

Symantec NetBackup OpsCenter Performance and Tuning Guide

Windows and UNIX

Release 7.6.1



Symantec NetBackup OpsCenter Performance and Tuning Guide

Documentation version: 7.6.1

PN:

Legal Notice

Copyright © 2014 Symantec Corporation. All rights reserved.

Symantec, the Symantec Logo, the Checkmark Logo and are trademarks or registered trademarks of Symantec Corporation or its affiliates in the U.S. and other countries. Other names may be trademarks of their respective owners.

This Symantec product may contain third party software for which Symantec is required to provide attribution to the third party ("Third Party Programs"). Some of the Third Party Programs are available under open source or free software licenses. The License Agreement accompanying the Software does not alter any rights or obligations you may have under those open source or free software licenses. Please see the Third Party Legal Notice Appendix to this Documentation or TPIP ReadMe File accompanying this Symantec product for more information on the Third Party Programs.

The product described in this document is distributed under licenses restricting its use, copying, distribution, and decompilation/reverse engineering. No part of this document may be reproduced in any form by any means without prior written authorization of Symantec Corporation and its licensors, if any.

THE DOCUMENTATION IS PROVIDED "AS IS" AND ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS AND WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE OR NON-INFRINGEMENT, ARE DISCLAIMED, EXCEPT TO THE EXTENT THAT SUCH DISCLAIMERS ARE HELD TO BE LEGALLY INVALID. SYMANTEC CORPORATION SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES IN CONNECTION WITH THE FURNISHING, PERFORMANCE, OR USE OF THIS DOCUMENTATION. THE INFORMATION CONTAINED IN THIS DOCUMENTATION IS SUBJECT TO CHANGE WITHOUT NOTICE.

The Licensed Software and Documentation are deemed to be commercial computer software as defined in FAR 12.212 and subject to restricted rights as defined in FAR Section 52.227-19 "Commercial Computer Software - Restricted Rights" and DFARS 227.7202, "Rights in Commercial Computer Software or Commercial Computer Software Documentation", as applicable, and any successor regulations. Any use, modification, reproduction release, performance, display or disclosure of the Licensed Software and Documentation by the U.S. Government shall be solely in accordance with the terms of this Agreement.

Symantec Corporation
350 Ellis Street
Mountain View, CA 94043

<http://www.symantec.com>

Printed in the United States of America.

10 9 8 7 6 5 4 3 2 1

Technical Support

Symantec Technical Support maintains support centers globally. Technical Support's primary role is to respond to specific queries about product features and functionality. The Technical Support group also creates content for our online Knowledge Base. The Technical Support group works collaboratively with the other functional areas within Symantec to answer your questions in a timely fashion. For example, the Technical Support group works with Product Engineering and Symantec Security Response to provide alerting services and virus definition updates.

Symantec's support offerings include the following:

- A range of support options that give you the flexibility to select the right amount of service for any size organization
- Telephone and/or Web-based support that provides rapid response and up-to-the-minute information
- Upgrade assurance that delivers software upgrades
- Global support purchased on a regional business hours or 24 hours a day, 7 days a week basis
- Premium service offerings that include Account Management Services

For information about Symantec's support offerings, you can visit our website at the following URL:

www.symantec.com/business/support/

All support services will be delivered in accordance with your support agreement and the then-current enterprise technical support policy.

Contacting Technical Support

Customers with a current support agreement may access Technical Support information at the following URL:

www.symantec.com/business/support/

Before contacting Technical Support, make sure you have satisfied the system requirements that are listed in your product documentation. Also, you should be at the computer on which the problem occurred, in case it is necessary to replicate the problem.

When you contact Technical Support, please have the following information available:

- Product release level
- Hardware information

- Available memory, disk space, and NIC information
- Operating system
- Version and patch level
- Network topology
- Router, gateway, and IP address information
- Problem description:
 - Error messages and log files
 - Troubleshooting that was performed before contacting Symantec
 - Recent software configuration changes and network changes

Licensing and registration

If your Symantec product requires registration or a license key, access our technical support Web page at the following URL:

www.symantec.com/business/support/

Customer service

Customer service information is available at the following URL:

www.symantec.com/business/support/

Customer Service is available to assist with non-technical questions, such as the following types of issues:

- Questions regarding product licensing or serialization
- Product registration updates, such as address or name changes
- General product information (features, language availability, local dealers)
- Latest information about product updates and upgrades
- Information about upgrade assurance and support contracts
- Information about the Symantec Buying Programs
- Advice about Symantec's technical support options
- Nontechnical presales questions
- Issues that are related to CD-ROMs, DVDs, or manuals

Support agreement resources

If you want to contact Symantec regarding an existing support agreement, please contact the support agreement administration team for your region as follows:

Asia-Pacific and Japan customercare_apac@symantec.com

Europe, Middle-East, and Africa semea@symantec.com

North America and Latin America supportsolutions@symantec.com

Contents

Technical Support	4	
Chapter 1	Overview	9
	Purpose of this guide	9
	Disclaimer	9
Chapter 2	About OpsCenter configuration	10
	OpsCenter Server configuration	10
	About OpsCenter Server on a virtual machine	11
	Physical versus virtual configuration for OpsCenter Server	11
	Guidelines on the OpsCenter VM parameters	12
	About VM settings and % gains during OpsCenter report generation	13
	OpsCenter database configuration	14
	OpsCenter services	14
Chapter 3	About OpsCenter performance and tuning	15
	Sizing considerations	15
	Sizing guidelines	16
	About tuning OpsCenter for increased performance	16
	About performance tuning guidelines	17
	About adding NetBackup Master Servers to OpsCenter	18
	About using a web browser to access OpsCenter	18
	About saving the OpsCenter log files on a different drive	18
	About adjusting the heap size or cache size for OpsCenter services	22
	About OpsCenter database defragmentation	33
	About purging data periodically	36
	About OpsCenter performance and floating-point calculations in Solaris	36
	Moving OpsCenter server to a different computer	37
	About saving the files before moving the OpsCenter Server	37
	Moving OpsCenter 7.5 server to a different OpsCenter 7.6.1 computer	38

	Moving OpsCenter 7.6.1 Server to a different computer	41
Chapter 4	OpsCenter best practices	45
	Network configuration best practices	45
	Installation and upgrade best practices	45
	Things to avoid during installation and upgrade	47
	OpsCenter database best practices	47
	Things to avoid while you use OpsCenter database	48
	Backup products best practices	48
	Things to avoid while you collect data from backup products	49
	OpsCenter Server best practices	49
	OpsCenter reporting best practices	50
	Index	52

Overview

This chapter includes the following topics:

- [Purpose of this guide](#)
- [Disclaimer](#)

Purpose of this guide

This document is for administrators who want to analyze, evaluate, and tune OpsCenter performance. This document is intended to provide guidance on questions such as the following:

- How can the OpsCenter server be tuned for maximum performance?
- What system configurations you should use for OpsCenter depending on your backup environment?
- What are the best practices that you can follow for an increased OpsCenter performance?

Most critical factors in performance are based in hardware rather than software. Compared to software, hardware, and its configuration have roughly four times greater effect on performance. Although this guide provides some hardware configuration assistance, it is assumed for the most part that your devices are correctly configured.

Disclaimer

The information that is published in the OpsCenter tuning sections is based on the tests that were performed in Symantec Lab in a controlled environment with expert users. These can only be used as guidelines and should not be used as 100% accurate benchmarks.

About OpsCenter configuration

This chapter includes the following topics:

- [OpsCenter Server configuration](#)
- [About OpsCenter Server on a virtual machine](#)
- [OpsCenter database configuration](#)
- [OpsCenter services](#)

OpsCenter Server configuration

You can install OpsCenter Server on a physical computer or a virtual machine (VM).

Note: The information that is published in the guide is based on the tests that were performed in Symantec Lab in a controlled environment with expert users. These can only be used as guidelines and should not be used as 100% accurate benchmarks.

