER) service, configured and running. For more information about how to configure the MSSQLSERVER service, see [How to: Verify a Reporting Services Installation](#).
- For this release, make sure that you use the same collation in SQL Server and Analysis Services on the computers that host the Service Manager database, the data warehouse database, and the analysis services database. For more information about SQL Server collations, see [Using SQL Server Collations](#).

If your SQL Server installation is using the default collation (SQL_Latin1_General_CP1_CI_AS), a warning message appears, stating that the collation is not one of the supported collations for Service Manager and that an unsupported collation can cause unpredictable behavior in multilingual environments.

Caution

Support for languages other than English in Service Manager is not possible when you are using the collation SQL_Latin1_General_CP1_CI_AS. If later you decide to support multiple languages using a different collation, you have to reinstall SQL Server. There are no issues with using the SQL_Latin1_General_CP1_CI_AS collation with the English-only installations of Service Manager. SQL_Latin1_General_CP1_CI_AS is supported despite the warning message in setup. It is generally used for installations where the Service Manager databases will share a SQL Server instance with other System Center components which must be installed on SQL_Latin1_General_CP1_CI_AS. If Service Manager will be installed on its own SQL Server instance, it is recommended to use the newer and more complete collation Latin1_General_100_CP1_CI_AS. For more information about language support, see [Language Support for System Center 2012 - Service Manager](#).

You can define the collation when you install SQL Server. During Setup, on the **Server Configuration** page, click the **Collation** tab, and then click **Customize** for both the **Database Engine** and **Analysis Services** entries.

Microsoft SQL Server 2012

To download trial software of the English versions of Microsoft SQL Server 2012, see the [SQL Server 2012 Trial](#) page on the Microsoft web site.

Other considerations for SQL Server 2012 are similar to SQL Server 2008. For more information about SQL Server, see [Microsoft SQL Server 2008](#).

SQL Server Reporting Services

When you install SSRS, select the option to install the native mode default configuration. For more information, see [Considerations for Installing Reporting Services](#).

Do not use the same SSRS instance that you are using for Service Manager with any other System Center components.

SQL Server Analysis Services

SQL Server Analysis Services (SSAS) is required for Service Manager.

Microsoft .NET Framework 3.5 SP1

Microsoft .NET Framework 3.5 SP1 is required for running Service Manager. Microsoft .NET Framework 3.5 SP1 is included with the Service Manager installation media.

Microsoft .NET Framework 4

The Self-Service Portal for Service Manager consists of two parts, a web content server and SharePoint Web Parts. The web content server requires Microsoft .NET Framework 4. To download .NET Framework 4, see [Microsoft .NET Framework 4 \(Web Installer\)](#).

Microsoft SharePoint Server 2010

The Self-Service Portal for Service Manager consists of two parts, a web content server and a SharePoint website. You must install SharePoint Web Parts on a computer that hosts SharePoint Server 2010. A link to download SharePoint Server 2010 is on the Service Manager Prerequisites page in Setup, or you can download an evaluation copy of SharePoint Server 2010 at [Download Microsoft SharePoint Server 2010](#).

Important

You must install the English language pack in non-English SharePoint installations so that the Self-Service Portal installs correctly.

Windows PowerShell 2.0

Windows PowerShell 2.0 is required for Service Manager. You enable Windows PowerShell 2.0 in Windows Server 2008 using Service Manager. For more information see [How to: Enable Windows PowerShell](#)

Microsoft SQL Server Analysis Management Objects

For Service Manager in System Center 2012 SP1 and System Center 2012 R2 Service Manager: The Service Manager console requires Microsoft SQL Server 2012 Analysis Management Objects (AMOs), which are part of the SQL Server 2012 Feature Pack, so that it can work with SSAS. Microsoft AMOs are also required for the web content server (part of the Self-Service Portal). Two different setup files are available for installing Microsoft AMOs, based on the microprocessor architecture that you are using, as indicated in the following list:

[SQL Server 2012 Analysis Management Objects X86](#)

[SQL Server 2012 Analysis Management Objects X64](#)

For System Center 2012 only: The Service Manager console requires Microsoft Analysis Management Objects (AMOs) so that it can work with SSAS. Microsoft AMOs are also required for the web content server (part of the Self-Service Portal). Three different setup files are available for installing Microsoft AMOs, based on the microprocessor architecture that you are using, as indicated in the following list:

[x86 Package](#)

[x64 Package](#)

[IA-64 Package](#)

Internet Information Services

When you install the IIS role, you must select the ASP.NET, Basic Authentication, and Windows Authentication options.

Operations Manager

Service Manager has the capability to import alerts and configuration items from your Operations Manager 2007 environment. You must have Operations Manager 2012, Operations Manager 2007 SP1, or Operations Manager 2007 R2 installed to work with Service Manager.

Important

You cannot use Operations Manager 2007 SP1 to monitor Service Manager management servers. You must use Operations Manager 2007 R2 or Operations Manager 2012.

If you plan to install both Service Manager and Operations Manager 2007 in the same environment, see [Operations Manager Considerations in System Center 2012 - Service Manager](#).

You can create a data mart for Operations Manager.

Configuration Manager

Service Manager can import configuration items from your Microsoft System Center Configuration Manager 2007 environment. You must have Configuration Manager 2007 SP1, Configuration Manager 2007 R2, or Configuration Manager 2012 installed to work with Service Manager.

Network Requirements

In Service Manager, you can view external content from within knowledge articles. To view external content, computers that host the Service Manager console must have Internet access, either directly or through a proxy server.

SMTP Server

You must have access to a Simple Mail Transfer Protocol (SMTP) server to use the Notification feature and for incident creation through email.

Windows Safe Mode

Service Manager does not operate and the services used by Service Manager do not start if Windows Server 2008 is running in safe mode. If you attempt to start the Service Manager

services manually while in safe mode, the services fail to start and an error is written into the event log.

See Also

[Supported Configurations for System Center 2012 - Service Manager](#)

Operations Manager Considerations in System Center 2012 - Service Manager

This topic contains information to be aware of when you are combining Operations Manager and Service Manager.

Management Group Names Must be Unique

When you deploy both a Service Manager and data warehouse management server, you are asked to provide a management group name. You are also asked to provide a management group name when you deploy Operations Manager. The management group names that you use for the Service Manager management group, the data warehouse management group, and the Operations Manager management group must be unique.

Important

If Operations Manager and Service Manager share the same management group name, you will have to reinstall the Service Manager management server. Because it is not possible to rename a management group, you will either have to completely reinstall Service Manager with a different management group name or choose not to manage your Service Manager installation with Operations Manager.

Database Collations

You must use the same supported language collations if you intend to import data from Operations Manager into Service Manager. However, this is true only for the OperationsManager database in Operations Manager and the SM DWStagingAndConfig database when you create an Operations Manager Data Source for the data warehouse. Specifically, this appears in the Service Manager console as a Data Warehouse Data Source. This does not affect either the System Center Operations Manager to System Center Service Manager Configuration Item connector or the System Center Operations Manager to System Center Service Manager Alert Incident connector.

