



# A Guide to Site Disaster Recovery Options

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**Abstract:** This document has been produced as an aid to creating a site disaster recovery plan. While the information contained in this document is generic and can be applied to any NetBackup domain this document is not intended to be a definitive disaster recovery plan for all environments. Instead it is assumed that readers of this document will use the information it contains to develop specific site disaster recovery plans for their NetBackup Environments.

This is a living document and will be subject to periodic updates. Please check the data and version number to ensure you are referencing the latest version.

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# 1.0 Introduction

This document has been produced as an aid to creating a site disaster recovery plan. While the information contained in this document is generic and can be applied to any NetBackup domain this document is not intended to be a definitive disaster recovery plan for all environments. Instead it is assumed that readers of this document will use the information it contains to develop specific site disaster recovery plans for their NetBackup Environments.

One of the biggest problems encountered during site disaster recovery is that the DR site is not a mirror image of the production site. The NetBackup catalog backup and recovery process is primarily intended for recovering from catalog storage or Master Server failure rather than site loss and, by default, restores the complete catalog including the EMM database which includes details of the Media Servers, backup devices and Storage Units. The Master Server uses this information to direct backups and restores but also uses it to interrogate the Media Servers to establish the status of the backup devices. In a DR environment which does not contain these Media Servers the performance of the Master Server can be severely impacted, and along with it the ability to carry out restore operations, as polling operations fail to connect and time out.

This document examines two approaches to recovering the NetBackup environment at a DR site where the arrangement of Media Servers and clients is different to that at the main production site. The first approach involves recovering the whole catalog and then disabling or removing the unwanted configuration elements. The second approach involves a partial catalog recovery in which the EMM and BMR databases are not restored. Both approaches have advantages and disadvantages which are discussed in the following sections.

When creating your disaster recovery plan ensure that it includes all the steps identified in section 3.0 and either section 4.0 or section 5.0, depending the recovery process used. Always test the plan to ensure the steps are correct and the recovery process works as planned.

## 1.1 *Related documents:*

When developing a disaster recovery plan the following documents should also be taken into consideration as they relate to specific configuration restrictions

- The NetBackup Troubleshooting Guide – <http://seer.entsupport.symantec.com/docs/290230.htm>
- How to recover a NetBackup 6.x catalog backup if the original Media Server is not available – <http://seer.entsupport.symantec.com/docs/284761.htm>
- Recovering a Master Server at a DR site – <http://seer.entsupport.symantec.com/docs/301049.htm>
- Catalog recovery without importing tapes – <http://seer.entsupport.symantec.com/263423.htm>

## 2.0 Full Catalog Recovery vs. Partial Catalog Recovery

The catalog recovery wizard offers two recovery options; full recovery, in which both the relational database and flat file components of the catalog are recovered, and partial recovery, in which only the flat file components are recovered. The most appropriate method for recovery will be partially determined by the nature of the DR facility and how similar to the production facility it is.

### 2.1 Full catalog recovery

Full catalog recovery is primarily used to recover the catalog following the corruption of data or loss of storage at the production site (as described in the NetBackup Troubleshooting Guide). However it can also be used where the DR site is similar in layout to the production site (i.e. contains a number of media servers with the same names as those used at the production site). The primary advantage of the full recovery over the partial recovery is that the relational database components, which include the storage unit definitions and media assignment and history are restored.

The primary advantage of the full recovery approach over the partial recovery approach discussed is that the tape information from the primary site is retained including the media pool and other assignment information. This means that backups can be run at the DR site using the same policies and tapes that are used at the production site.

However the act of recovering the relational database components means that the device and server configuration set up at the DR site prior to recovery is lost and must be set up again after recovery. It also means that information exists in the relational database about production servers and devices that may not exist at the DR site. In order to ensure smooth operation in the DR environment these server entries must be disabled and the devices associated with them removed.

### 2.2 Partial catalog recovery

Partial catalog recovery is more suitable for most DR sites where the server layout is very different to that at the production site with fewer media servers, different library types etc.

Disaster recovery using partial catalog recovery is a variation on the 'recovery without import' process described in tech note 263423 and is subjected to many of the same constraints. When partial catalog recovery is used the relational database components are not recovered. This means that the details of the existing infrastructure (servers, devices etc.) at the DR site is not lost during the recovery process but it also means that the media information associated with the backups is not recovered. The media must be manually added to the database and will be unassigned so care is required to ensure that they are placed in a pool where they cannot get accidentally overwritten.

