Veritas NetBackup™
Vault™ Operator's Guide

UNIX, Windows, and Linux

Release 8.0
Legal Notice

Copyright © 2016 Veritas Technologies LLC. All rights reserved.

Veritas and the Veritas Logo are trademarks or registered trademarks of Veritas Technologies LLC or its affiliates in the U.S. and other countries. Other names may be trademarks of their respective owners.

This product may contain third party software for which Veritas is required to provide attribution to the third party ("Third Party Programs"). Some of the Third Party Programs are available under open source or free software licenses. The License Agreement accompanying the Software does not alter any rights or obligations you may have under those open source or free software licenses. Refer to the third party legal notices document accompanying this Veritas product or available at:

https://www.veritas.com/about/legal/license-agreements

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

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

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

Veritas Technologies LLC
500 E Middlefield Road
Mountain View, CA 94043

http://www.veritas.com
Technical Support

Technical Support maintains support centers globally. All support services will be delivered in accordance with your support agreement and the then-current enterprise technical support policies. For information about our support offerings and how to contact Technical Support, visit our website:

https://www.veritas.com/support

You can manage your Veritas account information at the following URL:

https://my.veritas.com

If you have questions regarding an existing support agreement, please email the support agreement administration team for your region as follows:

Worldwide (except Japan)        CustomerCare@veritas.com
Japan                          CustomerCare_Japan@veritas.com

Documentation

The latest documentation is available on the Veritas website:

https://sort.veritas.com/documents

Documentation feedback

Your feedback is important to us. Suggest improvements or report errors or omissions to the documentation. Include the document title, document version, chapter title, and section title of the text on which you are reporting. Send feedback to:

NB.docs@veritas.com

You can also see documentation information or ask a question on the Veritas community site:

http://www.veritas.com/community/

Veritas Services and Operations Readiness Tools (SORT)

Veritas Services and Operations Readiness Tools (SORT) is a website that provides information and tools to automate and simplify certain time-consuming administrative tasks. Depending on the product, SORT helps you prepare for installations and upgrades, identify risks in your datacenters, and improve operational efficiency. To see what services and tools SORT provides for your product, see the data sheet:

<table>
<thead>
<tr>
<th>Chapter 1</th>
<th>About NetBackup Vault</th>
<th>.......................................................... 5</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>About storage administration and operation</td>
<td>............................................... 5</td>
</tr>
<tr>
<td></td>
<td>About vaulting media</td>
<td>...................................................................... 5</td>
</tr>
<tr>
<td></td>
<td>About storage administration and operations tasks</td>
<td>........................................ 6</td>
</tr>
<tr>
<td></td>
<td>About storage administration responsibilities</td>
<td>............................................. 7</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 2</th>
<th>About NetBackup Vault operational procedures</th>
<th>.......................................................... 9</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Vault Operator Menu interface</td>
<td>.......................................................... 9</td>
</tr>
<tr>
<td></td>
<td>About Vault operational procedures</td>
<td>.............................................................. 11</td>
</tr>
<tr>
<td></td>
<td>Processing Vault reports</td>
<td>...................................................................... 12</td>
</tr>
<tr>
<td></td>
<td>About removing tapes from a library</td>
<td>.............................................................. 12</td>
</tr>
<tr>
<td></td>
<td>Vault report options</td>
<td>...................................................................... 13</td>
</tr>
<tr>
<td></td>
<td>Sending reports and tapes to the off-site vendor</td>
<td>............................................. 14</td>
</tr>
<tr>
<td></td>
<td>Comparing received tapes to your reports</td>
<td>.............................................................. 15</td>
</tr>
<tr>
<td></td>
<td>Rerunning reports</td>
<td>...................................................................... 16</td>
</tr>
<tr>
<td></td>
<td>About injecting tapes into a robot</td>
<td>...................................................................... 17</td>
</tr>
</tbody>
</table>

| Index | ........................................................................................................... 18 |
About NetBackup Vault

This chapter includes the following topics:

- About storage administration and operation
- About vaulting media
- About storage administration and operations tasks
- About storage administration responsibilities

About storage administration and operation

This topic explains how to vault media as part of two major task areas: administration and operation. At some sites, different personnel do the different tasks; at other sites, the same personnel do all the tasks. Your site may assign the responsibilities differently than they are discussed in this guide.

The storage administration tasks are summarized in this topic. Operational procedures are performed in the Vault Operator menu interface.