For more information about the SQL Server collation setting that might impact installation requirements in System Center 2012 Service Pack 1 (SP1) when you use Operations Manager and Service Manager, see [Clarification on SQL Server Collation Requirements for System Center 2012](#).

Note

If you have databases with collations that do not match, then you cannot use the Operations Manager to Service Manager data warehouse connector which imports alerts

from the OperationsManager database in Operations Manager to the Service Manager DWStagingAndConfig database.

Service Manager Compatibility With Other System Center Components

You can use any supported database collation of any System Center component with any supported collation of Service Manager.

Operations Manager Compatibility

This section describes the compatibility between Operations Manager 2007 R2, System Center 2012 – Operations Manager and System Center 2012 – Service Manager SP1.

System Center Operations Manager 2007 R2

System Center Operations Manager 2007 R2 is supported by Service Manager and Service Manager SP1 for connectors and agents. However, System Center Operations Manager 2007 R2 is not supported for data source registration. Only corresponding System Center versions are supported when you register a data source in the Data Warehouse workspace.

Because upgrading to System Center 2012 – Service Manager SP1 is not supported, you must remove Operations Manager 2007 R2 agents from the Service Manager and data warehouse management servers before you install. System Center 2012 – Service Manager SP1 includes a System Center 2012 – Operations Manager SP1 agent and it is automatically installed when you deploy Service Manager. After Service Manager Setup completes, you must manually configure the agent to communicate with the Operations Manager management server.

System Center 2012 – Operations Manager

System Center 2012 – Operations Manager is supported by Service Manager and Service Manager SP1 for connectors and agents. However, only corresponding System Center versions are supported when you register a data source in the Data Warehouse workspace.

System Center 2012 – Operations Manager agents were not supported with System Center 2012 – Service Manager. However, the agent that is automatically installed by System Center 2012 – Service Manager SP1 is compatible with System Center 2012 – Operations Manager and System Center 2012 – Operations Manager SP1. After Service Manager Setup completes, you must manually configure the agent to communicate with the Operations Manager management server.

To validate that the Operations Manager Agent was installed, open **Control Panel** and verify that the Operations Manager Agent is present. To manually configure the Operations Manager agent, see [Configuring Agents](#).

Operations Manager Agents with the Self-Service Portal and Service Manager console

When you install a stand-alone Service Manager console or when you install the Self-Service Portal on a server, special consideration should be given to their removal or upgrade. If an Operations Manager agent is installed a server that hosts either Service Manager component and

you then uninstall Service Manager or upgrade the component, then the Operations Manager agent is removed.

To deal with this situation, you should back up the Operations Manager agent files and then either remove or upgrade the Service Manager component and then restore the Operations Manager agent files.

Language Support for System Center 2012 - Service Manager

It is assumed in this guide that you are installing System Center 2012 – Service Manager on a computer where no previous version of Service Manager is installed. For information about upgrading Service Manager, see the [Upgrade Guide for Service Manager 2012 - System Center](#).

Including English, System Center 2012 – Service Manager supports a total of 21 languages. There are some search-related issues with six languages: Czech, Danish, Finnish, Greek, Polish, and Turkish. For more information about these issues, see the section "Search Issues" in this topic.

Setting your Windows locale on a computer that hosts a Service Manager console to one of the supported languages results in Service Manager being displayed in that language. In addition to the languages that Service Manager supports, you must also consider the ability to search and sort data in the Service Manager databases. The ability to search and sort data in a specific language is defined by the collation settings in Microsoft SQL Server. For more information about SQL Server collations, see the section "Microsoft SQL Server 2008 with SP1" in [Supported Configurations for System Center 2012 - Service Manager](#) in this guide.

The information in the following table represents the approved collations and the locale identifiers that were tested for Service Manager. In the list of collations in this table, "CI" indicates case-insensitive, and "AS" indicates accent-sensitive.

Windows locale	Collation
English	Latin1_General_100_CI_AS
English	SQL_Latin1_General_CP1_CI_AS
English	Latin1_General_CI_AS
Chinese_PRC	Chinese_Simplified_Pinyin_100_CI_AS
Chinese (Traditional, Taiwan)	Chinese_Traditional_Stroke_Count_100_CI_AS
Czech (Czech Republic)	Czech_100_CI_AS
Danish (Denmark)	Danish_Norwegian_CI_AS
Dutch (Netherlands)	Latin1_General_100_CI_AS
Finnish (Finland)	Finnish_Swedish_100_CI_AS
French	French_100_CI_AS

Windows locale	Collation
German_Standard	Latin1_General_100_CI_AS
Greek (Greece)	Greek_100_CI_AS
Hungarian	Hungarian_100_CI_AS
Italian_Standard	Latin1_General_100_CI_AS
Japanese	Japanese_XJIS_100_CI_AS
Korean	Korean_100_CI_AS
Norwegian (Bokmål, Norway)	Norwegian_100_CI_AS
Polish (Poland)	Polish_100_CI_AS
Portuguese (Brazil)	Latin1_General_100_CI_AS
Portuguese (Portugal)	Latin1_General_100_CI_AS
Russian	Cyrillic_General_100_CI_AS
Spanish_Modern_Sort	Modern_Spanish_100_CI_AS
Swedish (Sweden)	Finnish_Swedish_100_CI_AS
Turkish (Turkey)	Turkish_100_CI_AS

Search Issues

This section describes search issues, sort issues, and word-break issues with some of the languages that are supported in Service Manager.

Greek, Czech, and Finnish Languages

For these languages, full-text search is not supported in SQL Server 2008. Therefore, sorting and searching activities in these languages do not function correctly.

Danish, Polish, and Turkish Languages

Full-text search does not function in SQL Server 2008 or SQL Server 2008 R2 for these languages. You can load a licensed third-party word breaker that enables full-text search to function correctly. If you have Service Manager consoles using the Danish, Polish, or Turkish languages, regardless of the language collation that you have selected for your SQL Server installation, you have to install a third-party word breaker.

For more information, see the following links for the version of SQL Server that you are using:

- [SQL Server 2008](#)
- [SQL Server 2008 R2](#)

Turkish Language

None of the Turkish collations is supported in Service Manager. The Latin1_General_100_CI_AS collation was used for testing with the Turkish language. As a result, some search and sort operations in Service Manager will be affected for some Turkish characters.

Databases Created by System Center 2012 - Service Manager

Before starting the installation of System Center 2012 – Service Manager, you may want to meet with your SQL Server administration team and discuss the impact that Service Manager will have on your computers running SQL Server—specifically, the databases that will be created. The databases that are created by a deployment of Service Manager are listed in the following table.

Service Manager parts	Database name	Contents
Service Manager database	Service Manager	Configuration Items, Work Items, Incidents
Service Manager data warehouse	DWStagingAndConfig DWRepository DWDataMart DWASDataBase OMDWDDataMart CMDWDDataMart	<p>These first three databases make up the data warehouse. The extract process populates the DWStagingAndConfig database, which is transformed into a proper format in the DWRepository database, which, through the load process, becomes the content for the DWDataMart database.</p> <p>The DWASDatabase is used by SQL Server Analysis Services (SSAS) and stores Microsoft Online Analytical Processing (OLAP) cubes.</p> <p>The OMDWDDataMart and CMDWDDataMart databases are for collecting data from Operations Manager and Configuration Manager, respectively.</p>

Important

For this release, Service Manager does not support case-sensitive instance names. Setup will display a warning if you attempt to install Service Manager on a case-sensitive instance of Microsoft SQL Server.

