

Update Notice:
DG/UX for AViiON Systems
Release 4.30, Update 1

September 1990

Part Number 078-600037-00

This Release Notice applies to Models:
Q001 P001

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1. Introduction

This Update Notice describes the DG/UX™ System 4.30, Update 1 product for Data General's family of AViiON™ computers. This software update is intended to provide fixes and certain new functionality required for BCS conformance. This update notice is intended to supplement and/or supplant information found in the *DG/UX 4.30 Release Notice*. In addition, this notice includes information not currently available in the product manuals (e.g., information developed after the current manuals were printed, or corrections to current manuals).

You may print additional copies of this update notice after you have installed the DG/UX System. A copy suitable for line printers can be found in the file `/usr/release/dgux_4.31.un`. In the event of (actual text) differences between the printed copy of this notice and the on line lp version, the printed copy takes precedence.

2. Product Description

Refer to **DG/UX 4.30 Release Notice** for initial information regarding DG/UX product description.

- DG/UX 4.30, Update 1 is an update to DG/UX 4.30. DG/UX 4.30 was certified compliant to 88open BCS Release 1.0, including support for executing BCS-conforming programs.
- DG/UX 4.30, Update 1 adds support for executing applications conforming to the 88open BCS Release 1.1. This compliance has not yet been certified.

3. Environment

3.1 Hardware

Release 4.30, Update 1 of the DG/UX System will run on any Data General AViiON series machines that can run DG/UX release 4.30.

3.2 Software

Release 4.30, Update 1 of the DG/UX System requires DG/UX Release 4.30 to be previously loaded.

revlocks

If your system was also running any DG layered products (i.e. TCP/IP, ONC-NFS, X11), then these products will also have to be upgraded to 4.30, Update 1 before your DG/UX system can be used in a networking and/or windowing environment. Refer to the individual release notices for these layered products for additional details.

4. Enhancements and Changes

4.1 General

BCS Certification

The DG/UX Release 4.30 execution environment has been certified compliant to the 88open Binary Compatibility Standard (BCS), Release 1.0. BCS-certified applications will run on DG/UX Release 4.30, Update 1 without change.

DG/UX 4.30, Update 1 adds support for executing applications conforming to the 88open BCS Release 1.1. This compliance has not yet been certified.

Misalignment Exception Handler

DG/UX 4.30, Update 1 includes an exception handler that repairs misaligned access faults; the handler is useful in porting applications written for computers whose alignment restrictions are less strict than those of the AViiON. The man page `misalign(5)` explains the use of this exception handler.

4.2 Kernel Enhancements

Physical Disk Copy

Diskman now supports a physical disk copy option, see Appendix B for a complete description.

O_SYNC performance

The file system will no longer flush the inode to disk if the only file data changed was the time and date. This is consistent with the new AT&T system V.4 file system. This improves synchronous write performance.

High Sierra format CDROM support

Several changes were made to support reading of High Sierra format CDROM disks that were not fully compliant.

Support for DG Model 6685 and Model 6740-G 1.2 GB disks

The DG/UX kernel now supports 1.2 Gbyte full height non-removable SCSI disk devices.

Support for DG Model 6677 Tape Device

Release 4.30, Update 1 of the DG/UX system added support for DG Model 6677 SCSI cartridge tape drive. This drive supports QIC-150, QIC-320, and QIC-525 media. The AV5000/6000 series systems require prom revision 5.00 or greater in order to support booting of QIC-150 media. Bootstrap support is provided only for QIC-150 media.

Support for WORM Optical Disk

Release 4.30, Update 1 of the DG/UX system now supports the 5070DR Optical WORM disk drive (12 inch) using 2.4 Gbyte removable disks.

Async performance and reliability enhancements

The asynchronous line driver has been updated to provide improvements in performance and reliability.

Diskless Performance

Release 4.30, Update 1 of the DG/UX system has added support for multiple concurrent page purging operations across NFS to a remotely mounted swap area. This change improves the system's ability to replace memory pages during peak paging demand by user processes.