To learn more about OpsCenter Server configuration on a physical computer, refer to the 'About the OpsCenter Server' section from the *OpsCenter Administrator's Guide*.

<http://www.symantec.com/docs/DOC5808>

Note: Symantec recommends that you configure OpsCenter Server on a physical computer especially in large backup environments. For example, you have multiple NetBackup Master Servers that run more than 10000 jobs per day.

See [“About OpsCenter Server on a virtual machine”](#) on page 11.

About OpsCenter Server on a virtual machine

This section talks about the OpsCenter Server configuration on a virtual machine.

For better performance, ensure the following before setting up an OpsCenter Server on a virtual machine.

- Dedicate CPUs and RAM to the OpsCenter VM based on the recommendations in this document.
See [“Sizing guidelines”](#) on page 16.
- Ensure that ESX on which OpsCenter VM is running is not overloaded in terms of CPU, memory, and disk space usage.
- Select optimum CPU Power Management Policy based on your requirement.
- VMware snapshots increase the I/O heavily. Try to avoid snapshots.
- Align file system (VMFS) partitions to 1MB.
- Refrain from installing other Java applications on OpsCenter VM.
- Install the OpsCenter database on a drive that is different from OpsCenter Server host. This drive should be on datastore, which is on dedicated LUN.
- Make sure that OpsCenter database does not reside on a datastore where Guest OS swap and VM swap reside.
- To reduce I/O, save the OpsCenter debug log files on a drive other than the one where the database is installed.

The following sections provide more information about OpsCenter Server configuration in a virtual environment.

See [“Physical versus virtual configuration for OpsCenter Server”](#) on page 11.

See [“Guidelines on the OpsCenter VM parameters”](#) on page 12.

See [“About VM settings and % gains during OpsCenter report generation”](#) on page 13.

Physical versus virtual configuration for OpsCenter Server

This section provides comparison between physical and virtual server configuration.

[Table 2-1](#) lists the configuration parameters in case of physical and virtual OpsCenter Server.

Table 2-1 OpsCenter Server configuration - Physical computer versus virtual machine

Configuration parameter	OpsCenter Server on a physical computer	OpsCenter Server on a virtual machine
OpsCenter feature support matrix	All features are supported	All features are supported
OS / VM Support matrix	Windows, Linux x64	Hyper-V or VMware
Memory	Increase the RAM for better performance	Oversize the virtual machine for better performance
Resources	Increase the number of CPUs for better performance	Dedicated or reserved resources for OpsCenter VM Note: Pre-allocate disks, if possible. Note: Shared resources on heavily loaded ESXi Server may affect OpsCenter performance.

Guidelines on the OpsCenter VM parameters

This section talks about the guidelines that you can use while setting up an OpsCenter Server on a virtual machine (VM).

Note: The information that is published in this section is based on the tests that were performed in Symantec Lab in a controlled environment with expert users. These can only be used as guidelines and should not be used as 100% accurate benchmarks.

[Table 2-2](#) lists the recommended values for the various VM parameters that you can use while setting up an OpsCenter Server on a virtual machine.

Table 2-2 Guidelines on OpsCenter VM parameters

Parameter	Value
ESXi version	5.1
Number of VMs on ESXi	5 (including OpsCenter VM)
RAM (installed physical memory)	24 GB
ESXi CPU	8 Logical (4 x 2 Cores)

Table 2-2 Guidelines on OpsCenter VM parameters (*continued*)

Parameter	Value
OpsCenter version	7.6
Operating system	Windows Server 2008 R2 Enterprise
OpsCenter database	Around 30 GB on SAN datastore
OpsCenter database cache size	Minimum – 2 GB Maximum – 10 GB
OpsCenter VM RAM	24 GB
OpsCenter VM CPU	8 CPUs

About VM settings and % gains during OpsCenter report generation

This section provides information on the benefits or gain that you can get in case of certain VM settings.

Note: The information that is published in this section is based on the tests that were performed in Symantec Lab in a controlled environment with expert users. These can only be used as guidelines and should not be used as 100% accurate benchmarks.

Table 2-3 lists the average time that you require to generate OpsCenter reports in case of a non-reserved VM and a reserved VM. It also lists the % gain that reserving a VM can provide.

Table 2-3 CPU and Memory: Reserved versus non-reserved

Report Name	Average Time (Min) non-reserved	Average Time (Min) reserved	% Gain
All Failed Backup Report	3.18	2.41	24.21
Virtual Client Summary Report	0.02	0.01	50
Job Success By Client - Tabular Report	2.48	1.37	44.76
Advance Success Rate Report	1.30	0.90	30.77
Clients Not Backed Up Report	0.06	0.05	16.67
Skipped Files Summary Report	0.12	0.11	8.33

Table 2-4 lists the % gain depending on ESXi CPU utilization for various OpsCenter reporting tasks. It lists the average time that you require to generate OpsCenter reports when the ESXi CPU utilization is maximum (90-100%) and when it is minimum (20%). It also lists the % gain that you can get while generating the reports when the ESXi CPU utilization is minimum (20%).

Table 2-4 Operations: CPU-centric versus non-CPU-centric

Report Name	Average Time (Min) ESXi CPU utilization 90-100%	Average Time (Min) ESXi CPU utilization 20%	% Gain
All Failed Backup Report	2.41	2.02	16.19
Virtual Client Summary Report	0.01	0.01	0
Job Success By Client - Tabular Report	1.37	1.22	10.95
Advance Success Rate Report	0.90	0.87	3.33
Clients Not Backed Up Report	0.05	0.04	20
Skipped Files Summary Report	0.11	0.10	9.10

OpsCenter database configuration

To learn more about OpsCenter database, refer to the 'About the OpsCenter database' section from the *OpsCenter Administrator's Guide*.

<http://www.symantec.com/docs/DOC5808>

See "Adjusting the OpsCenter database service cache size" on page 27.

OpsCenter services

To learn more about OpsCenter services, refer to the 'About OpsCenter services and processes' section from the *OpsCenter Administrator's Guide*.

<http://www.symantec.com/docs/DOC5808>

About OpsCenter performance and tuning

This chapter includes the following topics:

- [Sizing considerations](#)
- [Sizing guidelines](#)
- [About tuning OpsCenter for increased performance](#)
- [Moving OpsCenter server to a different computer](#)

Sizing considerations

The size of your OpsCenter server depends largely on the number of NetBackup objects that OpsCenter manages. For example:

- Number of master servers to manage
- Number of policies
- Number of the jobs that are run per day
- Total number of jobs
- Number of media
- Number of images
- Number of SLPs

Based on these factors, the following OpsCenter server components should be sized as required:

- Disk space (for installed OpsCenter binary + OpsCenter database)
- Type and number of CPUs

- RAM

Sizing guidelines

This section provides sizing guidelines for OpsCenter Server.

Note: The information that is published in this section is based on the tests that were performed in Symantec Lab in a controlled environment with expert users. This information can only be used as guidelines and should not be used as 100% accurate benchmarks.

[Table 3-1](#) provides the system configuration of the OpsCenter Server for the given NetBackup configuration.

Table 3-1 OpsCenter server sizing guidelines

System configuration of the OpsCenter Server host	Number of NetBackup master servers to be monitored	Number of NetBackup policies	Number of NetBackup jobs per day
Physical computer configuration: 16 logical processors, 24 GB RAM OpsCenter database service cache size: 10 GB OpsCenter Server service heap size: 4 GB	4	6500	Approximately 84000

Note: Some of the data that is presented in this table was interpolated.

See [“About tuning OpsCenter for increased performance”](#) on page 16.

About tuning OpsCenter for increased performance

Disclaimer: The information that is published in the following sections is based on the tests that were performed in Symantec Lab in a controlled environment with expert users. These can only be used as guidelines and should not be used as 100% accurate benchmarks.

Refer to the following topics that talk about the settings that you can tune to improve OpsCenter performance.

See [“About adding NetBackup Master Servers to OpsCenter”](#) on page 18.