Port Assignments for System Center 2012 - Service Manager

As part of your security infrastructure, you may want to keep track of port numbers that are used throughout your System Center 2012 – Service Manager environment. And while, in this release, these port numbers are not configurable, you can review the following table that lists port numbers that are used between the parts of Service Manager. You will want to ensure that these firewall ports are opened on computers that host Service Manager.

Port Assignments

Service Manager piece A	Port number and direction	Service Manager piece B
Service Manager console	5724 --->	Service Manager management server*
Service Manager console	5724 --->	Data warehouse management server
Service Manager management server	1433 --->	Remote Service Manager database
Service Manager management server	5724 --->	Data warehouse server
Service Manager management server	5724 --->	Operations Manager 2007 Alert and CI connectors
Service Manager management server	389 --->	Active Directory Connector
Service Manager management server	1433 --->	Configuration Manager Connector
Data warehouse management server	1433 --->	Remote data warehouse database server
Data warehouse management server	1433 --->	Remote Service Manager database server
Data warehouse management server	2383 --->	SQL Server Analysis Services**
SQL reporting service server	1433 --->	Remote data warehouse database server
Web browser	80 --->	SQL Server Reporting Services (SSRS)
Web browser	[setup***] --->	SharePoint Web Parts server
Web browser	[setup***] --->	Web content server

Service Manager piece A	Port number and direction	Service Manager piece B
Web content server	1433 --->	Service Manager database

* Includes initial Service Manager management server and subsequent Service Manager management servers

** Port 2383 is the default port for SQL Server Analysis Services (SSAS). However, the port number can be changed. For more information, see [Configure Windows Firewall for Analysis Services Access](#).

*** The port number that is used between the browser and the SharePoint Web Parts server and the web content server is configured during installation of the Self-Service Portal.

Preparing for System Center 2012 - Service Manager Deployment

Before you start the deployment of System Center 2012 – Service Manager, you create a group of users in Active Directory Domain Services (AD DS), and you create or identify a domain account that will be used during the Setup process. Make sure that the domain account is a member of the appropriate groups that are necessary for proper operation of Service Manager. For more information see [Account Considerations for Running Setup](#) in this guide. Keep the following in mind when you are installing Service Manager and Operations Manager on the same server:

- Operations Manager 2007 or System Center 2012 – Operations Manager can share the database server with Service Manager.
- For System Center 2012 Only: An Operations Manager 2007 R2 agent and the Service Manager management server can coexist on the same server if you install the agent first and then install either the Service Manager or data warehouse management server.
- For System Center 2012 SP1 only: You must remove an Operations Manager 2007 R2 agent before you run Service Manager Setup. A System Center 2012 – Operations Manager SP1 agent is automatically installed as part of Service Manager SP1. After Setup completes, you must manually configure the agent for use with the Operations Manager management server. The agent is compatible with System Center Operations Manager 2007 R2, System Center 2012 – Operations Manager, and System Center 2012 – Operations Manager SP1. To validate that the Operations Manager Agent was installed, open Control Panel and verify that the Operations Manager Agent is present. To manually configure the Operations Manager agent, see [Configuring Agents](#).
- You can install both the Operations Manager 2007 R2 console and the Service Manager console on the same computer. The order in which you install the consoles does not matter.
- Do not attempt to use the same SQL Server Reporting Services (SSRS) instance for both Operations Manager and Service Manager.

Preparing for Deployment Topics

- [Account Considerations for Running Setup](#)
Provides information about the accounts that are required to run Setup and that you must provide during the setup of Service Manager.
- [How to Prepare Computers for Service Manager Deployment](#)
Describes the steps to take to prepare a computer before running Setup for Service Manager.

Other Resources for This Component

- TechNet Library main page for [System Center 2012 – Service Manager](#)
- [Planning Guide for System Center 2012 – Service Manager](#)
- [Deployment Guide for System Center 2012 – Service Manager](#)
- [Administrator's Guide for System Center 2012 – Service Manager](#)
- [Operations Guide for System Center 2012 – Service Manager](#)

Account Considerations for Running Setup

Before running Setup for System Center 2012 – Service Manager, review the Account Used for Running Setup topic in this guide to make sure that the requirements that are needed to install Service Manager have been met. During Setup, you will be prompted to provide domain users or groups for various Service Manager functions. Review the Accounts Required During Setup topic to make sure that you are ready for the setup process.

Account Considerations for Running Setup Topics

- [Account Used for Running Setup](#)
Describes how to ensure needed account requirements are met.
- [Accounts Required During Setup](#)
Describes how to ensure accounts are ready for the Setup process.

Other Resources for This Component

- TechNet Library main page for [System Center 2012 – Service Manager](#)
- [Planning Guide for System Center 2012 – Service Manager](#)
- [Deployment Guide for System Center 2012 – Service Manager](#)
- [Administrator's Guide for System Center 2012 – Service Manager](#)
- [Operations Guide for System Center 2012 – Service Manager](#)

Account Used for Running Setup

This topic describes the permissions that you need when you are installing a Service Manager management server and Service Manager console databases and when you are registering the

Service Manager management group with the data warehouse management group in System Center 2012 – Service Manager.



Note

The account that you use to run Setup is automatically made an administrator in Service Manager.

Service Manager Management Server

You need the following permissions when you are installing a Service Manager management server:

- Local administrator on the computer that you run Setup on
- Local administrator on the computer that will host the Service Manager database if it is on a remote computer
- Logged-on user must be a domain account
- The Sysadmin SQL Server role on the SQL Server instance where the Service Manager database is being created

Service Manager Console

You need the following permissions when you are installing the Service Manager console:

- Local administrator on the computer that you run Setup on

Data Warehouse Management Server

You need the following permissions when you are installing the data warehouse management server:

- Local administrator on the computer that you run Setup on
- Local administrator on the computer that will host the data warehouse database if it is on a remote computer
- Logged-in user must be a domain account
- The Content Manager role in SQL Server Reporting Services (SSRS) at the site level (root)
- The Sysadmin SQL Server role on the SQL Server instance where the data warehouse database is being created

SQL Server Reporting Services

You need the following permissions when you are installing SSRS:

- Permissions to place a binary file into the \Program Files\Microsoft SQL Server\<Instance Name>\Reporting Services\ReportServer\Bin folder on the computer hosting the data warehouse management server

Registering Service Manager with the Data Warehouse

You need the following permissions when you are registering Service Manager with the data warehouse:

- The Sysadmin or security admin SQL Server role on the instance that is hosting the Service Manager database

- The Sysadmin or security admin SQL Server role on the instance that is hosting the data warehouse database
- Membership in the Service Manager Administrators user role on the Service Manager management server
- Membership in the Service Manager Administrators user role on the data warehouse management server

Accounts Required During Setup

You will have to provide credentials for the accounts in the following table during the installation of the System Center 2012 – Service Manager and data warehouse management servers.



