



# Protecting database backups by using postscripts

SnapManager for SAP

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# Table of Contents

- Protecting database backups by using postscripts ..... 1
- Sample post-scripts ..... 1
- Create or update the post scripts ..... 11

# Protecting database backups by using postscripts

SnapManager enables you to protect database backups by using postscripts when SnapMirror or SnapVault relationship is established between the primary and secondary storage systems. You can use the default postscripts for post-processing activity of the backup operation from both the SnapManager CLI and GUI.

You can use the following default postscripts available at `default_install_directory\plugins\backup\create\post`:

- The SnapMirror postscript, `Mirror_the_backup.cmd` if you are using Data ONTAP operating in 7-Mode
- The SnapVault postscript, `Vault_the_backup.cmd` if you are using Data ONTAP operating in 7-Mode
- The SnapMirror postscript, `Mirror_the_backup_cDOT.cmd` if you are using clustered Data ONTAP
- The SnapVault postscript, `Vault_the_backup_cDOT.cmd` if you are using clustered Data ONTAP

For more information, see the `readme.txt` available at `default_install_directory\plugins`.

SnapManager 3.1 or earlier provides preprocessing or post-processing scripts only for clone operations. SnapManager 3.2 or later provides preprocessing and post-processing scripts for backup and restore operations. You can use these scripts to run before or after the backup or restore operations.



The scripts are provided for reference only. They have been tested with SnapDrive 7.0 for Windows or later but may not work in all environments. You should customize the scripts based on your secondary protection requirements. The scripts do not work with SnapDrive versions earlier than 6.2.

## Sample post-scripts

You can refer the sample scripts and create customized scripts based on your environment to perform mirroring and vaulting. The sample scripts are available at `default_install_directory\plugins\backup\create\post`.

### Mirror\_the\_backup.cmd

If you are using Data ONTAP operating in 7-Mode, you can use this sample script to mirror the backup. It includes three operations (check, describe, and execute) and executes them at the end of the script. The script also includes error message handling with codes of 0 to 4 and > 4:

```
@echo off
REM $Id:
//depot/prod/capstan/main/src/plugins/windows/examples/backup/create/post/
Mirror_the_backup.cmd#1 $
REM
REM Copyright \(\c\) 2011 NetApp, Inc.
REM All rights reserved.
```

```

REM
REM
REM This is a sample post-task script to mirror the volumes to the
secondary storage after successful backup operation.
REM|-----|
|-----|
REM| Pre-requisite/Assumption:
|
REM| SnapMirror relationship for the requested secondary storage volumes
must be configured in Secondary storage. |
REM|-----|
|-----|
REM
REM
REM This script can be used from the SnapManager graphical user interface
(GUI) and command line interface (CLI).
REM
REM To execute the post-task script for the backup operation from
SnapManager GUI, follow these steps:
REM 1. From the Backup wizard > Task Specification page > Post-Tasks tab
> select the post-task scripts from the Available Scripts section.
REM
REM
REM To execute the post-task script for the backup operation from
SnapManager CLI, follow these steps:
REM 1. create a task specification XML file.
REM 2. Add the post-script name in the <post-tasks> tag of the XML file.
REM
REM Example:
REM          <post-tasks>
REM              <task>
REM                  <name>Mirror the backup</name>
REM                  <description>Mirror the backup</description>
REM              </task>
REM          </post-tasks>
REM
REM
REM
REM IMPORTANT NOTE: This script is provided for reference only. It has
been tested with SnapDrive 6.3.0 for Windows but may not work in all
environments. Please review and then customize based on your secondary
protection requirements.
REM
set /a EXIT=0
set name="Mirror the backup"
set description="Mirror the backup"

```

```

set parameter=()

if /i "%1" == "-check" goto :check
if /i "%1" == "-execute" goto :execute
if /i "%1" == "-describe" goto :describe

:usage
    echo usage: %0 ^{ -check ^| -describe ^| -execute ^}
    set /a EXIT=99
    goto :exit

:check
    set /a EXIT=0
    goto :exit

:describe
    echo SM_PI_NAME:%name%
    echo SM_PI_DESCRIPTION:%description%
    echo SM_PRIMARY_MOUNT_POINTS : %SM_PRIMARY_MOUNT_POINTS%
    set /a EXIT=0
    goto :exit

REM - Split the comma-separated PRIMARY_MOUNT_POINTS and Mirror the
PRIMARY_MOUNT_POINTS one-by-one.

:execute
    set /a EXIT=0

    echo "execution started"

    REM FOR %%G IN (%SM_PRIMARY_MOUNT_POINTS%) DO echo %%G

    FOR %%V IN (%SM_PRIMARY_MOUNT_POINTS%) DO sdcli snap update_mirror
-d %%V

    if "%ERRORLEVEL%" NEQ "0" (
        set /a EXIT=4
        exit /b %EXIT%
    )

    echo "execution ended"

    goto :exit

:exit
    echo Command complete.

