

# Symantec NetBackup™ 7.5 Upgrade Guide

Release 7.5

Document revision 8

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

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- Product release level

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

## Licensing and registration

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

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## Customer service

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- Latest information about product updates and upgrades
- Information about upgrade assurance and support contracts
- Information about the Symantec Buying Programs
- Advice about Symantec's technical support options
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Europe, Middle-East, and Africa	<a href="mailto:semea@symantec.com">semea@symantec.com</a>
North America and Latin America	<a href="mailto:supportsolutions@symantec.com">supportsolutions@symantec.com</a>

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# Introduction

This chapter includes the following topics:

- [About the NetBackup 7.5 Upgrade Guide](#)

## About the NetBackup 7.5 Upgrade Guide

The NetBackup 7.5 Upgrade Guide is provided to help assist you plan and accomplish your upgrade to NetBackup 7.5. This guide is updated periodically to provide you with the most up-to-date information. You can obtain the latest version of this guide on the NetBackup 7.5 Upgrade portal, at the following link:

<http://www.symantec.com/docs/TECH74584>

Starting with NetBackup 7.5, all backup image metadata is stored in the NetBackup relational database (NBDB). Previous versions stored this data in either the NBDB or the flat ASCII files (image header files), depending on the source of the image information.

The following describes the advantages of this change:

- Eliminates the consistency issues for any data that previously existed in multiple databases.
- Improves the product search performance, especially in large catalogs.
- Improves the performance of restores, policy scheduling, and image cleanups.

After the upgrade from a previous version of NetBackup, post-upgrade migration of pre-existing image metadata from the file system to the NBDB begins. Different methods for the image metadata migration are available for you to choose from. Your method of choice is dependent on the number of images that must be migrated and the complexity of your NetBackup environment. Once the image metadata migration has completed successfully, the upgrade to NetBackup 7.5 is considered complete.

Please review and incorporate the information in this upgrade guide into your upgrade plan as is appropriate for your NetBackup environment.

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**Note:** In addition to the methods for image metadata migration in the NetBackup 7.5 installation guides, two additional methods are documented in this upgrade guide. Although you can use any of the documented methods, Symantec recommends that you use one of the methods in this upgrade guide.

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**Note:** For NetBackup installations that include globally clustered master servers using the Global Cluster Option (GCO), follow the upgrade planning guidelines in this guide. Then, refer to the following document for the specific steps to upgrade these servers to NetBackup 7.5:

<http://www.symantec.com/business/support/index?page=content&id=HOWTO73064>

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# Planning for post-upgrade image metadata migration

This chapter includes the following topics:

- [About the migration phases](#)
- [About operational restrictions during the image metadata migration](#)
- [How to determine your plan for the image metadata migration](#)
- [About modifying the `server.conf` file to improve image metadata migration and NetBackup performance](#)

## About the migration phases

The image metadata migration begins after NetBackup 7.5 has started. The image migration occurs in two phases as follows:

### Phase 1 migration

This phase is initiated automatically after the upgrade steps have been completed, when the first instance of the `nbtserv` process runs.

The following images are migrated during this phase:

- All SLP controlled images
- All staged DSSU images

### Phase 2 migration

This phase is initiated automatically based on the image clean-up jobs scheduled by `nbpem`, or you can initiate it manually to speed up the migration process.

This phase migrates all of the images that were not migrated in phase 1.

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**Note:** The migration phases can run in any order and may also overlap. Refer to the following topics for specific instructions about how to run the migration phases:

See [“Migrating the image metadata using the Simple method”](#) on page 17. and

See [“Migrating the image metadata using the Guided method”](#) on page 22.

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## About operational restrictions during the image metadata migration

During the image metadata migration, certain NetBackup and OpsCenter operations may prevent a successful image metadata migration. Other NetBackup operations are also affected and may report errors while the image metadata migration is in progress.

The following describes the guidelines that you should follow before the upgrade and during the image metadata migration. The following also describes expected NetBackup operational behavior during the image metadata migration.

Guidelines to follow  
before upgrades and  
during image metadata  
migration

- **Disable OpsCenter data collection.**  
If you use OpsCenter, before you start the upgrade, disable data collection for the master server. Do not activate data collection for the server until after phase 1 and phase 2 of the image metadata migration have completed.  
For information on how to disable OpsCenter data collection, refer to the section "Modifying an OpsCenter Data Collector configuration" in the *NetBackup OpsCenter Administrator's Guide*.
- **Do not perform any catalog backup or catalog recovery operations until after phase 1 and phase 2 of the image metadata migration have completed.**
- **Minimize the use of any NetBackup commands that query the NetBackup catalog until after phase 2 of the image metadata migration has completed.** Such commands include but are not restricted to `bpimage` and `bpimagelist`. During the migration, these types of commands consume resources that cause them to run inefficiently and also slow the migration process.