Note

The user accounts and group accounts that are required for the installation of Service Manager must reside in the Users organizational unit (OU) in Active Directory Domain Services (AD DS).

Accounts That You Provide During the Installation of a Service Manager Management Server

Account	Permissions	How it is used in Service Manager
Management group administrators	<ul style="list-style-type: none"> • Must be a domain user or group. <p> Important The user account that is logged into the computer during installation of an initial Service Manager management server is automatically added to this group.</p>	<ul style="list-style-type: none"> • Added to the Service Manager Administrators user role.
Service Manager services account	<ul style="list-style-type: none"> • Must be a domain user or group. • Must be member of local administrators. 	<ul style="list-style-type: none"> • Becomes the Operational System Account. • Assigned to the logon account for the System Center Data Access Service. • Assigned to the logon account for System Center Management Configuration service.

Account	Permissions	How it is used in Service Manager
		<ul style="list-style-type: none"> • Becomes a member of the sdk_users and configsvc_users database roles for the Service Manager database. • If you change the credentials for these two services, make sure that the new account has a SQL Login in the ServiceManager database and that this account is a member of the Builtin\Administrators group.
Workflow account	<ul style="list-style-type: none"> • Must be a domain user or group. • Must have permissions to send email and must have a mailbox on the Simple Mail Transfer Protocol (SMTP) server (required for the E-mail Incident feature). • Must be member of the Users local security group. • Must be made a member of the Service Manager Administrators user role for email notifications for function properly. 	<ul style="list-style-type: none"> • This account is used for all workflows and is made a member of the Service Manager Workflows user role.

Security Best Practices for Accounts

When you are assigning Active Directory accounts for use with Service Manager Run As Accounts, it is a best practice to use service accounts. We strongly recommend against using Active Directory user accounts that are associated with individual people.

For more information about security best practices, download a copy of the Windows Server 2008 Security Guide, which is now part of the [Windows Server 2008 Security Compliance Management Toolkit](#) and [The Services and Service Accounts Security Planning Guide](#).

Accounts That You Provide During the Installation of the Data Warehouse Management Server

Account	Permissions	How it is used in Service Manager
Management group administrators	<ul style="list-style-type: none"> • Must be a domain user or group. 	<ul style="list-style-type: none"> • Added to the data warehouse administrators user role.
Service Manager services account	<ul style="list-style-type: none"> • Must be a domain user or group. • Must be member of local administrators on the data warehouse management server. • Must be the same account that you used for the Service Manager management server services account. 	<ul style="list-style-type: none"> • Becomes the data warehouse system Run As account. • Assigned to the ServiceManager SDK Service account. • Assigned to ServiceManager Config account. • Becomes a member of the sdk_users and configsvc_users database roles for the DWDataMart database. • Becomes a member of the db_datareader database role for the DWRepository database. • Becomes a member of the configsvc_users database role for the Service Manager database.
Reporting account	<ul style="list-style-type: none"> • Must be a domain account. 	<ul style="list-style-type: none"> • Used by SQL Server Reporting Services (SSRS) to access the DWDataMart database to get data for reporting. • Becomes a member of the db_datareader database role for the DWDataMart database. • Becomes a member of the reportuser database role for the DWDatamart database.
Analysis Services account	<ul style="list-style-type: none"> • Must be a domain account. 	<ul style="list-style-type: none"> • Used to communicate with datamarts. • Account is added as an

Account	Permissions	How it is used in Service Manager
		administrator role in the Analysis Services server database (DWASDataBase) for database processing and cube reading.

Registering the Service Manager Management Group with the Data Warehouse Management Group

As part of the installation process, you register the Service Manager management group with the data warehouse management group. During this process, you will be prompted to provide credentials. The account credentials that you provide must be a domain account. Furthermore, you will have to provide an account with the following permissions:

- Must be a member of the Administrator user role in both the Service Manager and data warehouse management groups.
- Must be a member of the users local administrator group on the data warehouse management server.

Accounts Required for Creating Connectors

When you are creating connectors, you are asked for credentials that the connector will use to perform its function. The following table outlines the permissions that this account will need, and it describes best practices for high security.

Operations Manager 2007 Alert Connector

Permissions	Best practices
<ul style="list-style-type: none"> • Must be a domain account. • Must be a member of the Users local security group on the Service Manager management server. • Must be an Operations Manager 2007 Administrator. 	Domain account specifically created for this purpose that is only in the Users local security group and in an Administrator user role in Operations Manager and in an Advanced Operator user role in Service Manager.

Operations Manager 2007 CI Connector

Permissions	Best practices
<ul style="list-style-type: none"> • Must be a domain account. • Must be a member of the Users local security group on the management server. • Must be an Operations Manager 2007 	Domain account specifically created for this purpose that is only in the Users local security group and in an Operator user role in Operations Manager and in an Advanced

Permissions	Best practices
Operator.	Operator user role in Service Manager.

Active Directory Connector

Permissions	Best practices
<ul style="list-style-type: none"> • Must be a domain account. • Must be a member of the Users local security group on the Service Manager management server. • Must have permissions to bind to the domain controller that the connector will read data from. • Needs generic read rights on the objects that are being synchronized into the Service Manager database from AD DS. 	Domain account specifically created for this purpose that is only in the Users local security group and in an Advanced Operator user role in Service Manager and has read-only permissions in AD DS.

Configuration Manager 2007 Connector

Permissions	Best practices
<ul style="list-style-type: none"> • Must be a domain account. • Must be a member of the Users local security group on the Service Manager management server. 	Domain account specifically created for this purpose that is only in the Users local security group, must be a member of the smsdbrole_extract and db_datareader on the System Center Configuration Manager database, and is in an Advanced Operator user role in Service Manager.

How to Prepare Computers for Service Manager Deployment

Use the following procedures to prepare computers for deployment of System Center 2012 – Service Manager.

► To prepare computers for Service Manager deployment

1. Make sure that no Operations Manager 2007 parts are installed on the computers that will host either Service Manager or the data warehouse.
2. Create an Active Directory group of users that will be assigned to the role of Service Manager administrators of both the data warehouse and Service Manager management groups. For example, create the group **SM_Admins**.

**Note**

This group of users must be in the same domain that Service Manager is in. Users from any other domain—even child domains—are not supported.

3. Create the accounts that are necessary for Service Manager. For information about the account that is used to run Setup and for the accounts you will have to provide during the setup of Service Manager, see [Account Considerations for Running Setup](#).

**Note**

Service Manager accounts must be in the same domain that Service Manager is in. Accounts from any other domain—even child domains—are not supported.

4. Make sure that the Structured Query Language (SQL) instances that are used for Service Manager databases are using port number 1433.
5. If you are installing the databases on a remote computer running Microsoft SQL Server, the user who is running Setup must be a domain user with local administrator permissions on the SQL Server computer.
6. On computers that will host the Service Manager console, under **Internet Options, Local Area Network (LAN) Settings**, select **Bypass proxy server for local addresses**.
7. Open a browser, and then enter the following two URLs:
 - `http://<computer hosting SSRS>/reports`
 - `http://<computer hosting SSRS>/reportserver`

If either connection attempt fails or returns an error—for example, **HTTP Error 404.0 Not Found**—complete the steps in the procedure “To configure the reporting server.” Otherwise, continue with the installation of Service Manager.