- See [“About using a web browser to access OpsCenter”](#) on page 18.
- See [“About performance tuning guidelines”](#) on page 17.
- See [“Moving OpsCenter server to a different computer”](#) on page 37.
- See [“About saving the OpsCenter log files on a different drive”](#) on page 18.
- See [“Checking the debug level of logs”](#) on page 19.
- See [“About adjusting the heap size or cache size for OpsCenter services”](#) on page 22.
- See [“Adjusting the default heap size for the OpsCenter server service”](#) on page 23.
- See [“Adjusting the default heap size for the OpsCenter server service”](#) on page 23.
- See [“Adjusting the default heap size for the OpsCenter web server service”](#) on page 24.
- See [“Adjusting the OpsCenter database service cache size”](#) on page 27.
- See [“About purging data periodically”](#) on page 36.
- See [“About OpsCenter performance and floating-point calculations in Solaris”](#) on page 36.

About performance tuning guidelines

You may want to tune OpsCenter to obtain incremental performance gains. This section describes the important tuning parameters and settings that can result in improved performance.

The following guidelines can help improve OpsCenter performance:

- Install the OpsCenter database on a drive that is different from where OpsCenter server software and operating system is installed.
- Install the OpsCenter log files on a drive that is different from where OpsCenter server software and operating system is installed. This type of installs should be done only if the logging level is greater than 1.
- Symantec recommends that you defragment the OpsCenter database periodically. You must perform defragmentation once a month.
- Increase the heap size of the OpsCenter server depending on the RAM load. See [“Adjusting the default heap size for the OpsCenter server service”](#) on page 23.
- Increase the database cache size depending on the RAM and the database size. See [“Adjusting the OpsCenter database service cache size”](#) on page 27.
- Create report schedules such that the email or export happens in system-idle time during which OpsCenter is not accessed frequently.

- Purge the OpsCenter data periodically.

About adding NetBackup Master Servers to OpsCenter

Depending on the load, you should add the NetBackup Master Servers in OpsCenter. Consider the following example:

You want to add master servers in OpsCenter that are heavily-loaded. For example, each master server runs more than 10000 backup jobs per day. For load balancing, Symantec recommends that the heavily-loaded master servers be added at intervals.

For example, add the next master server after the data collection for the earlier master server is started.

Note: To view the data collection status for a master server, go to **Settings > Configuration > NetBackup** in the OpsCenter console and then click the **Data Collection Status** tab on the page. The data collection status for a master server can be viewed from the **Collection Status** column.

About using a web browser to access OpsCenter

The OpsCenter Login screen provides the information on the web browsers that are recommended for OpsCenter. Alternatively, you can refer to the NetBackup OpsCenter hardware and software compatibility list at the following location:

<http://www.symantec.com/docs/TECH76648>

About saving the OpsCenter log files on a different drive

Symantec recommends that you install the OpsCenter log files on a drive that is different from where OpsCenter Server software and operating system are installed. This installation should be done only if the debug level of logs is greater than 1. The default debug level of OpsCenter logs is 1.

To know the debug level of your logs, see the following section.

See [“Checking the debug level of logs”](#) on page 19.

You can control how OpsCenter writes log files for OpsCenter Server, OpsCenter Agent, and the OpsCenter web GUI components.

See [“Saving the log files to a different location on Windows”](#) on page 19.

See [“Saving the log files to a different location on UNIX”](#) on page 21.

Checking the debug level of logs

You can check the debug level of OpsCenter logs by performing the following procedure:

To check the debug level of logs

- 1 Navigate to the following location:

Windows `INSTALL_PATH\OpsCenter\server\bin\`

or

`INSTALL_PATH\OpsCenter\Agent\bin\`

UNIX `INSTALL_PATH/SYMCopsCenterServer/bin`

or

`INSTALL_PATH/SYMCopsCenterAgent/bin`

- 2 Enter the following command:

```
vxlogcfg -l -p 58330 -o <OID> -q
```

The following OID values must be used for OpsCenter components:

OpsCenter Server	148
OpsCenter Server Application	423
OpsCenter Agent	146
OpsCenter Web GUI	147
OpsCenter AT	18

Saving the log files to a different location on Windows

Use the following procedures to save the log files for OpsCenter components in a different directory.

By default, OpsCenter writes VxUL logs to the following directories or files:

OpsCenter Server `INSTALL_PATH\OpsCenter\server\logs`

OpsCenter Agent `INSTALL_PATH\OpsCenter\Agent\logs`

OpsCenter View Builder `INSTALL_PATH\OpsCenter\viewbuilder\bin\OpsCenterViewBuilder.xml`

For example:

`C:\Program Files`

`(x86)\Symantec\OpsCenter\viewbuilder\bin\OpsCenterViewBuilder.xml`

To save the log files for OpsCenter Server in a different location

- 1 Enter the following command to save log files to a different location:

```
INSTALL_PATH\OpsCenter\server\bin\vxlogcfg -a -p 58330 -o 148 -s  
LogDirectory="<New log directory location>"
```

Note: 58330 is the OpsCenter product ID. 148 is the OID for OpsCenter Server.

- 2 Select **Control Panel > Administrative Tools > Services** and stop the **Symantec OpsCenter Server Service**.
- 3 Select **Control Panel > Administrative Tools > Services** and start the **Symantec OpsCenter Server Service**.

To save the log files for OpsCenter Agent in a different location

- 1 Enter the following command to save log files to a different location:

```
INSTALL_PATH\OpsCenter\Agent\bin\vxlogcfg -a -p 58330 -o 146 -s  
LogDirectory="<New log directory location>"
```

Note: 58330 is the OpsCenter product ID. 146 is the OID for OpsCenter Agent.

- 2 Select **Control Panel > Administrative Tools > Services** and stop the **Symantec OpsCenter Agent Service**.
- 3 Select **Control Panel > Administrative Tools > Services** and start the **Symantec OpsCenter Agent Service**.

To save the log files for OpsCenter Agent in a different location

- 1 Enter the following command to save log files to a different location:

```
<INSTALL_PATH>/SYMCOpsCenterAgent/bin/vxlogcfg -a -p 58330 -o 146  
-s LogDirectory="<New log directory location>"
```

Note: 58330 is the OpsCenter product ID. 146 is the OID for OpsCenter Agent.

- 2 Enter the following command to stop the OpsCenter Agent process:

```
<INSTALL_PATH>/SYMCOpsCenterAgent/bin/stopagent
```

- 3 Enter the following command to start the OpsCenter Agent process:

```
<INSTALL_PATH>/SYMCOpsCenterAgent/bin/startagent
```

To save the log files for OpsCenter web GUI in a different location

- 1 Enter the following command to save log files to a different location:

```
<INSTALL_PATH>/SYMCOpsCenterServer/bin/vxlogcfg -a -p 58330 -o  
147 -s LogDirectory="<New log directory location>"
```

Note: 58330 is the OpsCenter product ID. 147 is the OID for OpsCenter web GUI.

- 2 Enter the following command to stop the OpsCenter web server process:

```
<INSTALL_PATH>/SYMCOpsCenterServer/bin/stopgui.sh
```

- 3 Enter the following command to start the OpsCenter web server process:

```
<INSTALL_PATH>/SYMCOpsCenterServer/bin/startgui.sh
```

About adjusting the heap size or cache size for OpsCenter services

Use the following procedures to adjust the heap size or cache size for OpsCenter services:

See [“Adjusting the default heap size for the OpsCenter server service”](#) on page 23.

See [“Adjusting the default heap size for the OpsCenter web server service”](#) on page 24.

See [“Adjusting the default heap size for the OpsCenter Agent service”](#) on page 26.

See [“Adjusting the OpsCenter database service cache size”](#) on page 27.

Adjusting the default heap size for the OpsCenter server service

If the OpsCenter server processes consume a large amount of memory (which may happen with large OpsCenter configurations), it may be helpful to increase the heap size of the OpsCenter Server service.

The default heap size of the OpsCenter Server service can be increased from 2048 MB to a higher value (like 4096 MB). You can determine a higher value based on the physical memory (RAM) and the virtual memory that is available on your system.

