

Worldwide Response Center

HP 3000 APPLICATION NOTE # 90

The New Spooler



HP Computer Museum
www.hpmuseum.net

For research and education purposes only.

RESPONSE CENTER APPLICATION NOTES

HP 3000 APPLICATION NOTES are published by the Worldwide Response Center and are distributed with the Software Status Bulletin. These notes address topics where the volume of calls received at the Center indicates a need for addition to or consolidation of information available through HP support services.

Following this publication you will find a list of previously published notes and a Reader Comment Sheet. You may use the Reader Comment Sheet to comment on the note, suggest improvements or future topics, or to order back issues. We encourage you to return this form; we'd like to hear from you.

NOTICE

The information contained in this document is subject to change without notice.

HEWLETT-PACKARD MAKES NO WARRANTY OF ANY KIND WITH REGARD TO THIS MATERIAL, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. Hewlett-Packard shall not be liable for errors contained herein or for incidental or consequential damages in connection with the furnishing, performance or use of this material.

This document contains proprietary information which is protected copyright. All rights are reserved. Permission to copy all or part of this document is granted provided that the copies are not made or distributed for direct commercial advantage; that this copyright notice, and the title of the publication and its date appear; and that notice is given that copying is by permission of Hewlett-Packard Company. To copy otherwise, or to republish, requires prior written consent of Hewlett-Packard Company.

Copyright © 1991 by HEWLETT-PACKARD COMPANY

HP 3000 Application Note # 90

THE NEW SPOOLER

Introduction With the arrival of MPE/XL, version 2.1, you will be able use the new spooler whose main features are described here. The product is composed of two parts: the New Commercial Spooler (NCS), which is the basic spooler and part of the operating system, and the Extended Spooler Product which is an optional paid-for product which allows the management of special shapes and customized banners.

We shall only deal here with the basic spooler, also known as the native mode spooler.

Availability:

The new spooler is found on your FOS (Fundamental Operating Software) tapes, in version 2.1 or above, and will therefore replace the compatible mode spooler which was available until now.

Features:

NEW FILE MANAGEMENT

The files handled by the NCS (New Commercial Spooler) are of several types.

1. INPUT files

These exist until they are read by the job CI (Command Interpreter), or they are erased by the command: "ABORTJOB" already familiar to you, or by the new command: "SPOOLF ... ;DELETE".

2. OUTPUT files

These exist as long as they are not printed or deliberately deleted by a command. A new option "SPSAVE" allows the file to be kept in the spooler even when it has been printed. It is also possible to copy these files to your group and user-account using the "COPY" or "FCOPY" commands as you would for a standard file.

3. PRIVATE files

These files answer a long felt need for those users requiring high level security on certain spool files. These files are created at level 2 of the File system. This makes them accessible only by a call using the intrinsic "HPFOPEN" if working in Priv Mode. It requires SM capability to change the attributes of these files. We shall come back to the security aspects of this later on.

4. Checkpoint files

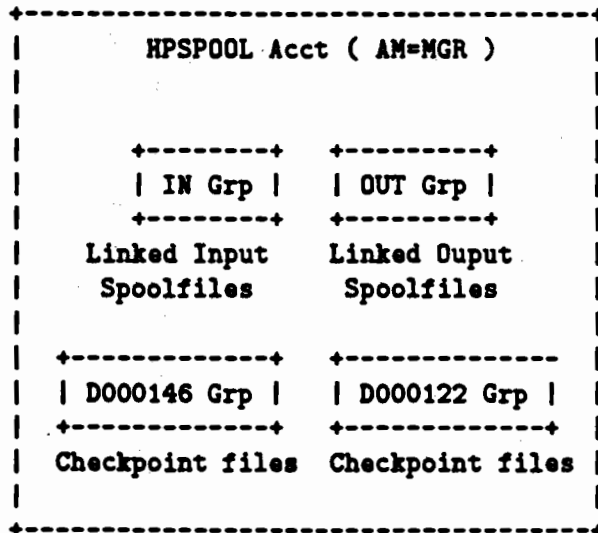
These files accompany the OUTPUT file. They allow the environment to be restored in cases of printing difficulties such as power failure, paper jams, etc. They are used during a RESUME after a SUSPEND. There is one Checkpoint file per spool file, per peripheral. They are deleted when the OUTPUT file is deleted. These files are found in the groups corresponding to the peripheral in the HPSPool user-account.