- NetBackup operational behavior during image metadata migration
- Capacity management and DSSU staging jobs cannot run while phase 1 of the image metadata migration is in progress.
  - Some user-interface and reporting functions are likely to report errors until phase 2 of the image metadata migration has completed.
- For example, in the NetBackup Administration Console, the following error message appears if you attempt a catalog search on your AdvancedDisk media:
- INF - unexpected return value from db\_IMAGEreceive: unable to process request 228**
- The execution of the `bpexpdate` command with either the `-deassign` or the `-media` option fails while phase 2 of the image metadata migration is in progress.

## How to determine your plan for the image metadata migration

The following guidelines are intended to help you determine how to perform the image metadata migration for your backup environment.

Calculate the estimated total time to complete an upgrade to NetBackup 7.5 and both migration phases as follows:

- Determine the number of images on your system that need their image metadata migrated by running the following command:
  - On UNIX systems:
 

```
/usr/opensv/netbackup/bin/admincmd/bpimagelist -idonly -d  
"01/01/1970 00:00:00" | wc -l
```
  - On Windows systems:
 

```
install_path\NetBackup\bin\admincmd\bpimagelist -idonly -d  
"01/01/1970 00:00:00" | %SystemDrive%\Windows\System32\find.exe  
/C " ID: "
```
- Use [Figure 2-1](#) to find the image count for your system, along the x axis. Then, determine which line in the figure for your image count most accurately represents the performance of your master server. Refer to [Table 2-1](#) for a description of each line.

Figure 2-1      Estimated image metadata migration times

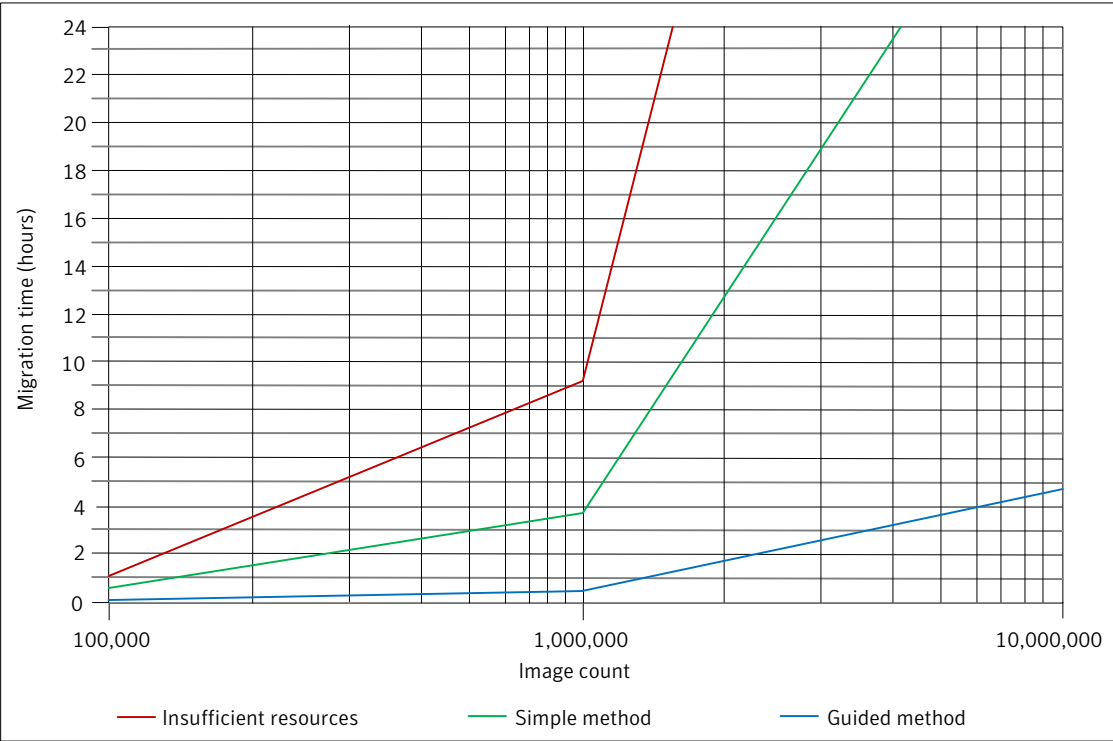


Table 2-1      Diagram line definitions for estimated image metadata migration times

Line	Description
Insufficient Resources line (using the Simple method)	<p>This line assumes a migration rate of 30 images per second.</p> <p>This performance level can be expected if your system disks are slow and/or you cannot tune the NetBackup relational database (NBDB) with enough cache memory.</p> <p>Refer to the following topic for more information:</p> <p>See <a href="#">“Modifying the server.conf file to improve image metadata migration and NetBackup performance”</a> on page 29.</p>

