



# NetVault®: Backup Removable Storage Best Practices Guide

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## Introduction

Removable disk media combines the simplicity of tape based backup with the speed and flexibility of a hard drive. Compact internal or external drives use neat pocket-sized cartridges. Each cartridge is a rugged miniature hard disk which is automatically recognized by the computer which also provides instant access and simple drag-and-drop control. When a cartridge gets full, a new cartridge is inserted.

This guide will provide the best practices for using removable Hard Disk Drive (HDD) technology with NetVault: Backup (NVBU) as the target media for data protection operations.

## Best Practices

Generally any removable HDD can be used to host a single NetVault: Backup virtual standalone drive.

Creating a NVBU virtual standalone drive on the removable media is a performed in the NVBU Console through standard methods. Replacing or reinserting removable media however requires specific steps and has restrictions.

### *Adding Device to NVBU*

The following steps outline the creation of a NVBU virtual standalone drive on a removable storage device after it has already been configured and recognized by the Windows operating system.

1. After configuring the removable storage device, load the physical data media/cartridge. Using **Windows Explorer**, determine its location/drive letter and confirm the media capacity of the removable storage device.
2. In the NVBU WebUI, click **Manage Devices** on the toolbar to open the **Device Management** facilities.
3. Click on the **Add Device** Button, then click **Single virtual disk device** and click on the **Next Button**.
4. Under **NetVault Configuration Wizard - Add Single Virtual Disk Device (1/3)** select the Backup Server or Smart Client that is hosting the Removable Storage Device and click on the **Next Button**.
5. In the **NetVault Configuration Wizard - Add Single Virtual Disk Device (2/3)** window, configure the following parameters:

Choose the location on disk where you wish to create the new device:

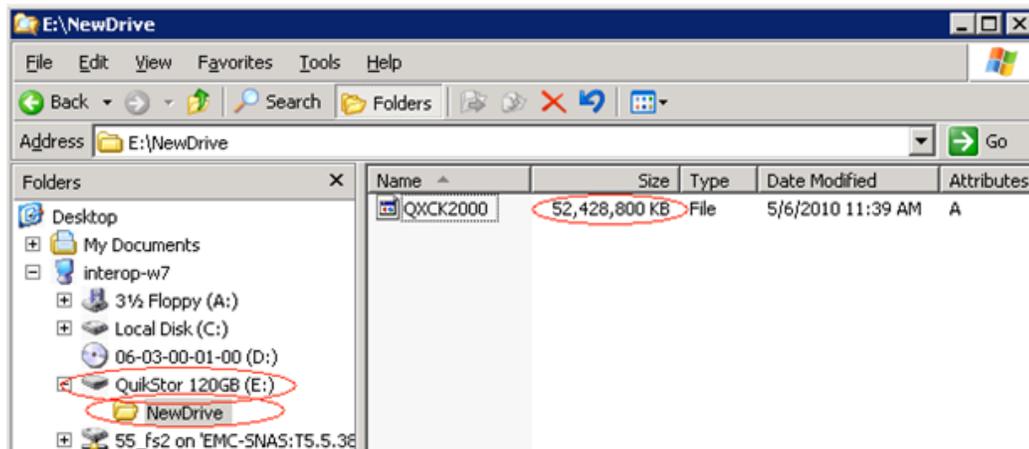
Choose a name for the device:

Device display name:

Choose a 5-character media barcode prefix:

Specify the media capacity (in GiB):

- **Drive Location** – Enter the path for the removable storage device.
  - **Choose a name for the device** – Enter a unique name for the virtual standalone drive. NVBU assigns the name **NewDrive** by default.
  - **Device display name** – Choose a display name if
  - **Barcode Prefix** – For each standalone drive, NVBU generates a barcode prefix that is used for identification and assigned to the media used by the drive. It can be changed, if required. However, ensure that a unique code is assigned to each drive.
  - **Media Capacity** – Enter or select the media size in GiB. Ensure not to exceed the removable data cartridge capacity.
6. Click on the **Next Button** to initiate the creation of the virtual tape device. Depending on the media size, this process may take a few minutes to complete. A message is displayed when the process completes.
  7. Select **Add More Devices or Create Backup Jobs** to finalize the creation of the virtual standalone drive on the removable storage device. Your device is now ready for use.
  8. Using **Windows Explorer**, verify a folder with the name of the newly created NVBU virtual standalone drive and the NVBU media file which corresponding size matches the **Media Capacity** specified in step 5 exists under the removable storage device.