To adjust the default heap size on Windows

- 1 Open the `OpsCenterServerService.xml` file from the following location on the OpsCenter server:

```
INSTALL_PATH\OpsCenter\server\bin
```

Note: Save a copy of the `OpsCenterServerService.xml` file before modifying it.

- 2 Modify the `-Xmx` value in the following string:

```
<CmdArg value="-Xrs -Xmx2048M
```

For example, replace `-Xmx2048` with `-Xmx4096` to increase the maximum heap size from 2048 MB to 4096 MB.

- 3 Save the `OpsCenterServerService.xml` file.
- 4 You must restart OpsCenter server services for the changes to be effective.

Enter the following commands to first stop and then start all OpsCenter server services as follows:

```
INSTALL_PATH\OpsCenter\server\bin\opsadmin.bat stop
```

```
INSTALL_PATH\OpsCenter\server\bin\opsadmin.bat start
```

To adjust the default heap size on UNIX

- 1 Open the `startserver` file from the following location:

```
INSTALL_PATH>/SYMCOpsCenterServer/bin
```

Note: Save a copy of the `startserver` file before modifying it.

- 2 Modify the `-Xmx2048M` value in the following string:

```
MAX_HEAP=-Xmx2048M
```

For example, replace `-Xmx2048M` with `-Xmx4096M` to increase the maximum heap size from 2048 MB to 4096 MB.

- 3 Save the `startserver` file.
- 4 You must restart all OpsCenter server processes for the changes to be effective.

Enter the following commands to first stop and then start all OpsCenter server processes as follows:

```
INSTALL_PATH/SYMCOpsCenterServer/bin/opsadmin.sh stop
```

```
INSTALL_PATH/SYMCOpsCenterServer/bin/opsadmin.sh start
```

Adjusting the default heap size for the OpsCenter web server service

The default heap size of the OpsCenter web server service can be increased from 1024 MB to a higher value (like 2048 MB). You can determine a higher value based on the physical memory (RAM) and the virtual memory that is available on your system.

Note: If you start noticing poor performance in the OpsCenter console every few days and restarting the Symantec NetBackup OpsCenter web server service fixes the problem, you should increase the web server service default heap size.

To adjust the default heap size of the web server service on Windows

- 1 Open the `OpsCenterGUIService.xml` file from the following location on the OpsCenter server:

```
INSTALL_PATH\OpsCenter\gui\bin\OpsCenterGUIService.xml
```

Note: Save a copy of the `OpsCenterGUIService.xml` file before modifying it.

- 2 Modify the `Xmx` value in the following string:

```
<EnvVar name="JAVA_OPTS" value="-Xrs -Xms512m -Xmx1024m
```

For example, replace `-Xmx1024m` with `-Xmx1400m` to increase the maximum heap size from 1024 MB to 1400 MB.

Note: This string may be listed twice in the `OpsCenterGUIService.xml` file. You can change modify both the occurrences of `-Xmx` in the `OpsCenterGUIService.xml` file to adjust the heap size.

- 3 Save the `OpsCenterGUIService.xml` file.
- 4 You must restart all OpsCenter server services for the changes to be effective.

Enter the following commands to first stop and then start all OpsCenter server services as follows: `INSTALL_PATH\OpsCenter\server\bin\opsadmin.bat stop`

```
INSTALL_PATH\OpsCenter\server\bin\opsadmin.bat start
```

To adjust the default heap size on UNIX

- 1 Open the `startGUI` file from the following location:

```
INSTALL_PATH/SYMCOpsCenterGUI/bin
```

Note: Save a copy of the `startGUI` file before modifying it.

- 2 Modify the `Xmx1024M` value in the following string:

```
JAVA_OPTS="-Xrs -d64 -Xms512M -Xmx1024m...
```

For example, replace `-Xmx1024M` with `-Xmx1400M` to increase the maximum heap size from 1024 MB to 1400 MB.

- 3 Save the `startGUI` file.
- 4 You must restart all OpsCenter server processes for the changes to be effective.

Enter the following commands to first stop and then start all OpsCenter server processes as follows: `INSTALL_PATH/SYMCopsCenterServer/bin/opsadmin.sh stop`

```
INSTALL_PATH/SYMCopsCenterServer/bin/opsadmin.sh start
```

Adjusting the default heap size for the OpsCenter Agent service

If the OpsCenter Agent processes consume a large amount of memory (which may happen with large OpsCenter configurations), it may be helpful to increase the OpsCenter Agent service heap size. The OpsCenter Agent service default heap size can be increased from 1024 MB to a higher value (like 2048 MB). You can determine a higher value based on the physical memory (RAM) and the virtual memory that is available on your system.

To adjust the default heap size on Windows

- 1 Open `OpsCenterAgentService.xml` file from the following location on the OpsCenter server:

```
INSTALL_PATH\OpsCenter\Agent\bin
```

Note: Save a copy of the `OpsCenterAgentService.xml` file before modifying it.

- 2 Modify the `Xmx1024M` value in the following string:

```
<CmdArg value="-Xms512M -Xmx1024M
```

For example, replace `-Xmx1024M` with `-Xmx1400M` to increase the maximum heap size from 1024 MB to 1400 MB.

- 3 Save the `OpsCenterAgentService.xml` file.
- 4 You must restart the OpsCenter Agent service for the changes to be effective. To restart the OpsCenter Agent service, first stop and then start the Symantec OpsCenter Agent Service.

Select **Control Panel > Administrative Tools > Services** and stop the **Symantec OpsCenter Agent Service**.

- 5 Select **Control Panel > Administrative Tools > Services** and start the **Symantec OpsCenter Agent Service**.

To adjust the default heap size on UNIX

- 1 Open the `startagent` file from the following location:

```
INSTALL_PATH/SYMCopsCenterAgent/bin
```

Note: Save a copy of the `startagent` file before modifying it.

- 2 Modify the `Xmx1024M` value in the following string.

```
MAX_HEAP=-Xmx1024M
```

For example, replace `-Xmx1024M` with `-Xmx2048M` to increase the maximum heap size from 1024 MB to 2048 MB.

- 3 Save the `startagent` file.
- 4 You must restart the OpsCenter Agent process for the changes to be effective.

Enter the following commands to first stop and then start OpsCenter Agent process as follows:

```
INSTALL_PATH/SYMCopsCenterAgent/bin/stopagent
```

```
INSTALL_PATH/SYMCopsCenterAgent/bin/startagent
```

Adjusting the OpsCenter database service cache size

The amount of memory that is available for the database server service cache is an important factor in controlling OpsCenter performance. Symantec recommends that you adjust the Sybase cache size after installing OpsCenter. After you install OpsCenter, the database size can grow rapidly as you add more NetBackup Master Servers in OpsCenter.

OpsCenter Sybase database automatically adjusts the cache size for optimum performance. You can also set the cache size using the `-ch` server option in the `server.conf` file.

It is recommended to set the `-ch` size to a higher value in the following scenarios:

- If you have manually changed the `-ch` value and by monitoring the `server.conf` file you have observed that the maximum cache size is consistently used, consider adjusting `-ch` to a higher value.
- For large databases with large number of database activities, the `-ch` value may need to be set to 50% (or higher) of the combined size of the database files on disk

For example, if the combined size of the database files is 100 GB, the `-ch` value may need to be increased to 50G (or higher).

Note: The database files comprise the following files: `symcOpscache.db`, `symcopsscratchdb.db`, `symcsearchdb.db`, and `vxpmdb.db`

To set the cache size using the `-ch` server option on Windows

- 1 Open the `INSTALL_PATH\OpsCenter\server\db\conf\server.conf` file.

Note: Save a copy of the `server.conf` file before modifying it.

