

FYI: "DOS Create Returned Error 3". Defining Printer 0  
FYI

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TITLE: "DOS Create Returned Error 3". Defining  
Printer 0  
DOCUMENT ID#: FYI.P.5786  
DATE: 16MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v2.2  
SUPERSEDES: NA

SYMPTOM: DOS create returned error 3. Description:  
"System failed to create the file system\00120073\print.000".

#### ISSUE/PROBLEM

The problem occurred when trying to define printer 0 in PCONSOLE under a printserver called PSERVER. When hitting <ESC> to save the printer configuration the error above was displayed. The shell was current and SHELL.CFG did not have anything out of the ordinary in it.

#### SOLUTION

Deleted the printserver and all the queues. Made sure that there were no number directories left by PCONSOLE in the system subdirectory. Ran BINDFIX. Recreated the printserver and was able to define a printer.

FYI: Abend: Disk Controller Channel 0... v2.2 INSTALL  
FYI

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TITLE: Abend: Disk Controller Channel 0... v2.2  
INSTALL  
DOCUMENT ID#: FYI.P.5787  
DATE: 16MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v2.2  
SUPERSEDES: NA

SYMPTOM: Receiving the message: "Abend: disk controller channel 0 reset error".

#### ISSUE/PROBLEM

Received this error consistently during INSTALL, after it was completed linking and configuring (from the first screen during installation), and right as it was going to bring up the ZTEST screen. This occurred when using the IDE driver from IDE286.ZIP. ISADISK wouldn't work at all because it was a user definable drive type.

#### SOLUTION

Used ISAREM.ZIP which worked.

FYI: Server Abends With NMI Parity.

FYI

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TITLE: Server Abends With NMI Parity.  
DOCUMENT ID#: FYI.P.5794  
DATE: 16MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11

SUPERSEDES: NA

SYMPTOM: Server abending with an NMI (Non-Maskable interrupt) parity generated by I/O check.

ISSUE/PROBLEM

Server abending with an NMI (Non-Maskable interrupt) parity generated by I/O check.

SOLUTION

The combination of the Compaq 386/33, NetWare v3.11 and Proteon cards cause this problem with the server. Moving all the hardware to an AST allowed the network to work fine. Downgraded from v3.11 back to v3.10 and everything was fine.

Note: Compaq tested the problem and could repeat it consistently with NetWare v3.11, specifically the Compaq 386/33, and any Proteon card (they tried both the 1308 and the pro-net4). This scenario of equipment doesn't seem to work so avoid it.

FYI: Workstation Reboots When Print Job Is Sent.

FYI

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TITLE: Workstation Reboots When Print Job Is Sent.  
DOCUMENT ID#: FYI.P.5789  
DATE: 16MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: NA  
SUPERSEDES: NA

SYMPTOM: Workstation running RPRINTER reboots itself when a print job is sent to it.

ISSUE/PROBLEM

In this case the system was trying to run:

1. Real World Accounting Software (compiled using Microfocus's Cobol compiler)
2. XM (Microfocus's extended memory manager)
3. RPRINTER (with a printer attached on the LPT port)

All on the same workstation. Whenever a print job is sent to the workstation it would reboot itself. However, if XM is not loaded everything prints fine.

#### SOLUTION

Set the following environment variable in the AUTOEXEC.BAT:

```
SET XM=+jkqr
```

XM places the program into protected mode, and the settings involve transmitting the protected mode interrupts to real mode interrupts.

```
J = transmits IRQ 1 (keyboard interrupt)
K = transmits IRQ 16
Q = transmits IRQs 10,17,1a
R = transmits IRQs 0-15 (except IRQ 1 )
```

FYI: NetWare For VMS INSTALL Not Accepting Controller  
FYI

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```
TITLE:      NetWare For VMS INSTALL Not Accepting
Controller Types
DOCUMENT ID#:  FYI.P.5761
DATE:        13MAR92
PRODUCT:     NetWare for VMS
```

PRODUCT VERSION: All Versions  
SUPERSEDES: NA

SYMPTOM: When installing NetWare for VMS, not seeing the correct VAX ethernet controller type and ethernet device type.

#### ISSUE/PROBLEM

During the install process for NetWare for VMS the software prompts for the VAX ethernet controller type (DEQNA etc.), and the device type (XQA etc.). However, when the controller type is entered the install utility will not accept it.

#### SOLUTION

There are newer DEC ethernet controllers as well as different ethernet controller type and ethernet device type combinations that NetWare for VMS does not understand. It is possible to make the necessary changes during the install, or the changes can be made after the install is completed by following the directions in FYI.P.4937.

The controller type selection (DEQNA etc.) really doesn't matter so any controller type can be chosen that install has listed. The device type (XQA etc.) is the one required to have the correct type for the controller. NetWare for VMS install does not check what device type is entered against what types it knows about. The appropriate VAX support person should be able to tell what the correct device type is for the controller. The following is a list of DEC VAX ethernet controllers and their device types/names:

DEBNT	for BI based VAX
DEBNA	for BI based VAX
DEBNI	for BI based VAX
DEUNA	for UNIBUS based VAX
DELUA	for UNIBUS based VAX
DEQNA	for QBUS based micro VAX
DELQA	for QBUS based micro VAX
DESQA	for QBUS based micro VAX
DESQA	for VAX 4000
DESVA	for micro VAX 2000
DEMNA	for VAX 9000

DEBNTs use device names ETA, ETB ...  
DEBNAs use device names ETA, ETB ...

DEBNIs use device names ETA, ETB ...  
DEUNAs use device names XEA, XEB ...  
DELUAs use device names XEA, XEB ...  
DEQNAs use device names XQA, XQB ...  
DELQAs use device names XQA, XQB ...  
DESQAs use device names XQA, XQB ...  
DESQAs use device names EZA, EZB ...  
DESVAs use device names ESA, ESB ...  
DEMNAs use device names EXA, EXB ...

Note: The third letter in the device name specifies the ethernet card, (i.e., ETA is the first ethernet controller, ETB is the second ethernet controller etc.).

FYI: Keyboard Problems In NetWare Lite Running Lotus

FYI

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TITLE: Keyboard Problems In NetWare Lite Running  
Lotus  
DOCUMENT ID#: FYI.P.5774  
DATE: 12MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v1.0  
SUPERSEDES: NA

SYMPTOM: Numbers appear when pressing the cursor  
arrows, not on the number pad.

#### ISSUE/PROBLEM

A problem occurred when using Lotus 2.3. The keyboard would randomly insert a 2 when pressing the down arrow key (THE ONE NOT ON THE NUMBER PAD). It would happen worse when the computer's turbo button was off, and when in WYSIWYG. About every 20 lines when moving down the screen the cursor would pause and insert a 2, or when pressing the up arrow key the number 8 would appear.

The problem did not exist unless the numlock key was on. Removed TSR's, applied NWL004.ZIP, to no avail.

#### SOLUTION

Placing the following line in the CONFIG.SYS file solved the problem: "install=c:\dos\keyb.com US,,c:\dos\keyboard.sys".

Note: The KEYB.COM command configures the keyboard for a specific language. In the indicated DOS command it forces the country to US. The KEYBOARD.SYS file, according to the DOS 5.0 manual, specifies the location and name of the keyboard definition file. The DEFAULT keyboard info sometimes gets loaded wrong. Loading the keyboard driver in the CONFIG.SYS file is the fix.

FYI: Watchdog Clearing Connections When Workstation Loads Shell  
FYI

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TITLE: Watchdog Clearing Connections When  
Workstation Loads Shell  
DOCUMENT ID#: FYI.P.5744  
DATE: 11MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Connection is cleared.

#### ISSUE/PROBLEM

Watchdog clearing connections when the workstation has the

shell loaded.

#### SOLUTION

Make sure the "Delay Before First Watchdog Packet" is larger than the "Delay Between Watchdog Packet". It is recommended that the "Delay Before First Watchdog Packet" is twice as large as the "Delay Between Watchdog Packet". Leaving the watchdog parameters at default is usually the best solution.

FYI: Soft Booting Not Releasing RPRINTER Configuration

FYI

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TITLE: Soft Booting Not Releasing RPRINTER  
Configuration  
DOCUMENT ID#: FYI.P.5739  
DATE: 11MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: While in RPRINTER receiving the message:  
"Configured printer already installed"

#### ISSUE/PROBLEM

Using DOS 3.3 and the RPRINTER that ships with v3.11/v2.2, when soft booting the work station, the printer configuration is not released on the PSERVER VAP or NLM.

#### SOLUTION

One solution is to unload the VAP or NLM. In this case just cold booting the work station took care of the proper release of the printer configuration.



Note: There is a timing issue with the print server not releasing the connection in the time to soft boot. The cold boot took enough time to have the connection released. The other way to release the connection is to do "rprinter xxxxxx # -r" where xxxxxx is the PSERVER name, # is the printer number and -r removes the connection.

FYI: Problems Installing MHS On Volume Other Than SYS:

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TITLE: Problems Installing MHS On Volume Other Than  
SYS:  
DOCUMENT ID#: FYI.P.5745  
DATE: 11MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Unable to Install MHS

#### ISSUE/PROBLEM

Unable to get MHS to install on a v3.11 file server. An error message was indicating there weren't enough directory entries.

#### SOLUTION

MHS looks to see if there are a minimum of 200 directory entries before it will install. Normally this isn't an issue as most of the time, users install MHS on the SYS Volume. NetWare v3.11 by default will allocate blocks of 32 entries for each directory. An empty Volume will by default still contain 2 directories meaning it will have 64 directory entries. MHS

wouldn't install because the Volumes only had 64 directory entries.

One way to work around this is by copying some directories and files (dummys) to this Volume and then deleting them. Deleting files and removing directories that have been allocated won't cause the directory entries to be de-allocated. After copying and deleting the files and directories to this Volume, installing MHS should be no problem.

FYI: Watchdog Dropping Connections

FYI

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TITLE:	Watchdog Dropping Connections
DOCUMENT ID#:	FYI.P.5749
DATE:	11MAR92
PRODUCT:	NetWare
PRODUCT VERSION:	v3.11
SUPERSEDES:	NA
SYMPTOM:	Losing connection to the network.

#### ISSUE/PROBLEM

Workstations losing connections seemingly because of watchdog.

#### SOLUTION

The workstations were hanging, then the watchdog process was deleting them. The machines were running Blue Max and Carousel software on the workstation, it seems like they had a conflict. Upon removing these two programs the problems went away.

FYI: Unable To Clear Connections In MONITOR.

FYI

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TITLE: Unable To Clear Connections In MONITOR.  
DOCUMENT ID#: FYI.P.5752  
DATE: 11MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Unable to clear connections in MONITOR. And work stations were losing connection.

#### ISSUE/PROBLEM

The system was using a 3c523 in PS2. The system was having problems clearing connections in MONITOR, and keeping the work stations up.

#### SOLUTION

Apply the following files: PS2OPT.ZIP from Novell and 3C523.ZIP from 3COM with the latest model of the 3c523 twisted pair board.

FYI: Utilities Possibly Corrupting NetWare VMS Bindery

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TITLE: Utilities Possibly Corrupting NetWare VMS Bindery  
DOCUMENT ID#: FYI.P.5735  
DATE: 10MAR92  
PRODUCT: NetWare for VMS  
PRODUCT VERSION: v2.1  
SUPERSEDES: NA

SYMPTOM: Errors with bindery calls (i.e., logging in, trustees, etc.)

#### ISSUE/PROBLEM

If using utilities such as SYSCON, PCONSOLE, MAKEUSER, or any utility that manipulates the bindery that comes from another version of NetWare. These utilities could possibly corrupt the NetWare for VMS bindery. This has been observed with utilities from NetWare v3.x.

#### SOLUTION

The only thing that can be done once a bindery is corrupt with NetWare for VMS is to restore a backup of the bindery. There is no Bindfix utility. If there is not a backup of the bindery, a clean bindery from the NetWare for VMS installation tape can be restored. To restore the bindery do the following. The \$ is the VMS prompt. The tape drive is assumed to be MUA0. Use the tape drive in place of MUA0.

