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5/22/98 (DC)

Differences between MS DOS 3.x and DR DOS 3.x

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Differences between

MS DOS 3.x and DR DOS 3.3x

Executive Brief

This document is designed to show support staff within DRI, the differences between DR DOS 3.3x and MS DOS 3.x that our customers are likely to encounter.
Please remember when customers find differences, that DR DOS is not a clone on MS DOS, but it is a compatible operating system. It is designed to run all the DOS applications that run under MS/PC DOS.

This is only designed to show direct differences between DR DOS 3.3x and MS/PC DOS 3.x. If you require similar information regarding MS/PC DOS 4.0, please see the document "IBM DOS 4.0 EVALUATION" produced by the Product Marketing Group.

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HOW TO USE THIS DOCUMENT

This document is designed to help you, as support staff, to identify and understand the differences that may exist between DIGITAL RESEARCH's DR DOS and Microsoft's MS/PC DOS. The first few pages are designed as a quick reference list so that you can quickly compare DR DOS and MS/PC DOS should you be asked about a particular command or feature. Where there are differences in the products, the line is highlighted and you will see a note reference into the document that follows. This document will then give more detailed information as to why/how there are differences, and how the user may alternatively get the results he requires.

1. **How many versions of DR DOS have been released?**

   The current policy of Digital Research is to update the DR DOS issue disks, rather than issue patches for minor changes.

10th June 1988	DR DOS	version 3.31	release 08
11th July 1988	DR DOS	version 3.31	release 09
2nd Aug 1988	DR DOS	version 3.31	release 10
18th Aug 1988	DR DOS	version 3.32	release 11
1st Sept 1988	DR DOS	version 3.33	release 12
7th Oct 1988	DR DOS	version 3.34	release 13
24th Oct 1988	DR DOS	version 3.35	release 14

2. **How can I tell which version and release of DR DOS my customer has?**

   To get the version number, if your customer has their machine running DR DOS, ask them to enter the following command at their command prompt (eg. C:\>):

   C:\> **VER** (and press ENTER)

   DR DOS will respond with the following message:

   DR DOS Release 3.33

   To get the full release number, ask your customer to enter the following command whilst in his DR DOS directory:

   C:\> **dir command.com** (and press ENTER)

   As part of the listing returned by DR DOS, you should see a line very similar to the following line:

   COMMAND COM 31760 9-01-88 10:12p

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The minutes in the time stamp of the file above will give you the full release number, in this case it is release 12. So the full version and release number for this product is:

DR DOS version 3.33 release 12

3. **What are the differences between each of the above releases?**

There is a full list of all the differences in DR DOS listed in Appendix A. However, most of the changes have been DOS compatibility issues and minor bug fixes.

4. **What version number does DR DOS return to applications that check the DOS version number?**

If an application uses the DOS interrupt 21 function 30H to get the operating system version number, DR DOS will return 3.31 as the version number.

5. **How much memory have I actually got to run my DOS applications in?**

The memory area in which you run your DOS applications is known as the Transient Program Area, or TPA. This will vary depending on the way your version of DOS is configured, and what other memory resident programs you may have running, eg. SIDEKICK, PCTOOLS in resident mode, Mouse drivers etc. Some of the DOS specific options that may affect your memory size are:

- The number of **FILES** set in CONFIG.SYS -
- The number of **BUFFERS** set in CONFIG.SYS
- The size of the parameter to the **FASTOPEN** command
- Use of the **KEYB** command etc.

If you boot MS/PC DOS and DR DOS with the following default system settings, the comparative TPA sizes are given below.

BUFFERS = 15
FASTOPEN = 512
FILES = 8
KEYB is loaded
SHARE is loaded

The TPA size available to user applications is:

MS DOS 3.31 = 565K DR DOS 3.3x = 568K

If however, you load other programs in memory, you may well find that the amount of memory available to your application reduces faster within MS/PC DOS than in DR DOS. (See the memory table given below).

