

Symantec NetBackup OpsCenter 7.6 Performance and Tuning Guide

Windows and UNIX

Release 7.6



Symantec NetBackup OpsCenter Performance and Tuning Guide

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PN:

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North America and Latin America supportsolutions@symantec.com

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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 36.
- 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 35.
- See [“About OpsCenter performance and floating-point calculations in Solaris”](#) on page 35.

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 `-c256M -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 due to 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 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 34.

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.

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 computer”](#) on page 37.
- 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 Server to a different computer”](#) on page 40.

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 36.

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 36.

Moving OpsCenter 7.5 server to a different OpsCenter 7.6 computer

This section provides the procedure to move OpsCenter 7.5 server to a different computer where you want to install OpsCenter 7.6. 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. 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.

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 36.

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

To move OpsCenter 7.5 (or 7.5.0.x) server to a different computer that has OpsCenter 7.6 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. You need to first export the AT data on the OpsCenter 7.5 server host, which you can import into OpsCenter 7.6.

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 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 setup has its own AT configuration, which is called OpsCenter AT.

Refer to the About OpsCenter AT and About OpsCenter 7.6 upgrade scenarios with respect to AT sections in the *OpsCenter 7.6 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.

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.**

Install OpsCenter 7.6 on the new host.

Refer to the Installing OpsCenter 7.6 section in the *OpsCenter 7.6 Administrator's Guide*.

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

- 6 Stop all OpsCenter 7.6 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 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`

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

For example:

`<OpsCenterInstallLocation>/SYMCOpsCenterServer/bin/dbUpgrade.sh
install 7.5.0.3 7.6`

- 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 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 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 upgrade failure scenarios section in the *OpsCenter 7.6 Administrator's Guide*.

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

12 Start OpsCenter services.

Moving OpsCenter 7.6 Server to a different computer

This section provides the procedure to move OpsCenter 7.6 Server to a different computer. You may need to move OpsCenter 7.6 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 36.

To move OpsCenter 7.6 Server to a different computer

Step1 to Step 4 are be carried out on the OpsCenter 7.6 source host.

- 1 Stop all OpsCenter 7.6 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 source host may have authentication (AT) data that you want to import into OpsCenter 7.6 target host. You need to first export the AT data on the OpsCenter 7.6 source host, which you can import into OpsCenter 7.6 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 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 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 target host.

Install OpsCenter 7.6 on the new host that is target host.

Refer to the Installing OpsCenter 7.6 section in the *OpsCenter 7.6 Administrator's Guide*.

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

6 Stop all OpsCenter 7.6 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 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 target host.

Make sure that you have copied the exported XML file that you have created on the OpsCenter 7.6 source host to OpsCenter 7.6 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 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](#)

Network configuration best practices

The following are 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

The following are 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 NetBackup Master Server or OpsCenter Agent hosts
- 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.

Note: In OpsCenter 7.6, you need to install OpsCenter Agent to collect Capacity Licensing and Traditional Licensing data.

Symantec recommends that you deploy the OpsCenter Agent geographically closer to the managed server.

- If you want to monitor a single NetBackup master server, Symantec recommends that you install OpsCenter Agent on the NetBackup master server itself.
- 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, msisexec.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

The following are 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

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

- If you plan to monitor NetBackup Master Server using OpsCenter Agent, then the version of Remote Admin Console (RAC) or the master or media server binaries that are installed on the Agent host must match the version of the NetBackup master server that it intends to monitor.
- Select correct versions and / or user name and password (if applicable) of backup or archive 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 or archive 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

The following are best practices for 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.

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