```
$ MOUNT MUA0: NETWAR TAPE
$ BACKUP TAPE:NetWare_VMS021.A/SAVE/SEL=([*...]*.BND,
[*...]*.DB) -
$ NWVMS$SPECIFIC:*. *
$ DISMOUNT TAPE:
```

To backup the bindery with NetWare for VMS execute the following command procedure with a parameter of AUTO.

```
$ @NWVMS$SPECIFIC:NW_SRV_DBS.COM AUTO
```

FYI: Remote Boot Difficulty After v2.2 Upgrade

FYI

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TITLE: Remote Boot Difficulty After v2.2 Upgrade  
DOCUMENT ID#: FYI.P.5719  
DATE: 09MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v2.2  
SUPERSEDES: NA

SYMPTOM: After upgrading from NetWare v2.15a to v2.2, workstations trying to remote boot were getting error reading boot image.

#### ISSUE/PROBLEM

After the upgrade the Samsung and Hyundai diskless workstations would try to remote boot, and after loading NETX the workstations would return an error something like unable to read from boot image. Different versions of DOS were tried the latest NE1000 driver, both 3.1 IPX and 3.22 NETX as well as older NE1000 drivers, IPX and NETX versions all with the same result. Hyundai and Samsung were contacted and ran the BIOS and REMOTE versions that they both recommend to work with v2.15 and v2.2.

#### SOLUTION

Finally tried the ODI drivers and can now remote boot fine.

FYI: "Send ECB Was Re-Used RPL Halted"  
FYI

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TITLE: "Send ECB Was Re-Used RPL Halted"

DOCUMENT ID#: FYI.P.5721  
DATE: 09MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Receiving the error: "Send ECB was reused RPL halted" when attempting to remote boot

#### ISSUE/PROBLEM

Received the error "Send ECB was reused RPL halted" when attempting to remote boot on NetWare v3.11 server using the RPL.NLM dated 3DEC91 (from RPLFT.ZIP, which can be obtained from Novell Technical Support). If the work station was rebooted after this error then remote boot proceeded with no problem.

#### SOLUTION

Used NE2.LAN from NE386.ZIP (11NOV91) and error disappeared.

FYI: "Unable To Write To VOL\$LOG.ERR..." NetWare v3.11  
FYI

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TITLE: "Unable To Write To VOL\$LOG.ERR..." NetWare v3.11

DOCUMENT ID#: FYI.P.5714  
DATE: 06MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Receiving the message: "Unable To Write To VOL\$LOG.ERR..."

#### ISSUE/PROBLEM

Upon bringing up the server, which had two volumes, volume SYS would mount fine, but was receiving the error: "Unable to

write to VOL\$LOG.ERR". Then the volume would dismount and the device deactivate.

The file VOL\$LOG.ERR had become corrupted. VREPAIR reported no errors. IBM DIAGNOSTICS found data integrity problems on two blocks.

#### SOLUTION

Used a disk editor (Norton's) to rename the file, and the server no longer had a problem mounting. No data was lost.

Note: VOL\$LOG.ERR keeps track of volume errors, but also logs each mount and dismount occurrence. The OS recreated the file when it couldn't find one.

FYI: VMSPT3.TXT WordPerfect & Lotus files being corrupted  
FYI

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TITLE: VMSPT3.TXT WordPerfect & Lotus files being corrupted

DOCUMENT ID#: FYI.P.5681

DATE: 05MAR92

PRODUCT: NetWare for VMS

PRODUCT VERSION: v2.01, r3.01

SUPERSEDES: NA

SYMPTOM: WordPerfect and Lotus files being corrupted.

#### ISSUE/PROBLEM

WordPerfect and Lotus files being corrupted.

#### SOLUTION

VMS patch three is a patch for NetWare for VMS v2.1 r3.01 and v2.1 r4.01 to resolve problems saving files from Wordperfect and Lotus where the file would end up as a 0 byte file and the contents would be lost. The patch is recommended for anyone with NetWare for VMS issues regardless of whether the WordPerfect or Lotus problems exist. It is available on NetWire, file name: VMSPT3.TXT.

FYI: Problem loading two frame types on NE3200.

FYI

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TITLE: Problem loading two frame types on NE3200.  
DOCUMENT ID#: FYI.P.5689  
DATE: 05MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Problem loading two frame types on NE3200 in Compaq System Pro.

#### ISSUE/PROBLEM

File Server is a Compaq Systempro with one NE3200 with 802.2 and 802.3 frame types needing to be loaded. Loading the 802.3 wouldn't allow the 802.2 frame type to be loaded and vice versa.

#### SOLUTION

Moved the NE3200 in the Systempro from slot five (which should work) to slot two. After doing this the two frame types can be loaded on the card.

FYI: Bustek 4201 Busmastering SCSI Controller, NetWare

FYI

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TITLE: Bustek 4201 Busmastering SCSI Controller,  
NetWare v3.11  
DOCUMENT ID#: FYI.P.5649  
DATE: 04MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Receiving the error: "GPPE Running Process  
AFP 1 Process".

#### ISSUE/PROBLEM

The server crashed after the error GPPE (General Protection Processor Exception). After bringing the server back up one of the volumes was having problems.

Configuration: Bustek 4201 Busmastering SCSI controller (Burst mode) with 486-33, EISA, Gateway 32Bit Ethernet, 32 MB RAM, 1.6 GB SCSI hard drive

#### SOLUTION

Bustek said to ensure that the controller was set to below 1 GB, (there is no disk loss), and check the hard drive to ensure that it was a fast SCSI DRIVE (it was not). In this case it was necessary to slow the controller down from 10MHz to 4MHz.

FYI: "IPX Received Incomplete Packet.." AMI BIOS

FYI

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TITLE: "IPX Received Incomplete Packet.." AMI BIOS  
DOCUMENT ID#: FYI.P.5672  
DATE: 04MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11

SUPERSEDES: NA

SYMPTOM: Receiving the message: "IPX received incomplete packet from network"

#### ISSUE/PROBLEM

The problem occurred trying to set up a new NetWare v3.11 network with two nodes. When trying to attach to the file server from the workstation, the above message would come up on the file server screen, and the workstation would eventually timeout.

#### SOLUTION

The AMI BIOS on the workstation has an "Advanced CMOS Setup" with lots of detailed parameters that can be manipulated. One of these parameters was an "Advanced Chipset Setup", which has as one of it's options, "ROM read Option". Disabling the "ROM read Option" cleared up the above mentioned incomplete packet problem and allowed login using all of the NIC/driver combinations previously tried by setting to defaults. There was no warning or mention in the documentation implying a need to be concerned with disabling the "ROM read Option".

FYI: "There Are No Accessible Drives" Duplexing Maxtor  
FYI

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TITLE: "There Are No Accessible Drives" Duplexing  
Maxtor IDE  
DOCUMENT ID#: FYI.P.5653  
DATE: 04MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Receiving the error message:"There are no accessible drives" when trying to duplex

#### ISSUE/PROBLEM

The problem occurred on an Everex 486/33 machine while trying to duplex two Maxtor LXT 340 MB IDE drives, using two Quantum controller cards Prodrive ISA-151a.

The ISADISK that came with v3.11 could be loaded, and both drives in disk options could be seen; however, it was extremely slow. Using the same ISADISK with the /b /l parameter sped up the server greatly, but only one drive could be seen.

#### SOLUTION

Loading IDE.DSK driver from IDE386.ZIP allowed both drives to be seen and allowed duplexing.

FYI: Login Script Problems With "MENU.BAT" File Name  
FYI

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TITLE: Login Script Problems With "MENU.BAT" File  
Name  
DOCUMENT ID#: FYI.P.5657  
DATE: 04MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Login Script Problems With "MENU.BAT" File  
Name

#### ISSUE/PROBLEM

Supervisor had changed the system login script, once changed

no one could login, not even supervisor. Issued login from A: with the /s command to bypass the system login. In SYSCON there was a #MENU.BAT. Changing the #MENU.BAT to EXIT "MENU.BAT" did not help.

#### SOLUTION

The program seemed to be confusing MENU.BAT with MENU.EXE. Renamed the batch file to RUNMENU.BAT and it worked.

FYI: Print Jobs Ignoring Time Out Or Stay In Queue

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TITLE: Print Jobs Ignoring Time Out Or Stay In Queue  
DOCUMENT ID#: FYI.P.5654  
DATE: 04MAR92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Print jobs either ignore time out and print immediately or stay in queue forever.

#### ISSUE/PROBLEM

Using the latest PSERVER.NLM (10JAN92) and RPRINTER with an original Hewlett-Packard LaserJet printer, attached to COM2 as a serial printer. The system printed fine from DOS, but when using network queues, the jobs would either print out immediately, ignoring the 10 second time out or else stay in the queue forever. LPT2 was being captured on the local workstation.

#### SOLUTION

Used the DOS mode command to assign COM2 to LPT2, then set

the printer up as LPT2 in PCONSOLE, removed the mode statement, set the printer up as a remote serial printer using XON/XOFF.

FYI: Deleted OWNERID Causing Append Problems. NetWork C  
FYI

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TITLE: Deleted OWNERID Causing Append Problems.  
NetWork C  
DOCUMENT ID#: FYI.P.5622  
DATE: 28FEB92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Deleted OWNERID causes append problems

#### ISSUE/PROBLEM

When a file is created it is given an OWNERID. If the owner of this file gets deleted from the bindery, the file will have an invalid OWNERID. When this file is opened by an NLM, in append mode, and writes to the file, the NLM will get an I/O error when a subsequent write causes the file to expand past the next file allocation unit (default 4096).