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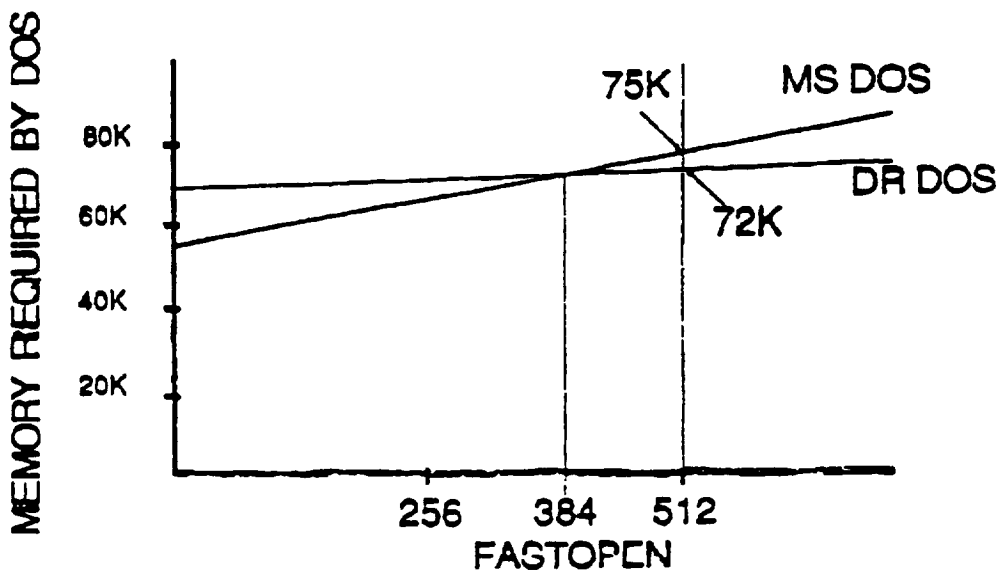

DR DOS offers a greater Transient Program Area to run user applications than MS DOS.

6. **What is an External command, and how do the commands provided by DR DOS compare with the MS DOS commands?**

An External command is one that is supplied as a file on disk with either a .EXE, a .COM, or under Concurrent DOS a .CMD file extension. eg. TREE.COM
If you 'do' a directory listing in your DR DOS directory you will see all of these external files.
(See the table below for more details)

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External Commands supplied with DR DOS 3.3x

MS DOS 3.31 Commands		DR DOS 3.3x commands	
ANSI	SYS	Y	
APPEND	EXE	Y	(Internal)
ASSIGN	COM	Y	(Internal)
ATTRIB	EXE	Y	
BACKUP	COM	Y	
BASIC		N	Note 1
CHKDSK	COM	Y	
COMMAND	COM	Y	
COMP	COM	Y	
COUNTRY	SYS	Y	
DEBUG	EXE	SIDOS	
DISPLAY	SYS	N	Note 2
DISKCOMP	COM	Y	
DISKCOPY	COM	Y	
DRIVER	SYS	Y	
EDLIN		N	Note 3
FASTOPEN	EXE	Y	
FDISK	COM	Y	
FIND	EXE	Y	
FORMAT	COM	Y	
GRAFTABL	COM	Y	
GRAPHICS	COM	Y	
IBMDOS	COM	Y	
IBMBIO	COM	Y	
JOIN		N	Note 4
KEYB	COM	Y	
LABEL	COM	Y	
MODE	COM	Y	
MORE	COM	Y	(Internal)
PRINT	COM	Y	
PRINTER	SYS	N	Note 2
RECOVER		N	Note 3
REPLACE	EXE	Y	
RESTORE	COM	Y	
SHARE	EXE	Y	
SORT	EXE	Y	
SUBST	COM	Y	(Internal)
SYS	COM	Y	
TOUCH	EXE	Y	
TREE	COM	Y	
VDISK	SYS	Y	
XCOPY	EXE	Y	

ADDITIONAL COMMANDS PROVIDED BY DR DOS

PASSWORD.EXE	-	Password protection for files and directories
XDEL	-	Extended DELETE functions
XDIR	-	Extended DIRECTORY functions

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7. What is an INTERNAL DOS command, and how do the commands provided by DR DOS compare with the MS DOS commands?