About vaulting media

When you vault media, you send backup images off site to a protected storage location. NetBackup Vault simplifies the processes of image duplication, off-site storage, and off-site retrieval for both storage administrators and systems operators. Its purpose is to assist in disaster recovery by creating duplicate copies of backup tapes and of the NetBackup catalog.

If backup tapes are destroyed at a primary datacenter location, Vault ensures that copies of selected backups are available at an off-site location. Vault keeps track
of the copies and requests these tapes to be returned from the off-site location after a specified period of time.

About storage administration and operations tasks

Each storage administration task that is performed causes some storage operation to occur. For example an administrator can decide to run or monitor daily Vault sessions. An administrative task like this means you need to ensure that the Vault session completes and you then remove the off-site tapes from the robotic libraries.

The storage administration tasks include the following:

■ Install and configure Vault.
■ Run and monitor daily Vault sessions to ensure that they complete.
■ Administer tape media to ensure sufficient media available for each day’s duplicates.
■ Resolve conflicts between printed reports and off-site vendor media status.
■ Resolve issues about tapes improperly ejected.
■ Manually recover media.

The storage operations tasks include the following:

■ Receive daily notification of session completion.
■ Remove off-site tapes from robotic libraries.
■ Compare off-site tapes to be sent from library with report to send to off-site vendor.
■ Send off-site tapes to off-site vendor.
■ Receive returned tapes from off-site vendor.
■ Compare returned tapes with report from off-site vendor.
■ Insert returned tapes into robotic libraries.
■ Report discrepancies between reports and tapes on-hand to storage administration.
■ Re-run reports as needed.
■ Periodically audit media on site.
About storage administration responsibilities

Figure 1-1 shows the various responsibilities that are involved when you vault media.

Figure 1-1  Summary of storage administration responsibilities

Storage administration involves the following tasks:
<table>
<thead>
<tr>
<th>Task</th>
<th>Description</th>
<th>Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Install Vault</td>
<td>Storage administration installs Vault on a NetBackup master server.</td>
<td><em>NetBackup Vault Administrator’s Guide</em></td>
</tr>
<tr>
<td>Configure Vault</td>
<td>Storage administration provides configuration information in profiles, that contain the rules Vault uses to select images to duplicate or eject from the robot. Storage administration accesses Vault through the NetBackup Administration Console or through the Vault Administration menu user interface (vltadm).</td>
<td><em>NetBackup Vault Administrator’s Guide</em></td>
</tr>
<tr>
<td>Monitor Vault</td>
<td>Storage administration monitors Vault activity by using the NetBackup Administration Console and by reading the session log files for information about vault sessions. If email notification is enabled in the profile, session information is sent to the appropriate personnel.</td>
<td><em>NetBackup Vault Administrator’s Guide</em></td>
</tr>
<tr>
<td>Administer media</td>
<td>Storage administration determines which volume pools and volume groups hold the media and must allocate sufficient media for vaulting needs.</td>
<td><em>NetBackup Vault Administrator’s Guide</em></td>
</tr>
<tr>
<td>Notify operations of change in status</td>
<td>Storage administration must report any change in daily run status to operations. In most situations, Vault jobs are scheduled to run each day. If duplications are ever postponed, storage administration notifies operations of the job status.</td>
<td><em>NetBackup Vault Administrator’s Guide</em></td>
</tr>
</tbody>
</table>
About NetBackup Vault operational procedures

This chapter includes the following topics:

- Vault Operator Menu interface
- About Vault operational procedures

Vault Operator Menu interface

Operational access to Vault is provided through the Vault Operator Menu interface. From the Vault Operator Menu interface, you can eject and inject tapes, and print reports for one or more Vault sessions. To be an authorized user of the interface, you must be able to run the vltopmenu command.

Figure 2-1 shows the main Vault Operator Menu screen.
Figure 2-1  Example display of the Vault Operator Menu

NetBackup Vault Operator Menu

Current Profile: None
Current Session: 0
Current Report Destinations - Print command: /usr/ucb/lpr
    Email:
    Directory:

    p) Select Profile   m) Modify the Report Destinations...
    u) Profile Up      r) Run Reports for This Session
    d) Profile Down    v) Run Individual Reports...
    s) Select Session  c) Consolidate All Reports
i) Inject Media into Robot  ce) Consolidate All Ejects
e) Eject Media for This Session  re) Consolidate All Reports and Ejects
                                  c) Container Management...

    q) Quit
    Selection-->

The Vault Operator Menu screen shows the current profile, current session, and current report destinations. To select an option, type the number of the option and press Enter.