#### SOLUTION

If a user is deleted from the bindery all the files owned should be changed to a valid OWNERID or deleted. If there is a file that is absolutely necessary to protect, making the OWNERID supervisor will ensure it will never have an invalid OWNERID.

FYI: Current APIs Only Able To Access First 250 Print Jobs  
FYI

(Note: The origin of this information may be internal or external

to Novell. Novell makes every effort within its means to verify this information. However, the information provided in this document is FOR YOUR INFORMATION only. Novell makes no explicit or implied claims to the validity of this information.)

TITLE: Current APIs Only Able To Access First 250  
Print Jobs  
DOCUMENT ID#: FYI.P.5619  
DATE: 28FEB92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Current APIs only able to access the first  
250 print jobs.

#### ISSUE/PROBLEM

Queue functions for v3.11

#### SOLUTION

In NetWare v2.15 and v3.10 a queue could only have 250 jobs. The API (Application Programming Interface) GetQueueJobList returns these 250 jobs. When v3.11 came out the queues were allowed to hold about 1000 jobs. The current APIs only allow access to the first 250 jobs of the queue. There are NCPs (NetWare Core Protocols) that allow access to the other jobs; however, but there are no APIs to call them.

FYI: "Runtime Error R6002, Floating..."  
FYI

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TITLE: "Runtime Error R6002, Floating..."  
DOCUMENT ID#: FYI.P.5628  
DATE: 28FEB92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Receiving the error message: "Runtime error r6002, Floating point processor not loaded".

#### ISSUE/PROBLEM

The above error was returned when trying to access SYSCON and FCONSOLE from a 486/33 clone.

#### SOLUTION

There was a PCTools TSR (the exact TSR is not known) loaded on the 486/33 workstation. Unloaded the TSR and everything works fine.

FYI: Installing PUBLIC And SYSTEM Files From B: Drive  
FYI

(Note: The origin of this information may be internal or external to Novell. Novell makes every effort within its means to verify this information. However, the information provided in this document is FOR YOUR INFORMATION only. Novell makes no explicit or implied claims to the validity of this information.)

TITLE: Installing PUBLIC And SYSTEM Files From B:  
Drive  
DOCUMENT ID#: FYI.P.5620  
DATE: 28FEB92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Unable to install Public and System files  
from drive b:

#### ISSUE/PROBLEM

A problem occurred while trying to install from drive A:, B:, C: none of which would allow public and system files to load from drive B:. The installation program would check A: and/or C: but never B:

#### SOLUTION

Install -J allows selection of the drive, as documented in the README.311 file shipped with v3.11.

FYI: "The System Library File SYS\$MSG.DAT..."

FYI

(Note: The origin of this information may be internal or external to Novell. Novell makes every effort within its means to verify this information. However, the information provided in this document is FOR YOUR INFORMATION only. Novell makes no explicit or implied claims to the validity of this information.)

TITLE: "The System Library File SYS\$MSG.DAT..."  
DOCUMENT ID#: FYI.P.5598  
DATE: 21FEB92  
PRODUCT: NetWare  
PRODUCT VERSION: v2.2  
SUPERSEDES: NA

SYMPTOM: Receiving the error message: "The system library file SYS\$MSG.DAT could not be opened Program terminated Initialization failure".

#### ISSUE/PROBLEM

##### Configuration:

CompuAdd 433 EISA with Phoenix BIOS  
WD IDE 200 MB drive  
Intel Ether Express NIC  
MS DOS v5.0 and v3.3  
5.25" drive A:, 3.5" drive B:

In this case NetWare installation was being done with 3.5" diskettes on drive B. The installation program would get through most of the generation of the OS up through the point where installation asked for SYSTEM-2. After installing that disk the above error message would be returned. Recopying the SYSTEM-2 diskette was attempted, even the SYS\$MSG.DAT file from WSGEN diskette, to no avail. Also tried DOS 3.3 in place of 5.0, and advanced install, but the problem persisted.

#### SOLUTION

Moving the 3.5" drive to drive A solved the problem.



FYI: SYSCON Hangs When Run From The Root Directory.

FYI

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TITLE: SYSCON Hangs When Run From The Root Directory.

DOCUMENT ID#: FYI.P.5599

DATE: 21FEB92

PRODUCT: NetWare

PRODUCT VERSION: v3.11

SUPERSEDES: NA

SYMPTOM: SYSCON v3.62 hangs the workstations

#### ISSUE/PROBLEM

The problem occurred after installation of a new v3.11 network. When trying to go into SYSCON at any workstation from the root directory the background screen would turn red with white lettering and freeze. There was no problem getting into SYSCON when in the system or public subdirectory.

#### SOLUTION

The problem was that the IBM\$RUN.OVL file in the root directory was being executed. After renaming the IBM\$RUN.OVL file in the root directory, SYSCON could find the IBM\$RUN.OVL file in the public directory and SYSCON ran fine.

FYI: "Parsed Driver Configuration Has Failed"

FYI

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TITLE: "Parsed Driver Configuration Has Failed"

DOCUMENT ID#: FYI.P.5601

DATE: 21FEB92

PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Problems Loading PS2SCSI Driver with IBM  
Model 57sx with Internal SCSI Subsystem

ISSUE/PROBLEM

Attempting to load PS2SCSI driver when installing v3.11, and  
received the message:

Supported Slot Values are: None.  
All supported options are in use.  
Error: Parsed driver configuration has failed.

SOLUTION

Use the SCSI driver in PS2OPT.ZIP

FYI: "File Server Cannot Be Found" v2.2 Nondedicated, DOS 5.0  
FYI

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to Novell. Novell makes every effort within its means to verify  
this information. However, the information provided in this  
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TITLE: "File Server Cannot Be Found" v2.2  
Nondedicated  
DOCUMENT ID#: FYI.P.7257  
DATE: 20FEB92  
PRODUCT: NetWare  
PRODUCT VERSION: v2.2  
SUPERSEDES: FYI.P.5567

SYMPTOM: Error "A file server could not be found" with  
DOS 5.0.

ISSUE/PROBLEM

Configuration: 3c503TP cards in both the file server and the

workstation. Running non-dedicated on the file server.

Every time IPX and NETX were loaded, the workstation would error with "A file server could not be found" or "No free connection slots".

#### SOLUTION

Booting the non-dedicated file server with something other than DOS 5.0 worked.

FYI: "File Server Not Found". Trident Video Card  
FYI

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TITLE: "File Server Not Found". Trident Video Card  
DOCUMENT ID#: FYI.P.5566  
DATE: 20FEB92  
PRODUCT: NetWare  
PRODUCT VERSION: v2.2  
SUPERSEDES: NA  
  
SYMPTOM: NA

#### ISSUE/PROBLEM

##### Configuration:

Clone server  
Trident TVGA 8900 video card  
3C503 NIC

After installing NetWare v2.2 the server booted without a problem. However, no workstations could see the server. Comcheck worked fine between all the machines. Tried various options on the 3C503, but all without success. However, it was noted that for IPX to run COMCHECK it was not necessary to select a base memory address for the card. Using the JUMPERS utility to configure the OS, the utility would appear to allow the selection: "none" for base memory, but would not save it that

way.

#### SOLUTION

A reference in the manual that comes with the Trident graphics adapter said that the card has an option for "fast access" or "slow access" for what is called an address decode. The DIP switch position five was set to OFF for fast access, which apparently uses memory segments A000 to DFFF. Set that switch to ON for slow access and everything will work.

FYI: Error Initializing LAN Driver. Racore 8110 NIC  
FYI

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TITLE: Error Initializing LAN Driver. Racore 8110  
NIC  
DOCUMENT ID#: FYI.P.5574  
DATE: 20FEB92  
PRODUCT: NetWare  
PRODUCT VERSION: All versions  
SUPERSEDES: NA  
SYMPTOM: NA

#### ISSUE/PROBLEM

Installing a Racore 8110 receives the error "Initializing LAN driver: open-function failure".

#### SOLUTION

Connect the Racore 8110 NIC to a MAU (Multiple Access Unit), which allows it to complete its initializing process properly. The card was initialized but to do a complete initialization the card has to be connected to a MAU.

FYI: Unable To Download Fonts. BankStar Application.

FYI

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TITLE: Unable To Download Fonts. BankStar  
Application.  
DOCUMENT ID#: FYI.P.5560  
DATE: 19FEB92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Unable to download fonts.

#### ISSUE/PROBLEM

Using BankStar application and BP1 (font package) to merge forms and download fonts. The application was working fine under NetWare v2.15c. However, after upgrading to v3.11 the application wouldn't download the fonts properly. Upgrading the PSERVER to the latest version did not work.

#### SOLUTION

Changing from BP1 to JETFORM, which is another package that does the same thing as BP1, works perfectly. Seems to be some problem with BP1 and NetWare v3.11.

FYI: Returning User To Home Directory After Exiting MENU

FYI

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TITLE: Returning User To Home Directory After  
Exiting MENU  
DOCUMENT ID#: FYI.P.5555  
DATE: 19FEB92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11, v2.2  
SUPERSEDES: NA  
  
SYMPTOM: NA

#### ISSUE/PROBLEM

There was a need to execute an application from MENU then have the user end up in his home directory, after exiting the application.

#### SOLUTION