Internal Commands supplied with DR DOS 3.3x

MS DOS 3.33 Commands			DR DOS 3.3 commands	
			M	Note 2
CHCP				
CHDIR	/	CD	Y	
CLS			Y	
COPY			Y	
CTTY			Y	
DATE			Y	
DEL			Y	
DIR			Y	
ERASE			Y	
MKDIR	/	MD	Y	
NLSFUNC			Y	
PATH			Y	
PROMPT			Y	
RENAME	/	REN	Y	
RMDIR	/	RD	Y	
SET			Y	
TIME			Y	
TYPE			Y	
VER			Y	
VERIFY			Y	
VOL			Y	

ADDITIONAL INTERNAL COMMANDS PROVIDED BY DR DOS:

DELQ - Delete with query
ERA - Erase
ERAQ - Erase with query

NOTE: Some of the external MS DOS commands are also built into Command.com within DR DOS. See previous page.

An Internal command is a command that has been built into the COMMAND.COM file. This means that if you "do" a directory listing in your DR DOS directory, you will not be able to see these files. However, they are always available if you type the name at the command line. eg. TYPE <filename.ext>

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8: What is a BATCH command, and how do the commands provided by DR DOS compare with MS DOS commands?

BATCH commands supplied with DR DOS 3.3x

MS DOS 3.33 Commands	DR DOS 3.3 commands
@	Y
BREAK	Y
CALL	Y
ECHO	Y
EXIT	Y
FOR	Y
GOTO	Y
IF	Y
PAUSE	Y
REM	Y
SHIFT	Y

A Batch command is one that is used only within a user batch file. eg AUTOEXEC.BAT, or GEM.BAT.
Batch files are usually used to make life easier for the user who does not wish to type in complicated command lines each time he/she wants to run GEM for example.

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Keyboards supported by DR DOS

In DR DOS, these keyboards are set up using the KEYB command.
eg. 'KEYB UK +' - sets the enhanced keyboard for the UK.

MS/PC DOS 3.x		DR DOS 3.31
BE	BELGIUM	N
CF	CANADA (FRENCH)	N
DK	DENMARK	Y
SU	FINLAND	Y
FR	FRANCE	Y
GR	GERMANY	Y
IT	ITALY	Y
LA	LATIN AMERICA	N
NL	NETHERLANDS	N
NO	NORWAY	Y
PO	PORTUGAL	Y
SP	SPAIN	Y
SV	SWEDEN	Y
SF	SWITZERLAND (FRENCH)	N
SG	SWITZERLAND (GERMAN)	N
UK	UNITED KINGDOM	Y
US	UNITED STATES	Y

Where a keyboard is not supported, see NOTE 5 for an explanation of what is required to support these keyboards.

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COUNTRY codes supported by DR DOS

Country information is set by using the 'COUNTRY' command within CONFIG.SYS.

eg. COUNTRY=001 - for the United States

(The codes assigned are based on each country's international telephone dialling code.)

MS/PC DOS 3.x		DR DOS 3.33
061	AUSTRALIA	Y
032	BELGIUM	Y
002	CANADA	Y
045	DENMARK	Y
358	FINLAND	Y
033	FRANCE	Y
049	GERMANY (WEST)	Y
972	HEBREW / ISRAEL	Y
039	ITALY	Y
785	ARABIC / MIDDLE EAST	Y
031	NETHERLANDS	Y
047	NORWAY	Y
351	PORTUGAL	Y
003	LATIN / SOUTH AMERICA	Y
034	SPAIN	Y
046	SWEDEN	Y
041	SWITZERLAND	Y
044	UNITED KINGDOM	Y
001	UNITED STATES	Y

ADDITIONAL COUNTRY CODES SUPPORTED BY DR DOS

081	JAPAN

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COMMANDS AVAILABLE

Please see page 5 for a full comparative list of the commands that are available.

