Disk Drive Error Identification

To determine the source of a disk drive error:

1. Run the Disk Space Analysis Program (DSAP) on the disk volume that is having problems; for example:

   ```
   1>DSAP $SYSTEM
   ```

   DSAP reports disk drive errors such as unspared defective sectors or doubly allocated file extents. If your disk drive is active, DSAP might not be able to perform the extent check.

2. If DSAP reports unspared defective sectors, use the SCF INFO DISK, BAD command to confirm that the sectors have not been spared; for example:

   ```
   2>SCF INFO $SYSTEM,BAD
   ```

   If the SCF INFO DISK, BAD command confirms that there are unspared defective sectors, spare these defective sectors.

3. If DSAP reports any doubly allocated file extents, correct them by performing the procedure for correcting doubly allocated file extents provided in the SCF Reference Manual for the Storage Subsystem.

4. If the DSAP report does not indicate the source of the disk drive error, refer to Disk Drive Error Troubleshooting Using OSM or TSM Software to perform general disk drive tests and track any disk drive errors being recorded.

5. If disk performance seems to be the source of the disk drive error, use one of the following utilities:
   - The Disk Compression Program (DCOM), which compresses the free space of a disk volume to minimize file fragments. Refer to the Guardian Disk and Tape Utilities Reference Manual for information about using DCOM to compress free space on disks.
   - Measure, which is a tool for collecting performance statistics on system resources. You can use the data provided by Measure to balance the work load. Refer to the Measure Reference Manual for more information.

Related Topics:

- Disk Drive Error Troubleshooting Using OSM or TSM Software
- Disk Drive Revive Failure Recovery
- Disk Drive Start Failure Recovery
- Disk Drives: Diagnosing a HARDDOWN Substate
- Recovering From SCF Object States and Substates

Disk Drive Error Troubleshooting Using OSM or TSM Software

For more information about OSM software, see OSM online help and the OSM User's Guide.

For more information about TSM client software, see TSM online help and the TSM Online Guide.

OSM Service Connection or TSM Service Application Action	Description
Test Verify	This action runs a vendor-supplied power-on self-test (POST) that checks the internal circuitry of the disk drive. This test can affect the performance of the disk. Stop all processes from accessing the affected disk drive before performing this test.
Validate Checksum	This action scans the user data area of a disk for sector checksum errors. If the action fails, the Action Details dialog box reports that a sector checksum error has been found and suggests that you spare the sector only if you believe there is a drive media problem.
Responsive Test	This action verifies that the disk is installed and responding.
Alarms	An alarm reports faults or abnormal conditions on a server, such as a failed disk drive. You can view alarms that currently exist for operating system resurces using the OSM Service Connection or the TSM Service Application.
Events	If your disk-related error is not identified using DSAP or through OSM or TSM actions or alarms, look for disk-related events. Use the OSM or TSM Event Viewer to retrieve and view events related to the error from EMS-formatted log files ($0, $ZLOG, or an alternate collector). For further information, see OSM or TSM Event Viewer online help.

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Disk Drives: Diagnosing a HARDDOWN Substate

If a Disk Drive Is HARDDOWN During...	Diagnostic Action
Installation of an internal disk drive	Use the SCF STATUS DISK command to check the states of the disk paths.
Installation of a PMF CRU	Use the SCF STATUS DISK command to check the disk path states for each disk configured to use the PMF CRU along with the disk path states for each IOMF CRU and ServerNet/DA associated with this PMF CRU.
Installation of an IOMF CRU	Use the SCF STATUS DISK command to check the disk path states for each disk configured to use the SAC on the IOMF CRU and for the disks configured to use the ServerNet/DA associated with the IOMF CRU.
Installation of an SEB	Use the SCF STATUS DISK command to check the disk path states for each IOMF CRU and ServerNet/DA associated with the SEB.

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Disk Drive Start Failure Recovery

If a disk drive does not start, the problem could be related to the SCF object state of the disk drive. If the disk drive is in one of the following SCF object states, use the SCF RESET DISK command before you try to use the disk drive:

- STOPPED state, HARDDOWN substate
- SERVICING state, TEST substate
- SERVICING state, SPECIAL substate

The SCF RESET DISK command leaves the disk drive in the STOPPED state, DOWN substate. From this state, the disk drive can be started.

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Disk Drive Revive Failure Recovery

If a disk revive operation receives a checksum error or nonfatal error, the SCF START DISK command retries the disk revive operation at the current address until either the operation is successful or the operation suspends or stops. If the disk revive operation suspends or stops, refer to the SCF Reference Manual for the Storage Subsystem.

A disk revive operation might display errors when you use the SCF START DISK command. The following table lists causes of SCF START DISK command failures along with appropriate recovery actions.

Cause	Recovery Action
The disk volume label is unreadable.	Report this problem to your service provider.
The configured disk subtype is incompatible with the subtype specified on the disk volume label.	Verify that the disk drive is properly configured. This problem can be caused by an attempt to use a newly installed disk drive that either is not supported by the storage subsystem or has not yet been configured. Use the SCF ALTER DISK command to properly configure the disk drive.
The disk drive failed during an SCF CONTROL DISK, REBUILDDFS operation.	Rerun the CONTROL DISK, REBUILDDFS command. If the disk drive fails a second time, contact your service provider.
One disk drive in a mirrored disk volume has an older disk volume label timestamp than the other disk drive.	Use the SCF START DISK command on the older disk drive to revive it.
The disk volume label or directory label format is bad or invalid.	Contact your service provider, who might be able to correct the invalid data or directory using the TANDUMP utility.
Not enough memory is available.	Try stopping processes that are running in the same processor as the primary disk process until enough memory is available to start the disk.

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