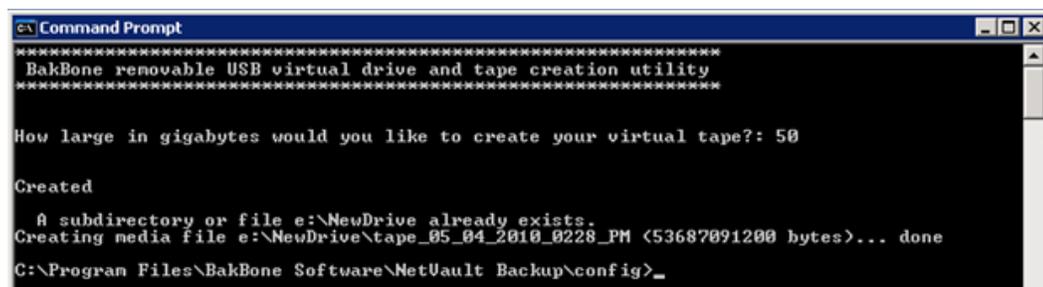


## Adding New Cartridge or Removable Media

*For Windows Platforms please note the following:*

After the NVBU virtual standalone drive has been configured and the virtual media has been exhausted, it is possible to create more virtual media on new removable storage media. This requires that the new physical media (removable HDD) be initialized for use. To initialize new physical media for use, perform the following steps:

1. Before replacing the removable storage media, take the virtual standalone drive offline. In the NVBU WebUI, Click **Manage Devices** on the toolbar.
2. In the **Manage Devices** frame, click on the virtual standalone drive and select **Offline**.
3. Once the virtual standalone has been taken offline, physically unload the removable device and insert the new physical media.
4. After the new physical media has been inserted into the removable storage device and recognized by Windows, it can be initialized for use by recreating the directory structure and virtual media file that existed before the physical media extraction. Use **Windows Explorer** to confirm that a folder with the name of the NVBU virtual standalone drive and the NVBU media file does **not** exist under the removable storage device.
5. Create the Removable Storage Virtual Drive Creation Utility using the example script in [Example Removable Storage Virtual Drive Creation Utility](#).
6. Copy the Removable Storage Virtual Drive Creation Utility to the NVBU Server config directory at ...\**NetVault Backup\config** and execute the batch file.



```

C:\Program Files\BakBone Software\NetVault Backup\config>_
BakBone removable USB virtual drive and tape creation utility
*****
How large in gigabytes would you like to create your virtual tape?: 50

Created
A subdirectory or file e:\NewDrive already exists.
Creating media file e:\NewDrive\tape_05_04_2010_0228_PM (53687091200 bytes)... done
C:\Program Files\BakBone Software\NetVault Backup\config>_
  
```

- Use **Windows Explorer** to confirm that the script created a NVBU media file under the removable storage device that matches the Media Capacity of the virtual standalone drive. The new media file will have the following format:  
`tape_<month>_<day>_<year>_<time>`
7. In the NVBU Console, click **Manage Devices** on the toolbar.
  8. In the **Manage Devices** frame, click on the virtual standalone drive and select **Online**. The drive will indicate blank media is loaded.
  9. Select on the virtual standalone drive and select and label the media for use.

*For Linux Platforms please note the following:*

- Prior to creating a Linux file system on the removable storage partition suitable for mounting it may be necessary to run 'fdisk'.
- NVBU virtual standalone drive must already exist, the **diskdevices.cfg** must have a **location** entry for **drives**.
- Only a single virtual standalone drive is configured. A single entry under the **drives** section of **diskdevices.cfg**. Environments with multiple virtual standalone drives will require modifications to the script.
- 'NewDrive' directory must exist on removable media mounted partition prior to executing media creation script.
- Creation of virtual media on Linux will take a considerable amount of time depending on the media size desired.
- Take note not to create more than one media file per NewDrive directory
- Changing removable media is similar to steps carried out for Windows:
  1. The NetVault virtual drive must be 'Offline' when changing virtual media or creating new media using the script. To take the drive offline, right click on the drive and select 'Offline' from the drop down menu. Once drive is offline issue the Linux 'eject' or 'umount' command.
  2. Insert previously used media (or new removable media ) and issue 'mount' command so the partition can be accessed. If new removable media was inserted then, as stated above, a Linux file system will have to be created prior to mounting.
  3. Once the removable storage partition has been mounted and the media contained a needed virtual media file, then the NetVault virtual drive can now be brought back online. If the removable storage partition contains a new and unused file system then a 'NewDrive' directory must be created before executing the virtual media creation script. After the script has completed successfully the NetVault virtual drive can now be brought back online.

### ***Restoring Backups from Offline Media***

To retrieve backups from offline media perform the following steps:

1. Before replacing the current removable storage media with the offline media, take the virtual standalone drive offline.
2. In the **Manage Devices** frame, click on the virtual standalone drive and select **Offline**.
3. Once the virtual standalone has been taken offline, physically unload the current removable device and insert the offline physical media which contains the backup that will be restored.
4. In the **Manage Devices** frame, click on the virtual standalone drive and select **Online**. The drive will indicate blank media is loaded.
5. In the **Manage Devices** frame, select the virtual standalone drive and select **Check**.
6. Once the physical media is now loaded, verify in the **Manage Devices** frame that the correct physical media has been loaded by validating the Media Label is as expected. The media label is displayed next to the virtual standalone drive in the **Manage Devices** frame.