**Table 2-1**      Diagram line definitions for estimated image metadata migration times *(continued)*

Line	Description
Simple Method line (adequate system resources using the Simple method)	<p>This line assumes a migration rate of 75 images per second.</p> <p>This performance level can be achieved if your system runs on low latency disks and you can tune the NBDB with enough cache memory.</p> <p>Refer to the following topic for more information:</p> <p>See <a href="#">“Modifying the server.conf file to improve image metadata migration and NetBackup performance”</a> on page 29.</p>
Guided Method line (robust system resources using the Guided method)	<p>This line assumes a migration rate of 600 images per second.</p> <p>This performance level can be achieved only by using the Guided method, high performance RAID disk, and ample cache memory for the NBDB.</p> <p>Refer to the following topic for more information:</p> <p>See <a href="#">“Modifying the server.conf file to improve image metadata migration and NetBackup performance”</a> on page 29.</p>

- Plot your current total image count on the x axis and determine if your master server qualifies for the Simple method, the Guided method, or if it has insufficient system resources.
- Referencing the appropriate line, determine the migration time on the y axis.
- If you can schedule enough time to perform the upgrade and the migration without the need to run backups, use the Simple method. Otherwise, use the Guided method.

# About modifying the server.conf file to improve image metadata migration and NetBackup performance

Systems with more than 1 million images to be migrated can benefit greatly by modifying the `server.conf` file, before an upgrade to NetBackup 7.5. Certain changes can improve the performance of the image metadata migration and NetBackup operations after all images are migrated into the NetBackup relational database (NBDB).

For any systems that contain more than 1 million images, Symantec recommends that you modify the `server.conf` file.

See [“Modifying the server.conf file to improve image metadata migration and NetBackup performance”](#) on page 29.



# Image metadata migration methods

This chapter includes the following topics:

- [Migrating the image metadata using the Simple method](#)
- [Migrating the image metadata using the Guided method](#)

## Migrating the image metadata using the Simple method

Use this method to perform the image metadata migration if the following is true for your NetBackup environment:

- You can suspend normal NetBackup operations while the image metadata migration is in progress.

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**Note:** Remember to update NetBackup OpsCenter to version 7.5 before you update your NetBackup master servers to version 7.5. See the *NetBackup OpsCenter Administrator's Guide* for complete information.

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**Note:** For NetBackup installations that include globally clustered master servers using the Global Cluster Option (GCO), follow the upgrade planning guidelines in this guide. Then, refer to the following document for the specific steps to upgrade these servers to NetBackup 7.5:

<http://www.symantec.com/business/support/index?page=content&id=HOWTO73064>

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Table 3-1 describes the steps to upgrade NetBackup and complete the image metadata migration. To help you keep track of your progress, the table includes a **Completed** column for you to mark as you complete each task.

Table 3-1 Steps to upgrade NetBackup and complete the image metadata migration using the Simple method

Step	Task	Completed
1	Perform any pre-upgrade tasks that you would normally do in regard to your NetBackup environment. For example: <ul style="list-style-type: none"><li>■ Stop all customized or third-party scripts.</li><li>■ Perform any cluster-specific tasks.</li></ul>	
2	Perform the following pre-upgrade tasks as described in the NetBackup 7.5 installation guides: <ul style="list-style-type: none"><li>■ Run a hot catalog backup.</li><li>■ Deactivate all NetBackup policies.</li><li>■ Deactivate all disk staging storage units.</li></ul>	
3	Stop all NetBackup services.	
4	Modify the <code>server.conf</code> file as recommended. <b>Note:</b> If the image count is less than 1 million, it is not necessary to modify the <code>server.conf</code> file.  See <a href="#">“Modifying the server.conf file to improve image metadata migration and NetBackup performance”</a> on page 29.	
5	Upgrade NetBackup as described in the NetBackup 7.5 installation guides, as follows: <b>Note:</b> During the upgrade, make sure that you take the following action to prevent job-related NetBackup services from starting immediately after you finish the upgrade:	
	Upgrade NetBackup as described in the NetBackup 7.5 installation guides, as follows: <ul style="list-style-type: none"><li>■ On UNIX systems: When the following question appears, enter <b>n</b> and press <b>Enter</b>: <code>Do you want to start the NetBackup job-related daemons so backups and restores can be initiated?</code></li><li>■ On Windows systems: On the <b>Symantec NetBackup Installation Type</b> screen, select <b>Custom</b>. On the <b>NetBackup Services</b> screen, remove the check mark next to the option <b>Start job-related NetBackup services following installation</b>.</li></ul>	