Note

The equivalent of these checkpoint files on the Compatible Mode spooler was in the USER LABEL of the spool file, this method limited the restoration after an incident to the first 256 pages of the spool file. With NCS this limitation is entirely overcome.

NEW ACCOUNTING STRUCTURE

Let us take a look at the following diagram which shows the user-account structure used by NCS



HPSPool

This account is reserved for the spooler. The manager of this account is MGR. The access matrix is: (R,A,W,L,X,S:ANY).

IN

This group contains the INPUT files mentioned above. These files are known as LINKED INPUT SPOOLFILES.

OUT

This group contains the LINKED OUTPUT SPOOLFILES, the access matrix of the IN and OUT groups is: (R,A,W,L,X,S:ANY). These groups are automatically created on system startup if they do not already exist.

DEVICE GROUP

These groups contain the CHECKPOINT FILES. Each spooled peripheral, on output, creates its own group whose name is that of the device or logical device of the peripheral.

FORMAT OF SPOOLER DATA

The NCS uses the recording format of the MPE/V spooler for three reasons:

1. This format is device independent.
2. It allows easy integration of control characters (CR, LF, etc).
3. It is compatible with the old spool files.

SUPPORTED PERIPHERALS

The supported printers are the laser HP2680 and 2688, printers using the CIPER protocol, either 2608S and 256X and the Laserjet series of printers and HP293X. Serial plotters are also supported. Only tape drives are supported as input.

SPOOL FILE SECURITY

Only the system console or a user with SM capability has access to all spool files. This does not concern files created with the PRIVATE option.

If an :ASSOCIATE is made on a peripheral, the user associated with the device has access to all the spool files handled by it.

These users have READ, WRITE, DELETE and APPEND access to these files. The user with AM capability has the same rights on spool files created by account users for which he is the MANAGER.

The originator of a file also has these same rights on his own files.

Note

STORE and RESTORE are possible for users having authorized read only access to these files. However, it is necessary to have authorized write access in order to use the PURGE option of STORE.

As we have already seen, the PRIVATE SPOOLFILES add an extra level of security to the File system standard.

The :PURGE and :PRINT commands do not work on these types of files since these commands make calls on the intrinsic FOPEN. The only means of access to these files is by using HPFOPEN Level 2 and therefore to LINK the program to Level 2, for this PM capability is needed.

The STORE and RESTORE of these files needs SM,OP capability or the system console. The LOCAL option of RESTORE does not work on these files.

RECOVERY NCS brings notable improvements in this area also: the RECOVERY exists at the level of the peripheral and of the spool file itself.

1. DEVICE RECOVERY

On printers using the CIPER protocol, it is possible to RECOVER a given page.

For the 2680 and 2688, a SILENT RUN is carried out up until the point of recovery.

This method consists of the printer interpreting sent characters without printing them up until the point of rupture.

For serial printers, the system is not aware of the number of the printed page, there may therefore be differences concerning the actual number of pages.

Concerning this subject, we advise you to read the "Managing Printers" chapter of the reference manual "Guide for the new system operator" HP part number 32650-90137, which covers the recovery procedures to be employed after incidents on spooled printers.

2. SPOOLFILE RECOVERY

Since the spool files are permanent files, they are no longer destroyed on startup, unless of course the startup uses INSTALL.

The INPUT spool files are recovered only during a STARTRECOVERY if the job has been started using the RESTART option in the JOB card. The spool files directory, SPFDIR, is rebuilt on each restart according to the information contained in the spool files.

The OUTPUT files remain in the spooler as long as the device has not indicated that the files have been printed without error.

COMPARISON WITH SPOOK

This utility no longer exists from version 2.1 onwards, however you will find that commands of the new spooler allow the same operations to be carried out, or that there are new utilities available to you, as shown in the table below.