The partial recovery approach has three clear advantages of the full recovery approach:

1. It is significantly simpler because no elements of the configuration need to be removed or rediscovered – the general configuration of the DR environment is not affected by the recovery process.
2. Because the server topology is not affected by the recovery process the Master Server topology at the DR site doesn't need to reflect the topology at the production site (i.e. a catalog backup from a clustered Master Server can be restored to a standalone Master Server at the DR site).
3. The DR site can be a production site – provided the client names, backup policy names and tape label ranges used in the two environments are unique it is possible to do a partial recovery to another production backup domain.

The main disadvantage of the partial recovery approach is that the tape information from the primary site is not recovered at the DR site. This means that care must be taken to ensure that the tapes are not accidentally over written and these tapes cannot easily be used for backups at the DR site.

## 3.0 DR Site Preparation

Before recovering the NetBackup catalogs to the Master Server at the DR site the infrastructure to be used for disaster recovery (master server, media servers, network connections, NetBackup software) must be in place and working.

When developing a disaster recovery plan it is important to have the steps required to get to this state carefully documented, particularly if the DR site is not normally configured (for example it is a facility provided by a specialist DR services company).

In particular the following points should be noted:

1. The same version of NetBackup used at the production site must be installed on a Master Server and a number of Media Servers and clients. The following points should be noted:

**Note:** If the production site includes media servers running older versions of NetBackup (e.g. NetBackup 5.1) it is not necessary to provide any media servers running these older versions at the DR site and it is generally recommended to use the same version for the Master Server and Media Servers at the DR site.

**Note:** If the full catalog recovery method is going to be used and the Master Server at the production site is clustered a clustered master server must also exist at the DR site (see tech note 301049), however the member nodes of the cluster do not need to be the same as those at the production site. If the partial catalog recovery method is used there is no requirement to have a clustered master server at the DR site.

2. Network connectivity and authentication between the clients and servers has been tested and confirmed using test backup policies (these policies should be disabled after testing).
3. Suitable tape drives and libraries have been connected to the Media Servers (as a minimum requirement the tape drives used at the DR site must be read compatible with the tapes from the production site and must be configured as the same media type in NetBackup).
4. Appropriate 'failover restore Media Server' setting have been configured to allow backups written to the Media Servers at the production site to be restore using the Media Servers at the DR site.
5. In the case of the partial recovery approach a 'non-scratch' Media Pool that is not used by any backup policy has been created and bar code rules configured to ensure that the backup tapes are automatically added to that pool.
6. If the library type used at the DR site is different to the one used at the production site ensure that the bar code masking operates in the same way (i.e. that trailing characters are removed where appropriate) and, if necessary, configure rules to manage this.
7. Either:
  - a. If the original backup tapes are used for DR purposes ensure they have been loaded in the tape libraries at the DR site.
  - b. If backups have been duplicated to secondary tapes for DR purposes ensure these 'offsite' tapes have been loaded in the tape libraries and the ALT\_RESTORE\_COPY\_NUMBER file has been created with the appropriate copy number in it.

**Note:** Wherever possible it is strongly recommended that tapes are physically write locked before being placed in libraries at the DR site to reduce the risk of accidental overwriting of valid backups.

## 4.0 Full Catalog recovery approach

This section details the steps to be followed before and after recovering the catalog backup where a full catalog recovery is carried out.

In this approach the complete catalog backup is recovered to the DR Master Server and the Media Servers that do not exist in the DR environment are deactivated to avoid unnecessary polling. As the device configuration at the DR site is likely to be different to the production site all device records are removed and device discovery is run to update the EMM database.

The following steps must be carried out before restores can be started and should be clearly called out in any DR plan:

1. On UNIX and Linux Master Servers create copies of the bp.conf and vm.conf files – these will be overwritten by the next step of the process.
2. Recover the entire catalog using bprecover command.

**Note:** The Master Server must have the same name and topology as the production Master Server (i.e. if the production Master Server is a cluster the DR Master Server must also be a cluster although the number of member nodes and the names of those nodes can be different).

**Note:** If a hot catalog backup is used that was created on a separate Media Server a Media Server with the same name is required for the catalog recovery.