**Table 3-1** Steps to upgrade NetBackup and complete the image metadata migration using the Simple method (*continued*)

Step	Task	Completed
	<ul style="list-style-type: none"> <li>■ In the <i>NetBackup Installation Guide for UNIX and Linux</i>: Perform steps 6 - 14 as described in the section "Upgrading server software from versions 6.x or 7.x to 7.5".</li> <li>■ In the <i>NetBackup Installation Guide for Windows</i>: For local server upgrades, perform steps 4 - 14 as described in the section "Installing or upgrading servers locally." For remote server upgrades, perform steps 4 - 16 as described in the section "Installing or upgrading servers remotely."</li> <li>■ For clusters, perform steps 4 - 16 as described in the section "Installing or upgrading servers in clustered environments."</li> </ul>	
6	<p>Stop all NetBackup processes and services as follows:</p> <ul style="list-style-type: none"> <li>■ On UNIX systems: <code>/usr/opensv/netbackup/bin/bp.kill_all</code></li> <li>■ On Windows systems: <code>install_path\NetBackup\bin\bpdwn -f</code></li> </ul>	
7	<p>Immediately after you stop all NetBackup processes and services, you must install the NetBackup 7.5.0.3 maintenance update. This update includes very important fixes that were released after NetBackup 7.5. Use the following link to access NetBackup 7.5.0.3 and the associated instructions:</p> <p><a href="http://www.symantec.com/business/support/index?page=content&amp;id=TECH189607">http://www.symantec.com/business/support/index?page=content&amp;id=TECH189607</a></p>	
8	<p>Restart NetBackup as follows:</p> <ul style="list-style-type: none"> <li>■ On UNIX systems: <code>/usr/opensv/netbackup/bin/bp.start_all</code></li> <li>■ On Windows systems: <code>install_path\NetBackup\bin\bpup -f</code></li> </ul> <p><b>Note:</b> After NetBackup is restarted, phase 1 of the image metadata migration begins.</p>	
9	Start the NetBackup Administration Console and open the <b>Activity Monitor</b> .	

**Table 3-1** Steps to upgrade NetBackup and complete the image metadata migration using the Simple method (*continued*)

Step	Task	Completed
10	<p>To start phase 2 of the image metadata migration, run the following clean-up command and wait for the image clean-up job to complete:</p> <ul style="list-style-type: none"> <li>■ On UNIX systems:  <code>/usr/opensv/netbackup/bin/admincmd/bpimage -cleanup -allclients</code></li> <li>■ On Windows systems:  <code>install_path\NetBackup\bin\admincmd\bpimage -cleanup -allclients</code></li> </ul> <p>Use the <b>Activity Monitor</b> to view the progress. If the clean-up job completes with a status of zero, proceed to the next step.</p> <p><b>Note:</b> To view the progress details of phase 2 migration, refer to the following topic: See <a href="#">“About monitoring the phase 2 migration process”</a> on page 32.</p>	
	<p>If the job status is not zero, do the following:</p> <ul style="list-style-type: none"> <li>■ On UNIX systems:  <code>/usr/opensv/netbackup/bin/admincmd/nbemmcmd -listsettings -brief -machinename masterservername</code></li> <li>■ On Windows systems:  <code>install_path\NetBackup\bin\admincmd\nbemmcmd -listsettings -brief -machinename masterservername</code></li> </ul> <p>If the result shows <code>LIST_FS_IMAGE_HEADERS = "0"</code>, phase 2 has completed. You can proceed to the next step.</p> <p>If the result shows <code>LIST_FS_IMAGE_HEADERS = "1"</code> or if no result appears, phase 2 has not completed.</p> <p>You must re-run <code>bpimage -cleanup -allclients</code> and wait for it to complete.</p> <p>Then, re-run <code>nbemmcmd -listsettings -brief -machinename masterservername</code>.</p> <p>If the result still shows <code>LIST_FS_IMAGE_HEADERS = "1"</code> or if no result appears, contact Symantec Technical Support.</p>	