```
g:
anyappldo
f:
cd user\%variablename% (BOTH PERCENT SIGNS ARE NEEDED)

login script
DOS set variablename = "%login_name"
```

FYI: "Invalid Drive Passed To Disk Process" v2.2 Install  
FYI

(Note: The origin of this information may be internal or external to Novell. Novell makes every effort within its means to verify this information. However, the information provided in this document is FOR YOUR INFORMATION only. Novell makes no explicit or implied claims to the validity of this information.)

TITLE: "Invalid Drive Passed To Disk Process" v2.2  
Install  
DOCUMENT ID#: FYI.P.5558  
DATE: 19FEB92  
PRODUCT: NetWare  
PRODUCT VERSION: v2.2  
SUPERSEDES: NA  
  
SYMPTOM: VREPAIR gets error: "Invalid drive passed to  
disk process".

## ISSUE/PROBLEM

Configuration: IBM model 80 with a SCSI drive.

Everything installed with no problems. While booting the server it came to mounting the volume, which seemed okay, but instead of saying mounted successful it said mounted UUCCESSFUL (no S). Ran VREPAIR, which gave the above error. At times this indicates that the controller or perhaps the drive has a problem.

## SOLUTION

Just to make sure it was decided to run install -f and select write track 0 information. Once this was done the server booted up okay.

FYI: "System Was Unable To Load Overlay File"

FYI

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TITLE: "System Was Unable To Load Overlay File"  
DOCUMENT ID#: FYI.P.5321  
DATE: 24JAN92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Receiving the error: "System was unable to load overlay file".

## ISSUE/PROBLEM

Receiving this error when trying to run any utilities.

## SOLUTION

In this case the short machine name was changed to 110. Change the name to IBM, and everything works.

FYI: "Binderries Have Already Been Restored"

FYI

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TITLE: "Binderries Have Already Been Restored"  
DOCUMENT ID#: FYI.P.5307  
DATE: 23JAN92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Receiving the error: "Binderries have already been restored" when running UPGRADE.

#### ISSUE/PROBLEM

A situation occurred where UPGRADE was used to copy an existing NetWare v2.2 file servers' binderries to a trial v3.11 file server to see if the client liked v3.11. During the trial period the bindery objects were deleted and changed around using SYSCON. Eventually, the client wanted the v2.2 file server fully transferred to the v3.11 file server. However, when the binderries were transferred again using UPGRADE the error: "Binderries have already been restored", would be returned.

#### SOLUTION

UPGRADE creates a file in the SYS:SYSTEM directory called UPGR\$000.BMF to track the upgrade procedure. Renaming this file allowed the re-transfer of the v2.2 binderries using UPGRADE.

FYI: "Error Receiving From Network" PRINTCON.EXE

FYI

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TITLE: "Error Receiving From Network" PRINTCON.EXE  
DOCUMENT ID#: FYI.P.5127  
DATE: 07JAN92  
PRODUCT: NetWare  
PRODUCT VERSION: v2.2  
SUPERSEDES: NA

SYMPTOM: Executing PRINTCON.EXE and two other third party applications resulted in the error "Error receiving from Network".

#### ISSUE/PROBLEM

Configuration: Ethernet twisted pair, Synoptics Concentrator

Only three applications would see the problem. All other NetWare Utilities ran fine as did other applications. There were no random occurrences of the error message. It only happened when executing these files.

After checking for obvious LAN problems, and looking into file corruption, viruses, bindery problems, regenerated the OS, etc., did not fix the problem. Re-checked the LAN hardware.

#### SOLUTION

The network was using Ethernet twisted pair. The Synoptics concentrator had a bad connection. Regardless of whether the connection was cabled to a node, the error would occur if there was a cable plugged into the connection. The system works properly as long as there isn't a cable plugged into the bad connection.

FYI: "File Server Not Found" Binding IPX In AUTOEXEC.NCF  
FYI

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TITLE: "File Server Not Found" Binding IPX In  
AUTOEXEC.NCF  
DOCUMENT ID#: FYI.P.5101

DATE: 06JAN92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11  
SUPERSEDES: NA

SYMPTOM: Receiving the error: "A file server could not be found".

#### ISSUE/PROBLEM

A problem occurred when installing a large 10BaseT system with NetWare v3.11. In this case there were five other systems like this that all worked fine. (NOTE: The only difference from the other systems was that the newly installed system was a 10 user version.) Using COMCHECK worked great on server and workstation; therefore, the cabling and concentrator were fine. Went through many options to no avail.

#### SOLUTION

After running through various options to fix the problem it was discovered that IPX was not bound in the AUTOEXEC.NCF. After binding, the workstation came up fine.

Note: When receiving the error, "A File Server could not be found" in NetWare v3.1x, the first thing to check is CONFIG at the file server. CONFIG will show if IPX has been bound to the LAN card.

FYI: Changing Network Number, NetWare For VMS

FYI

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TITLE: Changing Network Number, NetWare For VMS  
DOCUMENT ID#: FYI.P.5118  
DATE: 06JAN92  
PRODUCT: NetWare for VMS

PRODUCT VERSION: v2.1  
SUPERSEDES: NA  
  
SYMPTOM: NA

#### ISSUE/PROBLEM

A situation occurred where it was desired to change the network number without reinstalling NetWare.

#### SOLUTION

In the NWVMS\$SPECIFIC directory, edit the files NW\_DEF\_CONFIG.COM (look for an entry labeled DEF\_NETWORK\_NUMBER) and NW\_LOAD\_DRV.COM (look for an entry labeled /network). Each of these two entries has a number within quotations that is the network number.

The file NW\_DEF\_CONFIG.COM is actually just a record of the configuration selected when NetWare for VMS was installed. The file does not affect the operation of NetWare for VMS. When changing the network address, the only file that requires changing is NW\_LOAD\_DRV.COM. However, it is important to change NW\_DEF\_CONFIG.COM to maintain an accurate record of the configuration of the server for future upgrade. Additionally, after changing the file NW\_LOAD\_DRV.COM, it is necessary to reload the QX (???) driver, which might involve rebooting the VAX.

FYI: Preferred Server Timeout Patch In SHELL.CFG  
FYI

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TITLE: Preferred Server Timeout Patch In SHELL.CFG  
DOCUMENT ID#: FYI.P.5109  
DATE: 06JAN92  
PRODUCT: NetWare  
PRODUCT VERSION: v3.11, v2.2  
SUPERSEDES: NA

SYMPTOM: NA

#### ISSUE/PROBLEM

In this situation a preferred server was specified in the SHELL.CFG. However, it was necessary to run NETX four times before it would get a connection. The first three attempts would yield the error: "Unknown file server."

#### SOLUTION

Applied this patch. In the SHELL.CFG put:

