

Disk drive and shelf maintenance

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About NetApp

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Preface

This document describes the steps you should perform as part of maintenance of any disk drive or shelf at Thomson Reuters.

Audience

The primary audience for this document is NetApp Professional Services Engineers for Thomson Reuters and Thomson Reuters Storage Administrators.

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Information About this Document

All information about this document including version history, review and approval, typographical conventions, references, and a glossary of terms can be found in the final chapter of this document.

# Introduction

This document details the additional steps you should perform as part of maintenance of disk drive or shelf at Thomson Reuters. This includes operations such as failed disk replacements, reseating of components in the disk shelves, cabling modifications, and/or adding new disk shelves. The work includes the following phases:

1. Pre-work phase
2. Arrival and notification phase
3. Validation phase
4. Work phase
5. Post-work phase

# Phases in disk drive and shelf maintenance

This chapter describes each phase of disk drive and shelf maintenance.

## Pre-work phase

Formalize an action plan before going onsite to perform maintenance. The plan should include the system checks to be performed before and after the maintenance.

There are several resources to assist with the development of a formalized action plan. These include Thomson Reuters co-workers, NetApp on-site team members, and NetApp NGS/CSC. Additionally, a central repository for previously completed action plans is available.

## Arrival and notification phase

On arriving at a Thomson Reuters site, it is critical that the Thomson Reuters Master Console [what is their current name?] is notified of your arrival.

Note: The Master Console can be contacted at 651-687-8201.

You must let them know the Thomson Reuters CR or IM number assigned to the work/task, the NetApp storage controller being worked on, and any other questions that they might have.

In the event of any issues affecting the data center, it is possible that they might cancel your scheduled work.

## Validation phase

This phase can be accomplished only if the person performing the tasks has proper login credentials. If you don’t have proper login credentials, skip this entire phase.

Before proceeding with the work, perform the basic checks on the NetApp storage controller cluster. These checks should be performed on the NetApp storage controller serial port.

It is highly recommended that the commands that run during the validation step are planned before coming onsite and is a part of the action plan.

Note: Discussion of hardware and software to connect to the console port, along with instructions on how to login and execute commands on a NetApp storage controller are assumed knowledge and are outside of the scope of this document.

A few commands that are helpful for information gathering are:

* FILER> sysconfig –a
* FILER> sysconfig –r
* FILER> storage show disk –p
* FILER> aggr status
* FILER> vol status
* FILER> disk show

Note: It is also assumed that the reader is either familiar with the above commands, or will become familiar with the commands before proceeding to the work stage.

## Work phase

During this phase, it is mandatory that the person performing this work be connected to the NetApp storage controller’s console. All error messages should be observed and captured.

A lot of useful information is displayed on the system console even when the person performing the work does not have proper login credentials.

Follow your action plan. If, at any point in the work, you see any unexpected messages, the maintenance should be put on hold until such messages are investigated and well understood. If there are any outstanding questions, the maintenance must be delayed until those questions are resolved, even if it means that the work is not completed until a future maintenance window.

## Post-work phase

Regardless of success or failure in the work, the Thomson Reuters Master Console must be informed of the status of the work and that you are leaving the site.

# Sample action plans

This chapter has a few sample action plans which are intended as general guidelines only, to get you started. The exact procedures must be detailed further.

Note: Feel free to ask the NetApp onsite engineers for assistance in expanding your action plan.

## Replacing a failed disk

Follow these steps to replace a failed disk:

1. Connect to system console.
2. Validate disk failure using the sysconfig –r command.
3. Locate the failed disk.
4. Remove the failed disk.
5. Wait for 45 seconds while watching system console.
6. Carefully insert the new disk.
7. Watch system console to see that new disk is seen by storage controller.
8. Validate that the disk is available to the system by using sysconfig –r command.
9. Validate that the disk is owned by the system by using the disk show command.
10. Log off from the storage controller.

## Reseating components in the disk shelves

Follow these steps to reseat components in the disk shelves:

1. Connect to the system console.
2. Validate that there is still at least one path to the shelf without the component.

FILER> sysconfig –a

FILER> storage show disk –p

1. Unseat failing component.
2. Wait for 45 seconds while watching system console.
3. Reseat the component.
4. Watch the system console to see that the component is recognized, and that the existing error is cleared. This might take up to a minute.
5. Validate that there is now multiple paths to the shelf.

FILER> storage show disk -p

1. Log off from storage controller.

## Modifying cables

This work must be carefully planned out with the NetApp NGS/CSC. Specifics on this are very different each time.

## Adding new disk shelves

The exact procedures to add shelves are slightly different for different models of disk shelfs that are added.

A sample is shown below.

1. Rack the new disk shelf in the Thomson Reuters provided location.
2. Connect to the system console.
3. Validate that the maximum shelf count is not reached on the disk loop.

FILER> sysconfig –a

1. Validate that there are two paths to all disks in the loop into which the disk shelf is added.

FILER> storage show disk -p

1. Plug cables into new disk shelf. Do not connect the new shelf to the NetApp storage array at this time.
2. Validate the shelf id and speed settings for the new shelf.
3. Power on the shelf.
4. Wait for two minutes for the shelf to spin up the disks and perform various self tests.
5. Validate that the shelf id on the front of the shelf matches the configured number.
6. Unplug the return cables from last shelf in loop. Keep track of which one was A and which was B.
7. Watch the system console to see the connection drop.
8. Plug the cables from the new shelf into the existing disk shelves.
9. Plug the dangling return cables into the new shelf’s out ports. Be sure that A and B cables are not reversed.
10. Watch the system console to see if the new disk is recognized.
11. Validate that the shelf is visible to the system, there are multiple paths to the shelf and that the disk is owned by the storage controller.

FILER> sysconfig –a

FILER> storage show disk –p

FILER> disk show

1. Log off from the storage controller.