```

```
exit /b %EXIT%
```

## Vault\_the\_backup.cmd

If you are using Data ONTAP operating in 7-Mode, you can use this sample script to vault the backup. It includes three operations (check, describe, and execute) and executes them at the end of the script. The script also includes error message handling with codes of 0 to 4 and > 4:

```
@echo off
REM $Id:
//depot/prod/capstan/main/src/plugins/windows/examples/backup/create/post/
Vault_the_backup.cmd#1 $
REM
REM Copyright \(\c\) 2011 NetApp, Inc.
REM All rights reserved.
REM
REM
REM This is a sample post-task script to vault the qtrees to the secondary
storage after successful backup operation.
REM|-----|
|-----|
REM| Pre-requisite/Assumption:
|
REM| SnapVault relationship for the requested secondary storage qtrees
must be configured in Secondary storage. |
REM|-----|
|-----|
REM
REM
REM This script can be used from the SnapManager graphical user interface
(GUI) and command line interface (CLI).
REM
REM To execute the post-task script for the backup operation from
SnapManager GUI, follow these steps:
REM 1. From the Backup wizard > Task Specification page > Post-Tasks tab
> select the post-task scripts from the Available Scripts section.
REM
REM
REM To execute the post-task script for the backup operation from
SnapManager CLI, follow these steps:
REM 1. create a task specification XML file.
REM 2. Add the post-script name in the <post-tasks> tag of the XML file.
REM
REM Example:
REM          <post-tasks>
REM          <task>
```

```

REM          <name>Vault the backup</name>
REM          <description>Vault the backup</description>
REM          </task>
REM          <post-tasks>
REM
REM IMPORTANT NOTE: This script is provided for reference only. It has
been tested with SnapDrive 6.3.0 for Windows but may not work in all
environments. Please review and then customize based on your secondary
protection requirements.
REM
REM
REM
REM
REM
REM
set /a EXIT=0
set name="Vault the backup"
set description="Vault the backup"
set parameter=()

if /i "%1" == "-check" goto :check
if /i "%1" == "-execute" goto :execute
if /i "%1" == "-describe" goto :describe

:usage
    echo usage: %0 ^{ -check ^| -describe ^| -execute ^}
    set /a EXIT=99
    goto :exit

:check
    set /a EXIT=0
    goto :exit

:describe
    echo SM_PI_NAME:%name%
    echo SM_PI_DESCRIPTION:%description%
    echo SM_PRIMARY_SNAPSHOTS_AND_MOUNT_POINTS :
%SM_PRIMARY_SNAPSHOTS_AND_MOUNT_POINTS%
    set /a EXIT=0
    goto :exit

REM Split the colon-separated SM_PRIMARY_SNAPSHOTS_AND_MOUNT_POINTS And
SnapVault the mountpoints one-by-one

:execute

```

```

set /a EXIT=0

echo "execution started"

FOR %%A IN (%SM_PRIMARY_SNAPSHOTS_AND_MOUNT_POINTS%) DO FOR /F
"tokens=1,2 delims=:" %%B IN ("%%A") DO sdcli snapvault archive -a %%B
-DS %%C %%B

if "%ERRORLEVEL%" NEQ "0" (
    set /a EXIT=4
    exit /b %EXIT%
)
echo "execution ended"

goto :exit

:exit
echo Command complete.
exit /b %EXIT%

```

## Mirror\_the\_backup\_cDOT.cmd

If you are using clustered Data ONTAP, you can use this sample script to mirror the backup. It includes three operations (check, describe, and execute) and executes them at the end of the script. The script also includes error message handling with codes of 0 to 4 and > 4:

```

@echo off
REM $Id:
//depot/prod/capstan/main/src/plugins/windows/examples/backup/create/post/
Mirror_the_backup_cDOT.cmd#1 $
REM
REM Copyright \ (c\ ) 2011 NetApp, Inc.
REM All rights reserved.
REM
REM
REM This is a sample post-task script to mirror the volumes to the
secondary storage after successful backup operation.
REM|-----|
|-----|
REM| Pre-requisite/Assumption:
|
REM| SnapMirror relationship should be set for the primary volumes and
secondary volumes |
REM|-----|
|-----|
REM