```
patch = 58933, 131
patch = 58934, 193
patch = 58935, 10
```

Note: When the patch was originally applied the '20' was set to '10'. However, it still took two attempts of NETX to get a connection. By increasing the buffer zone to '20' NETX could be loaded on the first try.

FYI: No Free Connection Slots Available, Turbo ISADISK  
FYI

(Note: The origin of this information may be internal or external to Novell. Novell makes every effort within its means to verify this information. However, the information provided in this document is FOR YOUR INFORMATION only. Novell makes no explicit or implied claims to the validity of this information.)

TITLE: No Free Connection Slots Available, Turbo  
ISADISK  
DOCUMENT ID#: FYI.P.5091  
DATE: 02JAN92  
PRODUCT: NetWare  
PRODUCT VERSION: v2.2  
SUPERSEDES: NA

SYMPTOM: Receiving the error message: "No free  
connection slots available".

#### ISSUE/PROBLEM

In this case there was a 50 user version running

nondedicated in a 286 machine. After pulling the controller, drive, and Thomas Conrad NIC out of the 286 and putting them in a 486 ALR POWERFLEX the nondedicated workstation was the only station that could log in. All other workstations would get the above error message, regardless of whether the nondedicated workstation was logged in.

#### SOLUTION

There was an option for TURBO ISADISK in the setup of the file server. The option was disabled and the workstations were able to get connections to the server.

FYI: Using xRestrict on a VIEW with a Restriction  
FYI

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TITLE:	Using xRestrict on a VIEW with a Restriction
DOCUMENT ID#:	FYI.A.2108
DATE:	19MAR92
PRODUCT:	XQL
PRODUCT VERSION:	2.11
SUPERSEDES:	NA
SYMPTOM:	NA

#### ISSUE/PROBLEM

What happens when a restriction is placed on a recalled VIEW that was previously defined with a restriction? The answer to this question depends on which type of XQL functions is being used.

#### SOLUTION

Suppose a VIEW is created with a restriction defined as follows:

```
CREATE VIEW V_ZIP AS
SELECT * FROM PATIENTS
WHERE ZIP = "78759"
```

With XQL Manager level calls, the statement:

```
SELECT * FROM V_ZIP
WHERE Last^Name BEGINS WITH "A"
```

will result in the new restriction being appended to the existing restriction with an AND operator. Therefore, records will be retrieved that satisfy both restrictions (ZIP = "78759" AND Last^Name will begin with "A").

Using XQL Primitives, an application would perform an xRecall of the VIEW "V\_ZIP" and then an xRestrict with the expression 'Last^Name BEGINS WITH "A"'. However, which iOption is specified on the xRestrict call will determine what the overall restriction on the view will be.

If the iOption specified in the xRestrict call is set to 1, then the new restriction will replace the previously defined restriction. If the iOption parameter is set to 0, then the new restriction will be appended to the previous restriction with an AND operator. In addition, you can also specify an iOption of 0 and precede the restriction statement with the OR operator (|| Last^Name BEGINS WITH "A"). This will cause the new restriction to be appended to the previous restriction with the OR operator.

FYI: Problem with WATCOM C/386 v9.0

FYI

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```
TITLE:          Problem with WATCOM C/386 v9.0
DOCUMENT ID#:   FYI.A.3141
DATE:          18MAR92
PRODUCT:        Network C for NLMs
PRODUCT VERSION: SDKb
SUPERSEDES:     NA

SYMPTOM:        Invalid code generation
```

## ISSUE/PROBLEM

There is a bug in the WATCOM C/386 v9.0 compiler that causes it to generate invalid code when optimizing. In the following example, TestA() works, but TestB() and TestC() both fail. All of them work if the example is compiled with C/386 v8.5.

```
#include <stdio.h>
#include <string.h>
#include <conio.h>
#include <ctype.h>

/*
compiled with /ez/d1/e99/oail/3s/fpc/w4
*/

void testB(LONG x, BYTE *name, BYTE *output);
void testA(LONG x, BYTE *name, BYTE *output);

main()
{
int i;
BYTE name[6];
BYTE output[32];
long x = 0x01020304;

strcpy(name, "PAULA");
testC(x, name, output);
for(i = 0; i < 32; i++)
printf("%.2x", output[i]);
printf("\n");

strcpy(name, "PAULA");
testB(x, name, output);
for(i = 0; i < 32; i++)
printf("%.2x", output[i]);
printf("\n");

strcpy(name, "PAULA");
testA(x, name, output);
for(i = 0; i < 32; i++)
printf("%.2x", output[i]);
printf("\n");
}
```

```

void testC(LONG x, BYTE *name, BYTE *output)
{
    BYTE    tempBuffer[32];
    WORD    index;

    memset(tempBuffer, 0, 32);
    for (index = 0; index < 32; index++)
        tempBuffer[index] ^= (((BYTE *)&x) + (index &
0x03));
    memcpy(output, tempBuffer, 32);
}

void testB(LONG x, BYTE *name, BYTE *output)
{
    BYTE    tempBuffer[32];
    WORD    index;

    memset(tempBuffer, 0, 32);
    for (index = 0; index < 32; index++)
        tempBuffer[index] ^= ((BYTE *)&x)[index & 0x03];
    memcpy(output, tempBuffer, 32);
}

void testA(LONG x, BYTE *name, BYTE *output)
{
    BYTE    tempBuffer[32];
    WORD    index;
    BYTE    *ptr;

    memset(tempBuffer, 0, 32);
    for (index = 0; index < 32; index++)
    {
        ptr = (BYTE *) &x;
        tempBuffer[index] ^= *(ptr + (index & 0x03));
    }
    memcpy(output, tempBuffer, 32);
}

```

#### SOLUTION

Use the format described in the TestA() example.

FYI: Patch for CLib v3.11 readdir() Problem



FYI

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TITLE: Patch for CLib v3.11 readdir() Problem  
DOCUMENT ID#: FYI.A.3140  
DATE: 18MAR92  
PRODUCT: Network C for NLMs  
PRODUCT VERSION: SDKb  
SUPERSEDES: NA

SYMPTOM: Server abends when readdir() made to remote  
2.x server

#### ISSUE/PROBLEM

Calling the function readdir() against a remote 2.x server abends the local server under certain circumstances. This can be reproduced by creating a directory path with many levels totaling 130 bytes.

#### SOLUTION

A patch, called CLIBP002.NLM is available which corrects this problem. It is a PATCHMAN-Compatible patch, and is on NovDev, in Library 7, under the name CLP002.ZIP. Developers can distribute this patch to their end-users, if they are using readdir() to remote 2.x servers in their applications. This patch also requires PATCH311.NLM, available in NOVLIB Library 4, under the name PAT311.ZIP.