Generic SCSI Labeling

Release 4.30, Update 1 of the DG/UX system has added generic labeling of the SCSI devices. The **diskman(1m)** utility now detects that it is formatting a SCSI drive during label installation and no longer requests the user to supply the disk type.

4.3 Kernel Changes

Directory manager

Under certain rare conditions a particular sequence of additions and deletions to a directory could have caused attempts to list the contents of the directory from an NFS client to enter an infinite loop. This problem has been corrected.

Index lock hangs

DG/UX Release 4.30, Update 1 corrects a rare condition where a file system hang could occur when referencing a file that was being accessed via NFS.

FIFO synchronization

DG/UX Release 4.30, Update 1 corrects a rare condition where two users of a FIFO could cause a hang of one of the two processes using the FIFO. One instance of this problem involved the printer scheduler.

Virtual Memory

In DG/UX 4.30, a fork would over reserve swap space, possibly resulting in an unnecessary "Out of swap space" message. DG/UX now correctly reserves swap space in this case.

Process Mangement

- **sar(1)** no longer reports negative times.
- A corrupt executable whose section header size field was not valid will no longer cause the system to panic.

Terminal Services

A number of fixes have been integrated into this update. Refer to appendixA for specific problem resolutions.

Floppy Drives

DG/UX Release 4.30, Update 1 on AViiON 5000 and 6000 models with floppy drives now notifies the application when a floppy diskette is removed or changed.

Network File System

- DG/UX release 4.30, Update 1 corrects a rare system panic involving process termination while attempting to set a remote record lock.
- The DG/UX system now reports non-recoverable write errors to hard-mounted remote files during subsequent user write system calls in addition to file close calls.
- A rare bug in updating file size information for files has been fixed.

4.4 Header files

assert.h

Problems with compilation in ANSI mode and when using NDEBUG have been corrected.

limits.h

Problems caused by including math.h within limits.h have been corrected by placing the definition of HUGE_VAL into a common internal header file.

malloc.h

Prototypes have been enhanced so malloc.h can peacefully exist with stdlib.h.

math.h

This header now uses an internal header file to get HUGE_VAL.

regexp.h

Conflicts with string.h have been repaired.

4.5 Libraries

libposix

A new library, libposix.a, has been added to facilitate access to P1003.1 specific behavior for the freopen, fclose and fflush functions. POSIX states that:

"For a stream open for reading, if the file is not already at EOF, and the file is one capable of seeking, the file offset of the underlying file description shall be adjusted so that the next operation on the open file description deals with the byte after the last one read or written to the stream..."

This requirement unfortunately is incompatible with existing practice, and if implemented as the default, would break some existing applications (e.g. mailx).

If the POSIX behavior is desired, place -lposix on the cc or ld command line before libc. This library changes the underlying file pointer behavior for freopen, fclose, and fflush.

libc

The version of libc available using the m88kbc Software Development Environment target has been enhanced extensively to provide compliance with 88open 1.0 Networking BCS and 1.1 Base BCS, Symbolic Link Extension. The following is a list of new functions added:

accept	bind	connect	dn_comp	dn_expand
endhostent	endnetent	endprotoent	endservent	fchmod
fchown	fp_query	gethostbyaddr	gethostbyname	gethostent
gethostid	gethostname	getnetbyaddr	getnetbyname	getnetent
getpeername	getprotobyname	getprotobynumber	getprotoent	getservbyname
getservbyport	getservent	getsockname	getsockopt	herror
hostalias	inet_addr	inet_lnaof	inet_makeaddr	inet_netof
inet_network	inet_ntoa	lchown	listen	lstat
readlink	readv	recv	recvfrom	recvmsg
res_init	res_mkquery	res_send	rresvport	ruserok
select	send	sendmsg	sendto	sethostent
sethostfile	setnetent	setprotoent	setservent	setsockopt
shutdown	socket	symlink	writev	

In the list below, "BCSlibc:" indicates changes made only to the version of libc available through the m88kbc Software Development Environment target. Otherwise, "libc:" indicates a change that is present in both the default and m88kbc environments.

libc:alarm

The return value is now rounded, rather than truncated.

