

Disk Drive Health Check in NonStop Systems



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About This Document

This procedure describes how to perform a health check (scan) for a NonStop disk drive that is to be the sole member of a mirrored volume to be left online as a data source during mirror-splitting operations such as disk replacements, online disk capacity upgrades, and migratory REVIVES.

Supported Release Version Updates (RVUs)

This topic supports J06.03 and all subsequent J-series RVUs, H06.03 and all subsequent H-series RVUs, and G06.24 and all subsequent G-series RVUs until otherwise indicated in a replacement publication.

Intended Audience

This procedure is written for those responsible for servicing disk drives in a NonStop system.

New and Changed Information in This Edition

In this table, Online NTL refers to the NonStop Authorized Information section of the NonStop Technical Library available to HP employees at <http://docs.fc.hp.com/en/nonstopauthorized>.

Version	Delivery Channel	Date	Changes
546223-001	Online NTL	04 November 2008	None. New procedure.

Related Information

For FCHECK information, see the *DP2 FCHECK User's Guide*.

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Disk Drive Health Check

This procedure describes how to perform a health check (scan) for a NonStop disk drive that is to be the sole member of a mirrored volume to be left online as a data source during mirror-splitting operations such as disk replacements, online disk capacity upgrades, and migratory REVIVES.

Notes and Cautions



CAUTION:

- Some versions of FCHECK have a defect that could cause media errors to go undetected. For G-series, use T9208ABQ or a subsequent SPR. For H-series, use T9208ABP or a subsequent SPR.
 - Note that the T9053AQD prerequisite for T9208ABQ can be ignored for online disk capacity upgrades. For migratory REVIVES, both T9208ABQ and T9053AQD (or a subsequent SPR) should be installed in order to ensure that all SQL/MP tables are included in the space estimate and to fix several migratory REVIVE defects.
 - Disk media errors can be intermittent. Even though a drive has been scanned successfully, there still is the potential for a media error to arise during the subsequent REVIVE operation.
-



NOTE:

- During a mirrored pair disk replacement, online disk upgrade, or migratory REVIVE, there are periods where the disk volume is in a non-fault-tolerant mode because one of the pair of drives is being used as the target for the REVIVE operation and does not contain a complete copy of the data. Because of this, it is important to perform steps to ensure that the drive that is to be the source of each REVIVE operation has been scanned as a health check so no data will be lost due to media or checksum errors on that drive. FCHECK is the utility used to do the scanning and repairing. If one of the drives being scanned has a valid checksum and the other drive has an invalid checksum, the `-SCAN` option automatically copies the data with the valid checksum to the drive with the invalid checksum. If Automatic Sector Reallocation is enabled, running `FCHECK -SCAN` causes every in-use sector on both halves of a logical disk to be read. The DP2 driver automatically reports any media errors encountered during this scan, and the reallocation recovers the data from the good copy. As a result, media errors are reported and automatically corrected, if possible.
 - For all migratory REVIVES and for online disk capacity upgrades being done on a volume that does not have `CAPACITYMISMATCH` set, the source drive is automatically placed in a hard down state at the end of the first REVIVE. Because of this, there is no opportunity to perform a data comparison between the two drives or otherwise health-check the newly-REVIVED drive before it becomes the source for the second REVIVE. In these cases, it is recommended that the customer perform health checks on that drive as described below prior to beginning the mirror-splitting procedure and clearly label the drive as having been scanned. This recommendation is particularly important if the first target drive is taken from an existing system rather than coming from HP as either a new drive or a replacement drive. Drives coming from HP already have been fully scanned.
 - `CAPACITYMISMATCH` is supported in G06.29 and later G-series RVUs, all H-series RVUs, and RVUs prior to G06.29 that have SPR T9753G07^AGB or a subsequent SPR installed.
-

Perform Health Check Scan Prior to Mirror Split

1. Before the actual mirror split is performed, but preferably within a relatively short time before that operation, run FCHECK on the mirrored pair:

```
FCHECK [-rate xxx] -findbad -scan -vol $volume
```

Run FCHECK at a priority lower than high-priority processes that might otherwise be impacted. If the disk is very busy, use a rate of 90 or less to minimize impact (although this will slow the scan considerably). Otherwise, leave it out or specify 100. The priority can always be dynamically adjusted via TACL if necessary, but not the rate. The `-findbad` option minimizes output.

2. After the scan completes, check the FCHECK output and OSM status for problems and perform any necessary repair actions.
3. After all REVIVES are complete, it is a best practice to run another scan:

```
FCHECK [-rate xxx] -findbad -fastscan -vol $volume
```

4. After the scan completes, check the FCHECK output and OSM status for problems and perform any necessary repair actions.

Additional Steps for Online Disk Capacity Upgrades

1. Also run FCHECK on at least the first of the larger-capacity drives that will be used if the upgrade will be performed on a system running a release earlier than G06.29 (pre-G06.29 RVUs does not support CAPACITYMISMATCH).

The disk drive(s) can be scanned on any available system; this operation does not need to be performed on the system where the drive(s) will be used. In order for the scan to be fully effective, the new drive needs to contain at least as much data as exists on the volume that is being upgraded. If necessary, create additional files (preferably unstructured) before performing the scan.

FUP DUP can be used to copy files or subvolumes onto the drive(s) until an adequate amount of space has been consumed. `DSAP $volume, SHORT` will show the amount of free space on the volume, so total consumption can be calculated by subtracting that value from the volume capacity that it reports. As an alternative, keep creating files until an error 43 is returned due to the drive being full.

Use the following options:

```
FCHECK [-rate xxx] -findbad -scan[mirror|primary] -vol $volume
```

2. After the scan completes, check the FCHECK output and OSM status for problems and perform any necessary repair actions.
3. If the upgrade is being performed on a system that supports CAPACITYMISMATCH, it is a best practice to configure the volume for CAPACITYMISMATCH prior to upgrading the first drive. This provides an opportunity at the end of the first REVIVE to scan the target drive while the contents of the source drive still are available for use in correcting any media errors. If CAPACITYMISMATCH is not configured, the source drive is placed automatically in a STOPPED state, HARDDOWN substate at the end of the first REVIVE.

If the larger-capacity drive is the mirror drive, run:

```
FCHECK [-rate xxx] -findbad -scanmirror -vol $volume
```

If it is the primary drive, run:

```
FCHECK [-rate xxx] -findbad -scanprimary -vol $volume
```

Again, check the FCHECK output and OSM for any problems and, if necessary, repair them.

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