► To configure the reporting server

1. By using an account that has administrator rights, log on to the computer that will host SQL Server Reporting Services (SSRS).
2. Click **Start**, point to **Programs**, point to **Microsoft SQL Server 2008**, point to **Configuration Tools**, and then click **Reporting Services Configuration Manager**.
3. In the **Reporting Services Configuration Connection** dialog box, make sure that the information in **Server Name** and **Report Server Instance** is correct, and then click **Connect**.
4. In the **Connect** pane, click **Web Service URL**.
5. In the **Report Server Web Service Virtual Directory** area, in the **Virtual Directory** text box, make sure that the entry is **ReportServer**, and then click **Apply**.
6. In the **Connect** pane, click **Report Manager URL**.
7. In the **Report Manager Site Identification** area, in the **Virtual Directory** text box, make sure that the entry reads **Reports**, and then click **Apply**.
8. In the **Connect** pane, click the top entry (<server>\<instance>).
9. In the **Current Report Server** area, click **Stop**, and then click **Start**.

Planning for Performance and Scalability in System Center 2012 - Service Manager

This section describes general performance and scalability planning guidance for System Center 2012 – Service Manager. While Service Manager is built to meet a performance standard on minimum recommended hardware, the hardware requirements for your specific scenario may be higher or lower than the generalized guidelines presented here. This section also describes considerations for Service Manager software.

Service Manager is a three-tiered application, consisting of a database, a data access module, and a console:

- Every Service Manager deployment topology—from the largest to smallest—includes all three tiers, whether physically or virtually.
- The smallest deployment topology that is supported requires two servers, either physical servers or virtual servers. The largest deployment topology contains more than four servers.
- The servers host the Service Manager console and Service Manager database on the management server. The data warehouse management server hosts the Service Manager data warehouse.

Service Manager Sizing Helper Tool

The Service Manager Sizing Helper tool can help you size the hardware and software pieces that you will deploy using the details in this guide. The tool is included in the [Service Manager job aids](#) documentation set (SM_job_aids.zip).

Specifically, the sizing tool:

1. Helps to give you an idea of the type of hardware, such as individual computers, CPUs, free and used hard drive space, and RAID level, that is needed for different usage and deployment scenarios. Usage is indicated by the number of configuration items in the Service Manager database, work items per month, and days of data in the data warehouse.
2. Provides topology diagrams for each scenario. The diagrams map the hardware to scenarios such as single-physical-server, two-server, four-server, and more-than-four-server scenarios.
3. Helps you calculate free and used hard drive space that is necessary for a scenario, based on your input. The calculation is an estimate, not a fixed value that you must meet.

Planning for Performance and Scalability Topics

- [Hardware Performance](#)
Contains general guidelines to consider when you are planning for Service Manager hardware performance.
- [Service Manager Performance](#)
Contains general guidelines to consider when you are planning for Service Manager software performance.
- [Configurations for Deployment Scenarios](#)

Describes hardware and software configurations for Service Manager deployment scenarios.

Other Resources for This Component

- TechNet Library main page for [System Center 2012 – Service Manager](#)
- [Planning Guide for System Center 2012 – Service Manager](#)
- [Deployment Guide for System Center 2012 – Service Manager](#)
- [Administrator's Guide for System Center 2012 – Service Manager](#)
- [Operations Guide for System Center 2012 – Service Manager](#)

Hardware Performance

An important part of System Center 2012 – Service Manager performance depends on a hardware configuration and deployment topology that is planned to handle the needs of your organization. The following sections provide general guidelines to consider when you are planning for adequate hardware performance.

Hardware Performance

The following are the hardware bottlenecks that are most noticeable in Service Manager, with a significant load and amount of data in the Service Manager database:

1. The most common bottleneck is memory and I/O on the computer that is running Microsoft SQL Server. If you have the resources, investing in more memory and a faster I/O subsystem to improve SQL Server I/O will achieve better performance.
2. If you expect to have many consoles connecting to a management server, you can improve performance to handle peak load by investing in additional CPUs and memory for the management server or by installing a secondary Service Manager management server.

Be aware of the recommended minimum hardware for each role, as described in this document.

The Role of Virtual Machines

Many organizations use virtual machines to host Windows Server applications. Service Manager server roles, such as the management server and data warehouse server, are no exceptions. The use of virtual machines might range from all server roles being virtualized to some other combination of virtual and physical computers.

We do not recommend any specific virtual-to-physical-computer ratio because the needs of your organization are inherently unique. However, the minimum hardware requirements for each software role apply to physical computers. If you decide to virtualize a software role, you should plan to ensure that you have additional hardware resources for each virtual computer.

Database servers are vulnerable to poor performance on virtual machines if the following planning guidance is not followed:

- [Running SQL Server 2008 in a Hyper-V Environment](#) (SQL2008inHyperV2008.docx).
- You should never use dynamic disks on virtual machines that are intended to host SQL Server. Use fixed-size virtual hard drives or pass-through.

- Hyper-V allows only four virtual CPUs per guest, which might constrain the Service Manager server if you have many consoles.

Service Manager Baseline Test Results

Service Manager has been baseline-tested for performance and scalability using various deployment scenarios with the minimum recommended hardware in the form of physical computers. More specifically, the scenarios were tested with databases prepopulated and Service Manager consoles creating and updating Incidents and Change Requests in a loop.

The database was prepopulated with information for two tests:

- Test 1 consisted of 20,000 computers, 20,000 users, and all the necessary configuration items, which were approximately 250,000 configuration items totaling approximately 2.5 million rows in the database. Test 1 also included 40 active Service Manager consoles.
- Test 2 consisted of 50,000 computers, 50,000 users, and related configuration items, which was approximately 700,000 configuration items totaling 6 million rows in the database. Test 2 also included 80 active Service Manager consoles.

The tests delivered the following results:

- To meet the response-time goals for the 50,000-computer configuration, the SQL Server memory had to be increased from 8 gigabytes (GB) to 32 GB.
- During testing, 200 incidents and 50 change requests for the 20,000-computer configuration and 500 Incidents and 125 Change Requests for the 50,000-computer configuration were generated each hour, with three to four notification subscriptions and templates being processed for each incident and change request.
- Typically, in the baseline testing, workflows, such as notification subscription processing and template application, ran within one minute of each work item being generated.

If your organization plans to have fewer than 20,000 supported computers and consoles and fewer workflows, your Service Manager performance should be acceptable, even if some of the Service Manager roles are hosted on virtual computers.