BCSlibc:gettimeofday

Addressing exceptions caused by passing NULL arguments have been corrected.

libc:doprnt

A rare problem that resulted in 2 writes of the same data if a signal was received while a write to a full pipe/FIFO was pended has been repaired.

BCSlibc:gethostent

Added the stayopen flag for the domain name service resolver to keep TCP connection open.

BCSlibc:getnetent

The pointer to the alias is now NULL if there were no aliases.

libc:getc, putc, fgetc, fputc and getchar

The functions getc, putc, fgetc, fputc and getchar have been modified to conform with POSIX 1003.1. In particular, in the case of reading from a write-only stream, or writing to a read-only stream, in addition to returning EOF, these functions now also set errno to EBADF.

libc:innetgr

A problem has been fixed in this function regarding incorrect variable initialization when using local hosts and net-group files.

libc:pclose

pclose now uses waitpid instead of wait.

4.6 Commands

/usr/lib/acct/acctcon1

This command has been enhanced to handle wtmp records for pseudo tty lines, which are different from lines on which init starts a getty.

bcs_match

This is a new function for 4.31 provided in accordance with 88open *BCS Networking Supplement Release 1.1*.

cprs

With new algorithms, the performance of **cprs** has been greatly improved.

cron

An interaction problem between **cs**h and **cr**on has been fixed where **cr**on was not cleaning up open file descriptors. The symptom of this problem was loss of output redirection.

csh

A problem with the **cs**h NOT notifying the user when new mail has arrived has been fixed.

lpsched

A problem with **lpsched** getting confused when many files are queued up in rapid succession, causing the scheduler to stop, has been fixed.

lsd

A new command, **l**sd is now provided to load system dump tapes produced by kernel panics or hangs. This command completely replaces the old unsupported program `/usr/src/uts/aviion/cf/load_system_dump`. See the **l**sd(1M) manpage for details.

mailx

A problem has been fixed with the mail index showing the number of lines in a message as a negative number. This manifests itself with messages containing long lines.

mkfs

mkfs will now validate the block size passed to it as a parameter. It will also correctly fill the bitmap out for file systems smaller than 4032 blocks.

mount

The default mount option for a CDROM type device is now read only. See the notes and warnings section for additional information.

mv and cp

A problem creating a file on an NFS mounted file system with insufficient space has been fixed with these commands. An error condition upon closing the destination file was not being checked.

rm

A problem has been fixed with the **rm** command thinking it couldn't remove the current directory (.) if the current directory coincidentally shared the same inode number as a file in a different file system you were trying to delete.

sh

Memory allocation in the shell has been enhanced to reduce the amount of swap space it consumes.

tar

In accordance with the POSIX standard, the "size" field of **tar** headers for hard links is now set to "0".

/usr/src/lib/libcurses/terminfo/dec.ti

Initialization sequences have been fixed for the "vt220", "d412", and "d462" TERMINFO entries. (Previously the initialization strings set the numeric keypad into the wrong state.) Function key labels have been fixed for the "d216", "d412", and "d462" entries. The "vt220", "d412", and "d462" entries have been enhanced to support combinations of character attributes ("sgr"), and cursor disable/enable ("civis"/"cnorm").

/usr/src/lib/libcurses/terminfo/dg.ti

Character attribute sequences ("sgr") have been fixed for all DG D2xx class terminals in ANSI mode. (Previously visual attributes would sometimes not be turned on.) TERMINFO entry "d230c" has been added to support the new DG D230C terminal. Color attribute specifications ("ncv") have been fixed to make reverse video work with color for entries "d220" and "d470c-dg". Line attribute specifications ("acsc") have been fixed to include the crossed-lines ("plus") symbol for all DG terminals that support a line-drawing character set.