3. Deactivate all backup policies to prevent backups from starting automatically. This must be done manually either via the GUI or the CLI (bppllist <policy> -set –inactive)
4. Shut down NetBackup
5. On UNIX and Linux Master Servers replace the bp.conf and vm.conf files restored from the catalog backup with the copies created in step 1 above.
6. Start only Sybase and EMM Start the Sybase ASA, NetBackup PBX and EMM services on the new Master Server.

- a. On UNIX/Linux Master Servers run the following commands:

```
/usr/opensv/netbackup/bin/nbdbms_start_stop start
/opt/VRTSspbx/bin/pbx_exchange
/usr/opensv/netbackup/bin/nbemmm
```

- b. On Windows Master Servers start the following Windows services:

```
Adaptive Server Anywhere – VERITAS_NB
Symantec Private Branch Exchange
NetBackup Enterprise Media Manager
```

**Note:** The PBX process may already be running as it is not stopped and started by the NetBackup startup and shutdown commands.

**Note:** For NetBackup versions 6.5.3 and above the qualifier '-maintenance' should be used on the nbemmm command

7. Deactivate any Media Servers that do not form part of the DR environment using the command:

```
nbemmmcmd -updatehost -machinename <Media Server> -machinestateop
set_admin_pause -machinetype media -masterserver <Master Server>
```

8. Delete all tape devices from the EMM database using the command:

```
nbemmmcmd -deletealldevices -allrecords
```

9. Restart NetBackup

10. Run the device configuration wizard to create the new tape drive and library configuration.

11. If bar code masking rules were put in place at step 6 of the site preparation ensure that the same rules are set at this time and, if necessary, add them.
12. Use the GUI to verify all the recovery media are set to non-robotic. It is extremely likely that some media will be set to robotic, particularly if the primary media are being used for recovery. To set media to non-robotic select all the robotic media, right click and select 'Move'. Change the robot field to 'standalone and hit OK to save the changes. Once all the recovery media are set to non-robotic in Inventory all the tape libraries – this will ensure that the media are identified in the correct library.

It should now be possible to start restore and recovery operations of client data backed up at the production data center.

#### ***4.1 Optional post-recovery steps***

In the event of a major incident at the production site it may be necessary to operate from the DR site for some time after the basic recovery has been completed. The following additional steps may be optionally carried out once the DR environment is operational in the interests of keeping the environment consistent.

1. Modify and enable any backup policies, including the catalog backup policy, that are required at the DR site.
2. Delete any policies that are no longer required.
3. Delete any storage units associated with Media Servers that do not form part of the DR environment.

## 5.0 Partial catalog recovery approach

This section details the steps to be followed before and after recovering the catalog backup where a partial catalog recovery is carried out.

This approach uses a technique referred to as 'recovery without import' in which the EMM database is not restored from the catalog backup. The technique relies on the fact that restore operations do not need tapes to be assigned or located in specific media pools. Provided a tape exists in EMM and can thus be mounted and read by NetBackup it can be restored from.

The following steps must be carried out before restores can be started:

1. On UNIX and Linux Master Servers create copies of the bp.conf and vm.conf files – these will be overwritten by the next step of the process.
2. Recover only the NetBackup catalog image and configuration files using bprecover command.
  - a. For hot catalog backups use the bprecover –wizard or GUI option and select the partial recovery when prompted
  - b. For cold catalog backups use the bprecover –r command and select only /usr/opensv/netbackup/db (or Windows equivalent) path

**Note:** The Master Server must have the same name as the production Master Server

**Note:** If a hot catalog backup is used that was created on a separate Media Server a Media Server with the same name is required for the catalog recovery.

3. Deactivate all backup policies to prevent backups from starting automatically. This must be done manually either via the GUI or the CLI (bppllist <policy> -set –inactive)
4. Shut down NetBackup
5. On UNIX and Linux Master Servers replace the bp.conf and vm.conf files restored from the catalog backup with the copies created in step 1 above.
6. Start NetBackup
7. Inventory all the tape libraries to ensure that the tapes have been added to the non-scratch media pool – this step prevents tapes from being accidentally over written by active backup policies at a later time.

It should now be possible to start restore and recovery operations of client data backed up at the production data center.

### 5.1 *Optional post-recovery steps*

In the event of a major incident at the production site it may be necessary to operate from the DR site for some time after the basic recovery has been completed. The following additional steps may be optionally carried out once the DR environment is operational in the interests of keeping the environment consistent.

1. Modify and enable any backup policies, including the catalog backup policy, that are required at the DR site.
2. Delete any policies that are no longer required.