SPOOK	NCS EQUIVALENT
SHOW	LISTSPF
PURGE	:PURGE or SPOOLF...;DELETE
ALTER	SPOOLF...;ALTER
INPUT	RESTORE or SPFXFER (utility)
OUTPUT	STORE or SPFXFER (utility)
TEXT	The editor of your choice
LIST	Same as above
FIND	Same as above
MODE	PRINTSPF (utility)
COPY	FCOPY or :COPY
APPEND	FCOPY

Note

To transfer a NCS file to the spooler in Compatible mode, it is necessary to use the supplied utility: "SPFXFER.PUB.SYS".

SPFXFER can read SPOOK format files from all previous versions of MPE/V or MPE/XL.

USER INTERFACE

New commands have been added to cover the functions CREATE, LIST, PRINT, ALTER, BROWSE, COPY, RENAME and PURGE.

Certain commands have been modified to support the new format of the spool files: BUILD, COPY, FILE, LISTF, RENAME and PURGE.

We will take a look at the main NCS commands a little further on.

Compatibility

The old spooler commands in Compatible mode can still be used with NCS, the SPOOK utility no longer exists but has been replaced by the SPFXFER utility for the INPUT and OUTPUT functions. The PRINTSPF utility allows the control characters in a spool file to be displayed.

THE STATUS OF SPOOL FILES

With the old spooler, there were only three possible states for a spool file. It could be OPEN when the spooler accessed it, READY when awaiting printing or ACTIVE during printing.

To these states, which are still used, is added the new STATUS which allows the status of the spool file to be indicated with greater refinement, be it: CREATE, PRINT, DEFER, PROBLM, DELPND, SPSAVE and XFER.

Note

That DEFER is a status and no longer the consequence of an OUTPUT PRIORITY equal to 0. From now on, a spool file in the DEFER state keeps its output priority which is reset when it passes to the READY state again.

THE NCS COMMANDS :BUILD ... ;SPOOL

This command creates a spool file type in your user-account. To add this file to the spooler you use the command:

:SPOOLF ... ;PRINT;DEV=ldev

Note

That since a spool file cannot be temporary, the ;TEMP parameter will be ignored when using ;SPOOL.

COPY The usual syntax of this command permits the copying of spool files, however the resulting file is not attached to the spooler directory.

FILE New parameters have been added for this command.

;SPOOL defines a spool file type not attached to the spooler directory.

;PRIVATE authorizes access to the file in privileged mode only.

;FORMID generates a message at the console.

;SPSAVE avoids destruction of the spool file after printing.

;JOB

;PRIVATE and ;SPSAVE are the two new parameters of this command linked to NCS. They both concern the file \$STDLIST which can thus be safeguarded or kept in the spooler after printing.

:LISTSPF

A new command linked to the native mode spooler. It displays the equivalent of SHOWIN and SHOWOUT, that is, the input and output spool files.

:OUTFENCE

The parameter ;DEV= has been added to permit users to specify the device name.

Note

Not to be confused with LDEV which already exists and which concerns the logical number of the peripheral.

:PURGE

This command has been modified so as to be able to purge the spool file and its links. It purges the associated CHECKPOINT file at the same time. The command does not function if the spool file was created using the PRIVATE parameter.

:RENAME

This command has been modified so that it does not function when applied to a file attached to the spooler print queues.

:SPOOLER

The **:SPOOLER** command allows control of the spooler processes. The possible parameters are **LDEV**, **DEVCLASS** or **DEVNAME**.

The options which can be used are:

START to create and activate a spool procedure on a given peripheral, **STOP** to halt it, **SUSPEND** to deactivate it for a certain period, **RESUME** to reactivate it.

:SPOOLF

This command allows modification of the spool files characteristics in output.

Spool files of **PRIVATE** type are only modifiable by someone having System Manager capability, the modifications possible are carried out through the **PRI**, **DEFER** and **DELETE** options. For non **PRIVATE** files, all other modifications are possible: **DEV=**, **PRI=**, **COPIES=**, **SPSAVE**, **DEFER**.



Published Application Notes

HP 3000

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 *Request Form* attached and indicate the number(s) of the note(s) you need, and the part number(s).