/usr/etc/termcap

termcap has been updated to match the terminfo changes described above.

tic

A problem with **tic** tracking time across NFS mounted file systems has been fixed. Enhanced inclusion ("use=") to support \$TERMINFO and guarantee processing of entries in dependency-order.

uusched

A problem with **uusched** dumping core has been fixed.

/var/spool/cron/crontabs/uucp.proto

This is a new prototype crontab file for **uucp** that runs **uudemon.hour**, **uudemon.poll**, **uudemon.cleanup**, and **uudemon.admin**. To enable it, copy it to **/var/spool/cron/crontabs/uucp**.

5. Notes and Warnings

5.1 General

Cluster controllers

DG/UX 4.30, Update 1 contains an update for the cluster controller. When re-booting a 4.30 system, it is necessary to power all the cluster controllers off then on prior to bringing up a new 4.30, Update 1 system. This is required so that the new cluster controller firmware will be reloaded during the boot.

Device ordering in system file

Also, as stated in the 4.30 release notice, the order in which devices are specified in the system file is now significant. If you have a graphics workstation system which also has an async terminal controller, please make sure that the entry for **duart()** precedes that for **syac()** in the system file.

init scripts and client setup

Fixed a bug in the init script `/usr/sbin/init.d/rc.links` that prevented setting up client roots from the server in DG/UX 4.30.

setup scripts

Every time your system is booted, the init scripts check for **setup scripts**. Setup scripts live in `/sbin/setup.d/root` and `/usr/sbin/setup.d/usr`. Any and all setup scripts in these directories have a suffix of ".do" if they have not been run yet. After they are executed they get renamed with a ".done" suffix.

`/sbin/setup.d/root/dgux__1.r.proto.do` will change permissions of `/etc/group` to 644 from 444 to satisfy BCS requirements. It will also adjust permissions of files in `/etc/uucp`. In addition, the setup script will create `/var/spell/spellhist` if it does not exist, and give it 666 permissions.

`/usr/sbin/setup.d/usr/dgux__1.u.proto.do` deletes obsolete files and will update the sysadm ORDER file if there are additional menu files in the sysadm directories.

WORM Support

A new daemon, **wmtd** was created and provided in DG/UX Release 4.30. The kernel support is now being supplied in DG/UX 4.30, Update 1. The WORM daemon allows a write-once read-many (WORM) optical drive to simulate a magnetic tape drive. This new daemon is off by default. See **wmtd(1M)** for details.

5.2 System Calls

ioctl(2)

Characters placed in the tty input queue using the system call `ioctl` with the `TIOCSTI` argument will not get processed if the tty is connected to a syac port.

5.3 Libraries

libc:ctype

The `ctype(3C)` macros do not evaluate an EOF argument (-1) correctly when using an ISO character class definition set using `setchrclass(3C)`.

5.4 Commands

cprs

The file `/usr/bin/cprs` has owner id of 374 , group id of 68 and permissions -444. To fix this problem, execute the following as root:

```
# chmod 755 /usr/bin/cprs
# chown bin /usr/bin/cprs
# chgrp bin /usr/bin/cprs
```

csplit

Using the `csplit` command may result in a corrupted `xxn` file.

dbx

If `dbx` is run in batch (e.g., with a `.dbxinit` file) and is using both watchpoints and trace points simultaneously, infinite looping may occur.

dump

File system backups created with the `dump` command may not be restorable (with `restore`). File systems should be archived using either `dump2` or `sysadm`'s `fsdump` command.

dump2

A new `/etc/dumptab.proto` file is provided containing entries for 320 MB and 525 MB cartridge tapes, and for 6250 bpi reel-to-reel tapes. If your system has one of these tape drives, you must copy the `/etc/dumptab.proto` file to `/etc/dumptab` in order to perform backups to the device with `dump2` or `sysadm fsdump`. Before you copy over your existing `/etc/dumptab` file, make a note of which device is your *default* dump device and make the same change to the new `/etc/dumptab` file after the copy.