```



```

REM
REM This script can be used from the SnapManager graphical user interface
(GUI) and command line interface (CLI).
REM
REM To execute the post-task script for the backup operation from
SnapManager GUI, follow these steps:
REM 1. From the Backup wizard > Task Specification page > Post-Tasks tab
> select the post-task scripts from the Available Scripts section.
REM
REM
REM To execute the post-task script for the backup operation from
SnapManager CLI, follow these steps:
REM 1. create a task specification XML file.
REM 2. Add the post-script name in the <post-tasks> tag of the XML file.
REM
REM Example:
REM          <preposttask-specification xmlns="http://www.netapp.com">
REM              <task-specification>
REM                  <post-tasks>
REM                      <task>
REM                          <name>"Mirror the backup for cDOT"</name>
REM                      </task>
REM                  </post-tasks>
REM              </task-specification>
REM          </preposttask-specification>
REM
REM
REM
REM IMPORTANT NOTE: This script is provided for reference only. It has
been tested with SnapDrive 7.0 for Windows but may not work in all
environments. Please review and then customize based on your secondary
protection requirements.
REM
set /a EXIT=0
set name="Mirror the backup cDOT"
set description="Mirror the backup cDOT"
set parameter=()

if /i "%1" == "-check" goto :check
if /i "%1" == "-execute" goto :execute
if /i "%1" == "-describe" goto :describe

:usage
    echo usage: %0 ^{ -check ^| -describe ^| -execute ^}

```

```

    set /a EXIT=99
    goto :exit

:check
    set /a EXIT=0
    goto :exit

:describe
    echo SM_PI_NAME:%name%
    echo SM_PI_DESCRIPTION:%description%
    set /a EXIT=0
    goto :exit

REM - Split the comma-separated SM_PRIMARY_MOUNT_POINTS then Mirror the
PRIMARY_MOUNT_POINTS one-by-one.

:execute
    set /a EXIT=0

    echo "execution started"

    REM FOR %%G IN (%SM_PRIMARY_MOUNT_POINTS%) DO powershell.exe -file
"c:\snapmirror.ps1" %%G < CON

    powershell.exe -file "c:\snapmirror.ps1"
%SM_PRIMARY_FULL_SNAPSHOT_NAME_FOR_TAG% < CON

    if "%ERRORLEVEL%" NEQ "0" (
        set /a EXIT=4
        exit /b %EXIT%
    )

    echo "execution ended"

    goto :exit

:exit
    echo Command complete.
    exit /b %EXIT%

```

## Vault\_the\_backup\_cDOT.cmd

If you are using clustered Data ONTAP, you can use this sample script to vault the backup. It includes three operations (check, describe, and execute) and executes them at the end of the script. The script also includes error message handling with codes of 0 to 4 and > 4:

```

@echo off
REM $Id:
//depot/prod/capstan/main/src/plugins/windows/examples/backup/create/post/
Vault_the_backup_cDOT.cmd#1 $
REM
REM Copyright \(\c\) 2011 NetApp, Inc.
REM All rights reserved.
REM
REM
REM This is a sample post-task script to do vault update to the secondary
storage after successful backup operation.
REM|-----|
|-----|
REM| Pre-requisite/Assumption:
|
REM| Vaulting relationship with policy and rule needs to be established
between primary and secondary storage volumes |
REM|-----|
|-----|
REM
REM
REM This script can be used from the SnapManager graphical user interface
(GUI) and command line interface (CLI).
REM
REM To execute the post-task script for the backup operation from
SnapManager GUI, follow these steps:
REM
REM 1. From the Backup wizard > Task Specification page > Post-Tasks tab
> select the post-task scripts from the Available Scripts section.
REM 2. You can view the parameters available in the post-task script in
the Parameter section of the Task Specification page.
REM 3. Provide values to the following parameters:
REM     SNAPSHOT_LABEL      - Label Name to be set for snapshots before
doing the vault update
REM
REM FOR WINDOWS ITS ADVISED TO USE THE post-task script FROM THE GUI BY
SAVING THE BELOW SPEC XML AND GIVING THIS IN THE GUI LOAD XML FILE .
REM
REM To execute the post-task script for the backup operation from
SnapManager CLI, follow these steps:
REM 1. create a task specification XML file.
REM 2. Add the post-script name in the <post-tasks> tag of the XML file .
REM Example:
REM           <preposttask-specification xmlns="http://www.netapp.com">
REM           <task-specification>
REM           <post-tasks>

```

```

REM          <task>
REM          <name>"Vault the backup for cDOT"</name>
REM          <parameter>
REM          <name>SNAPSHOT_LABEL</name>
REM          <value>TST</value>
REM          </parameter>
REM          </task>
REM          </post-tasks>
REM          </task-specification>
REM          </preposttask-specification>
REM
REM
REM IMPORTANT NOTE: This script is provided for reference only. It has
been tested with SnapDrive 7.0.0 for Windows but may not work in all
environments.
Please review and then customize based on your secondary protection
requirements.
REM
REM
REM Need to take care of the parameter variable, its not like shell script
array handling, so declare a new variable
REM for one more argument and set that variable SM_PI_PARAMETER in the
describe method. Then only that variable will be
REM Visible in the GUI task specification wizard else it wont list.

set /a EXIT=0
set name="Vault the backup for cDOT"
set description="Vault the backup For cDOT volumes"
set parameter=SNAPSHOT_LABEL :

if /i "%1" == "-check" goto :check
if /i "%1" == "-execute" goto :execute
if /i "%1" == "-describe" goto :describe

:usage
    echo usage: %0 ^{ -check ^| -describe ^| -execute ^}
    set /a EXIT=99
    goto :exit

:check
    set /a EXIT=0
    goto :exit

:describe
    echo SM_PI_NAME:%name%
    echo SM_PI_DESCRIPTION:%description%