There are some commands that are built into the DR DOS command.com file, that are supplied as separate disk files by MS/PC DOS. These files are:

APPEND
KEYBOARD.SYS
MORE
ASSIGN
SUBST
NLSFUNC

These commands are executed the same way, and behave the same way in both DR DOS and MS/PC DOS. In order to use any of the above commands, refer to the reference guide.
External commands supplied with MS/PC DOS however, are not all supported by DR DOS. These commands are outlined below:

NOTE 1:

BASIC (LANGUAGE)
Currently, if you require a programming language such as BASIC, you will need to purchase this separately from DR DOS.

NOTE 2:

The three commands that follow are only used when a codepage other than the default is used. Full codepage support will be implemented in the TIGER 2 release of DR DOS.

CHCP
(Built into COMMAND.COM in MS/PC DOS)
This is used by MS DOS to allow the user the change the current default codepage, and is planned for release in DR DOS in TIGER2.
DISPLAY.SYS
This is used by MS DOS to set the screen codepage, and is planned for release with DR DOS in TIGER2.
PRINTER.SYS
This is used by MS DOS to set the printer codepages and is planned for release with DR DOS in TIGER2.

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NOTE 3:

EDLIN
DRI is producing an easy to use full screen editor for release in TIGER1.
RECOVER
This command has been completed, and is awaiting documentation for release in TIGER1.

NOTE 4:

JOIN.EXE
This was supplied with MS DOS to simulate that multiple disk partitions (upto 32MB) were actually joined as one partition. This command is not required by DR DOS as it already supports multiple disk partitions of upto 512MB.

NOTE 5:

KEYBOARDS
The main keyboards that are NOT supported by DR DOS, but that are supported by MS/PC DOS are for the following countries:

BELGIUM
FRENCH CANADA
LATIN AMERICA
NETHERLANDS
FRENCH and GERMAN SWITZERLAND

Note that the French and German derivatives can be supported by using the French or German keyboard codes.
Once CodePage is supported (Tiger 2), new keyboard support will be added to enhance DR DOS.

COUNTRY

DR DOS already supports the additional country code for JAPAN, which was not supported in MS/PC DOS 3.x.

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There are a number of additional commands supplied with DR DOS, that are NOT supplied with MS/PC DOS. These are as follows:

PASSWORD
XDEL
XDIR
/H - extension to all commands that gives HELP information
ROM files - that allow DR DOS to reside and execute (KERNEL only) from Read Only Memory
Large Disk Partitions are also supported by DR DOS. DR DOS allows multiple 512KB disk partitions while MS/PC DOS 3.x only allows multiple 32MB disk partitions.

NOTE: OEM's when supplying MS DOS, often add their own utilities to the MS DOS disk. eg. HEADPARK
The same type of utilities can also be expected to be added to DR DOS by OEM's that ship the product with their hardware.

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APPLICATIONS THAT DO NOT RUN

Try to think of DR DOS' Compatibility with MS/PC DOS in the following way:

VERY HIGH.....	APPLICATIONS
HIGH.....	USER INTERFACE
GOOD.....	[illegible] -SYSTEM

Applications

These are all the popular DOS applications that we all know and love such as LOTUS 123, WORDSTAR etc, and in this area DR DOS offers a Very High level of compatibility DIGITAL RESEARCH has committed to fix any commercially important application that is found not to work under DR DOS, assuming that they run in the same configuration under MS/PC DOS.
This is the main aim of DR DOS, to run ALL the popular DOS applications.