/etc/group

Due to a bug in the `libc` routine `getgrent(3)`, programs that read `/etc/group` will dump core if there are multiple plus (+) entries listed.

ld

Some nonstandard programs dereference NULL pointers and expect address 0 to contain 0. These programs can be made to work by using a link edit script. The script name may be placed anywhere on the `ld` command line.

The following link edit script will produce a BCS-conforming executable in which address 0 is readable and contains 0.

```
SECTIONS
{
    .text BIND(0x0) BLOCK (0x10000): { . += 0x10;
        *(.init)
        *(.text)
        *(.tdesc)
        *(.initp)
        *(.finip)
```

```

    }

    GROUP BIND (NEXT(0x400000) +
                ((SIZEOF(.text) + ADDR(.text)) % 0x10000)) :
    {
        .data    : { }
        .bss     : { }
    }
}

```

This approach introduces about 64KB of padding in the executable file. By sacrificing BCS compliance, it is possible to remove this extra padding and reduce the executable size. This approach involves a script as well as an object file; the link edit script and C program to produce the necessary object follow.

The link edit script:

```

SECTIONS
{
    .text BIND(0x200) BLOCK (0x200): {
                                                *(.init)
                                                *(.text)
                                                *(.tdesc)
                                                *(.initp)
                                                *(.finip)
    }

    GROUP BIND (NEXT(0x400000) +
                ((SIZEOF(.text) + ADDR(.text)) % 0x10000)) :
    {
        .data    : { }
        .bss     : { }
    }
}

```

The C program:

```

__init_zero()
{
    long *x=0;
    memctl(0,4096,2); /* make writable */
    *x=0;
    memctl(0,4096,1); /* make executable */
}

asm("section .initp,\"xP\");
asm("word ___init_zero");

```

Note that the **asm** statements in the C program are compiler-dependent, but will work with **cc** on DG/UX.

mailx

mailx does not correctly match pathnames that contain the tilde (~) character in the pathname string (e.g. ~/foo). Messages such as "No match" may result. Use the full pathname string instead.

mount

The first attempt to mount a CDROM filesystem may fail with an error message such as `"/dev/pdsk/1: I/O error"`. This message can be ignored. The mount will succeed on the second try.

wmtd

Due to a bug in the wmt driver, when a WORM disk is placed in the drive, the first attempt to write to the device will fail with an error message such as `"/dev/wmt/0: cannot create"`. This message can be ignored. Subsequent writes to the same WORM disk drive will succeed if the platter is new. If the platter is used, the error message "Reached end of media" is reported.

Restoring a file system or file via `sysadm fsrestore` or `filerestore` from a WORM may result in the error message: "Warning can't read tape label". By simply continuing in the `sysadm` script (answer "yes" to the prompt "Is the media ready?"), the restore will proceed with no problems.

6. Documentation

6.1 Titles

There are no additional manuals other than what is delivered with DG/UX Release 4.30.

6.2 Changes

Chapter 2 of the *Installing and Managing the DG/UX System* manual has been revised for DG/UX 4.30, Update 1. The new chapter is being released as an addendum; the part number is 086-000172-00. It is being distributed as a replacement Chapter 2 for the 4.30 version of the document and is available as part of the DG/UX 4.30, Update 1 documentation set.

Certain online man pages have been updated. They are listed in the file `/usr/release/dgux.man_4.31.fl`.

7. Software Distribution

7.1 Media

The DG/UX for AViiON Systems 4.30, Update 1 is available on two Data General product tapes. They are:

1. Operating System User's Package
2. Client Server User's Package

The product media notice that came with your tape will identify the product and provide tape part numbers.

7.2 Organization

Since the DG/UX product is available separately or bundled with other products, tape layout cannot be provided here. If it is desired, the `sysadm lstoc` command can be used to display the exact layout of any release tape (prior to loading any files).

7.3 Files

A list of DG/UX 4.30, Update 1 files that are loaded when the DG/UX 4.30, Update 1 tape is loaded, is available in the files called `/usr/release/dgux_4.31.fl`, and `/usr/release/gcc_1.37.23.fl`.

