

DTM

North American Response Center

## HP 3000 APPLICATION NOTE #38

### STORE/RESTORE ERRORS



**HEWLETT  
PACKARD**

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## RESPONSE CENTER APPLICATION NOTES

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## STORE/RESTORE ERRORS

This document is a guide for trouble-shooting and recovering from STORE/RESTORE errors. Included is a partial list of some of the most common errors encountered. Note that it is not intended to be a comprehensive list. The emphasis, in this document, is to help you to trouble-shoot the problem should one of these errors occur.

Several utilities may generate S/R errors: STORE/RESTORE, SYSDUMP, PARTBACKUP/FULLBACKUP, and DBSTORE/DBRESTORE. The procedures described here should be followed in the same manner regardless of which utility generated the message. As a part of the trouble-shooting process, please note any additional console messages that may appear. These can prove to be very helpful in diagnosing the problem.

There are situations where STORE/RESTORE may simply abort without any error message other than STORE/RESTORE ABORTED BECAUSE OF ERROR. It is rare that this will be the only message, but if it is, you can get more information on the error that occurred from the Job Control Word (JCW) STOREJCW. This JCW is set every time STORE/RESTORE is run. It is set to a value from 0-8 which represents the type of error that occurred (0 being a successful completion). To view the set value, type :SHOWJCW STOREJCW. For more information about STOREJCW and how to interpret the values returned, refer to Appendix A of the *MPE V BACKUP AND RECOVERY USERS GUIDE (P/N 32033-90134)*.

### TROUBLE-SHOOTING A STORE/RESTORE PROBLEM

A STORE/RESTORE error may indicate a problem with the system hardware or a tape drive. However, sometimes the cause is as simple as dirty heads on the drive or a bad tape. So, before concluding that the problem is hardware-related, you will want to try to eliminate these possibilities.

The most common problem encountered during a STORE/RESTORE operation is a form of transmission error which will usually be reported as an TRANSMISSION ERROR (FSERR 26) or UNIT FAILURE (FSERR 30). (Such errors may also generate additional S/R messages which may or may not directly relate to the cause of the problem.)

To eliminate the possibility of dirty tape drive heads or a bad tape, the first thing you should do when a S/R error is encountered is to clean the drive heads and the tape path thoroughly and retry the operation. See the OPERATOR'S MANUAL for your tape drive for detailed instructions on maintaining the tape drive. If the operation you are performing involves several reels of tape, you may need to clean the drive heads and tape path periodically during the operation. This may have to be done as often as between each tape or every other tape, especially if you suspect your tapes are bad. In particular, you may find it necessary to clean the tape drive frequently when you are using brand new tapes as the oxide coating on new tapes tends to 'flake off' causing a build up of oxide on the tape heads and in the tape path.

Next, you may want to see if the same operation will work with a different tape. You may consider trying both a 'new' tape and a tape that you know has been successfully used recently. Note: If you use a new tape which has never been written you will receive the message LDEV nn I/O ERROR IGNORED DURING AVR. IO STATUS %14 when you mount the tape. This is NOT an error to be concerned about. It simply means that the tape drive cannot determine the tape's density because an ID BURST (indicating the density) has not yet been written on the tape.

If S/R errors are still occurring after cleaning the drive, and retrying the operation with different tapes, you should take a look at the media (tape) itself. There are two utility programs you can use to do this. They are VALIDATE and TAPETEST. Both reside in the TELESUP account and are discussed in the next sections.

## THE VALIDATE PROGRAM

The program VALIDATE.PUB.TELESUP can be used to test a tape when STORE/RESTORE errors are returned during a read operation. The program will read a tape in MPE STORE format (which means that it was created by one of the S/R utilities) and produce a listing of the files that are on the tape. The importance of VALIDATE in this trouble-shooting stage is that it will also check for many kinds of tape errors that could cause problems when trying to restore the files to the system.

If VALIDATE encounters any errors on the tape, the following will be displayed on the console:

```
*****
*           VALIDATION FAILED           *
*    n MAJOR ERRORS WERE FOUND         *
*    n MINOR ERRORS WERE FOUND         *
*****
```

Look at the offline listing produced by VALIDATE for more information on the errors encountered. A 'MAJOR ERROR' will usually be associated with a FSERR (file system error) while a 'MINOR ERROR' will describe what was found. Many times the minor errors will not interfere with reading the tape, but most major errors could prevent the tape from being completely restored to the system.

