

NetBackup™ OpsCenter Performance and Tuning Guide

Windows and Linux

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NetBackup™ OpsCenter Performance and Tuning Guide

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https://sort.veritas.com/data/support/SORT_Data_Sheet.pdf

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Overview

This chapter includes the following topics:

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

Purpose of the guide

The OpsCenter performance and tuning information 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.

See [“About tuning OpsCenter for increased performance”](#) on page 14.

See [“OpsCenter Server configuration”](#) on page 8.

Disclaimer

The information that is published in the OpsCenter performance and tuning sections is based on the tests that were performed in Veritas 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 this section is based on the tests that were performed in Veritas 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.veritas.com/docs/DOC5808>

Note: Veritas 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 9.

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 14.
- 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 9.

See [“Guidelines on the OpsCenter VM parameters”](#) on page 10.

See [“About VM settings and % gains during OpsCenter report generation”](#) on page 11.

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: Allocate disks in the beginning, 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 Veritas 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

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

Parameter	Value
ESXi CPU	8 Logical (4 x 2 Cores)
OpsCenter version	7.7
Operating system	Windows Server
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 Veritas 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

Table 2-3 CPU and Memory: Reserved versus non-reserved (*continued*)

Report Name	Average Time (Min) non-reserved	Average Time (Min) reserved	% Gain
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.veritas.com/docs/DOC5808>

See “[Adjusting the OpsCenter database service cache size](#)” on page 23.

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.veritas.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 Veritas 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 14.

About tuning OpsCenter for increased performance

The information that is published in the following sections is based on the tests that were performed in Veritas 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 16.

See [“About using a web browser to access OpsCenter”](#) on page 16.

See [“About performance tuning guidelines”](#) on page 15.

See [“Moving OpsCenter server to a different computer”](#) on page 31.

See [“About saving the OpsCenter log files on a different drive”](#) on page 17.

See [“Checking the debug level of logs”](#) on page 17.

See [“About adjusting the heap size or cache size for OpsCenter services”](#) on page 19.

See [“Adjusting the default heap size for the OpsCenter server service”](#) on page 20.

See [“Adjusting the default heap size for the OpsCenter server service”](#) on page 20.

See [“Adjusting the default heap size for the OpsCenter web server service”](#) on page 21.

See [“Adjusting the OpsCenter database service cache size”](#) on page 23.

See [“About purging data periodically”](#) on page 31.

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.

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

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.
- Veritas 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 20.
- Increase the database cache size depending on the RAM and the database size. See “Adjusting the OpsCenter database service cache size” on page 23.
- 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.

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

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, Veritas 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.netbackup.com/compatibility>

About saving the OpsCenter log files on a different drive

Veritas 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 17.

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

See [“Saving the log files to a different location on Windows”](#) on page 18.

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

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	<code>INSTALL_PATH\OpsCenter\server\bin\</code>
UNIX	<code><INSTALL_PATH>/SYMCOpsCenterServer/bin</code>

- 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 Web console	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 `INSTALL_PATH\OpsCenter\server\logs`
 Server

OpsCenter View `INSTALL_PATH\OpsCenter\gui\logs`
 Builder

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

To save the log files for OpsCenter web console 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 147 -s  
LogDirectory="<New log directory location>"
```

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

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

Saving the log files to a different location on UNIX

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

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

OpsCenter Server `<INSTALL_PATH>/SYMCOpsCenterServer/logs`

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>/SYMCOpsCenterServer/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 Enter the following command to stop the OpsCenter server process:

```
<INSTALL_PATH>/SYMCOpsCenterServer/bin/stopserver
```

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