**Table 3-1** Steps to upgrade NetBackup and complete the image metadata migration using the Simple method (*continued*)

Step	Task	Completed
	<p>Check the following directory for corrupt images:</p> <ul style="list-style-type: none"> <li>■ On UNIX systems:  <code>/usr/opensv/netbackup/db.corrupt</code></li> <li>■ On Windows systems:  <code>install_path\NetBackup\db.corrupt</code></li> </ul> <p>Examine all files in the directory and if necessary, contact Symantec Technical Support for assistance.</p>	
11	<p>Wait for both phase 1 and phase 2 migrations to complete.</p> <p><b>Note:</b> If the image metadata migration appears to be taking much longer than your estimated total migration time, please contact Symantec Technical Support.</p> <p>To determine if migration has completed, do the following:</p> <ul style="list-style-type: none"> <li>■ On UNIX systems:  <code>/usr/opensv/netbackup/bin/admincmd/nbemmcmd -listsettings -brief -machinename masterservername</code></li> <li>■ On Windows systems:  <code>install_path\NetBackup\bin\admincmd\nbemmcmd -listsettings -brief -machinename masterservername</code></li> </ul> <p>If the result shows <code>SLP_DSSU_MIGRATION_STATE="1"</code>, phase 1 has completed.          If the result shows <code>SLP_DSSU_MIGRATION_STATE="0"</code>, phase 1 has not completed.          If the result shows <code>LIST_FS_IMAGE_HEADERS = "0"</code>, phase 2 has completed.          If the result shows <code>LIST_FS_IMAGE_HEADERS = "1"</code> or if no result appears, phase 2 has not completed.</p>	
12	<p>This step applies only to cluster installations.</p> <p>After all image metadata migration processes have completed on this master server, for other master servers in the cluster, you can update the remaining nodes to NetBackup 7.5 by using the the normal cluster upgrade process. For complete details, see the <i>NetBackup 7.5 Installation Guide</i>.</p>	
13	<p>If you have any media servers that you intend to upgrade to NetBackup 7.5, upgrade them now.</p>	
14	<p>Reactivate the following in the order as shown:</p> <ul style="list-style-type: none"> <li>■ All disk staging storage units.</li> <li>■ All NetBackup policies.</li> </ul>	

Table 3-1

Steps to upgrade NetBackup and complete the image metadata migration using the Simple method (continued)

Step	Task	Completed
15	Monitor your backup environment to verify that normal NetBackup operation has resumed.	

# Migrating the image metadata using the Guided method

Use this method to perform the image metadata migration if the Simple method requires too much time.

**Note:** Symantec is currently developing tools to help you perform the steps in this method. For more details, contact your Business Critical Services (BCS) representative.

**Note:** Remember to update NetBackup OpsCenter to version 7.5 before you update your NetBackup master servers to version 7.5. You must also disable OpsCenter data collection. See the *NetBackup OpsCenter Administrator's Guide* for complete information.

**Note:** For NetBackup installations that include globally clustered master servers using the Global Cluster Option (GCO), follow the upgrade planning guidelines in this guide. Then, refer to the following document for the specific steps to upgrade these servers to NetBackup 7.5:  
<http://www.symantec.com/business/support/index?page=content&id=HOWTO73064>

Table 3-2 describes the steps to upgrade NetBackup and complete the image metadata migration. To help you keep track of your progress, the table includes a **Completed** column for you to mark as you complete each task.

**Table 3-2** Steps to upgrade NetBackup and complete the image metadata migration using the Guided method

Step	Task	Completed
1	<p>Perform any pre-upgrade tasks that you would normally do in regard to your NetBackup environment. For example:</p> <ul style="list-style-type: none"> <li>■ Stop all customized or third-party scripts.</li> <li>■ Perform any cluster-specific tasks.</li> </ul>	
2	<p>Perform the following pre-upgrade tasks as described in the NetBackup 7.5 installation guides:</p> <ul style="list-style-type: none"> <li>■ Run a hot catalog backup.</li> <li>■ Disable OpsCenter data collection for this master server.</li> <li>■ Disable all storage lifecycle policies (SLPs).</li> <li>■ Deactivate all NetBackup policies.</li> <li>■ Deactivate all disk staging storage units.</li> </ul>	
3	Stop all NetBackup services.	
4	<p>Modify the <code>server.conf</code> file as recommended.</p> <p><b>Note:</b> If the image count is less than 1 million, it is not necessary to modify the <code>server.conf</code> file.</p> <p>See <a href="#">“Modifying the server.conf file to improve image metadata migration and NetBackup performance”</a> on page 29.</p>	
5	<p>Upgrade NetBackup as described in the NetBackup 7.5 installation guides, as follows:</p> <p><b>Note:</b> During the upgrade, make sure that you take the following action to prevent job-related NetBackup services from starting immediately after you finish the upgrade:</p>	
	<p>Upgrade NetBackup as described in the NetBackup 7.5 installation guides, as follows:</p> <ul style="list-style-type: none"> <li>■ On UNIX systems:  When the following question appears, enter <b>n</b> and press <b>Enter</b>:  Do you want to start the NetBackup job-related daemons so backups and restores can be initiated?</li> <li>■ On Windows systems:  On the <b>Symantec NetBackup Installation Type</b> screen, select <b>Custom</b>.  On the <b>NetBackup Services</b> screen, remove the check mark next to the option <b>Start job-related NetBackup services following installation</b>.</li> </ul>	