User Interface

This is how the user issues commands (or talks to DOS if you prefer), and how these commands behave, and how the user can use and edit the command line. (eg F3 repeats the last command issued)
DR DOS also offers ADDED functionality over and above that which MS/PC DOS has to offer.
eg. /H option for help with the use of commands
Enhanced command line editing using the cursor keys
Extra user commands such as XDEL and PASSWORD.
DR DOS does not support some MS/PC DOS commands such as JOIN.
(See NOTE 4)

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System
System is the actual operating system DR DOS which is running on your machine.

System Extensions
System extensions are products that offer extra functionality over and above that which is offered by DOS. eg. Networks, Multi-Tasking shells etc.
You should be aware that often, these extensions make use of undocumented systems calls and tables, and when they do this, they will stand less chance of running with DR DOS, since DR DOS does not attempt to CLONE MS/PC DOS. However, even Microsoft does not attempt to offer upward compatibility to users of these undocumented system calls and tables, so software writers use these at their own risk!!
As an example, lets take the two system extensions that are known not to work currently under DR DOS 3.3x

MS Windows / 386	2.03	Multi-tasking shell
MS NET		Microsoft's Network

These are the only two that are currently recognised as not running under DR DOS 3.3x, though DRI does plan to have WINDOWS / 386 working with the TIGER 2 release.
However, when Microsoft upgraded DOS from version 3.3 to version 4.0, both MS/PC NET and WINDOWS / 386 DO NOT WORK under version 4.01! This shows how "dirty" these two products are, and how difficult even Microsoft have found it to maintain their own products that make use of these undocumented system calls and tables.

If a user wishes to use a network, there are many alternatives to PC/MS net, such as NOVELL NETWARE. You should direct your customer to one of these.
The same applies to a user who requires a Multi-tasking shell. They should either be using the true multi-tasking, multi-user operating system CONCURRENT DOS, or they should use an alternative to MS Windows such as DESQVIEW.

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Error Messages

One area of the user interface that will differ (for the better!) is that of reporting errors. Although error codes returned from interrupts will be the same (for obvious reasons), the actual error messages output to the screen are designed to make it easier for the user to understand them without having to refer to the manual.

eg. If you enter a command, say "1234", that is not a recognised DOS command or a user batch file, you would get the following error messages.

MS/PC DOS: Bad command or filename

DR DOS : Command of file name not recognised

This change in error reporting still leaves the MS/PC DOS user comfortable with DR DOS, in that the error message is not completely foreign, but at the same time clarifies the problem he has encountered.

COMMANDS THAT BEHAVE DIFFERENTLY UNDER DRDOS

Some of the commands provided by DR DOS may behave slightly differently to those provided by MS DOS in order to offer greater functionality.

The DR DOS TREE command allows the user not only to look at the directory structure, but also to search for files within this directory structure.

eg. TREE *.GEM — will look for all the files with .GEM extension within your current directory, and will also search any sub-directories below your current directory. (This functionality is NOT supported by MS/PC DOS).

EDLIN is a very basic line editor that is supplied as standard with MS/PC DOS. DR DOS offers EDITOR, which is an easy to use **FULL SCREEN** editor that allows the user to edit a full screen of information at a time.

The DR DOS FDISK utility will behave slightly differently to the MS DOS version, mainly because it offers the user the ability to partition disks upto 512MB in size. (MS DOS will only partition disks upto 32MB.)

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Many of the DR DOS commands will also offer additional switch options as a part of the command line.

eg. FORMAT /H — The /H option is available with all of the DR DOS utilities, and will display a full HELP screen for the command that precedes it. This is a very useful option that is not supported by MS/PC DOS.

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APPENDIX A

There have been several releases of DR DOS since the original BETA copies were sent out, and the main reason for this is that DIGITAL RESEARCH has a policy to update the DR DOS disks rather than issue patches for minor changes.
The table below outlines the main reason for each update, and the following pages give more detail on each release.