FYI: Wildcards Passed to access()

FYI

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TITLE: Wildcards Passed to access()  
DOCUMENT ID#: FYI.A.1652  
DATE: 18MAR92  
PRODUCT: Network C for NLMs  
PRODUCT VERSION: SDKb  
SUPERSEDES: NA  
  
SYMPTOM: NA

#### ISSUE/PROBLEM

The function, access(), works with wildcards.

#### SOLUTION

Although access() is not an ANSI standard function, it is a standard function for DOS and UNIX compilers. The implementation under DOS for the major compiler manufacturers is to allow wildcards in the file specification. This is also true for the CLIB implementation. For example,

```
access("\\a*.*", ACCESS_RD);
```

will return successfully if any file exists in the root of the current directory starting with the letter 'A' and you have access to it.

FYI: NetWare 2.2 Spooler & Non-Dedicated Workstation  
FYI

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TITLE: NetWare 2.2 Spooler & Non-Dedicated  
Workstation  
DOCUMENT ID#: FYI.A.2657  
DATE: 17MAR92  
PRODUCT: NetWare C for Windows  
PRODUCT VERSION: 1.2  
SUPERSEDES:

SYMPTOM: Spooler very slow

ISSUE/PROBLEM

Problems when the spooler is active.

Apparently, if the spooler is busy printing, and the non-dedicated workstation is running an application or waiting for keyboard input, the spooler will slow down considerably, but still functions.

SOLUTION

Using the DOS int 28h Idler interrupt will permit the spooler to do its work at a normal pace. Essentially, the spooler is not using the protected mode switch that the non-dedicated workstation usually uses, thus the spooler is dependent on the application to permit it to actually run.

FYI: QMS JobType

FYI

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TITLE: QMS JobType  
DOCUMENT ID#: FYI.A.2659  
DATE: 17MAR92  
PRODUCT: NetWare C for Windows  
PRODUCT VERSION: 1.22  
SUPERSEDES: NA

SYMPTOM: JobType in JobStruct needs to be IntSwapped

ISSUE/PROBLEM

In the C-Interface for Windows, the JobType field in the JobStruct structure is not being swapped with the IntSwap() function. As an example, setting JobType to the value one will force the type to actually become 256, which is incorrect.

SOLUTION

Use the IntSwap() function on the JobType value.

FYI: Problems with VIPX 1.11

FYI

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TITLE: Problems with VIPX 1.11  
DOCUMENT ID#: FYI.A.2658  
DATE: 17MAR92  
PRODUCT: NetWare C for Windows  
PRODUCT VERSION: 1.22  
SUPERSEDES: NA

SYMPTOM: IPXCloseSocket Problems and not Cancelling  
ECBs

#### ISSUE/PROBLEM

The IPXCloseSocket function in the C-Interface for Windows 1.22 does not cancel the ECBs as is documented.

A workaround for VIPX 1.10 and the NWIPXSPX.DLL 1.30, was to explicitly cancel each ECB that was still posted using the IPXCancelEvent function. This worked fine until the VIPX 1.11 and NWIPXSPX.DLL 1.31 was introduced. The IPXCancelEvent for this version returns error 0xF9 in the ECB's status flag field.

#### SOLUTION

The recommendation at this time is to use the VIPX 1.10 and the NWIPXSPX.DLL 1.30.

FYI: LogPhysicalRecord Does Not Wait

FYI

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document is FOR YOUR INFORMATION only. Novell makes no explicit or implied claims to the validity of this information.)

TITLE: LogPhysicalRecord Does Not Wait  
DOCUMENT ID#: FYI.A.3359  
DATE: 17MAR92  
PRODUCT: Network C for NLMS  
PRODUCT VERSION: 20b  
SUPERSEDES: NA

SYMPTOM: Immediate return even though timeout specified if record locked

#### ISSUE/PROBLEM

The LogPhysicalRecord function will not wait the specified timeout if it tries to access a record previously locked by itself or another NLM. The problem is connection-oriented and does not appear if the NLM logs into a connection, rather than using the default connection zero.

#### SOLUTION

The current work-around is to login to a separate connection for each NLM. This will allow multiple NLMS to use LogPhysicalRecord against the same record and wait the specified timeout.

FYI: GetBroadcastMessage Documentation Error  
FYI

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TITLE: GetBroadcastMessage Documentation Error  
DOCUMENT ID#: FYI.A.3357  
DATE: 16MAR92  
PRODUCT: NetWare System Calls  
PRODUCT VERSION: 1.0  
SUPERSEDES: NA

SYMPTOM: Workstation hang.

#### ISSUE/PROBLEM

The NetWare System Calls - DOS, version 1.00, states that the maximum length that can be returned for any given message is 55 bytes. This is incorrect. The maximum length that can be returned is 58 bytes, including the NULL terminator.

#### SOLUTION

Increase the maximum message reply size to 58 bytes. This increases the overall reply buffer size to 61 bytes.

FYI: GetBroadcastMessage Code Error

FYI

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TITLE: GetBroadcastMessage Code Error  
DOCUMENT ID#: FYI.A.3358  
DATE: 16MAR92  
PRODUCT: NetWare C Interface DOS  
PRODUCT VERSION: 1.2  
SUPERSEDES: NA

SYMPTOM: Workstation Hang

#### ISSUE/PROBLEM

The NetWare C Interface - DOS, version 1.20, GetBroadcastMessage function only expects messages of 55 bytes or less to be returned. However, broadcast messages up to 58 bytes may be returned from the server console. A long message corrupts system memory and may cause a workstation hang.

#### SOLUTION

Modify the source to the GetBroadcastMessage function in the BROADCAST.C source files as follows:

Old:

```
int GetBroadcastMessage(messageBuffer)
char *messageBuffer;
{
    char sendBuf[3], replyBuf[58];
    int len, ccode;

    *((int *)sendBuf) = 1;
    sendBuf[2] = (char) 1;
    *((int *)replyBuf) = 56;
    replyBuf[2] = (char)55;
    ccode = _ShellRequest((BYTE)0xE1, (BYTE *)sendBuf, (BYTE
*)replyBuf);
    if (ccode)
        return (ccode);
    len = (int)replyBuf[2];
    memmove(messageBuffer, replyBuf + 3, len);
    messageBuffer[len] = 0;
    return (0);
}
```

New:

```
int GetBroadcastMessage(messageBuffer)
char *messageBuffer;
{
    char sendBuf[3], replyBuf[61];
    int len, ccode;

    *((int *)sendBuf) = 1;
    sendBuf[2] = (char) 1;
    *((int *)replyBuf) = 59;
    replyBuf[2] = (char)58;
    ccode = _ShellRequest((BYTE)0xE1, (BYTE *)sendBuf, (BYTE
*)replyBuf);
    if (ccode)
        return (ccode);
    len = (int)replyBuf[2];
    memmove(messageBuffer, replyBuf + 3, len);
    messageBuffer[len] = 0;
    return (0);
}
```

FYI: Long Function Names

FYI

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TITLE: Long Function Names  
DOCUMENT ID#: FYI.A.3835  
DATE: 16MAR92  
PRODUCT: Network C for NLMS  
PRODUCT VERSION: SDKb  
SUPERSEDES: NA

SYMPTOM: Long Names cause Internal Compiler Error 5 in  
WATCOM v8.5

#### ISSUE/PROBLEM

If an application's function names are more than 80 characters long, WATCOM C/386 Compiler v8.5 issues an Error 5: Internal Compiler Error, and the program is not compiled. In the 9.0 version of the compiler, function names can be greater than 80 characters but only if the program is not compiled with any debugging information (without /d2).

#### SOLUTION

Right now there is no solution for this problem.

FYI: Brequest Hangs If No Network Connection Established

FYI

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TITLE: Brequest Hangs If No Network Connection  
Established  
DOCUMENT ID#: FYI.A.1746  
DATE: 13MAR92  
PRODUCT: NetWare Btrieve NLM  
PRODUCT VERSION: 5.15  
SUPERSEDES: NA  
  
SYMPTOM: Workstation hangs when loading Brequest

#### ISSUE/PROBLEM

Attempting to load BREQUEST.EXE v5.16 on a workstation that does not have a network connection will hang the workstation.

#### SOLUTION

Make sure the network shell is loaded before attempting to load Brequest. When loading Brequest from the AUTOEXEC.BAT file, check the DOS ERRORLEVEL after loading the network shell. If it is set, do not load Brequest. For example:

```
SET B_LOAD=YES  
IPX  
NETX  
IF ERRORLEVEL 1 SET B_LOAD=NO  
...  
IF %B_LOAD% == YES BREQUEST /D:8192  
SET B_LOAD=  
...
```

FYI: Specifying Server Name And Volume Name in BLOG.CFG  
FYI

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TITLE: Specifying Server Name And Volume Name in  
BLOG.CFG

DOCUMENT ID#: FYI.A.3015  
DATE: 12MAR92  
PRODUCT: NetWare Btrieve NLM  
PRODUCT VERSION: 5.15  
SUPERSEDES: NA  
  
SYMPTOM: BROLLFWD error: Cannot find log file

#### ISSUE/PROBLEM

If the BLOG.CFG file contains ServerName\VolumeName to specify the path to the log file used by BROLLFWD, BROLLFWD will return the error message "Cannot find log file". For example, if BLOG.CFG contains:

```
\TestDir\FileName=ServerName\VolumeName:\TestDir\LogFile
```

BROLLFWD will not be able to find the log file. However, if a drive letter is specified instead of ServerName and VolumeName, BROLLFWD works correctly.