The following default options appear in the `server.conf` file:

```
-n OPSCENTER_<HOST_NAME> -x tcpip(LocalOnly=YES;ServerPort=13786)
-gd DBA -gk DBA -gl DBA -gp 4096 -ti 0 -c 256M -ch 1024M -cl 256M
-zl -os 1M -m -o "<INSTALL_PATH>\OpsCenter\server\db\log\server.log"
```

`-c 256M` indicates the initial memory that is reserved for caching database pages and other server information. The default value is 256 MB.

`-cl 256M` indicates the minimum cache size, as a limit to automatic cache resizing. The default minimum cache size is 256 MB.

`-ch 1024M` indicates the maximum cache size, as a limit to automatic cache growth. The default maximum cache size is 1024 MB.

For example, to increase the initial and minimum cache sizes to 1024 MB and the maximum size to 4 GB, replace `-c 256M -ch 1024M -cl 256M` with `-c 1024M -ch 4G -cl 1024M -cs` in the sample `server.conf` file:

```
-n OPSCENTER_<HOST_NAME> -x tcpip(LocalOnly=YES;ServerPort=13786)
-gd DBA -gk DBA -gl DBA -gp 4096 -ti 0 -c 256M -ch 1024M -cl 256M
-zl -os 1M -m -o "<INSTALL_PATH>\OpsCenter\server\db\log\server.log"
```

should be changed to

```
-n OPSCENTER_<hostname> -x tcpip(LocalOnly=YES;ServerPort=13786)
-gd DBA -gk DBA -gl DBA -gp 4096 -ti 0 -c 1024M -ch 4G -cl 1024M -cs -zl
-os 1M -m -o "<INSTALL_PATH>\server\db\log\server.log"
```

In the same manner, to increase the initial and minimum cache size to 1 GB and the maximum cache size to 2 GB, you should change `-c 256M -ch 512M -cl 256M` to `-c 1G -ch 2G -cl 1G -cs` in the `server.conf` file.

The `-cs` option logs the cache size changes for the database server.

You can verify the change in the cache size in the following file: `<INSTALL_PATH>\server\db\log\server.log` file.

- 2 Save the `server.conf` file.

3 Stop and restart the OpsCenter services, as follows:

```
INSTALL_PATH\OpsCenter\server\bin\opsadmin.bat stop
```

```
INSTALL_PATH\OpsCenter\server\bin\opsadmin.bat start
```

To set the cache size using the `-ch` server option on UNIX

- 1 Open the `<INSTALL_PATH>/SYMCopsCenterServer/db/conf/server.conf` file and change the value of the `-ch` option.

Note: Save a copy of the `server.conf` file before modifying it.

The following default options appear in the `server.conf` file:

```
-n OPSCENTER_<HOST_NAME> -x tcpip
(LocalOnly=YES;BROADCASTLISTENER=0;DOBROADCAST=NO;ServerPort=13786;)
-gd DBA -gk DBA -gl DBA -gp 8192 -ti 0 -c 256M -ch 1024M -cl 256M -zl
-os 1M -m
```

`-c 256M` indicates the initial memory that is reserved for caching database pages and other server information. The default value is 256 MB.

`-cl 256M` indicates the minimum cache size, as a limit to automatic cache resizing. The default minimum cache size is 256 MB.

`-ch 1024M` indicates the maximum cache size, as a limit to automatic cache growth. The default maximum cache size is 1024 MB for 64-bit systems.

For example, to increase the cache size to 1024 MB with a maximum of 4GB, replace `-c 256M -ch 1024M -cl 256M` with `-c 1024M -ch 4G -cl 1024M -cs` in the sample `server.conf` file:

```
-n OPSCENTER_<HOST_NAME> -x tcpip
(LocalOnly=YES;BROADCASTLISTENER=0;DOBROADCAST=NO;ServerPort=13786;)
-gd DBA -gk DBA -gl DBA -gp 8192 -ti 0 -c 256M -ch 1024M -cl 256M
-zl -os 1M -m
```

should be changed to:

```
-n OPSCENTER_<HOST_NAME> -x tcpip
(LocalOnly=YES;BROADCASTLISTENER=0;DOBROADCAST=NO;ServerPort=13786;)
-gd DBA -gk DBA -gl DBA -gp 8192 -ti 0 -c 1024M -ch 4G -cl 1024M
-zl -os 1M -m
```

This example replaced `-c 256M -ch 1024M -cl 256M` with `-c 1024M -ch 1G -cl 1024M -cs` in the `server.conf` file to increase the initial and minimum cache size to 1024 MB with a maximum of 4 GB.

In the same manner, to increase the initial and minimum cache size to 1 GB and a maximum of 2 GB, you should change `-c256M -ch 1024M -cl 256M` to `-c 1G -ch 2G -cl 1G -cs` in the `server.conf` file.

The `-cs` option logs the cache size changes for the database server.

You can verify the change in the cache size in the following file: `INSTALL_PATH/SYMCopsCenterServer/db/log/dbserver.log` file.

- 2 Save the `server.conf` file.
- 3 Stop and restart the OpsCenter processes, as follows:

```
INSTALL_PATH/SYMCopsCenterServer/bin/opsadmin.sh stop
```

```
INSTALL_PATH/SYMCopsCenterServer/bin/opsadmin.sh start
```

About OpsCenter database defragmentation

Fragmentation occurs naturally as you make changes to your database. Such changes may occur because of the deletion of data from the OpsCenter database. Following are the example scenarios when data is deleted from the OpsCenter database:

- When data purging is enabled in OpsCenter
The purge settings can be viewed by clicking **Settings > Configuration > Data Purge** in the OpsCenter console. Data purging in OpsCenter is enabled by default.
- When you delete a NetBackup master server from OpsCenter

Symantec recommends that you defragment the OpsCenter database once a month. Additionally, you should defragment the OpsCenter database, if the disk fragment count in the `server.log` file on Windows or `dbserver.log` file on UNIX shows a large number.

See [“Checking the disk fragment count”](#) on page 33.

See [“Defragmenting the OpsCenter database”](#) on page 35.

Checking the disk fragment count

Use the following procedure to check the disk fragment count in the `server.log` file on Windows or `dbserver.log` file on UNIX.

To check the disk fragment count

- 1 Open the following files on Windows and UNIX respectively:

Windows `INSTALL_PATH\Symantec\OpsCenter\server\db\log\server.log`

UNIX `<INSTALL_PATH>/SYMCOpsCenterServer/db/log/dbserver.log`

- 2 Search for the word fragment in the file. For example, when you search for fragment in server.log or dbserver.log, you may find the following line:

```
Performance warning: Database file "G:\OpsCenter\db\vxpmdb.db"  
consists of 2000 disk fragments
```

Note: You may not find any results when you search for fragment. This result is completely fine. You may see such performance warnings when the disk fragment count is high.

See [“About OpsCenter database defragmentation”](#) on page 33.

About allocating more memory before database defragmentation

The database defragmentation process may require more memory to run successfully. This section provides the procedure to allocate more memory to the database cache using the `-ch` option before database defragmentation.

Note: The database defragmentation process requires the available disk space to be double the current database size.

To allocate more memory to database cache

- 1 Backup the existing OpsCenter database.
- 2 Modify the memory settings to allocate more memory to the database cache.

The following table shows an example scenario where the OpsCenter database size is 48 GB. It lists the original memory settings that you need to modify to the new settings before database defragmentation so that there are no performance issues during the defragmentation.

Example scenario: OpsCenter database size = 48 GB

Original memory settings	Modified memory settings (to allocate more memory to database cache)
Memory allocated for the OpsCenter database process = 24 GB	Memory allocated for the OpsCenter database process = 39 GB
Memory allocated for the OpsCenter GUI process = 4 GB	Memory allocated for the OpsCenter GUI process = 1 GB
Memory allocated for the OpsCenter Server process = 12 GB	Memory allocated for the OpsCenter Server process = 1 GB
Memory allocated for the Operating System = 8 GB	Memory allocated for the Operating System = 8 GB

- 3 Restart OpsCenter services.
- 4 Defragment the OpsCenter database.
 See [“Defragmenting the OpsCenter database”](#) on page 35.
- 5 Revert to the original memory settings.