However, if you plan to add additional supported computers in the Service Manager database, you should plan to increase the amount of RAM for the Service Manager database server beyond the minimum requirements listed in this document. For example, in the baseline test 8 GB of RAM was installed in the Service Manager database server that contained records for 20,000 computers. Afterward, you should add 8 GB of RAM for each increment of 10,000 of computers that you plan to support. For example, for 50,000 computers plan for 32 GB of RAM. During testing of the 50,000-computer configuration with 32 GB of RAM installed on the computer running SQL Server, performance was improved to a state where there was no longer any decreased effect compared to testing of the configuration before additional computers were added.

Network latency was also tested in the baseline. Network latency was introduced between the Service Manager console and the Service Manager management server.



Note

The Service Manager database server and Service Manager management servers should be on a low-latency LAN; network latency between the Service Manager database

server and the Service Manager management server may lead to significant degradation of Service Manager performance.

The tests also delivered the following results:

- Where network latency was less than 100 milliseconds (msec), overall Service Manager console response times were found good.
- Where network latency was 150 to 200 msec, performance was noted as usable, with up to a 40-percent degradation in response time in some scenarios. With latency between 150 to 200 msec, you should plan to evaluate the key scenarios for your organization and determine if Remote Desktop Connection (RDC) is a better option.



Note

Expanding service maps in the Service Manager console was slow with any amount of latency.

- When network latency exceeded 200 msec, overall Service Manager console response times were observed as poor. If your latency exceeds 200 msec, you should plan to use RDC or another similar remote access solution for operational tasks. However, because occasional administrative tasks are less common you might not need remote access for them.

Service Manager Performance

Performance for System Center 2012 – Service Manager server roles and features is affected by different factors. Generally, there are three areas where positive and negative performance is most noticeable in Service Manager:

- Service Manager console responsiveness. This is the length of time it takes from the moment you take some sort of action in the console until it completes.
- Data insertion time for connectors. This is how long it takes for Service Manager to import data when a connector synchronizes.
- Workflow completion time. This is the length of time it takes for workflows to automatically apply some kind of action.

Connector Performance

Connector initial synchronization can take a significant amount of time, for example, 8 to 12 hours for a large initial synchronization with System Center Configuration Manager. As a connector synchronizes initially, you can expect performance to suffer for all Service Manager server roles and processes during this time. This occurs because of the way that data is inserted sequentially into the Service Manager database, which is a Microsoft SQL Server database. Although you cannot hasten the connector's initial synchronization process, you can plan for the initial synchronization and ensure that the synchronization process completes well before Service Manager is put into production.

When the initial synchronization is complete, Service Manager continues synchronizing the differences, which does not have a measurable impact on performance.

Workflow Performance

Workflows are automatic processes that occur. They include sending email notifications, the next step of a change request activating, and automatically applying a template.

Workflow performance considerations include the following:

- Normally, workflows start and finish within one minute. When Service Manager server roles are under a heavy workload, workflows do not complete as quickly as normal.
- In addition, when you create new workflows, such as a new notification subscription, additional load is placed on the system. As the number of new workflows that you create increases, the time it takes for each workflow to run also increases.

When the system is under a heavy load—if, for example, a large number of new incidents are being created and each incident generates many workflows—performance might be negatively affected.

Workflow performance in System Center 2012 – Service Manager has improved from System Center Service Manager 2010 because the new ManagementHostKeepAlive management pack has increased workflow processing responsiveness so that almost all workflows process within one minute.

Group, Queue, and User Role Impact on Performance

You should plan for groups and user roles early. You should create groups sparingly and create them for the smallest scope possible. Then, you should initially populate your database with data from Active Directory Domain Services (AD DS), System Center Configuration Manager, and System Center Operations Manager before you create your groups.

Often, administrators create groups to make sure that users have access to specified groups only. For example, in one scenario you might want to create a subset of incidents, such as incidents that affect computers that are used by human resource personnel. In this scenario, you might want only specific personnel to be able to view or modify the group of Sensitive Servers. Then, to enable this type of access, you would need to create a group for all users and a group for sensitive computers and then ensure that a security role has access to both the All Users and the Sensitive Servers groups. Inevitably, creating a group containing all users results in performance impact because Service Manager frequently checks to determine if there are changes to the group. This check occurs once every 30 seconds, by default. For a very large group, checking for the changes creates a heavy load on the system, and it may slow down response time considerably.

Solution 1: You can manually specify how often Service Manager checks for group changes by modifying a registry key. For example, if you change the group check frequency from 30 seconds to 10 minutes, you significantly increase performance.

Caution

Incorrectly editing the registry may severely damage your system. Before making changes to the registry, you should back up any valued data on the computer.

▶ To manually specify the group change check interval

1. Run Regedit, and navigate to HKEY_LOCAL_MACHINE\SOFTWARE\Microsoft\System Center\2012\Common\.
2. Create a new DWORD value named **GroupCalcPollingIntervalMilliseconds**.
3. For its value, specify the interval in milliseconds. The result is multiplied by 6. For example, to set the interval to 10 minutes, type **1000000**.
4. Restart the System Center Management service.

Solution 2: You can use a Windows PowerShell script to add objects of a type, such as “Users”, to a user role. Essentially, an analyst who is logged on in this role can access all objects that have a type equal to “User”. If you use this method, you eliminate the need for a very large group (“All Users”) and the expensive check that Service Manager performs to determine this group membership. On the Service Manager management server, you can run the following Windows PowerShell script to add the “user” type to a role “RoleName”. You will have to modify this example script for your environment.

▶ To run a Windows PowerShell script to add objects to a user role

- Modify the following script as necessary, and then run it:

```
#
# Insert a "type" scope in a role
# Syntax:
#   AddTypeToRoleScope -server "put_server_name_here" -RoleName "put display name of the
role here" -TypeToAdd "put display name of the type to add to scope here"
#
# Note: This is a simple demonstration script without error checking.
#

# set script parameter defaults
param ([String]$Server = "localhost", [String]$RoleName="My Analyst Role",
[String]$TypeToAdd="User")

$a = [reflection.assembly]::LoadWithPartialName("Microsoft.EnterpriseManagement.Core")

$m = new-object Microsoft.EnterpriseManagement.EnterpriseManagementGroup $Server

# Get Type object
```

```

# Note: If you need to get a list of all available classes related to (for example)
"User", use this command:

#           $m.EntityTypes.GetClasses() | ?{ $_.Name -like '*user*' } | %{ $_.Name}
#
$type = $m.EntityTypes.GetClasses() | ?{ $_.DisplayName -eq $TypeToAdd}

# Get role object, and insert the type GUID into scope
$role = $m.Security.GetUserRoles() | ?{ $_.DisplayName -eq $RoleName}
$role.Scope.Objects.Add($type.Id)
$role.Update()

#
# Get the value from the database again and validate it is there
if ( $role.scope.objects.Contains($type.Id) ) {
    write-host "*** Successfully set the scope for role `` $role.DisplayName`` and it now
contains all instances of $type.DisplayName `( $type.Name `)
} else {
    write-host "There was an error trying to insert the scope into the role."
}

```

View Performance

When you create views, plan on using “typical” classes in the system whenever possible. Most object classes—for example, Incident Management—have two types: “typical” and “advanced”. The typical object type contains simple references to a small subset of data that is related to an item. The advanced type contains many complex references to data that are related to an item. Typical types are simple projections; advanced types are complex projections. Most advanced object types are used to populate different fields in forms that you would not normally want to see displayed in a view. Whenever you create a view based on an advanced object type and when you open the view, Service Manager queries the database and a large amount of data is read. However, very little of the retrieved data is actually displayed or used.