```

```

echo SM_PI_PARAMETER:%parameter%

set /a EXIT=0
goto :exit

REM Split the colon-separated SM_PRIMARY_SNAPSHOTS_AND_MOUNT_POINTS And
SnapVault the mountpoints one-by-one

:execute
set /a EXIT=0

echo "execution started"

powershell.exe -file "c:\snapvault.ps1"
%SM_PRIMARY_FULL_SNAPSHOT_NAME_FOR_TAG% %SNAPSHOT_LABEL% < CON

if "%ERRORLEVEL%" NEQ "0" (
    set /a EXIT=4
    exit /b %EXIT%
)
echo "execution ended"

goto :exit

:exit
echo Command complete.
exit /b %EXIT%

```

## Create or update the post scripts

You can either create new post scripts or use the scripts available at `default_install_directory\plugins\backup\create\post`.

### About this task

You must structure the script in a particular manner so that it can be executed within the context of a SnapManager operation. Create the script based on the expected operations, available input parameters, and return code conventions.

### Steps

1. Create a new script or use the available sample scripts.
2. Modify or include the functions, variables, and parameters as required.
3. Save the custom script.
4. Add the script name and required inputs in the post-processing task specification XML file or provide the inputs from the GUI by selecting the proper script and input parameter.



You do not have to provide secondary storage details in the task specification XML file.

## Create post-process, task-specification files

SnapManager enables you to create post-processing, task-specification XML files for the backup operation that include the SnapMirror or SnapVault post-scripts. The scripts allow you to mirror or vault the backup to secondary storage.

### Steps

1. Open a new XML file.

You can see the sample task-specification XML file available at `default_install_directory\plugins\examples`.

2. Add the script name as an input parameter.
3. Save the task-specification XML file.

## Use post-processing task specification to mirror volumes

SnapManager for SAP enables you to use the script to mirror the volumes after the backup operation occurs in a Windows environment.

### Steps

1. Create a task specification XML file.
2. In the XML file, enter the script name as an input parameter.
3. Save the task specification XML file.
4. Create a protected backup of the database to secondary storage using the following command.

While creating the protected backup, you must provide the complete path of the saved task specification XML file after the `-taskspec` option.

Example: `smsapbackup create -profile test_profile -full -online -taskspec "C:\\mirror\\snapmirror.xml"`

The following example shows a post-processing task specification structure if you are using Data ONTAP operating in 7-Mode:

```
#    <post-tasks>
#          <task>
#                <name>Mirror the backup</name>
#                <description>Mirror the backup</description>
#          </task>
#    </post-tasks>
```

The following example shows a post-processing task specification structure if you are using clustered Data ONTAP:

```

# <task-specification>
#         <post-tasks>
#             <task>
#                 <name>"Vault the backup for cDOT"</name>
#                 <parameter>
#                     <name>SNAPSHOT_LABEL</name>
#                     <value>TST</value>
#                 </parameter>
#             </task>
#         </post-tasks>
#     </task-specification>
# </preposttask-specification>

```

### Use post-processing task specification to vault qtrees

SnapManager for SAP enables you to use the script to vault the qtrees after the backup operation takes place in a Windows environment.

#### Steps

1. Create a task specification XML file.
2. In the XML file, enter the script name as an input parameter.
3. Save the task specification XML file.
4. Create a protected backup of the database to secondary storage using the following command.

While creating the protected backup, you must provide the complete path of the saved task specification XML file after the `-taskspec` option.

**Example:** `smsapbackup create -profile test_profile -full -online -taskspec "C:\\mirror\\snapvault.xml"`

The following example shows the post-processing task specification structure if you are using Data ONTAP operating in 7-Mode:

```

# <post-tasks>
#         <task>
#             <name>Vault the backup</name>
#             <description>Vault the backup</description>
#         </task>
#     </post-tasks>

```

The following example shows the post-processing task specification structure if you are using clustered Data ONTAP:

```
# <task-specification>
#     <post-tasks>
#         <task>
#             <name>"Vault the backup for cDOT"</name>
#             <parameter>
#                 <name>SNAPSHOT_LABEL</name>
#                 <value>TST</value>
#             </parameter>
#         </task>
#     </post-tasks>
# </task-specification>
# </preposttask-specification>
```



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