Defragmenting the OpsCenter database

You can defragment the OpsCenter database using the `dbdefrag` command. Defragmentation helps to increase data access and retrieval speed. For optimum performance, defragment the OpsCenter databases once a month and after a database purge operation.

Note: OpsCenter does not work during the time when the OpsCenter database is defragmented.

To defragment the OpsCenter database on Windows and UNIX

- 1 Before you defragment the OpsCenter database, Symantec recommends that you back up the OpsCenter database.

Note: For more details on backing up the OpsCenter database, refer to the *OpsCenter Administrator's Guide*.

<http://www.symantec.com/docs/DOC5808>

- 2 To defragment the OpsCenter database on Windows, run the following command:

```
INSTALL_PATH\OpsCenter\server\bin\dbdefrag.bat
```

To defragment the OpsCenter database on UNIX, run the following command:

```
<INSTALL_PATH>/SYMCOpsCenterServer/bin/dbdefrag.sh
```

See [“About OpsCenter database defragmentation”](#) on page 33.

About purging data periodically

You should purge the OpsCenter data periodically.

Warning: Data purging in OpsCenter should not be disabled.

Refer to the **Settings > Data Purge** tab on the OpsCenter UI.

The OpsCenter database should be defragmented after a purge operation.

About OpsCenter performance and floating-point calculations in Solaris

Symantec NetBackup OpsCenter performs certain calculations, which require floating-point math. If the server's processor does not have a dedicated floating-point unit, the calculations are handled in floating-point emulation.

Emulation mode slows down OpsCenter's performance. Symantec does not recommend running OpsCenter on any server that lacks a dedicated floating-point unit.

Performance issues exist when the OpsCenter server software is installed on a Sun T1 server. Symantec recommends that you install OpsCenter server software on a Sun T2 server. The issue of limited floating-point capability on T1 servers is resolved with the T2 servers.

Moving OpsCenter server to a different computer

This section talks about the scenarios in which you need to move OpsCenter server to a different computer.

Consider the following scenarios:

- Scenario 1: You have OpsCenter 7.5 (or 7.5.0.x) setup that you want to upgrade to OpsCenter 7.6. If OpsCenter 7.5 is installed on a platform that OpsCenter 7.6 does not support (for example, AIX), you need to move the OpsCenter server to a different computer that has a supported platform
 See [“Moving OpsCenter 7.5 server to a different OpsCenter 7.6.1 computer”](#) on page 38.
- Scenario 2: You want to move OpsCenter 7.6 server to a different computer for a certain reason. For example, hardware of the existing computer is faulty.
 See [“Moving OpsCenter 7.6.1 Server to a different computer”](#) on page 41.

Note: Before moving OpsCenter Server to a different computer, it is recommended that you save certain configuration files to a different location, so you can refer to them when required.

See [“About saving the files before moving the OpsCenter Server”](#) on page 37.

About saving the files before moving the OpsCenter Server

Before moving OpsCenter Server to a different computer, it is recommended that you save the following OpsCenter configuration files to a different location, so you can refer to them when required:

- All contents of `\INSTALL_PATH\OpsCenter\server\config`
- `\INSTALL_PATH\OpsCenter\server\bin\OpsCenterServerService.xml` file
- All contents of `\INSTALL_PATH\OpsCenter\gui\Security`
- `INSTALL_PATH\OpsCenter\gui\bin\OpsCenterGUIService.xml`
- All contents of `\INSTALL_PATH\OpsCenter\server\db\conf`
- All contents of `\INSTALL_PATH\OpsCenter\gui\webserver\conf`
- `\INSTALL_PATH\OpsCenter\gui\webserver\webapps\opscenter\WEB-INF\web.xml` file
- `INSTALL_PATH\OpsCenter\agent\bin\OpsCenterAgentService.xml`
- `INSTALL_PATH\OpsCenter\viewbuilder\bin\OpsCenterViewBuilder.xml`

For example: C:\Program Files

(x86)\Symantec\OpsCenter\viewbuilder\bin\OpsCenterViewBuilder.xml

INSTALLPATH is the directory where you have installed OpsCenter software.

See [“Moving OpsCenter server to a different computer”](#) on page 37.

Moving OpsCenter 7.5 server to a different OpsCenter 7.6.1 computer

This section provides the procedure to move OpsCenter 7.5 server to a different computer where you want to install OpsCenter 7.6.1. The following example explains the scenario in detail:

You have OpsCenter 7.5 (or 7.5.0.x) setup that you want to upgrade to OpsCenter 7.6.1. If OpsCenter 7.5 is installed on a platform that OpsCenter 7.6.1 does not support (for example, AIX), you need to move the OpsCenter Server to a different computer that has a supported platform.

Note: Before moving OpsCenter Server to a different computer, it is recommended that you save certain configuration files to a different location, so you can refer to them when required.

See [“About saving the files before moving the OpsCenter Server”](#) on page 37.

You need to carry out a few steps on the OpsCenter 7.5 server host and a few on the new host where you want to install OpsCenter 7.6.1.

To move OpsCenter 7.5 (or 7.5.0.x) server to a different computer that has OpsCenter 7.6.1 installed

Step 1 to Step 4 are to be carried out on the OpsCenter 7.5 (or 7.5.0.x) server host.

- 1 Stop all OpsCenter 7.5 (or 7.5.0.x) services.
- 2 Copy all the database files (including log files that are *.*) from the installed location to a different location.

The database location is as follows:

Windows <OpsCenterInstallLocation>\OpsCenter\server\db\data

UNIX <OpsCenterInstallLocation>/SYMCOpsCenterServer/db/data

- 3 OpsCenter 7.5 server host may have AT (Symantec Product Authentication Service) data that you want to import into OpsCenter 7.6.1. You need to first export the AT data on the OpsCenter 7.5 server host, which you can import into OpsCenter 7.6.1.

Export the remote (or shared) AT broker's data to an xml file using the `atutil` utility. AT data comprises OpsCenterUsers(vx) users and certificates.

Refer to the Exporting authentication settings section in the *OpsCenter 7.6.1 Administrator's Guide*.

<http://www.symantec.com/docs/DOC5808>

Note: Starting from OpsCenter 7.6, authentication service (formerly it was known as Symantec Product Authentication Service or AT) is embedded with the OpsCenter Server. Each OpsCenter 7.6.x setup has its own AT configuration, which is called OpsCenter AT.

Refer to the About OpsCenter AT and About OpsCenter 7.6.1 upgrade scenarios with respect to AT sections in the *OpsCenter 7.6.1 Administrator's Guide*.

<http://www.symantec.com/docs/DOC5808>

- 4 Copy the XML file, which you created in the earlier step, to the host where you want to install OpsCenter 7.6.1.

Note: While you are copying the exported XML file, the DOS to UNIX conversion may result into garbage characters in the xml file that can cause import failure. To avoid this problem, copy the xml file through FTP and with binary format.

- 5 **Step 5 to Step 12 are to be carried out on the host where you want to install OpsCenter 7.6.1.**

Install OpsCenter 7.6.1 on the new host.

Refer to the Installing OpsCenter 7.6.1 section in the *OpsCenter 7.6.1 Administrator's Guide*.

<http://www.symantec.com/docs/DOC5808>

- 6 Stop all OpsCenter 7.6.1 services.
- 7 Carry out the performance tuning steps as earlier.

See “[About tuning OpsCenter for increased performance](#)” on page 16.

- 8 Copy the backed-up database files from the temporary location to the OpsCenter 7.6.1 database location.

The database location is as follows:

Windows `<OpsCenterInstallLocation>\OpsCenter\server\db\data`

UNIX `<OpsCenterInstallLocation>/SYMCOpsCenterServer/db/data`

- 9 Upgrade the database using `dbUpgrade` command.