7. It might be necessary to scan the media. If this is required, in the **Manage Devices** frame, select the virtual standalone drive and select **Scan**.

## Troubleshooting

### ***Removable Storage Virtual Drive Creation Utility Fails to Execute***

**Possible Cause:** The batch script cannot find the location of the NVBU virtual standalone drive.

**Solution:**

1. Check that the NVBU virtual standalone drive currently exists in the **diskdevices.cfg** file located in `...\NetVault Backup\config` and has a **location** value under the **drives** entry.
2. If a NVBU virtual standalone drive has not been created, add the NVBU virtual standalone drive as detailed in the [Adding Device to NVBU](#).
3. Repeat Step 1.

### ***NVBU Virtual Standalone Drive Fails to Come Online After Utility Has Been Executed***

**Possible Cause:** Multiple media files may exist

**Solution:**

1. Using **Windows** Explorer, verify that only one media file entry exists under the removable storage device.
2. If multiple media file entries exist, copy all the media files other than the one that matches the desired physical media to a different volume. Delete all the media files other than the one that matches the desired physical media from the removable storage device.
3. In the NVBU WebUI, Click **Manage Devices** on the toolbar.
4. In the **Manage Devices** frame, click on the virtual standalone drive and select **Online**.
5. In the **Manage Devices** frame, select the virtual standalone drive and select **Check**.

### ***NVBU VTL Capacity License Has Been Exceeded***

**Possible Cause:** Multiple media files may exist that exhaust media licensed capacity currently licensed.

**Solution:**

1. Contact your Quest Software representative to purchase additional NVBU VTL capacity.
2. Retry operation.

## Example Removable Storage Virtual Drive Creation Utility

When creating the Removable Storage Virtual Drive Creation Utility, note the following:

- The Removable Storage Virtual Drive Creation Utility (Windows) is a DOS batch file written for a Windows NVBU Server. It assumes that there is only a single virtual standalone drive configured. Environments with multiple virtual standalone drives

will require modifications to the utility. Contact the Quest Software Support for additional information.

- A NVBU virtual standalone drive must already exist. The **diskdevices.cfg** must have a **location** entry for **drives**.
- Ensure the virtual standalone drive has been taken offline and a blank removable storage media has been loaded before running the utility.

## Addendum – Script Examples and Notes

### Windows platform – Batch File Example

```
@echo off
REM
REM Script that pulls the drive location out of diskdevices.cfg and
REM recreates the directory and media contained within using nvmakemedia
REM
REM This script is intended to be used with a single removable (usb)
REM stand alone tape drive
REM
REM Created by Quest Software Interop
REM
:input
cls
echo *****
echo  Quest Software Removable Storage Virtual Drive Creation Utility
echo  *****
echo.
echo.
set INPUT=
set /P INPUT=How large in gigabytes would you like to create your virtual
tape?: %=
if "%INPUT%"==" " goto input
echo.
echo.
echo Created
echo.
sc qc "NetVault Process Manager" | find "BINARY_PATH_NAME" > testfile.txt
set /p nvhome= < testfile.txt
del testfile.txt
set nvhome=%nvhome:~30%
set nvhome=%nvhome:~0,-23%
set nvhome=%nvhome:/=^\%
```



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```
cd %nvhome%config
For /F %%i in (diskdevices.cfg) do @echo %%i | find "location=" >
testfile.txt
set /p tapedir= < testfile.txt
del testfile.txt
set tapedir=%tapedir:~9%
md %tapedir%
for /f "tokens=2,3,4 delims=/ " %%a in ('DATE /T') do set date=%%a_%%b_%%c
for /f "tokens=1,2,3 delims=: " %%a in ('TIME /T') do set time=%%a%%b_%%c
"%nvhome%\util\nvmakemedia.exe" %INPUT%g mediafiles "%tapedir:~0,-
1%\tape_%%date%_%%time%"
```

### Linux platform - Shell Script Example

```
#!/bin/sh

# Script that pulls the drive location out of diskdevices.cfg and
# recreates the directory and media contained within using nvmakemedia
#
# This script is intended to be used with a single removable (usb)
# stand alone tape drive
#
# Created by Quest Software Interop
#

NV_HOME=`head -n -1 /etc/.nv6_home`

clear
echo ""
echo "*****"
echo " Quest Software removable USB virtual drive and tape creation utility "
echo "*****"
echo ""
echo ""
echo "How big in gigabytes do you want each virtual tape to be?"
echo "(Select 20, 40, 100, etc followed by [ENTER])"
echo ""
read virt_tape
echo ""

DRIVE_LOCATION_FULL=$(cat $NV_HOME/config/diskdevices.cfg | sed -n
'\/[drives\]/ {n;p}')
DRIVE_LOCATION=${DRIVE_LOCATION_FULL:9}

NOW_DATE=$(date +%m_%d_%y_%H%M)

$NV_HOME/util/nvmakemedia "$virt_tape"g mediafiles
""$DRIVE_LOCATION"/tape_"$NOW_DATE""
```