For more information on how to run VALIDATE refer to the documentation file VALIDATE.DOC.TELESUP. This file describes input parameters and formal file designators and gives examples of some major and minor errors that you may encounter. Besides the information found in the file in the DOC group, you can also use the HELP command within the program for assistance in running VALIDATE.

## THE TAPETEST PROGRAM

TAPETEST is a tool for verifying that data can be written to tape and subsequently read without error. It assumes the tape drive is in good working condition and therefore should not be used as a tool to identify tape drive hardware-related problems.

If you have a S/R error while writing to the tape, VALIDATE will probably be of little assistance in determining its cause. This is because it expects a tape that already has files on it in MPE STORE format. TAPETEST.PUB.TELESUP, however, does not assume this and therefore its use may be more appropriate in cases than VALIDATE. TAPETEST simply writes to a tape and reports any errors that are encountered.

**CAUTION**

TAPETEST will write over any information currently on the tape.

TAPETEST has five commands: WRITE, REWIND, QUIET, TAPE, and EXIT. You should use the WRITE command which will write the ENTIRE tape and report errors or retries, if any. Upon finding an error, the program will generate the message WRITE RETRY ON RECORD #nnnn and list the record location where the error occurred.

TAPETEST should be run several times during the media evaluation process to check the consistency of errors reported. If each time TAPETEST is run, it reports errors at the same approximate location this typically indicates bad spots on tape.

## FURTHER TROUBLE-SHOOTING

If you have gone through all of these trouble-shooting steps and the problem persists, you should call the Response Center. There are several things you can do to aid the Response Center engineer in dealing with the S/R error, such as:

- Keep track of all other errors and console messages that occurred throughout your own trouble-shooting activities.
- Have available the complete error messages and error numbers that you have received.
- Pay special attention to the tape drive itself. Are there any numbers that appear in the LED readouts? Does the tape continuously wobble back and forth? Did the tape ever move after it was mounted?
- Issue the SWITCHLOG command from the console and retry the operation. This will record any errors generated during the operation in one system logfile for easier analysis by the Response Center engineer, if necessary.

## COMMON STORE/RESTORE ERRORS

Not all S/R errors are caused by bad media or hardware problems. Some errors may have other causes. Below is a list of some commonly seen errors along with the action that should be taken.

S/R 6000 -- ERROR WHILE WRITING TO TAPE.

STORE detected either a media or hardware problem while writing to a tape. Follow the trouble-shooting steps described in this application note.

S/R 6018 -- CAN ONLY STORE TO TAPE OR SERIAL DISC.

If the device is a 914x or 35401 tape unit, verify that the device is shown configured as a SERIAL device in the system I/O configuration (examined by running SYSDUMP \$NULL). If this is not the case, check if STORE has been directed to an improper device, most likely by an improper file equation. Type the LISTEQ command to list all file equations currently set. Examine the file equations to verify that the DEV= parameter is directed to a tape drive or serial disc.

S/R 6020 -- WARNING: OPERATION CONTINUING DESPITE DISK READ ERROR.

This error is typically reported for a particular file name and could indicate a possible disc problem. Follow the trouble-shooting steps described in this application note. Note the frequency of the problem then call the Response Center for further assistance.

S/R 6087 -- REWIND OF TAPE FAILED.

This may be a possible hardware problem. Follow the trouble-shooting steps described in this application note. application note. Note the frequency of the problem then call the Response Center for further assistance.

S/R 6093 -- UNABLE TO OPEN TAPE FILE.

This error is most commonly caused by bad media or an incorrect operation. First type the LISTEQ command to list all file equations that are set. Verify these file equations are correct.

Use the SHOWDEV *ldev#* command to verify that the device is available. Try setting it unavailable and then available again by using the DOWN *ldev#* command followed by the UP *ldev#* command.

If cartridge tapes are being used, verify that the tapes have been SERIALized and FORMATted via the VINIT program which will place a volume label on the tape (see the Quick Reference section of the *System Operation and Resource Management Manual* for details on how to do this). Also if cartridges are being used, examine the system I/O configuration (by running SYSDUMP \$NULL) and verify that the cartridge drive is configured as a serial device.

S/R 6121 -- COOD FILE FULL...YOU NEED TO INCREASE ITS SIZE WITH THE 'FILES' KEYWORD.