**Table 3-2** Steps to upgrade NetBackup and complete the image metadata migration using the Guided method (*continued*)

Step	Task	Completed
	<ul style="list-style-type: none"> <li>■ In the <i>NetBackup Installation Guide for UNIX and Linux</i>: Perform steps 6 - 14 as described in the section "Upgrading server software from versions 6.x or 7.x to 7.5".</li> <li>■ In the <i>NetBackup Installation Guide for Windows</i>: For local server upgrades, perform steps 4 - 14 as described in the section "Installing or upgrading servers locally." For remote server upgrades, perform steps 4 - 16 as described in the section "Installing or upgrading servers remotely."</li> <li>■ For clusters, perform steps 4 - 16 as described in the section "Installing or upgrading servers in clustered environments."</li> </ul>	
6	<p>Stop all NetBackup processes and services as follows:</p> <ul style="list-style-type: none"> <li>■ On UNIX systems: <code>/usr/opensv/netbackup/bin/bp.kill_all</code></li> <li>■ On Windows systems: <code>install_path\NetBackup\bin\bpdwn -f</code></li> </ul>	
7	<p>Immediately after you stop all NetBackup processes and services, you must install the NetBackup 7.5.0.3 maintenance update. This update includes very important fixes that were released after NetBackup 7.5. Use the following link to access NetBackup 7.5.0.3 and the associated instructions:</p> <p><a href="http://www.symantec.com/business/support/index?page=content&amp;id=TECH189607">http://www.symantec.com/business/support/index?page=content&amp;id=TECH189607</a></p>	
8	<p>Restart NetBackup as follows:</p> <ul style="list-style-type: none"> <li>■ On UNIX systems: <code>/usr/opensv/netbackup/bin/bp.start_all</code></li> <li>■ On Windows systems: <code>install_path\NetBackup\bin\bpup -f</code></li> </ul> <p><b>Note:</b> After NetBackup is restarted, phase 1 of the image metadata migration begins.</p>	



**Table 3-2** Steps to upgrade NetBackup and complete the image metadata migration using the Guided method (*continued*)

Step	Task	Completed
9	<p>The following command must be run on the master server for multiple clients, simultaneously. To perform phase 2 migration, make sure that you run the command for each client:</p> <ul style="list-style-type: none"> <li>■ On UNIX systems:  <code>/usr/opensv/netbackup/bin/cat_import -client name            -delete_source -base /usr/opensv/netbackup/db</code></li> <li>■ On Windows systems:  <code>install_path\NetBackup\bin\cat_import -client name            -delete_source -base install_path\NetBackup\db</code></li> </ul>	
10	Start the NetBackup Administration Console and open the <b>Activity Monitor</b> .	
11	<p>To complete phase 2 of the image metadata migration, run the following clean-up command and wait for the image clean-up job to complete:</p> <ul style="list-style-type: none"> <li>■ On UNIX systems:  <code>/usr/opensv/netbackup/bin/admincmd/bpimage -cleanup            -allclients</code></li> <li>■ On Windows systems:  <code>install_path\NetBackup\bin\admincmd\bpimage -cleanup            -allclients</code></li> </ul> <p>Use the <b>Activity Monitor</b> to view the progress. If the clean-up job completes with a status of zero, proceed to the next step.</p> <p><b>Note:</b> To view the progress details of phase 2 migration, refer to the following topic: See <a href="#">“About monitoring the phase 2 migration process”</a> on page 32.</p>	

**Table 3-2** Steps to upgrade NetBackup and complete the image metadata migration using the Guided method (*continued*)

Step	Task	Completed
	<p>If the job status is not zero, do the following:</p> <ul style="list-style-type: none"> <li>■ On UNIX systems:  <code>/usr/opensv/netbackup/bin/admincmd/nbemmcmd -listsettings -brief -machinename <i>masterservername</i></code></li> <li>■ On Windows systems:  <code>install_path\NetBackup\bin\admincmd\nbemmcmd -listsettings -brief -machinename <i>masterservername</i></code></li> </ul> <p>If the result shows <code>LIST_FS_IMAGE_HEADERS = "0"</code>, phase 2 has completed. You can proceed to the next step.</p> <p>If the result shows <code>LIST_FS_IMAGE_HEADERS = "1"</code> or if no result appears, phase 2 has not completed.</p> <p>You must re-run <code>bpimage -cleanup -allclients</code> and wait for it to complete.</p> <p>Then, re-run <code>nbemmcmd -listsettings -brief -machinename <i>masterservername</i></code>.</p> <p>If the result still shows <code>LIST_FS_IMAGE_HEADERS = "1"</code> or if no result appears, contact Symantec Technical Support.</p>	
	<p>Check the following directory for corrupt images:</p> <ul style="list-style-type: none"> <li>■ On UNIX systems:  <code>/usr/opensv/netbackup/db.corrupt</code></li> <li>■ On Windows systems:  <code>install_path\NetBackup\db.corrupt</code></li> </ul> <p>Examine all files in the directory and if necessary, contact Symantec Technical Support for assistance.</p>	