Run the following command:

Windows `dbUpgrade.bat install <old_version_number>
<new_version_number>`

For example:

`<OpsCenterInstallLocation>\OpsCenter\server\bin\dbUpgrade.bat install
7.5.0.3 7.6.1`

UNIX `dbUpgrade.sh install <old_version_number>
<new_version_number>`

For example:

`<OpsCenterInstallLocation>/SYMCOpsCenterServer/bin/dbUpgrade.sh
install 7.5.0.3 7.6.1`

- 10 Check the progress of database upgrade in the upgrade logs at the following location:

Windows `<OpsCenterInstallLocation>\OpsCenter\server\db\log`

UNIX `<OpsCenterInstallLocation>/SYMCOpsCenterServer/db/log`

11 Import old authentication or AT data into OpsCenter 7.6.1 server host.

Make sure that you have copied the exported XML file that you have created on the OpsCenter 7.5 server host to OpsCenter 7.6.1 server host.

Run the following command to import the AT data:

Windows `<OpsCenterInstallLocation>\OpsCenter\server\authbroker\bin\atutil import -p <password of exported xml file> -f <location of xml file that contains old AT data> -z <location of AT data folder> -overwrite`

For example: `atutil import -p "password" -f \temp\userdata.xml -z C:\Program Files\Symantec\OpsCenter\server\authbroker\data -overwrite`

UNIX `<OpsCenterInstallLocation>/SYMCOpsCenterServer/authbroker/bin/atutil import -p <password of exported xml file> -f <location of xml file that contains old AT data> -z <location of AT data folder> -overwrite`

For example: `atutil import -p "password" -f /temp/userdata.xml -z /opt/SYMCOpsCenterServer/authbroker/data -overwrite`

Note: If the import is not successful, the default OpsCenter user needs to reset the passwords of OpsCenterUsers(vx) domain users that you have imported from the earlier OpsCenter version. Trust between NBAC-enabled NetBackup / PureDisk server and OpsCenter Server need to be established again.

Refer to the About OpsCenter 7.6.1 upgrade failure scenarios section in the *OpsCenter 7.6.1 Administrator's Guide*.

<http://www.symantec.com/docs/DOC5808>

12 Start OpsCenter services.

Moving OpsCenter 7.6.1 Server to a different computer

This section provides the procedure to move OpsCenter 7.6.1 Server to a different computer. You may need to move OpsCenter 7.6.1 Server to a different computer in certain scenarios. For example:

- Faulty hardware
- Hardware upgrade

- Operating system upgrade
- Moving from physical computer to virtual machine (or from virtual machine to physical computer)

Note: Before moving OpsCenter Server to a different computer, it is recommended that you save certain configuration files to a different location, so you can refer to them when required.

See “[About saving the files before moving the OpsCenter Server](#)” on page 37.

To move OpsCenter 7.6.1 Server to a different computer

Step1 to Step 4 are be carried out on the OpsCenter 7.6.1 source host.

- 1 Stop all OpsCenter 7.6.1 services.
- 2 Copy all the database files (including log files that are *.*) from the installed location to a different location.

The database location is as follows:

Windows <OpsCenterInstallLocation>\OpsCenter\server\db\data

UNIX <OpsCenterInstallLocation>/SYMCOpsCenterServer/db/data

- 3 OpsCenter 7.6.1 source host may have authentication (AT) data that you want to import into OpsCenter 7.6.1 target host. You need to first export the AT data on the OpsCenter 7.6.1 source host, which you can import into OpsCenter 7.6.1 target host.

Export the AT data to an xml file using the `atutil` utility. AT data comprises OpsCenterUsers(vx) users and certificates.

Refer to the Exporting authentication settings section in the *OpsCenter 7.6.1 Administrator's Guide*.

<http://www.symantec.com/docs/DOC5808>

- 4 Copy the XML file, which you created in the earlier step, to the OpsCenter 7.6.1 target host.

Note: While you are copying the exported xml file, the DOS to UNIX conversion may result into garbage characters in the xml file that can cause import failure. To avoid this problem, copy the xml file through FTP and with binary format.

5 Step 5 to Step 10 are be carried out on the OpsCenter 7.6.1 target host.

Install OpsCenter 7.6.1 on the new host that is target host.

Refer to the Installing OpsCenter 7.6.1 section in the *OpsCenter 7.6.1 Administrator's Guide*.

<http://www.symantec.com/docs/DOC5808>

6 Stop all OpsCenter 7.6.1 services.

7 Carry out the performance tuning steps as earlier.

See “About tuning OpsCenter for increased performance” on page 16.

8 Copy the backed-up database files from the temporary location to the OpsCenter 7.6.1 database location.

The database location is as follows:

Windows <OpsCenterInstallLocation>\OpsCenter\server\db\data

UNIX <OpsCenterInstallLocation>/SYMCOpsCenterServer/db/data

9 Import old authentication or AT data into OpsCenter 7.6.1 target host.

Make sure that you have copied the exported XML file that you have created on the OpsCenter 7.6.1 source host to OpsCenter 7.6.1 target host.

Run the following command to import the AT data:

```
Windows <OpsCenterInstallLocation>\OpsCenter\server\authbroker\bin\atutil
import -p <password of exported xml file> -f <location
of xml file that contains old AT data> -z <location
of AT data folder> -overwrite
```

```
UNIX <OpsCenterInstallLocation>/SYM/OpsCenterServer/authbroker/bin/atutil
import -p <password of exported xml file> -f <location
of xml file that contains old AT data> -z <location
of AT data folder> -overwrite
```

Note: If the import is not successful, the default OpsCenter user needs to reset the passwords of OpsCenterUsers(vx) domain users that you have imported from the earlier OpsCenter version. Trust between NBAC-enabled NetBackup / PureDisk server and OpsCenter Server need to be established again.

Refer to the About OpsCenter 7.6.1 upgrade failure scenarios in the *OpsCenter Administrator's Guide*.

<http://www.symantec.com/docs/DOC5808>

10 Start OpsCenter services.

OpsCenter best practices

This chapter includes the following topics:

- [Network configuration best practices](#)
- [Installation and upgrade best practices](#)
- [OpsCenter database best practices](#)
- [Backup products best practices](#)
- [OpsCenter Server best practices](#)
- [OpsCenter reporting best practices](#)

Network configuration best practices

Following are the best practices for network configuration:

- Configure the OpsCenter Components on a host with a static IP address.
- Restrict the Fully Qualified Domain Name (FQDN) of the OpsCenter Server to 44 characters.

Installation and upgrade best practices

Following are the best practices for installing and upgrading OpsCenter:

- Symantec recommends that, especially in large backup environments (more than 1000 backup jobs a day), you install OpsCenter Server on a separate standalone host than on the backup product host or OpsCenter Agent hosts

Note:

Starting from OpsCenter 7.6.1, you do not need to install or configure OpsCenter Agent to collect data from NetBackup. OpsCenter uses NetBackup's NBSL component or `bpj_ava` protocol to collect data from NetBackup.

However, you need to install and configure OpsCenter Agent to collect data from Backup Exec.

- Symantec recommends that you install OpsCenter Server on a system having at least 8 GB RAM. System configuration largely depends on the number of backup products to be monitored, alerts, or jobs that are generated per day and so on.
- If 8.3 file name creation is disabled on a Windows host, it is recommended that you enable it and restart the Windows host before installing or upgrading OpsCenter components.
See the following link for details:
<http://technet.microsoft.com/en-us/library/ff621566%28WS.10%29.aspx>
- Symantec recommends that you install OpsCenter Agent on a host that is different from the OpsCenter Server host.
Symantec recommends that you deploy the OpsCenter Agent geographically closer to the managed server.
- In a clustered environment, first install OpsCenter Server on the active node and then on the passive nodes. Note that OpsCenter only supports Solaris and Windows VCS clusters.
- Ensure that you install OpsCenter Server, Agent, and View Builder of the same versions.
- To achieve optimum performance, configure the OpsCenter log files to be created on a physical disk that is different from where the OpsCenter Server and operating system (OS) files are installed.
- If you have the database transaction logs and databases at different locations, move the logs to the database location before upgrade.
- Ensure that the available disk space is at least three times the database size.