```
<INSTALL_PATH>/SYMCOpsCenterServer/bin/startserver
```

To save the log files for OpsCenter web console 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 20.

See [“Adjusting the default heap size for the OpsCenter web server service”](#) on page 21.

See [“Adjusting the OpsCenter database service cache size”](#) on page 23.

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.

See [“About adjusting the heap size or cache size for OpsCenter services”](#) on page 19.

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

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.

See [“About adjusting the heap size or cache size for OpsCenter services”](#) on page 19.

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

Note: If you start noticing poor performance in the OpsCenter console every few days and restarting the Veritas 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 `OpsCenterGUIService.xml` file from the following location on the OpsCenter server:

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 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. Veritas 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.

See [“About adjusting the heap size or cache size for OpsCenter services”](#) on page 19.

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

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;BROADCASTLISTENER=0;
DOBROADCAST=NO;ME=127.0.0.1;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;BROADCASTLISTENER=0;
DOBROADCAST=NO;ME=127.0.0.1;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_<HOST_NAME> -x tcpip(LocalOnly=YES;BROADCASTLISTENER=0;
DOBROADCAST=NO;ME=127.0.0.1;ServerPort=13786) -gd DBA -gk DBA -gl DBA -gp
4096 -ti 0 -c 1024M -ch 4G -cl 1024M -zl -os 1M -m -o
"<INSTALL_PATH>\OpsCenter\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;ME=127.0.0.1;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;ME=127.0.0.1;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;ME=127.0.0.1;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 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 the data is deleted from the OpsCenter database:

- When data purging is enabled in OpsCenter
You can view the purge settings 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

Veritas 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 28.

See [“Defragmenting the OpsCenter database”](#) on page 30.

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.

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

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 30.
- 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: The information that is published in this section is based on the tests that were performed in Veritas Lab in a controlled environment with expert users. These can only be used as guidelines and should not be used as 100% accurate benchmarks.

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, Veritas 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.veritas.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 28.

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 server console.

The OpsCenter database should be defragmented after a purge operation.

Moving OpsCenter server to a different computer

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

Consider the following scenarios:

- Scenario 1: You have OpsCenter setup that you want to upgrade and because of certain constraints with the new version, you need to move the OpsCenter server to a different machine.

For example: If your existing version of OpsCenter is installed on a platform that is unsupported.

See [“Moving OpsCenter server because of constraints in upgrade”](#) on page 32.

- Scenario 2: You want to move OpsCenter server to a different machine. For example, if the hardware of the existing machine is faulty.
 See [“Moving OpsCenter server because of issues in the existing setup”](#) on page 35.

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\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 31.

Moving OpsCenter server because of constraints in upgrade

This section provides the procedure to move the existing OpsCenter server to a different machine where you want to install the latest version of OpsCenter. The following example explains the scenario in detail:

You have OpsCenter setup that you want to upgrade to the latest version. If OpsCenter is installed on a platform that is not supported by the latest version of OpsCenter, you need to move the existing OpsCenter server to a different machine that has a supported platform.

You need to carry out a few steps on the existing OpsCenter server host and a few on the new host.

To move the existing OpsCenter server to a different machine

1 Steps to be carried out on the existing OpsCenter server host

On the OpsCenter source host, perform a backup of the OpsCenter database using the `dbbackup` script. You should run this script when you need to back up your OpsCenter database and database password file (`db.conf`).

- 2** Existing OpsCenter server host may have AT (Veritas Product Authentication Service) data that you want to import into the new OpsCenter. You need to first export the AT data on the existing OpsCenter server host, which you can import into the new OpsCenter setup.

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

- 3** Copy the XML file that you have created in the earlier step to the new host.

Note: While 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.

4 Steps to be carried out on the new host where you want to install the latest version of OpsCenter

Install the latest version of OpsCenter on the new host.

- 5** Stop all OpsCenter services on the new host.

- 6** Carry out the performance tuning steps that you had done earlier.

For more information about how to tune OpsCenter for improved performance, please refer to the *OpsCenter Performance and Tuning Guide*.

- 7** Restore the database that you have backed up earlier.

- 8** Update the following information from the `db.conf` file:

- If you are using the port that is different than the default one, update the value of the `db.port` parameter as follows:

```
db.port=13786
```

- Set the `db.serviceName` parameter to the name of the target host as follows:

```
db.serviceName=TargetHostName
```

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 8.0 8.1`

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

For example:

`<OpsCenterInstallLocation>/SYMCOpsCenterServer/bin/dbUpgrade.sh
install 8.0 8.1`

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 the new OpsCenter server host.

Make sure that you have copied the export XML file that you have created on the existing OpsCenter server host to the new OpsCenter server host.

Run the following command:

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.

12 Start OpsCenter services.

Moving OpsCenter server because of issues in the existing setup

This section provides the procedure to move OpsCenter server to a different machine. You need to move OpsCenter server to a different machine in certain scenarios for example:

- Faulty hardware
- Hardware upgrade
- Operating System upgrade
- Moving from physical machine to virtual machine (or from virtual machine to physical machine)

To move OpsCenter server to a different machine

1 Steps to be carried out on the OpsCenter source host

On the OpsCenter source host, perform a backup of the OpsCenter database using the `dbbackup` script. You should run this script when you need to back up your OpsCenter database and database password file (`db.conf`).

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

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

3 Copy the XML file to the OpsCenter target host.

Note: While 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.

4 Steps to be carried out on the OpsCenter target host

Install OpsCenter on the new host that is target host.

5 Stop all OpsCenter services.

6 Carry out the performance tuning steps that you had done earlier.

For more information about how to tune OpsCenter for improved performance, please refer to the *OpsCenter Performance and Tuning Guide*.

7 Restore the database that you have backed up earlier.

8 Update the following information from the `db.conf` file:

- If you are using the port that is different than the default one, update the value of the `db.port` as follows:
`db.port=13786`
- Set the `db.serviceName` parameter to the name of the target host as follows:
`db.serviceName=TargetHostName`

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

Make sure that you have copied the export xml file that you have created on the OpsCenter source host to OpsCenter target host.

Run the following command for import:

Windows	<pre><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</pre>
UNIX	<pre><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</pre>

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.

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](#)
- [Best practices for antivirus configuration on Windows](#)

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.

See [“Disclaimer”](#) on page 6.

Installation and upgrade best practices

Following are the best practices for installing and upgrading OpsCenter:

See [“Disclaimer”](#) on page 6.

- It is recommended 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.
- It is recommended 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>
- In a clustered environment, first install OpsCenter Server on the active node and then on the passive nodes. Note that OpsCenter supports only Windows VCS clusters.
- Ensure that you install OpsCenter Server, 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 *OpsCenter Administrator's Guide*.
<http://www.veritas.com/docs/DOC5808>

Things to avoid during installation and upgrade

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

See “[Disclaimer](#)” on page 6.

- 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. Veritas 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 updates and language packs and then uninstall OpsCenter software.
- 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:

See [“Disclaimer”](#) on page 6.

- 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 23.
- 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 23.

Things to avoid while you use OpsCenter database

The following things should be avoided when you use OpsCenter database:

See [“Disclaimer”](#) on page 6.

- 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:

See [“Disclaimer”](#) on page 6.

- 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, Veritas 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:

See [“Disclaimer”](#) on page 6.

- Do not use unsupported backup products. See About OpsCenter compatible backup and archiving products section in OpsCenter Administrator’s Guide.
- Do not use unsupported upgrade paths. See About supported upgrade paths section in OpsCenter Administrator’s Guide.
- 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:

See [“Disclaimer”](#) on page 6.

- 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 19.

OpsCenter reporting best practices

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

See [“Disclaimer”](#) on page 6.

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 23.

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 21.

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 20.

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

Best practices for antivirus configuration on Windows

On a Windows platform, lack of appropriate filter settings or firewall settings may affect the OpsCenter server performance in an antivirus setup.

See [“Disclaimer”](#) on page 6.

Following are the best practices that you should follow while you configure an antivirus application on OpsCenter setup.

Note: Assumption: Apart from OpsCenter, no other Veritas products are installed on the host.

- Add the exclusion filters by excluding the following folders and contents:
 - `**\Veritas\*`
 - `C:\Program Files\Symantec\*`
 - `C:\Program Files(x86)\Symantec\*`
 - Database folder: `Install_Path\OpsCenter\server\db\data`
 This path is the default database path. If the database resides at a different location, exclude that path.
- Exclude the following processes:
 - `OpsCenterSrvService.exe`
 - `OpsCenterWebSrvService.exe`
 - `Ops_atd.exe`
 - `Dbsrvxx.exe`
 Where xx is the Sybase database version
 - `Pbx_exchange.exe`
 - `java.exe` for OpsCenter Server service

- java.exe for OpsCenter GUI service
- Exclude the following firewall ports:
 - 80 (web services)
 - 443 (web services)
 - 1556 (PBX)
 - 13786 (database service)

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