**Table 3-2** Steps to upgrade NetBackup and complete the image metadata migration using the Guided method (*continued*)

Step	Task	Completed
12	<p>Wait for both phase 1 and phase 2 migrations to complete.</p> <p><b>Note:</b> If the image metadata migration appears to be taking much longer than your estimated total migration time, please contact Symantec Technical Support.</p> <p>To determine if migration has completed, do the following:</p> <ul style="list-style-type: none"> <li>■ On UNIX systems:  <code>/usr/openv/netbackup/bin/admincmd/nbemmcmd -listsettings -brief -machinename masterservername</code></li> <li>■ On Windows systems:  <code>install_path\NetBackup\bin\admincmd\nbemmcmd -listsettings -brief -machinename masterservername</code></li> </ul> <p>If the result shows <code>SLP_DSSU_MIGRATION_STATE="1"</code>, phase 1 has completed.</p> <p>If the result shows <code>SLP_DSSU_MIGRATION_STATE="0"</code>, phase 1 has not completed.</p> <p>If the result shows <code>LIST_FS_IMAGE_HEADERS = "0"</code>, phase 2 has completed.</p> <p>If the result shows <code>LIST_FS_IMAGE_HEADERS = "1"</code> or if no result appears, phase 2 has not completed.</p>	
13	<p>This step applies only to cluster installations.</p> <p>After all image metadata migration processes have completed on this master server, for other master servers in the cluster, you can update the remaining nodes to NetBackup 7.5 by using the normal cluster upgrade process. For complete details, see the <i>NetBackup 7.5 Installation Guide</i>.</p>	
14	<p>If you have any media servers that you intend to upgrade to NetBackup 7.5, upgrade them now.</p>	
15	<p>Reactivate the following in the order as shown:</p> <ul style="list-style-type: none"> <li>■ All disk staging storage units.</li> <li>■ All NetBackup policies.</li> <li>■ All SLPs.</li> <li>■ OpsCenter data collection for this master server.</li> </ul>	
16	<p>Monitor your backup environment to verify that normal NetBackup operation has resumed.</p>	



# Performance information reference

This chapter includes the following topics:

- [Modifying the `server.conf` file to improve image metadata migration and NetBackup performance](#)
- [About the image metadata migration rate](#)
- [About monitoring the phase 2 migration process](#)

## Modifying the `server.conf` file to improve image metadata migration and NetBackup performance

If the total image count to be migrated is more than 1 million, certain parameters in the `server.conf` file should be changed before an upgrade to NetBackup 7.5.

These changes help improve the following:

- Performance of the image metadata migration.
- Performance of NetBackup processes after all of the image metadata has been migrated into the NetBackup relational database (NBDB).

If there are more than 1 million images in your database, it is recommended that you make some modification to this file.

The following procedure describes how to modify the `server.conf` file to help improve the image metadata migration performance.

**To modify the `server.conf` file before an upgrade to NetBackup 7.5**

- 1 On the server that you want to upgrade, save a copy of the current `server.conf` file in a remote and a secure location.

The file resides in the following location:

■ On UNIX systems:

`/usr/opensv/var/global/server.conf`

■ On Windows systems:

`install_path\Program Files\Veritas\NetBackupDB\CONF\Server.conf`

- 2 On the server that you want to upgrade, open the `server.conf` file in a text editor.
- 3 Change the following parameters as appropriate for your backup environment:

`-ch` (maximum  
cache size)

This parameter indicates the maximum cache size that `dbsrv11` can use, which is the SQLAnywhere service that manages the NBDB. The default size in NetBackup versions earlier than 7.5 is 512M. For NetBackup 7.5, the default value has been increased to 1024M.

As a guideline, this parameter should be set to a minimum of 1G of cache for every 1 million images to be migrated.

For example:

- `-ch 1G` (for systems with up to 1M images)
- `-ch 4G` (for systems with up to 3M images)
- `-ch 6G` (for systems with up to 5M images)
- `-ch 12G` (for systems with up to 10M images)

**Note:** If the cache size is set too low, it can cause a slow rate of migration and NetBackup operational response. If the cache size is set too high, it can consume too much of the available system memory (RAM). As with any tuning parameter, to achieve the desired value and results may take multiple attempts of adjusting, starting, migrating, and stopping.

**Note:** If the master server has ample available memory, performance of some operations can be improved. In such systems, you may want to increase `-ch` by a factor of two or three above this guideline.

`-m`

Provides a way to automatically limit the growth of the transaction log.

Create a new line and add this entry to the `server.conf` file.