#### SOLUTION

Use a drive letter to specify the path to the log file.

FYI: maxECBs in Windows IPXInitialize()  
FYI

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TITLE: maxECBs in Windows IPXInitialize()  
DOCUMENT ID#: FYI.A.3834  
DATE: 05MAR92  
PRODUCT: Network C for Windows  
PRODUCT VERSION: v.1.2  
SUPERSEDES: NA  
  
SYMPTOM: Unrecoverable Application Error in Windows

## ISSUE/PROBLEM

In Windows Enhanced mode, passing 0 for maxECB parameter in the IPXInitialize() function, and then managing the allocation of ECBs in low memory results in a UAE (Unrecoverable Application Error).

## SOLUTION

In Windows Enhanced mode, passing 0 for maxECBs is allowed only for compatibility with the Standard mode. That is, specifying 0 for the maxECB parameter will be ignored, and VIPX will do the managing of allocation of ECBs. However, in Standard mode, the application has the option of passing 0 for the maxECBs and then the application may allocate its own ECBs.

FYI: Btrieve DATE Data Type and BASIC  
FYI

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TITLE: Btrieve DATE Data Type and BASIC  
DOCUMENT ID#: FYI.A.2110  
DATE: 04MAR92  
PRODUCT: Btrieve  
PRODUCT VERSION: ALL  
SUPERSEDES: NA  
  
SYMPTOM: NA

## ISSUE/PROBLEM

Developing Btrieve applications with Microsoft BASIC PDS 7.X or Visual Basic v1.0, the Btrieve DATE data type is required if sorting on a date field.

## SOLUTION

The Btrieve documentation describes the DATE data type field

as being stored internally as a 4-byte value. The day and month are each stored in 1-byte binary format. The year is stored as a 2-byte integer value. The day is in the first byte, the month in the second byte, and the year is a two byte word following the month.

In order to match this key type in a BASIC application, create a structure using the user-defined TYPE and END TYPE statements.

```
TYPE Date
    Day      AS STRING * 1
    Month    AS STRING * 1
    Year     AS INTEGER
END TYPE
```

```
DIM Birthdate AS Date -----> Name the structure using the
DIM                                     statement for BASIC PDS 7.X
```

```
Global Birthdate AS Date ----> Name the structure using the
Basic v1.0                                     Globalstatement for Visual
```

Assign values to these variables using the MKI\$ and the CHR\$ functions. Since the day and month variables need to be stored as a 1 byte string, the integer values must be converted to string values using the MKI\$ or CHR\$ function.

```
Birthdate.Day    = MKI$(20)                Birthdate.Day
= CHR$(20)
Birthdate.Month  = MKI$(6)                  OR    Birthdate.Month
= CHR$(6)
Birthdate.Year   = 1999                    Birthdate.Year
= 1999
```

The MKI\$ function converts a 2-byte integer to a 2-byte string. The CHR\$ function converts a decimal value to its equivalent ASCII character.

Since the day and month variables will never exceed 255, only the low-order byte is being manipulated. Either function will store the same value.

NOTE: Visual Basic v1.0 does not support the MKI\$ function, therefore,  
the CHR\$ function must be used instead.

Once these values have been inserted into the Btrieve file, the same birthdate structure can be used as a key buffer parameter to retrieve the data with a GET operation. Once the record is returned into the birthdate structure, the day and month variables need to be converted back to their numeric values.

```
CALL BTRVFAR(GETFIRST%, PosBlk$, VARPTR(DataBuffer),  
VARSEG(DataBuffer),_  
BufLen%, BirthDate, KeyNum%) ---> For PDS 7.X
```

```
Status%=BTRCALL(GETFIRST%, PosBlk$, DataBuffer, BufLen%,  
BirthDate,  
KeyBufLen%, KeyNum%) ----> For Visual Basic  
1.0
```

The conversion can be accomplished with the ASC function which returns the numeric value of the equivalent ASCII character.

```
Day% = ASC(Birthdate.Day)  
Month% = ASC(Birthdate.Month)  
Year% = Birthdate.Year
```

FYI: SPXEstablishConnection

FYI

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```
TITLE: SPXEstablishConnection  
DOCUMENT ID#: FYI.A.2656  
DATE: 02MAR92  
PRODUCT: Network C for Windows  
PRODUCT VERSION: 1.22  
SUPERSEDES: NA  
  