Note: This recommendation for the available disk space is based on the existing database size. It does not take the future growth of the database into account.

- Back up the OpsCenter database before performing changes like database defragmentation, upgrade, applying Emergency Engineering binaries (EEB), object merge and so on.
Refer to the 'Backing up the OpsCenter database' section in the *Symantec OpsCenter Administrator's Guide*.
<http://www.symantec.com/docs/DOC5808>

Things to avoid during installation and upgrade

The following things should be avoided when you install or upgrade OpsCenter components:

- Do not stop the installer forcefully or kill services or processes like setup.exe, msixexec.exe, OpsCenter services etc. when database upgrade, installation, or uninstallation is in progress.
- Do not stop services when the database migration or upgrade is in progress.
- Do not install OpsCenter components on network mounts. Installing OpsCenter components on network mounts is not supported.
- Do not uninstall the OpsCenter base package directly if release updates and language packs are installed on UNIX. Symantec recommends that you uninstall the release updates and language packs before uninstalling the base version on UNIX.
For example, if you want to completely uninstall OpsCenter from a UNIX machine, first uninstall release update 7.0.1 and any language packs and then uninstall OpsCenter 7.0.
- If you have deployed third-party reporting tools for generating reports, you should avoid using the SELECT database operation during OpsCenter database upgrade.
- If you have deployed third-party network-monitoring tools to monitor OpsCenter services, disable these tools during OpsCenter database upgrade.

OpsCenter database best practices

Following are the best practices for optimizing database performance:

- Install or configure the OpsCenter database on a physical disk that is different from where the OpsCenter and OS files are installed.
- Tune the OpsCenter database for optimal performance.
See "[Adjusting the OpsCenter database service cache size](#)" on page 27.
- Do not disable the data purge option.

You can configure data purge settings from **Settings > Configuration > Data Purge** tab in the OpsCenter console. Note that the more the retention period, the more is the effect on the performance.

For better performance, Backup Logs data should be retained for minimal days (like three days), which is a default setting. This is because Backup Logs hold temporary data and this data is not directly used by any OpsCenter report.

- Defragment the OpsCenter database periodically: Once a month
- Monitor the `dbsrv*` process memory usage under normal workload and also while executing OpsCenter reports. If this process consumes all the allocated cache size, then it is recommended that you tune it.

Increase the cache size of the OpsCenter database based on the RAM and database size.

See [“Adjusting the OpsCenter database service cache size”](#) on page 27.

Things to avoid while you use OpsCenter database

- Do not stop any OpsCenter service or process while performing database-related operations such as database backup or defragmentation.
- If you have deployed third-party reporting tools for generating reports, you should avoid using the SELECT database operation during OpsCenter database upgrade.
- If you have deployed third-party network-monitoring tools to monitor OpsCenter services, disable these tools during the following OpsCenter database operations:
 - Database upgrade
 - Database defragmentation
 - Database backup

Backup products best practices

Following are the best practices that should be observed while you collect data from backup products:

Note: Starting from OpsCenter 7.6.1, you do not need to install or configure OpsCenter Agent to collect data from NetBackup. OpsCenter uses NetBackup's NBSL component or `bpjava` protocol to collect data from NetBackup.

However, you need to install and configure OpsCenter Agent to collect data from Backup Exec.

- Select correct versions and user name and password (if applicable) of backup products for data collection.
- Depending on their load, you should add NetBackup Master Servers in OpsCenter. Consider the following example:
You want to add master servers in OpsCenter that are heavily-loaded. For example, each master server runs more than 10000 backup jobs per day. For load balancing, Symantec recommends that the heavily-loaded master servers be added at intervals.
For example, add the next master server after the data collection for the earlier master server is started.

Note: To view the data collection status for a master server, go to **Settings > Configuration > NetBackup** in the OpsCenter console and then click the Data Collection Status tab on the page. The data collection status for a master server can be viewed from the Collection Status column.

Things to avoid while you collect data from backup products

The following things should be avoided when you use OpsCenter to collect data from backup products:

- Do not use unsupported backup products. See About OpsCenter compatible backup and archiving products section in Symantec OpsCenter Administrator's Guide.
- Do not use unsupported upgrade paths. See About supported upgrade paths section in Symantec OpsCenter Administrator's Guide.
- Do not configure one OpsCenter Agent for multiple OpsCenter Servers.
- Do not configure multiple OpsCenter Servers to collect data from the same backup or archive product host.
- Do not manually delete the jobs from backup products. This may lead to data inaccuracy. Let the backup product clear these jobs automatically after a configured retention.
See the documentation of the respective backup product for details.

OpsCenter Server best practices

Following are the best practices that can be useful with respect to OpsCenter Server:

- Ensure that the time on the OpsCenter Server host and the backup product hosts resolves to the same GMT time.

- Note that the data that is shown in the historical reports may be inaccurate if the Day Light Savings (DST) change occurs in the timeframe that is selected for the reports.
- Create report schedules such that the reports are emailed or exported during system idle time when OpsCenter is not accessed frequently.
- Ensure that the required services or processes are running on the backup products. This is required for successful data collection.
- Increase the heap size of the OpsCenter components depending on the RAM and the server load.
See [“About adjusting the heap size or cache size for OpsCenter services”](#) on page 22.

OpsCenter reporting best practices

This section talks about a few best practices that you should follow while generating OpsCenter reports.

Scenario 1 - Pie chart reports may slow down the OpsCenter GUI service

Note: Assumption - OpsCenter database cache size tuning is in place.

See [“Adjusting the OpsCenter database service cache size”](#) on page 27.

Solution: You need to tune the OpsCenter GUI service for reporting.

- The recommended average report time frame is 15 days. If the timeframe is more than 15 days and if you want to generate a chart-based report, then increase the GUI (web server) service heap size to a value between 2 GB and 4 GB. If you observe performance issues even after increasing the heap size, increase the OpsCenter Server service and GUI service heap size beyond the recommended sizes.
See [“Adjusting the default heap size for the OpsCenter web server service”](#) on page 24.

Note: Once you have changed the heap size, restart the OpsCenter services.

Scenario 2 - OpsCenter performance may be affected while generating scheduled or custom reports

Solution: You need to define good time frame for scheduled reports as well as custom reports

- If the number of scheduled reports is more than 300, use the recommended average report time frame that is 15 days.
- Make sure that multiple reports are not running in parallel. Schedule the reports at different times as much as possible.
- Schedule graphical (chart-based) reports at different times than the tabular reports, because graphical reports require more amount of memory to generate the output.
- Increase the OpsCenter Server service heap size. Set the heap size to a value between 4 GB and 8 GB.
See [“Adjusting the default heap size for the OpsCenter server service”](#) on page 23.

Note: Once you have changed the heap size, restart the OpsCenter services.

Index

A

- about adjusting the cache size 22
- about adjusting the heap size 22
- about defragmenting OpsCenter database 33
- about OpsCenter Server on a virtual machine 11
- about performance and floating-point calculations in Solaris 36
- adding master server 18
- adjusting cache size
 - OpsCenter database service 27
- adjusting the heap size
 - OpsCenter Agent service 26
 - OpsCenter server service 23
 - OpsCenter web server service 24
- allocating more memory to database cache 34

C

- checking debug level of logs 19
- checking disk fragment count 33

D

- data purge 36
- defragmenting OpsCenter database 35
- disclaimer 9

G

- guidelines on OpsCenter VM parameters 12

M

- moving OpsCenter to a different machine 37

O

- OpsCenter database configuration 14
- OpsCenter performance tuning 16
- OpsCenter reports
 - VM settings and % gains 13
- OpsCenter services 14

P

- performance tuning guidelines 17
- physical versus virtual OpsCenter Server configuration 11
- purpose of the guide 9

S

- saving files and folders before moving the OpsCenter Server 37
- saving log files to a different location
 - UNIX 21
 - Windows 19
- saving OpsCenter log files on a different drive 18
- sizing considerations 15
- sizing guidelines 16

T

- tuning OpsCenter for better performance 16

W

- web browser support 18