- 4 Save the changes to the file and close it.

# About the image metadata migration rate

Because each NetBackup environment is unique, the precise rate at which the image metadata migration runs and completes cannot be calculated.

Based on the empirical data that was observed in test scenarios, you can expect a migration rate of approximately 75 images per second on a system with adequate resources using the Simple method.

The following factors must be considered when you estimate the time needed to complete the image metadata migration after the upgrade:

- System performance
- Size of the image catalog
- Migration method

It is very important to note that the following information is based on the empirical data that was observed in test scenarios. This information should be used only for planning purposes.

The following provides an example of resource utilization on a master server during the migration process.

**Table 4-1** Example of master server resource utilization during the migration process

	Typical CPU % of utilization	Typical memory utilization	Typical disk throughput rate
Impact of Simple method image metadata migration (see note)	10-20%	Minimal, in addition to normal NetBackup operation.	<ul style="list-style-type: none"> <li>■ 2 MB/sec write</li> <li>■ 1 MB/sec read</li> </ul>

**Note:** The Guided method for image metadata migration uses multiple `cat_import` processes and each instance has the impact shown in [Table 4-1](#).

The rates shown are based upon the best empirical data observed and are presented only for planning purposes. Actual migration rates vary and are dependent on the following factors:

- A system with sufficient CPU and resource bandwidth for the NetBackup environment.

**Note:** Under powered systems result in a significant degradation of the values as shown by the insufficient resources line in the "Estimated image metadata migration times" figure.

- The throughput capability of the disk volumes that host the pre-existing image metadata information and the NetBackup relational database (NBDB) location where the image metadata is to be migrated.

## About monitoring the phase 2 migration process

While the clean-up job runs, you can monitor the progress of the phase 2 migration.

In the **Activity Monitor**, double-click on the clean-up job. When the **Job Details** dialog box appears, click the **Detailed Status** tab.

The following describes an example of how phase 2 migration progress appears:

- The start of phase 2 migration is logged as follows:

```
2/8/2012 4:05:50 PM - Info bpdbrm(pid=5948) image catalog cleanup
2/8/2012 4:05:50 PM - Info bpdbrm(pid=5948) Importing flat file
image headers into the database.
```
- Phase 2 migration of each client is logged as follows:

```
2/8/2012 4:09:16 PM - Info bpdbrm(pid=5948) [000:03:26] Initiating
import for client: section8
2/8/2012 4:09:18 PM - Info bpdbrm(pid=5948) [000:03:28] Finished
importing images for client: section8 with 36 imported, 0 skipped,
0 corrupt.
2/8/2012 4:09:18 PM - Info bpdbrm(pid=5948) [000:03:28] Overall
progress: 5525 images imported, 0 skipped, 0 corrupt. Import rate
= 26 images/sec
```
- The end of phase 2 migration is logged as follows:

```
2/8/2012 4:09:44 PM - Info bpdbrm(pid=5948) Finished importing all
images into the database. (Count = 6371)
```

The following describes the key parameters in the log:

**Table 4-2** Key log parameters for phase 2 migration progress

Parameter	Description
[hhh:mm:ss]	The cumulative time that phase 2 has been running.



**Table 4-2** Key log parameters for phase 2 migration progress *(continued)*

Parameter	Description
<code>n skipped</code>	The number of images that were skipped for some reason, and would need to be looked at.
<code>n corrupt</code>	The number of images that are determined to be corrupt, and have been moved to the <code>db.corrupt</code> directory.
<code>Import rate = n images/sec</code>	The cumulative import rate, which can be used to validate the estimated migration time.



# NetBackup 7.5 operational behavior changes

This chapter includes the following topics:

- [About lock files](#)
- [About foreign media servers](#)

## About lock files

To provide access control for the NetBackup relational database (NBDB), NetBackup 7.5 creates a `.lck` lock file automatically for each backup image.

The `.lck` files reside in the following locations:

- On UNIX systems:

`/usr/openv/netbackup/db/images/client_directory/time_directory/image_name.lck`

- On Windows systems:

`install_path\NetBackup\db\images\client_directory\time_directory\image_name.lck`

When all images in a `time_directory` directory are expired, any remaining `.lck` files are removed when the `time_directory` directory is deleted.

---

**Warning:** Do not delete, rename, move, or otherwise modify any `.lck` files.

---

## About foreign media servers

Images may include the names of media servers that do not exist in the current domain. These media servers are known as foreign media servers.

The following describes when a foreign media server may appear in a backup image:

- When a backup image is migrated from one domain to another.
- When a media server is decommissioned.

Starting with NetBackup 7.5, foreign media servers also appear in the output for the following command:

```
nbemmcmd -listhosts
```

The output displays the foreign media server as follows:

```
foreign_media server
```