3.31 release 08	-	Enhanced command line editing VERITEST verification requirements Minor bug fixes
3.31 release 09/10	-	Enhanced GEM DESKTOP support Enhanced FONTWARE support Enhanced MS WINDOWS support
3.32 release 11	-	FUTURE Computing verification requirements Enhanced MS WINDOWS support Enhanced NOVELL Netware support Some DR DOS system defaults changed (PROMPT NP, BREAK=OFF) DRIVPARM implemented in config.sys
3.33 release 12	-	Improved ROM disk driver support Enhanced support for 720KB drives Minor bug fixes
3.34 release 13 3.35 release 14	-	DRIVER.SYS supplied with disks Enhanced support in Append command Enhanced support in Mode command Minor bug fixes

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Release 08 DR-DOS 3.31 (10 Jun 88)

xxxxxx	Copyright messages modified
157575	Password Utility bug fixed
106093	SideKick Plus Deinstallation
106112	F6 now produces ^Z (EOF) and F7 ^@ (NULL)
106114	DIR FRED now lists all files matching FRED.* as per DOS
157581	F5 command line saving bug fixed
xxxxxx	INT 25/26 are now intercepted by the BIOS and return a "Sector Not Found" error when a large partition is accessed illegally.
xxxxxx	FONTWARE Search First Bug Fixed.
106368	VDISK is now compatible with MACE utilities.
157583	^P correctly echos TABs on the printer.
xxxxxx	VDISK default transfer size is now 8 sectors
157591	RESTORE modified to prevent intermittent machine crashes while accessing a floppy disk.

Release 09 DR-DOS 3.31 (11 Jul 88)

157603	Format now works correctly with GEM DESKTOP 3.01.

Release 10 DR-DOS 3.31 (02 Aug 88)

xxxxxxx	FONTWARE bug data transfer address is now normalized by the FDOS.
xxxxxxx	Place the full path of the loaded application into its copy of the environment.
xxxxxxx	Support login of floppies without a BPB
xxxxxxx	Correctly support FCB file open modes.
157607	Support MicroSoft Windows Format Option.

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Release 11 DR-DOS 3.32 (16 Aug 88)

MicroSoft Windows

?xxxxx	The "CHKDSK" bug reported by Future Computers has been fixed. The problem occurred when a standard DOS application was running in a window which was partially obscured. The system crashed when this application was topped.
57606	The disk label can now be updated from the windows pull down menu correctly. (Short Code Alt-SS)

Novell Netware

157627	LASTDRIVE is initialized correctly so the default Novell networked drive is correct.
152058	Remote batch file are now handled correctly
Nxxxxx	Print spooling is fully supported in 2.0a and 2.1 Netware.
5..2073	Novell shell correctly generates its own error messages when the file server goes down or the connection is broken.

Keyboard Functions

157595 157596	The command line editing function keys F1 and F3 work correctly with the delete key.
?xxxxx	The ^ Key on the enhanced German keyboard is treated correctly by KEYB DR.
x xxxx	CTL-ALT-F2 now switches into the national keyboard mode correctly.
xxxxxx	DOS FUNCTION 10 (0Ah) Read Buffer Input sounds the bell after MAX-1 characters have been input.

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General

552068	The default prompt has been changed from "pg" which displays the drive and path ("C:\BIN>") to "ng" which just displays the default drive ("C>").
xxxxxx	The date is correctly updated at mid-night.
106111	The default Break status is now OFF as for MS-DOS.
xxxxxx	The DRIVPARM command in CONFIG.SYS has been implemented.
157622 156296	PostScript fonts are now generated correctly by DitStream Fontware.
552057	The COMMAND.COM /E option to set the environment size is now fully supported. The default size is 512 Bytes.
157616	Redirected output no longer has an extra CR LF sequence appended.
157577	PCPAC PLus from Computer Associates works correctly.
551867 552064	Ashton-Tate BY-Line installs correctly now
xxxxxx	DR-DOS now signs on as version 3.32 though the DOS function 48 (30h) Get OS Version still returns 3.31.
xxxxxx	File truncation bug fixed. Problem exhibited by Microsoft QuickBasic 4.0 which generated corrupt .EXE files if the file already existed.

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