Note #	Part Number	Topic
1	5958-5824	Printer Configuration Guide - Version 1
2	5960-2841	Terminal types for HP 3000 HPIB Computers - Version 1
3	5960-2842	Plotter Configuration Guide
4	5960-2843	Printer Configuration Guide - Version 2
5	5960-2844	MPE System Logfile Record Formats
6	5960-2845	Stack Operation
7	5960-2846	COBOL II/3000 Programs: Tracing Illegal Data
8	5960-2847	KSAM Topics: COBOL's Index I/O: File Data Integrity
9	5960-2848	Port Failures, Terminal Hangs, TERMDSM
10	5960-2849	Serial Printers - Configuration, Cabling, Muxes
11	5960-2850	System Configuration or System Table Related Errors
12	5960-2851	Pascal 3000 - Using Dynamic Variables
13	5960-2852	Terminal Types for HP 3000 HPIB Computers - Version 2
14	5960-2853	Laser Printers - A Software and Hardware Overview
15	5960-2854	FORTRAN Language Considerations - A Guide to Common Problems
16	5960-2855	IMAGE: Updating to TurboIMAGE & Improving Database Loads
17	5960-2856	Optimizing VPLUS Utilization
18	5960-2857	The Case of the Suspect Track for 792X Disc Drives
19	5960-2858	Stack Overflows: Causes & Cures for COBOL II Programs
20	5960-2859	Output Spooling
21	5960-2860	COBOLII and MPE Intrinsics
22	5960-2861	Asynchronous Modems

HP 3000 (continued)

Note #	Part Number	Topic
23	5960-2862	VFC Files
24	5960-2863	Private Volumes
25	5960-2864	TurboIMAGE: Transaction Logging
26	5960-2865	HP 2680A, 2688A Error Trailers
27	5960-2866	HP Trend: An Installation and Problem Solving Guide
28	5960-2867	The Startup State Configurator
29	5960-2868	A Programmer's Guide to VPLUS 3000
30	5960-2869	Disc Cache
31	5960-2870	Calling the CREATEPROCESS Intrinsic
32	5960-2871	Configuring Terminal Buffers
33	5960-2872	Printer Configuration Guide - Version 3
34A	5960-2873	RIN Management (Using COBOLII Examples) (A)
34B	5960-2874	Process Handling (Using COBOLII Examples) (B)
35	5960-2875	HPDESK IV (Script files, FSC, and Installation Considerations)
34C	5960-2876	Extra Data Segments (Using COBOLII Examples) (C)
36	5960-2877	Tips for the DESK IV Administrators
37	5960-2878	AUTOINST: Trouble-free Updates
38	5960-2879	Store/Restore Errors
39	5960-2880	MRJE Emulates a HASP Workstation
40	5960-2881	HP 250 / 260 to HP 3000 Communications Guidelines
41	5960-2882	MPE File Label Revealed
42	5960-2883	System Interrupts
43	5960-2884	Run Time Aborts
44	5960-2885	HPPA Patching Conventions for HP3000 900 Series Processors - Version 1
45	5960-2886	Vplus & Multiplexers
46	5960-2887	Setting Up an HPDesk HPTelex for the First Time
47	5960-2900	Customizing Database Data Items & Changing Passwords in JCL Files
48	5959-9215	Printer Configuration - Version 4
49	5959-9227	Configuring DATACOMM Products Into MPE
50	5959-9228	VFC's for Serial Printers

HP 3000 (continued)

Note #	Part Number	Topic
51	5959-9237	Terminal Types for the HP 3000 HPIB Computers
52	5959-9242	Configuring MRJE
53	5959-9245	Using Special Characters on the 700/9x Series Terminals
54	5959-9251	Improving Database Performance
55	5959-9258	Customized Message Catalogs and Help Facilities
56	5959-9266	BRW Tips for Beginners
57	5959-9270	Configuring the HP 2334A Plus & HP 2335A As a Statistical Multiplexer
58	5959-9274	HPPA Pathing Conventions for HP3000 900 Series Processors - Version 2
59	5959-9289	HP 2334A and HP 2334A Configuration Recipes
60	5959-9301	TurboIMAGE's I-FILES and J-FILES
61	5959-7385	HPDeskManager - Looking Behind the Scenes
62	5959-7803	Setting Up a System Dictionary
63	5959-7834	Configuring Telesupport Modems for MPE V/E Systems
64	5960-1816	Finding Solutions in HP SupportLine
65	5960-1817	Using the Electronic Call Feature of HP SupportLine
66	5960-1818	Using the Feedback Feature of HP SupportLine
67	5960-1819	Printing Documents from HP SupportLine
68	5960-1820	HP SupportLine Commands
69	5960-2901	Nonsystem Volume Sets and the Migration of Private Volumes to an S9000 HP 3000
70	5960-2907	Modem Links for Remote Console and Standard DTC Connections on Commercial XL HPPA Systems
71	5960-2918	Asynchronous Cabling
72	5960-2919	BRW Tips and Tricks
73	5960-2998	SNA NRJE Configuration
74	5960-2999	SNA IMF Configuration
75	5060-3000	XL NRJE Configuration