8. Installation Instructions

You **must** load release 4.30, Update 1 of the DG/UX system over a DG/UX Release 4.30 system. You may load DG/UX 4.30 and 4.30, Update 1 in the same system installation session. However, please be aware that installing 4.30, Update 1 involves using both the `diskman` update procedure to upgrade DG/UX and to re-install bootstraps and the `sysadm` update package option for upgrades to any layered software. See Chapter 2 of the 4.31 revision (new, see section 6.2 above) of *Installing and Managing the DG/UX System* for more information on software loading and updating procedures.

Preloaded Systems

The new Chapter 2 incorrectly states that all new DG/UX systems will come with DG/UX preloaded on the disk. Please check the sticker on the system disk or follow the instructions in the *Setting Up and Starting* manual which comes with your system to determine whether the software has already been loaded.

Overloading System Files

Due to a bug in the DG/UX setup scripts for 4.30, Update 1, the 4.30 system files (`/usr/src/uts/aviion/Build/system*`) will be renamed with the `_4.20` suffix instead of the `_4.30` suffix. Versions of these files from previous releases are automatically saved by renaming them. If you wish to save any 4.20-based system files which are renamed in a 4.30 overload, you should manually rename these files before upgrading to 4.31 to

avoid a naming conflict.

Client Setup Warning (for 4.30)

The warning that appeared here in the *DG/UX 4.30 Release Notice* is **no longer in effect** once DG/UX 4.30, Update 1 is loaded on your system. See **init scripts and client setup** in section 5.1 of this update notice for a note that this bug has been fixed.

9. Preparing a Software Trouble Report (STR)

See the *DG/UX 4.30 Release Notice* section nine.

Appendix A: List of Resolved Software Trouble Reports

Following is a list of Software Trouble Reports that have been resolved in DG/UX Release 4.30, Update 1. The problem descriptions given here are listed exactly as described in the original report filed by customers. Please refer to the DG/UX Monthly Newsletter for additional details.

STR	Description
NASC-000004510-0	An XOFF issued on a terminal line causes the getty to hang such that it cannot be killed until the user issues XON.
NASC-000005012-0	Accounting program acctcon2 reports incorrect connect times.
NASC-000005069-0	Print server application associated with a hung terminal line cannot be terminated other than by a system shutdown.
NASC-000005071-0	Single VDA/128 terminal lines hang erratically.
NASC-000005213-0	Acctcon1 does not report correct information on correct times.
NASC-000005553-0	Serial lines hang.
NASC-000005650-0	Error - "No line ## in file <filename>" returned by the DBX stop ## command in ghf77 programs that have large include files.
NASC-000005653-0	tty-line unavailable - unresponsive to any key strokes.
NASC-000005822-0	All terminals on VDA-128 ports hung. Master Console still responded.
NASC-000005823-0	Terminal lines hang. Attempts to kill processes associated with the lines that have hung result in a total system hang.
NASC-000005952-0	The lp scheduler reports "can't create new output queue" error when trying to queue jobs to the printer.
NASC-000006600-0	Application program tries to exec a csh process and gets permission denied error message. Application program has user id and group id set for a user other than the user executing the program.
NASC-000006179-0	There is a discrepancy between the on-line man pages, the hardcopy man pages, and the sys/errno.h file. The problem is with the error constant ENOLOCK and the man pages for write(2).
NASC-000006250-0	We are receiving an error when running runacct. The error is "from /usr/acct/ acctcon1 recompile with larger a_tsize".
NASC-000006514-0	DGUX panic code 2000056.
NASC-000006589-0	Application program which outputs directly to parallel printer no longer functions properly after upgrading to DG/UX revision 4.30. This application works fine under 4.22 DG/UX.
NASC-000006602-0	Line printers on async lines hang on an AV6200 running DG/UX 4.30.
NASC-000006607-0	The initialization string in the entry for vt200-fk is not consistent with the function key and cursor key entries.
NASC-000006638-0	A system hang occurred: the master console, all tty ports and the lp port were all hung.
NASC-000006665-0	The TERMINFO entries for vt220 and vt220-fk do not contain an "sgr" entry. Micro-Focus COBOL/2 uses the sgr facility to do text bolding, highlighting, underlining, etc.