If you encounter performance problems with the views that you have defined when you use advanced object types in views, switch to using typical types. Or alternatively, you can create your own projection types that contain only the data you need to base a view upon. For more information, see the [Creating Views That Use Related Property Criteria \(Type Projections\) : Software Views Example blog post](#) blog entry on the SCSM Engineering Team Blog.

Service Manager Database Performance

Performance of the Service Manager database is directly affected by various factors, including the number of concurrent Service Manager consoles that are reading or writing data, the group change check interval, and data that is inserted by connectors. More information is available in this document. Here are a few key points:

- You should have a minimum of 8 gigabytes (GB) of RAM for the management server that hosts the Service Manager database in so that you can have an acceptable response time in typical scenarios.
- You should have at least 8 CPU cores on the computer hosting the Service Manager database.
- You can achieve better database performance by segregating log files and data files to separate physical disks, if possible. You can achieve further benefits by moving your tempdb to a different physical RAID drive than that of the Service Manager database. Use a RAID 1+0 disk system to host your Service Manager database, if possible.
- Performance can be negatively affected if the Service Manager database is created with a smaller size and it is set to autogrow, especially by small increments.

See the Service Manager Sizing Helper tool that is included in the [Service Manager job aids](#) documentation set (SM_job_aids.zip) for help in assessing the size of the database, and create the database with a size that is closer to the final size. This will help performance by reducing the amount of times the database has to autogrow.

Similarly, all the other best practices for a high-performing database are applicable, as well. For example, if you can take advantage of a superior disk subsystem, you can benefit from splitting up the groups of tables on respective filegroups and moving them to a different physical drives.

Service Manager Management Server Performance

Performance of the Service Manager management server is primarily affected by the number of active concurrent Service Manager consoles. Because all Service Manager roles interact with the management server, consider adding additional management servers if you plan to have a large number of concurrent consoles. You should have 8 GB of RAM for the management server. You should have at least 4 CPU cores per management server, assuming that you have 10 to 12 active consoles per CPU core.

Service Manager Console Performance

Performance of the Service Manager console is primarily affected by the number of forms that your analysts typically have open and the amount of data that is retrieved by views. You should have 4 GB of RAM on the computer where the Service Manager console is installed. If you have views that retrieve a large amount of data, you will need additional RAM. You should have at least a 4-core CPU for the computer where the Service Manager console is installed. Because the Service Manager console is an end user application, we recommend that you restart it if you see excessive resource consumption. The Service Manager console aggressively caches information in memory, which can contribute to overall memory usage.

Service Manager Data Warehouse Database Performance

Performance of the data warehouse is directly affected by various factors, including the number of concurrent Service Manager management servers sending data, volume of data stored or the data retention period, rate of data change, and the extraction, transformation, and load (ETL) frequency. The amount of data that is stored in the data warehouse increases over time. Ensuring that you archive unnecessary data is important. Another factor that affects data warehouse performance is the BatchSize setting of ETL processes.

You can achieve better performance by segregating log files and data files to separate physical disks. However, you should avoid placing more than one log file per disk. Similarly, you can achieve better throughput by putting the tempdb on a different physical disk than the other databases. Lastly, you can benefit by placing the different databases on their respective physical disks, as well. Use a RAID 1+0 disk system to host your data warehouse, if possible. You should generally have a minimum of 8 GB of RAM for the computer where the data warehouse databases are installed. If you have additional data warehouse data sources from Operations Manager or Configuration Manager you should increase the amount of RAM for the databases. You will benefit from more memory on the computer running SQL Server that hosts the data warehouse, and even more so if the Datamart and Repository databases are on the same server. However, if you have 4,000 or fewer computers in your deployment topology, 4 GB is sufficient. You should have at least 8 CPU cores in the computer where the data warehouse database is installed. Additional cores will help both ETL and report performance.

Performance can be negatively affected if all the databases in the system are created with a smaller size and set to autogrow, especially by small increments. See the Service Manager Sizing Helper tool that is included in the [Service Manager job aids](#) documentation set (SM_job_aids.zip) to assess the size of the database and create the database with a size that is closer to the final size, which will help performance by reducing the amount of times that the database has to autogrow.

Service Manager includes built-in support for filegroups. You can benefit from this by placing the filegroups on separate hard drives. For more information about filegroup best practices, see the SQL Server documentation.

Service Manager Data Warehouse Server Performance

Performance of the data warehouse server is affected by the number of Service Manager management servers that are registered to the data warehouse, the size of your deployment, and the number of data sources. You should generally have a minimum of 8 GB of RAM for the data warehouse server. However, performance will benefit by having additional memory for advanced deployment scenarios where more than one Service Manager management server inserts data into the data warehouse. If you must trade off performance, your highest priority should be for memory for the computer running SQL Server. You should have at least 8 CPU cores to prevent performance problems.

Self-Service Portal Performance

The Self-Service Portal is designed for easy access to incident and service request filing. It is not designed to handle thousands of users simultaneously.

Performance testing for the Self-Service Portal was focused on typical “Monday morning” scenarios—specifically, to ensure that on Monday morning hundreds of users can log in within a span of 5 to 10 minutes and open incidents with acceptable (less than 4-to-5 second) response times. This goal was achieved with the minimum hardware recommended in this document.

Service-Level Objective Performance

There is no specific number of service-level objectives that Service Manager supports. For example, if an organization typically has few incidents, it can support more service-level objectives than it might otherwise be capable of. However, a larger incident volume might necessitate either fewer service-level objectives or a scale-out of additional hardware and software, as appropriate. We recommend that you create no more than five service-level objectives for a typical 50,000-computer Service Manager configuration. You could possibly create more service-level objectives. However, because conditions vary greatly from organization to organization, Microsoft cannot provide a concrete recommendation for the number of service-level objectives that you should not exceed. If your deployment configuration suffers from poor performance as a result of the number of service-level objectives, we recommend that you scale out using the next-larger deployment scenario, as described in the [Configurations for Deployment Scenarios](#) section of this guide.

Configurations for Deployment Scenarios

For performance and scalability planning purposes, we recommend that you plan your deployment topology for System Center 2012 – Service Manager using scenarios that we have tested. While these are not firm guidelines, Microsoft has tested deployment topologies using these scenarios and found that each configuration achieves satisfactory performance.

Test and Small Deployment Scenarios

The test and small deployment scenarios contain only two servers and support 100 to 2,000 computers. In these configurations, a single physical computer hosts a virtual server.

Test Scenario

In this scenario, we recommend the following Service Manager roles and hardware as described.

Service Manager roles:

- One computer with a Service Manager management server, a Service Manager database, SharePoint server/site and web content server (WCS), and Service Manager console.
- One data warehouse server. The Self-Service Portal should be placed on a computer other than the one hosting the data warehouse.