HP 3000 (continued) (continued)

Note #	Part Number	Topic
76	5960-4301	XL IMF Configuration
77	5960-4302	Calling the BRW Intrinsic
78	5960-4303	PUB.SYS What Is Behind It?
79	5960-4625	Conquest of Disc Space
80	5960-4633	Looking Behind the Scenes of Resource Sharing
81	5960-4637	MPE/XL System Interrupt Recovery Procedures
82	5960-4347	Private Volumes
83	5960-4396	Serial Printer Configuration
84	5960-4334	How to Migrate FORTRAN Programs to Newer Compilers and XL Hardware
85	5960-4335	The Optimization of Programs in MPE/XL
86	5960-4643	IBM Labeled Tapes Questions and Answers
87	5960-4666	Image Logging for HP Financial Accounting Databases
88	5960-4672	Native Mode Spooler Questions and Answers
89	5960-4673	AUTOINST/XL Questions and Answers
90	5960-4701	The New Spooler

HP 3000 Application Note Request

Please send me the HP 3000 Application Notes listed below. To order an Application Note just fill in the Application Note number and the part no. in the space provided below. (Use the Published Application Notes form)

AN 59 -

AN 59 -

AN 59 -

AN 59 -

AN 59 -

AN 59 -

AN 59 -

AN 59 -

AN 59 -

AN 59 -

Business phone	Extension	Best time to call

Name Title/Dept.

Company Division

Mailing Address Mail Stop/Bldg./Rm.

City State Zip Code



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL
FIRST CLASS MAIL PERMIT NO. 609 CUPERTINO, CA

POSTAGE WILL BE PAID BY ADDRESSEE

HEWLETT-PACKARD
19310 PRUNERIDGE AVE
BLDG 49 A M
CUPERTINO CA 95014-9826



Customer Comment Card

Application Note No.: _____

Part No.: _____

We welcome your evaluation of this Application Note. Your comments and suggestions will help us improve our publications. Attach additional pages if necessary.

Please circle the following Yes or No:

- | | | |
|---|-----|----|
| ■ Is the information technically accurate? | Yes | No |
| ■ Are instructions complete? | Yes | No |
| ■ Are concepts and wording easy to understand? | Yes | No |
| ■ Are the examples and pictures helpful? | Yes | No |
| ■ Is the format of this note convenient in size, arrangement and readability? | Yes | No |
| ■ Did you receive the published application notes requested in a timely manner? | Yes | No |

Additional Comments and/or suggestions for future application notes: _____

Please provide:

Name: _____ Title: _____

Company: _____ Address: _____

City: _____ State: _____ Zip Code/Country _____

Please send to :

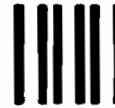


No postage is required. Just remove this card, fold so that the pre-addressed label is on the outside, secure and mail.

Thank you for your assistance.

FOLD

FOLD



NO POSTAGE
NECESSARY
IF MAILED
IN THE
UNITED STATES



BUSINESS REPLY MAIL

FIRST CLASS PERMIT NO. 95, MT. VIEW, CA



POSTAGE WILL BE PAID BY ADDRESSEE

Learning Products Manager
Hewlett-Packard Company
100 Mayfield Avenue
Mail Stop 37MA
Attention: George Enos
Mt. View, CA 94043



FOLD

FOLD



Customer Order Number

NONE

Printed in USA

**** For HP Internal Reference Only ****

Manufacturing Part Number

5960-4701