This error occurs because more than 4000 files were selected to be stored (SYSDUMP by default, however, can dump up to 16000 files). You will need to specify ;FILES=nnnnnn (where nnnnnn is the maximum number of files you want to store) as a parameter on the STORE command or, if SYSDUMP is being run, in response to the ENTER DUMP FILE SUBSET(S) prompt during the dialog. It is not necessary to know exactly how many files you will store. It is best to over estimate the value for nnnnnn. (Example: @.@.@;FILES=20000)

S/R 6148 -- DIRECTORY ERROR: INVALID FILE FOUND BY DIRSCAN.

This message may indicate a directory or file label problem. First run the program DIRTEST.PRV.TELESUP which locates the disc address for a file. If DIRTEST fails, it may indicate a problem with the directory. If DIRTEST passes, then run BADLABEL.PRV.TELESUP. This will check the validity of all file labels and provide a cross-reference listing of the file extent information for each file. BADLABEL should be run with all users logged off. By default, it requires a tape to be mounted with a write ring. After running DIRTEST and BADLABEL, note the errors returned and call the Response Center for further assistance.

S/R 6179 -- I/O ERROR READING STORE/RESTORE LABEL FROM TAPE.

Bad media may cause this error. Follow the trouble-shooting steps described in this application note and contact the Response Center if further assistance is needed.

S/R 6180 -- LENGTH OF TAPE READ NOT MULTIPLE OF 128.

This error may indicate a media problem. Check any file equations set for the tape drive and follow the trouble-shooting steps described in this application note, giving special attention to the results from VALIDATE.

S/R 6188 -- RECSIZE OF RECORD HOLDING STORE/RESTORE LABEL WAS NOT 40 WORDS.

This may be due to a media problem. Follow the trouble-shooting steps described in this application note, giving special attention to the results from VALIDATE and TAPETEST.

S/R 6197 -- I/O ERROR WRITING AN EOF MARK TO TAPE.

This may be caused by bad media or a hardware problem. Follow the trouble-shooting steps described in this application note.

S/R 6200 -- WILL RE-TRY TO STORE ALL FILES THAT WERE ON BAD REEL.

This error is usually accompanied by another S/R message. It indicates that STORE detected the tape may be bad but continued with the operation. When you mount the next tape, all of the files that were stored on the suspected bad tape will be stored again on that tape. The bad tape is no longer part of the STORE set.

S/R 6220 -- STORE STOPPED DUE TO SOFTWARE IO-ABORT.

Two possible causes for this error, 1) an ABORTIO command, directed towards the tape drive, was issued by the system operator, or 2) an ABORTJOB/BREAKJOB command was performed on the job/session. In both cases, the STORE program aborts. You should simply try the operation again.

S/R 9009 -- END OF FILE ON DIREC FILE - USE THE FILES OPTION.

When restoring from a tape, the tape directory is copied into a directory file. The default size of this file is 10,000 records. If the tape directory contains more entries than this you will need to specify the ;FILES=nnnnnn parameter on the RESTORE command (where nnnnnn is a number greater than 10,000).

## BACK ISSUE INFORMATION

Following is a list of the Application Notes published to date. If you would like to order single copies of back issues please use the *Reader Comment Sheet* attached and indicate the number(s) of the note(s) you need.