The vltopmenu command starts the Vault Operator Menu. The command is in the following directory:

- UNIX
  /usr/openv/netbackup/bin

- Windows
  install_path\NetBackup\bin

The vltopmenu command writes messages about its operations to the log file for Vault commands:

- UNIX
  /usr/openv/netbackup/logs/vault/log.mmddyy

- Windows:
  install_path\NetBackup\logs\vault\mmddyy.log

The following table describes the menu options:

<table>
<thead>
<tr>
<th>Option</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>p)</td>
<td>Select Profile</td>
</tr>
<tr>
<td>u)</td>
<td>Profile Up</td>
</tr>
<tr>
<td>d)</td>
<td>Profile Down</td>
</tr>
<tr>
<td>s)</td>
<td>Select Session</td>
</tr>
<tr>
<td>i)</td>
<td>Inject Media into Robot</td>
</tr>
<tr>
<td>e)</td>
<td>Eject Media for This Session</td>
</tr>
<tr>
<td>m)</td>
<td>Modify the Report Destinations</td>
</tr>
<tr>
<td>r)</td>
<td>Run Reports for This Session</td>
</tr>
<tr>
<td>v)</td>
<td>Run Individual Reports...</td>
</tr>
<tr>
<td>c)</td>
<td>Consolidate All Reports</td>
</tr>
<tr>
<td>ce)</td>
<td>Consolidate All Ejects</td>
</tr>
<tr>
<td>re)</td>
<td>Consolidate All Reports and Ejects</td>
</tr>
<tr>
<td>q)</td>
<td>Quit</td>
</tr>
</tbody>
</table>
d) Profile Down
Select the next profile.

s) Select Session
Select a specific session for the current profile.

i) Inject Media into Robot
Move media from the media access port (MAP) to the library slots.

e) Eject Media for This Session
Eject media from this session.

m) Modify Report Destinations
Change the following:
- The print command
- The email addresses to which Vault sends its reports
- The directory to which Vault writes report files

r) Run Reports for This Session
Generate reports for the current session and distribute them as defined in the profile (print or distribute by email).

v) Run Individual Reports
Select individual reports to generate and distribute.

cr) Consolidate All Reports
Generate reports for any vault that does not have reports for a given session.

ce) Consolidate All Ejects
Eject media for any vault that has not ejected the media for a given session.

re) Consolidate All Reports and Ejects
Eject media from all vault sessions and run the reports as configured in the profiles. You can eject media and run reports for a single vault or for all vaults.

c) Container Management
Add volumes to containers, view or change a container’s return date, or delete a container.

q) Quit
Quit the interface.

About Vault operational procedures

This topic explains the operational procedures in greater detail.
The following list summarizes the operational procedures that are described in the following topics:
- Process daily notifications of the completed Vault sessions.
- Remove the tapes from the library.
- Compare the ejected tapes with the report.
- Send tapes off-site.
- Receive expired tapes from off-site vendor (daily or weekly).
- Compare the tapes that are received with the session status and notify storage administration of any discrepancies.
Rerun reports, if necessary.

- Run the audit report and notify storage administration of any discrepancies.
- Manually eject tapes to resolve problems.

### Processing Vault reports

Each time the vault process runs, it sends reports to various staff members to notify them that it ran. Storage operations should receive a copy of the daily Picking List for Robot report. This report notifies the operations staff that a job has completed and that tapes have been ejected from the library.

**To process a Vault report**

1. Determine who is responsible for processing the ejected tapes.
2. Retrieve printed reports from the assigned printer, if applicable.
3. Retrieve ejected tapes from the library doors.
4. Prepare tapes for off-site storage.
5. Compare ejected tapes with the Picking List for Robot.
6. Work with storage administration to resolve any discrepancies.
7. If you do not receive a report by the predetermined time, it may be difficult to process the tapes properly. For example, you may miss the time for off-site vendor delivery or pickup.

   If you have not received a report that you expected, contact storage administration to determine if there are any problems with the vault sessions. They can monitor the current jobs and interrupt them to allow the session to finish on time.

### About removing tapes from a library

Libraries base decisions to eject media on their robotic capabilities. Robots that have media access ports (MAPs) place ejected media into one of their MAPs. You must remove the media from the slots in the MAP. For ACS robots that have multiple MAPs, media are placed in the MAP nearest the media volume (depending on configuration of the vault). For any robots that do not have MAPs, you must remove the media from the library slots in the robot.