Hardware configuration:

- 8-core 2.66 GHz CPU

- 16 GB RAM (5 GB for each virtual computer and 1 GB for the host computer)
- 100 GB of available disk space

This configuration was tested with the following load.

Description	Value
Number of Supported End Users	Up to 500
Number of Computers in the Service Manager database	500
Number of New Incidents per Month for each computer	2
Number of New Change Requests per Month	20
Number of Concurrent Consoles	2
Is the Self-Service Portal Installed?	Yes
Is the Active Directory Connector Enabled?	Yes
Is the Configuration Manager Connector Enabled?	Yes
Is the Operations Manager Connector Enabled?	Yes

Small Scenario

In this scenario, we recommend the following hardware, configured for roles and hardware as described.

Service Manager roles:

- One computer with a management server, Service Manager database, and Service Manager console.
- One data warehouse server. The Self-Service Portal should be placed on a physical host or on a virtual computer other than the computer hosting the data warehouse.

Hardware configuration:

- 8-core 2.66 GHz CPU
- 16 GB RAM (5 GB for each virtual computer and 1 GB for the host computer)
- 100 GB of available disk space, which does not include the .vhd file disk space requirements on the host computer

This configuration was tested with the following load.

Description	Value
Number of Supported End Users	501 to 2,000
Number of Computers in the Service Manager database	2,000
Number of New Incidents per Month for each computer	2
Number of New Change Requests per Month	100
Number of Concurrent Consoles	10
Is the Self-Service Portal Installed?	Yes
Is the Active Directory Connector Enabled?	Yes
Is the Configuration Manager Connector Enabled?	Yes
Is the Operations Manager Connector Enabled?	Yes

Medium Scenario

The medium deployment scenario contains two servers and supports 2,001 to 5,000 computers. In this configuration, two physical computers host the Service Manager management server and Service Manager data warehouse management server.

We recommend the following hardware, configured for roles and hardware as described.

Hardware configuration for the Service Manager management server:

- 4-core 2.66 GHz CPU
- 8 GB RAM
- 2 disk RAID 1

Hardware configuration for the Service Manager data warehouse management server:

- 4-core 2.66 GHz CPU
- 8 GB RAM
- 2 disk RAID 1

Hardware configuration for the Self-Service Portal with web content server with SharePoint Web Parts:

- 8-core, 64-bit CPU
- 16 - 32 GB RAM, depending on the size of the expected database
- 80 GB of available hard disk space

This configuration was tested with the following load.

Description	Value
Number of Supported End Users	2,001 to 5,000
Number of Computers in the Service Manager database	3,000
Number of New Incidents per Month for each computer	2
Number of New Change Requests per Month	150
Number of Concurrent Consoles	15 to 30
Is the Self-Service Portal Installed?	Yes
Is the Active Directory Connector Enabled?	Yes
Is the Configuration Manager Connector Enabled?	Yes
Is the Operations Manager Connector Enabled?	Yes

Large Deployment Scenario

The large deployment scenario contains four servers and supports 5,001 to 20,000 computers. In this large configuration, four physical computers host server roles.

In this scenario, we recommend the following hardware, configured for roles and hardware as described.

Hardware configuration for the Service Manager management server:

- 4-core 2.66 GHz CPU
- 8 GB RAM
- 2 disk RAID 1
- 10 GB of available hard disk space

Hardware configuration for the Service Manager data warehouse management server:

- 4-core 2.66 GHz CPU
- 8 GB RAM
- 2 disk RAID 1
- 10 GB of available hard disk space

Hardware configuration for the Service Manager database server:

- 8-core 2.66 GHz CPU
- 8 - 32 GB RAM, depending on the size of the expected database
- 4 RAID 1+0 disk drives for data
- 2 RAID 1 disk drives for logs

Hardware configuration for the Service Manager data warehouse database server:

- 8-core 2.66 GHz CPU
- 8 GB RAM
- 4 RAID 1+0 disk drives for data
- 2 RAID 1 disk drives for logs
- 80 GB of available hard disk space

Hardware configuration for the Self-Service Portal with web content server:

- 4-core 2.66 GHz CPU
- 8 - 16 GB RAM, depending on the size of the expected database
- 1 GB of available hard disk space

Hardware configuration for the Self-Service Portal with SharePoint web parts:

- 4-Core 2.66 GHz CPU
- 8 GB RAM
- 80 GB of available hard disk space

This configuration was tested with the following load.

Description	Value
Number of Supported End Users	5,001 to 20,000
Number of Computers in the Service Manager database	20,000
Number of New Incidents per Month for each computer	2
Number of New Change Requests per Month	2,000
Number of Concurrent Consoles	40 to 60
Is the Self-Service Portal Installed?	Yes
Is the Active Directory Connector Enabled?	Yes
Is the Configuration Manager Connector Enabled?	Yes
Is the Operations Manager Connector Enabled?	Yes

Advanced Deployment Scenario

The advanced deployment scenario contains more than four servers and supports more than 20,000 computers. Each additional management server can host up to 60 Service Manager consoles.

In this scenario, we recommend the following hardware, configured for roles and hardware as described.

Hardware configuration for the Service Manager management server:

- 4-core 2.66 GHz CPU
- 8 GB RAM
- 2 disk RAID 1
- 10 GB of available hard disk space

Hardware configuration for each additional Service Manager management server:

- 4-core 2.66 GHz CPU
- 8 GB RAM
- 2 RAID 1 disk drives

Hardware configuration for the Service Manager data warehouse management server:

- 4-core 2.66 GHz CPU
- 8 GB RAM
- 2 RAID 1 disk drives
- 10 GB of available hard disk space

Hardware configuration for the Service Manager database server:

- 8-core 2.66 GHz CPU
- 8 GB RAM to 32 GB RAM, depending on the expected size of the database
- 4 RAID 1+0 disk drives for data
- 2 RAID 1 disk drives for logs

Hardware configuration for the Service Manager data warehouse database server:

- 8-core 2.66 GHz CPU
- 8 - 16 GB RAM, depending on the size of the expected database
- 4 RAID 1+0 disk drives for data
- 2 RAID 1 disk drives for logs

Hardware configuration for the Self-Service Portal with web content server:

- 4-core 2.66 GHz CPU
- 8 - 16 GB RAM, depending on the size of the expected database
- 1 GB of available hard disk space

Hardware configuration for the Self-Service Portal with SharePoint web parts:

- 4-core 2.66 GHz CPU
- 8 GB RAM
- 80 GB of available hard disk space

Hardware configuration for each Service Manager console:

- 2-core 2.0 GHz CPU
- 4 GB RAM
- 10 GB of available hard disk space

This configuration was tested with the following load.

Description	Value
Number of Supported End Users	More than 20,000
Number of Computers in the Service Manager database	20,000 to 50,000 or more
Number of New Incidents per Month for each computer	2
Number of New Change Requests per Month	2,000 or more
Number of Concurrent Consoles	60 to 100
Is the Self-Service Portal Installed?	Yes
Is the Active Directory Connector Enabled?	Yes
Is the Configuration Manager Connector Enabled?	Yes
Is the Operations Manager Connector Enabled?	Yes