<u>Note #</u>	<u>Published</u>	<u>Topic</u>
1	2/21/85	<i>Printer Configuration Guide (superseded by note #4)</i>
2	10/15/85	<i>Terminal types for HP 3000 HPIB Computers (superseded by note #13)</i>
3	4/01/86	<i>Plotter Configuration Guide</i>
4	4/15/86	<i>Printer Configuration Guide - Revised</i>
5	5/01/86	<i>MPE System Logfile Record Formats</i>
6	5/15/86	<i>Stack Operation</i>
7	6/01/86	<i>COBOL II/3000 Programs: Tracing Illegal Data</i>
8	6/15/86	<i>KSAM Topics: COBOL's Index I/O; File Data Integrity</i>
9	7/01/86	<i>Port Failures, Terminal Hangs, TERMDSM</i>
10	7/15/86	<i>Serial Printers - Configuration, Cabling, Muxes</i>
11	8/01/86	<i>System Configuration or System Table Related Errors</i>
12	8/15/86	<i>Pascal/3000 - Using Dynamic Variables</i>
13	9/01/86	<i>Terminal Types for HP 3000 HPIB Computers - Revised</i>
14	9/15/86	<i>Laser Printers - A Software and Hardware Overview</i>
15	10/01/86	<i>FORTRAN Language Considerations - A Guide to Common Problems</i>
16	10/15/86	<i>IMAGE: Updating to TurboIMAGE &amp; Improving Data Base Loads</i>
17	11/01/86	<i>Optimizing VPLUS Utilization</i>
18	11/15/86	<i>The Case of the Suspect Track for 792X Disc Drives</i>
19	12/01/86	<i>Stack Overflows: Causes &amp; Cures for COBOL II Programs</i>
20	1/01/87	<i>Output Spooling</i>
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23	3/01/87	<i>VFC Files</i>
24	3/15/87	<i>Private Volumes</i>
25	4/01/87	<i>TurboIMAGE: Transaction Logging</i>
26	4/15/87	<i>HP 2680A, 2688A Error Trailers</i>
27	5/01/87	<i>HPtrend: An Installation and Problem Solving Guide</i>
28	5/15/87	<i>The Startup State Configurator</i>
29	6/01/87	<i>A Programmer's Guide to VPLUS/3000</i>
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32	7/15/87	<i>Configuring Terminal Buffers</i>
33	8/15/87	<i>Printer Configuration Guide</i>
34	9/01/87	<i>RIN Management (Using COBOLII Examples) (A)</i>
34	10/01/87	<i>Process Handling (Using COBOLII Examples) (B)</i>
35	10/15/87	<i>HPDESK IV (Script files, FSC, and Installation Considerations)</i>
34	11/01/87	<i>Extra Data Segments (Using COBOLII Examples) (C)</i>
36	12/01/87	<i>Tips for the DESK IV Administrators</i>
37	12/15/87	<i>AUTOINST: Trouble-free Updates</i>
38	1/01/88	<i>Store/Restore Errors</i>







# READER COMMENT SHEET

North American Response Centers  
HP 3000 Application Note #38: STORE/RESTORE  
RC Questions & Answers (January 1, 1988)

We welcome your evaluation of this Application Note and attached RC Questions & Answers Sheet. Your comments and suggestions help us to improve our publications. Please explain your answers under Comments, below.

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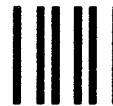
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**HEWLETT  
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HP 3000 Questions Commonly Received by the North American Response Centers

**Q. Is there a way to use a TurboIMAGE/3000 "I" file to help determine the cause of a data base problem?**

**A.** A TurboIMAGE/3000 "I" file is created by the data base software when an internal error condition arises. Among other things the "I" file contains a dump of TurboIMAGE/3000 control blocks, contents of the user stack and a trace of stack markers. Understanding these requires an in-depth knowledge of MPE stack architecture and TurboIMAGE/3000 internal software and data structures. However, most "I" files also contain a brief English-language problem description. To see this message proceed as follows:

- 1) Logon as MGR.TELESUP (or any logon with PM capability).
- 2) Enter the following file equate: `!FILE DBDRLIST;DEV=LP,1.`  
DBDRLIST is the formal file designator for the software you will use to evaluate the "I" file. The number "1" in the device clause defers the file so it will not print, but stays on disc as a spool file.
- 3) Enter the following file equate: `!FILE I=nnnnnnn.GROUP.ACCOUNT`  
where "Innnnnnn" is the name of your "I" file.
- 4) `!RUN DBDRIVER.PUB.SYS,CLONE`  
When the ">" prompt appears enter "\*I".
- 5) When DBDRIVER is finished with the "I" file it will display a message. After you see the display, run `SPOOK5.PUB.SYS` and look for the formal file designator DBDRLIST. TEXT this file into SPOOK5. The first 10 lines or so will contain the English-language problem description (if there is one).
- 6) Read the problem description then, delete the DBDRLIST from disc with SPOOK5's "PURGE" command.
- 7) Exit SPOOK5, then delete the "I" file from disc by running `DBDRIVER.PUB.SYS,PURGE` and once again responding to the prompt with "\*I".

If you are having data base problems and "I" files are NOT being produced you may have to run `DBUTIL.PUB.SYS` and "enable" your data base for "dumping".

Appendix A of the IMAGE manual contains some discussion of IMAGE Internal Aborts. You may also want to call the Response Center for an interpretation of your particular error or for assistance.