You determine when media is ejected when you configure Vault for immediate or deferred ejection.

If you configure Vault for immediate ejection, the robot ejects the media into the MAP during the Vault session. The robot extends the MAP so that you can remove
the media. Vault can select more media for ejection than the MAP can hold. If that is the case, Vault fills the MAP again and ejects more media. It continues until it ejects all the required media.

If you configure Vault for deferred ejection, you must eject the media and generate the reports manually. The vault process may include more media than can fit in the MAP. If this situation occurs, you must remove all ejected media before the robot can process the next set of media. You can use the Vault Operator Menu to eject media manually and generate reports.

The robot should eject the tapes in order of media ID and slot ID. Vault assigns a new slot ID on a session-by-session basis, in media ID order. The Vault uses slot IDs to order the Picking List for Robot report. For this reason, the report matches the order of the tapes that are ejected. However, the order may not match if off-site slot IDs from the tapes that have returned from the vault have been reused.

**Note:** If media are not removed and a timeout condition occurs, the media are returned to (injected into) the library slots in the robot. If a timeout occurs, inventory the robot as described in the chapter about management of media in robots in the *NetBackup Administrator’s Guide*. After the inventory completes, you can use the Vault Operator Menu to eject the media that was returned to the robot.

### Vault report options

You can use several reports to process daily work. Veritas recommends that you send both printed copies and email copies of all reports to the staff members who are involved.

The following list describes the reports:

<table>
<thead>
<tr>
<th>Picking List for Robot</th>
<th>The Picking List for Robot report lists the tapes you must remove from the robot. Note the following about the Picking List for Robot report:</th>
</tr>
</thead>
<tbody>
<tr>
<td>■ The tapes should be the same tapes that the robot has ejected.</td>
<td></td>
</tr>
<tr>
<td>■ The media ID should match the tape label.</td>
<td></td>
</tr>
<tr>
<td>■ The slot IDs should ascend in order.</td>
<td></td>
</tr>
<tr>
<td>■ The slot IDs should not match any slot in use at the off-site vendor</td>
<td></td>
</tr>
<tr>
<td>■ The slot IDs should not match any slot ID already in use by a tape in transit to or from the off-site vendor.</td>
<td></td>
</tr>
<tr>
<td>■ The Date Assigned should be the same date as the report.</td>
<td></td>
</tr>
<tr>
<td>■ Expiration dates vary depending on the retention period of the backup policy.</td>
<td></td>
</tr>
<tr>
<td>■ If the report does not list any media, Vault did not eject any media during the session.</td>
<td></td>
</tr>
</tbody>
</table>
Include this report with the media that is sent off-site. It contains the same information as the Picking List for Robot, but it is intended for distribution to the off-site vendor with the tape batch.

The Picking List for Vault report shows the tapes that were requested for return from the off-site vendor. Provide the off-site vendor with a copy of this report with each batch of media that goes off-site so that they return the expired tapes. The report does not list any tapes if no tapes have expired on the reporting day. Give a copy to the off-site vendor whether or not it lists any tapes.

The Distribution List for Robot report contains information on the same tapes as the Picking List for Vault report. These tapes do not arrive on site for at least one day. Make sure that the report is available when the tapes arrive the following day. Do not file the report until the tapes are checked in.

The Vault Inventory report shows all the tapes still in the off-site vault. The tapes are those left after the off-site vendor receives the daily batch and removes the appropriate tapes. The tapes that are removed are those shown in the Distribution List for Vault report.

Provide one copy of this report to the vendor with each batch. Place another copy in an easily accessible location.

You can print other reports after a Vault session. The storage administration team should notify operations of all reports that are printed and which reports need to be sent off site. For example, the administration team may print the detailed distribution lists that show the actual data that is stored on each tape.

Sending reports and tapes to the off-site vendor

Veritas suggests the following procedure as a guideline only. Your site may have different procedures in place.

After you receive all reports and compare them to the tapes that are intended for off-site storage, prepare the tapes and reports for pickup.

To send reports and tapes to the off-site vendor

1. Use only the containers that storage operations or storage administration specify.

2. Include the following reports:
   - Vault Inventory
   - Distribution List for Vault
   - Picking List for Vault
3 Complete the off-site vendor pickup form. Note container numbers, vault number, and date of shipment.