RTP0-000013590-0	The alarm(2) system call truncates the return code instead of rounding the return code. This is inconsistent with other UNIX implementations.
RTP0-000002140-0	DG/UX panic 2000107, VM_PANIC_KERNEL_WRITE_PROTECTION_FAULT occurs on our AViiON 5120.
RTP0-000002296-0	System header file /usr/include/sys/_int_unistd.h contains incorrect prototype for link. Second argument is typed const *, should be const char *. Man page link(2) incorrectly lists both args as char *, not const char *.
RTP0-000002299-0	The man page for find lists the syntax for the -exec switch to be: "-exec cmd;". However a blank is required between the command and the ";". Either the command should be changed (as SUN has) or the man page.
RTP0-000013596-0	If the mxdb debugger writes to a page that the process itself has not written to and the page is paged out, all of the debugger changes will be lost.
RTP0-000013605-0	The mknod(1m) man page incorrectly lists the master.d directory as being in /etc. It is in /usr/etc.
RTP0-000013612-0	Using the csh under DG/UX 4.30 with the mail variable set to 0 and mailfile path (eg, mail= 0 /usr/var/mail/username), the message "You have new mail" is not displayed everytime new mail has arrived.
RTP0-000013615-0	When single stepping through an assembly listing using sdb, the command bcnd branches on condition ge0 when the operand register contains a negative value.
RTP0-000013651-0	AV300 panicked when going to init 3 with panic code 1000036. Machine had been taken down using shutdown and halt, then rebooted. Panic occurred when the login prompt was displayed at init level 3.
SWE -000000268-0	The DG/UX file system doesn't handle group ids correctly on files created in directories having the groupid bit set.
UKSC-000039505-0	AV6000 terminal lines have hung on two occasions.
UKSC-000041107-0	Problems occur when the user defines a large number of functions in a shell.
UKSC-000041513-0	Execution of a corrupt binary crashes the system with panic 1000026.
WEBO-000036276-0	The poll(2) system call does not work as documented.
WEBO-000036381-0	ioctl (fd,tcbrk,0) does not send a break out a duart port on an AV300.

Appendix B: Physical Disk Copying with Diskman

Diskman Physical Disk Copy

Release 4.30, Update 1 of the DG/UX system has added physical disk copying capability to **diskman(1m)**. Physical disk copying may be useful in many situations; the following are some examples:

1. When a disk is going to be replaced on a system, the contents can be copied from the old disk to the new one.
2. When several workstations need to have their system disk loaded, the disk copying capability can be used to avoid loading from the tape for each system.
3. When the contents of a disk needs to be freed from use, its contents can be merged onto another disk having the available space.

The physical disk copying option provides two capabilities:

1. the merging of logical disks onto available space on the destination disk, avoiding the destruction of the destination disk's contents.
2. the copying of logical disks onto the destination drive, destroying the destination disk's contents.

The physical disk copy capability provides copying at the logical disk level, as opposed to raw physical disk copying, to provide the ability to copy the contents of unlike physical disk types (SCSI, ESDI, SMD) and sizes.

When "Copy a Physical Disk" is requested, the user is prompted to supply the source disk (the disk to be copied) and the destination disk (the disk to be updated). If the destination disk is registered, then the user is asked if the disk can be deregistered. If the user responds with a no, the procedure is discontinued.

After the drive is deregistered, the contents of the bootstrap area on the source drive are copied to the destination drive. Although the bootstrap area is only read from the boot disk, a bootstrap area is provided on all DG formatted disks; therefore, the physical disk copy utility copies the bootstrap to provide the ability to boot from the destination drive. However, if the bootstrap file was not installed in the source disk's bootstrap area (this is provided in the "Format a Physical Disk" submenu under the "Physical Disk Management Menu" in **diskman(1m)**), the contents are still copied.

After the bootstrap is installed, the destination drive is checked for a disk label. If no label exists on the destination drive, label installation is started. This involves asking the user if a label should be installed. The physical disk copy will continue regardless of whether a disk label is installed or not. If the user wants to install a label, depending on the type of the destination drive, a menu of label types is presented to the user. In the case of SCSI drives, the user will not be prompted for the drive type since the program is able to determine that the destination drive is a SCSI drive. (Note: in the case of the example provided, the destination drive is a SCSI drive since no menu of disk types is displayed.)

After the labeling completes (or is bypassed because the user chose not to reinstall the label) the user is warned that the contents of the destination drive will be destroyed and asked if the process should be continued. If the user responds with a yes, the system areas are initialized, destroying any logical disks existing on the destination disk.

If a user chooses not to destroy the contents of the destination drive (answers no to previous the question), the user is asked if a merge of the source onto the destination is desired. If the user responds with a yes, then the logical disks on the source disk will be copied to the available space on the destination drive. If merging is not desired, the copying procedure is discontinued.

After the above (bootstrap copying, optional labeling, and optional system area initialization), the destination disk is

registered for the actual copying of the logical disks. As each logical disk is being copied, a message indicating this is displayed.

Because no two logical disks can have the same name on a single system, the logical disk names on the destination disk have altered names (the first character of the source logical disk name is incremented to produce the destination name) during the copying process. When the copying of the logical disks completes, the destination drive is deregistered again (without requesting the user for permission) and the new logical disks are renamed to match the source logical disk names. The destination drive is left deregistered because of the duplicate names generated by copying the logical disks.

If an error occurs while the logical disks are being copied (the most common error would be running out of space), an error is reported and the logical disks copied onto the destination drive are removed. In the case of a merge, only those logical disks created by the copy are removed.

Because the physical disk copy is performed by copying logical disks, the capability has the following constraints:

1. All logical disks on the source physical disk must have **all** of their pieces on the source physical disk.
2. If an error occurs with a logical disk on the destination drive during the copying process, the temporary name used to create it (mentioned above) is reported in the error message.
3. The location of the logical disk on the destination disk may not be at the same location the logical disk occupied on the source disk.
4. When using this capability to initialize system disks (copying the root and usr logical disks), there are two issues in need of attention. First, system specific data (Internet addresses, system names...) are placed in the root file system during system setup; therefore, the best time to copy the root and usr logical disks to another disk is just after these file systems have been loaded from the tape. Second, system disks on workstations usually are referenced using the format `sd(incr(),0)`. If this is the format used to reference the source disk, the destination disk must be changed (via jumpers) to use another format (like `sd(incr(),1)`). Since this involves altering the drive, this capability can only be utilized by individuals who are able to jumper the destination disk.
5. When the user is merging two drives, an appropriate amount of caution should be used when answering the question of continuing after being warned of destroying the contents of the destination disk. The default to this question is yes (similar default to the same question in other places in `diskman(1m)`) but a no should be given to perform the merge.
6. If an unformatted drive is the destination drive, it is not necessary for it to be formatted; however, if you are merging the source onto the destination, it is necessary for the destination drive to be formatted.

The following is an example session of Physical Disk Copy:

Copy a Physical Disk

For the source disk,

Enter the Physical Disk specification in DG/UX common format: *sd(inc(),0)*

For the destination disk,

Enter the Physical Disk specification in DG/UX common format: *sd(inc(),1)*

The Physical Disk must be deregistered for this operation.

Do you want to deregister it? [y]

Physical Disk *sd(inc(),1)* has been deregistered.

Disk label already exists on disk *sd(inc(),1)*.

Do you want to reinstall disk label? [n]

Installing system areas on destination disk *sd(inc(),1)*.

WARNING: this operation will DESTROY any data on the Physical Disk *sd(inc(),1)*.

Do you want to continue? [y] n

Do you want to merge the pieces onto the destination disk? [y]

Copying the logical disk tmp:

Copying the logical disk foo:

Do you want to copy another physical disk? [y]

--- End of Update Notice ---