4 File a copy of the Picking List for Robot report in an accessible location.

5 Sign off for completion.

6 Place a copy of the Distribution List for Robot report in an accessible location. This report is a reference for returning tapes.

Comparing received tapes to your reports

Veritas suggests the following procedure as a guideline only; your site may have different procedures in place. The off-site vendor returns tapes that were requested, usually the preceding day. Compare the tapes that you received from the off-site vendor to the reports that list the tapes you expect to receive. The comparison should ensure that you have received the full set of tapes.

To compare received tapes against your reports

1 Locate the Distribution List for Robot report. This report is normally the previous day’s report.

2 Compare the tapes you received from the off-site vendor with the report. Notify storage administration if there are any discrepancies that you cannot resolve with the off-site vendor.

3 Remove the tapes from the containers and enter them into the robot according to your normal operating procedures. Be sure not to skip any slots because the robot may not reload the tapes properly. If you use NetBackup-controlled robots (such as TLD or TL8), run the inject process as storage administration specifies.

4 Sign off the report and file it in the proper location.

   You must resolve all discrepancies in the report, whether they are from the tapes that have left or the tapes that have returned. Do not file a report until you have resolved all discrepancies.

About report discrepancies

If you find report discrepancies, we suggest you run one or more reports to audit the location of your media. One option is to run the Off-site Inventory report. Look for any unassigned tapes that were left in the off-site vaulting location, and look for any expired media that was not recalled. The All Media Inventory report also may be useful; it shows media on site, media in transit, and media off site.

Expired media may not be recalled in the following circumstances: A tape is only called back once. A tape should be picked up on the day when Vault generated the
report that recalled it. If it is not picked up, that tape media ID does not appear on
the following reports, and the piece of media may be forgotten. The Lost Media
Report shows the media that was not picked from the vault as scheduled.

Rerunning reports

You may choose to rerun a report because you lost the original copy or because
you want updated information. Use the Vault Operator Menu to rerun reports.

To rerun a report

1 Log on to the NetBackup master server.
2 Run the vlttopmenu command as follows, using the name of the profile for
   which you want to run reports:

   vlttopmenu profile

   The Vault Operator Menu regenerates the reports for the most recent session.
   Select the report or reports you want to rerun.

Printing reports from a previous day

To print reports from a previous day, change the session number.

To print reports from a previous day

✦ Choose Select Session and enter the number of the session for which you
  printed reports.

Sending reports through email

To allow the report to be sent through email, change the report destination to include
one or more email addresses.

To send reports through email

1 Choose Modify the Report Destinations > Modify Email address(es).
2 Enter the email addresses to which the reports should be emailed.
3 (On Windows systems only) Configure the nbmail.cmd script in the bin
directory.

Saving a report to a file

To save the reports to a file, change the report destination to include a path name.
To save a report to a file

2. Enter the path name of a directory in which you want the report files stored.

About running the audit report

To create an audit report, use the All Media Inventory report. This report prints an inventory of all media that is used for duplication of backups. First, it prints all the media in the robot that is used for duplicates. Next, it prints all the media that is in the off-site vault. This information is printed in order by media ID.

About resending eject commands (manually eject tapes)

Select Eject Media for This Session to resend the eject commands from a particular session.

Normally, this option is only used if the eject process was interrupted and some media were not ejected from the library. This option is also used if the number of tapes you need to eject exceeded the size of the MAP. If there are still discrepancies between ejected media and the Vault reports after using this command, contact storage administration.

About injecting tapes into a robot

When you choose Inject Media into Robot, Vault moves tapes from the media access port (MAP) to the library slots and updates the volume database.

If any problems occur during this process, contact storage administration.
A
administer media 8
audit report 17

B
background 5

C
change of status 8
commands
   vltopmenu 9
   configuring vault 8

E
eject command
   resend 17
   eject tapes
      manually 17
   email reports 16

I
injecting tapes 17
install Vault
   on UNIX 8

M
manual ejection
   tapes 17
   menu user interface
      vltopmenu 9

O
operational design 7
operational procedures
   summary 11

R
report discrepancies 15

reports
   email 16
   finding discrepancies 15
   rerunning 16
   to print previous 16
   to receive 12
   to save to a file 16–17
   rerunning reports 16

S
storage administration
   responsibilities 7

T
tapes
   comparing with reports 13
   injecting 17
   receiving from offsite vendor 15
   removing from library 12
   sending to offsite vendor 14

V
Vault Operator Menu interface 9
vltopmenu command 9