SYMPTOM: NA
```

ISSUE/PROBLEM

Just a reminder: (SPX Communications)

When SPXEstablishConnection is being called and an ESR is being used, it may fire prior to the function completing. On faster machines this is very likely, but on slower machines the function may complete, and the ESR will fire afterwards. If a developer codes an ESR with special control features it may work differently depending on the speed of the processor.

In addition, the IPXWorkspace in the connection ECB is not completed until SPXListenForSequencePacket APIs are used. It is not completed for SPXEstablishConnection.

SOLUTION

NA

FYI: Sockets: Long or Short Lived???

FYI

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TITLE: Sockets: Long or Short Lived???

DOCUMENT ID#: FYI.A.2655

DATE: 02MAR92

PRODUCT: Network C for Windows

PRODUCT VERSION: 1.22

SUPERSEDES: NA

SYMPTOM: NA

ISSUE/PROBLEM

If an SPX communication oriented TSR, or application that spawns another application is being written, it must open sockets as LONG LIVED. This ensures that the socket will not be automatically closed when the first EOJ (End Of Job) is sent to the server. SHORT LIVED sockets are automatically closed on the first EOJ.

SOLUTION

NA

FYI: Additional Status Codes Possible on Update Operation  
FYI

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TITLE: Additional Status Codes Possible on Update  
Operation  
DOCUMENT ID#: FYI.A.2342  
DATE: 02MAR92  
PRODUCT: NetWare Btrieve NLM  
PRODUCT VERSION: 5.15  
SUPERSEDES: NA  
  
SYMPTOM: Status 54 or Status 43 returned on an Update.

#### ISSUE/PROBLEM

There are situations where a Btrieve Update operation might return a status 54 'Variable Page Error' or status 43 'Invalid Data Record Address'. The following scenario describes one such circumstance using NetWare Btrieve (NLM or VAP):

Workstation 1 has accessed a file from within a transaction, resulting in a file-level lock.

Workstation 2 is reading records from the same file, and wants to update a record that was inserted or updated by workstation 1 within the transaction.

If workstation 2 reads this record to be updated, but then workstation 1 aborts the transaction, workstation 2 will receive the following non-zero status codes when issuing the update operation:

if the records are variable length --> status 54  
if the records are NOT variable length --> status 43

#### SOLUTION

NA

FYI: Watcom Compiler Switch /oaxt

FYI

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TITLE: Watcom Compiler Switch /oaxt  
DOCUMENT ID#: FYI.A.3833  
DATE: 02MAR92  
PRODUCT: WATCOM C Compiler  
PRODUCT VERSION: 8.5  
SUPERSEDES: NA  
  
SYMPTOM: NA

#### ISSUE/PROBLEM

If a program is compiled with Watcom C/286 compiler and the /oaxt switch was used for optimization, the program will not work. If the /oaxt switch is not used, the program will work.

#### SOLUTION

There is a problem with the /oaxt switch. The Data Segment does not get updated correctly, and incorrect code will be produced.

The /oaflt and /s switches can be used instead.

This problem does not exist in version 9.0 of the compiler.

FYI: Btrieve and DOS 5.0

FYI

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TITLE: Btrieve and DOS 5.0  
DOCUMENT ID#: FYI.A.2506  
DATE: 28FEB92  
PRODUCT: Btrieve DOS  
PRODUCT VERSION: 5.10a  
SUPERSEDES: NA

SYMPTOM: Dos file handles remain open

#### ISSUE/PROBLEM

If Btrieve is loaded using a C spawn function after DOS files have been opened, the handles for the DOS files are not released when the files are closed and the program terminates. This does NOT happen if:

- a version of DOS earlier than 5.0 is used
- or - if Btrieve is loaded before going into the application
- or - if Btrieve is loaded using a system call
- or - if Share is loaded

#### SOLUTION

NA

FYI: Repeated SELECT Statement Returns Inaccurate Data  
FYI

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TITLE: Repeated SELECT Statement Returns Inaccurate Data  
DOCUMENT ID#: FYI.A.1027  
DATE: 28FEB92  
PRODUCT: NetWare SQL 386 NLM  
PRODUCT VERSION: 2.11  
SUPERSEDES: NA

SYMPTOM: Different data returned when statement

executed twice.

#### ISSUE/PROBLEM

A SELECT statement with an ORDER BY clause using non-indexed fields returns inconsistent data. The first time the statement is executed the appropriate data is returned. Subsequent executions of the same statement only return a portion of the data, which seemed to be the last records retrieved during the first execution of the statement.

#### SOLUTION

NA

FYI: DR DOS problems

FYI

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TITLE: DR DOS problems  
DOCUMENT ID#: FYI.A.1029  
DATE: 28FEB92  
PRODUCT: DR DOS  
PRODUCT VERSION: 6.0  
SUPERSEDES: NA  
  
SYMPTOM: NA

#### ISSUE/PROBLEM

There are several patches available for DR DOS version 6.0 which fix a wide variety of problems. Anyone using DR DOS v6.0 should get and apply these patches.

#### SOLUTION

Patches may be acquired in several ways:

1. download the patches from their CompuServe Forum called

DRFORUM;

2. request patches via mail by calling Digital Research directly at 408-646-6464;

3. request patches via mail by faxing Digital Research at 408-649-8209.

FYI: Sparse Files on NetWare 3.x

FYI

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TITLE: Sparse Files on NetWare 3.x  
DOCUMENT ID#: FYI.A.1031  
DATE: 28FEB92  
PRODUCT: Btrieve  
PRODUCT VERSION: ALL  
SUPERSEDES: NA

SYMPTOM: Btrieve file size larger than the disk volume size

#### ISSUE/PROBLEM

A problem has been seen where a Btrieve file appears to be many times larger than the actual hard disk size. A DIR on this file showed the file size to be in excess of 400 megabytes, even though the hard disk was only 150 megabytes in size. This occurred under NetWare 386 version 3.11 using the Btrieve NLM version 5.15 patched up to #49. This phenomenon occurs when NetWare creates a sparse file, which causes a DIR to show a size much larger than what was actually allocated.

The Btrieve application had been running successfully for several months with no problems, but recently several new workstations had been installed on the ethernet network. Also, several different shell versions were being used, up to but not including the latest version (3.22a). What caused the Btrieve

file to become a sparse file was not determined, but a Butil -  
Recover followed by a Butil -Load successfully rebuilt the file,  
after which, the sparse file was deleted.

FYI: PressAnyKeyToContinue Displays Wrong Message  
FYI

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TITLE: PressAnyKeyToContinue Displays Wrong Message  
DOCUMENT ID#: FYI.A.4111  
DATE: 26FEB92  
PRODUCT: Network C for NLMs  
PRODUCT VERSION: SDKb  
SUPERSEDES: NA  
  
SYMPTOM: NA

#### ISSUE/PROBLEM

The PressAnyKeyToContinue() displays the message <Press any  
to continue> rather than <Press any key to continue>.

#### SOLUTION

NA

FYI: Number of NLM Connections  
FYI

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to Novell. Novell makes every effort within its means to verify  
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TITLE: Number of NLM Connections  
DOCUMENT ID#: FYI.A.1651  
DATE: 26FEB92  
PRODUCT: NetWare Operating System  
PRODUCT VERSION: 3.11  
SUPERSEDES: NA  
  
SYMPTOM: NA

#### ISSUE/PROBLEM

How many NLM connections are supported for each "flavor" of NetWare v3.11?

#### SOLUTION

Each "flavor" of NetWare 3.11 (1 user, 100 user, etc.) supports exactly 100 NLM connections, even though the number of remote connections varies.

FYI: WHEREIS.C Does Not Support Multiple Volumes  
FYI

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TITLE: WHEREIS.C Does Not Support Multiple Volumes  
DOCUMENT ID#: FYI.A.3356  
DATE: 26FEB92  
PRODUCT: Network C for NLMs  
PRODUCT VERSION: 2.0b  
SUPERSEDES: NA  
  
SYMPTOM: Specified file is not found.

#### ISSUE/PROBLEM

The WHEREIS NLM example in the 2.0b Network C For NLMs SDK does not support volumes other than SYS. In other words, it will not search other volumes for files, even if a different volume is

specified.

#### SOLUTION

Make the following code changes to the dowhereis() function in the WHEREIS NLM and recompile.

##### Before Modifications:

```
void    dowhereis(char *s)
{
    // startup the recursive file find operation

    findit(both);
    chdir(dir);
}
```

##### After Modifications:

```
void    dowhereis(char *s)
{
    // startup the recursive file find operation

    chdir(fsv);
    findit(both);
}
```

This change will force the current working directory to be the volume specified when the file specification was issued.

FYI: GetVolumeInfoWithNumber() Returns LONGs Instead of WORDs  
FYI

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TITLE: GetVolumeInfoWithNumber() Returns LONGs  
Instead of WORDs  
DOCUMENT ID#: FYI.A.3139  
DATE: 26FEB92  
PRODUCT: Network C for NLMs  
PRODUCT VERSION: SDKb  
SUPERSEDES: NA

SYMPTOM: The GetVolumeInfoWithNumber() function is returning LONGs instead of WORDs.

#### ISSUE/PROBLEM

The GetVolumeInfoWithNumber() function is returning LONGs instead of WORDs. This can cause corruption of your data areas in your NLM, depending on how you defined the original variables. This is only true when making this call to the local server, as everything is handled properly on remote calls.

#### SOLUTION

Define the parameters as LONGs, and cast the pointer to WORD \* when you make this function call. If you initialize the parameters to zero first, then this should work regardless of whether the call is made to a local or remote server.

FYI: Creating Basic Quick Libraries For Btrieve Interfaces  
FYI

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TITLE: Creating Basic Quick Libraries For Btrieve Interfaces  
DOCUMENT ID#: FYI.A.2109  
DATE: 26FEB92  
PRODUCT: Btrieve for DOS  
PRODUCT VERSION: ALL  
SUPERSEDES: NA  
  
SYMPTOM: NA

#### ISSUE/PROBLEM

When developing Btrieve applications using Microsoft QuickBasic version 4.X or 7.X using the QuickBasic interpreter environment, a Quick Library must be created which includes the required Btrieve interface.

SOLUTION

For Microsoft PDS 7.X:

```

                                |--> Name of Quick Library
                                |
Link /q bc7rbtrv.obj, bc7.qlb, , qbx.lib qbxqlb.lib;
                                |
                                |--> Btrieve Interface      |--> Required
Libraries
```

To load the QuickBasic environment to include the newly created Quick Library execute the following command:

```
QBX /L BC7
```

For Microsoft QuickBasic 4.X:

```

                                |--> Name of Quick Library
                                |
Link /q qbixbtrv.obj, bc4.qlb, , bqlb4X.lib;
                                |
                                |--> Btrieve Interface      |--> Required
Libraries
```

X = 5 for QB4.5

X = 0 for QB4.0

To load the QuickBasic environment to include the newly created Quick Library execute the following command:

```
QB /L BC4
```

FYI: Bconsole Out of Memory Problem

FYI

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TITLE: Bconsole Out of Memory Problem  
DOCUMENT ID#: FYI.A.3355  
DATE: 25FEB92  
PRODUCT: NetWare Btrieve NLM  
PRODUCT VERSION: 5.15  
SUPERSEDES: FYI.A.3006  
  
SYMPTOM: CreatePortal returned error -2

#### ISSUE/PROBLEM

(The following information is an addendum to FYI.A.3006.)

Bconsole returns the above error when more than thirteen files are opened on multiple workstations. The complete description of the error message is "The system was unable to allocate additional memory". This message is received when the user attempts to view the list of open files for a specific user. The message will only be received when attempting to view users who have more than thirteen files opened. If only one user has more than thirteen files open the message is not displayed and program execution continues normally.

#### SOLUTION

This problem has been reported. Currently the only work-around is to use the Bconsole NLM.

FYI: readdir() Abends When Used Against Remote 2.x Server  
FYI

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TITLE: readdir() Abends When Used Against Remote 2.x  
Server  
DOCUMENT ID#: FYI.A.3138  
DATE: 21FEB92  
PRODUCT: Network C for NLMs

PRODUCT VERSION: SDKb  
SUPERSEDES: NA

SYMPTOM: Server abend

#### ISSUE/PROBLEM

There is a problem with the readdir() function in CLib 3.11 and PATCH311.NLM. If it is used against a remote 2.x server, the local server may abend.

#### SOLUTION

There is currently no solution.

FYI: CLIB Documentation Error

FYI

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TITLE: CLIB Documentation Error  
DOCUMENT ID#: FYI.A.3832  
DATE: 20FEB92  
PRODUCT: Network C for NLMs  
PRODUCT VERSION: SDKb  
SUPERSEDES: NA

SYMPTOM: NA

#### ISSUE/PROBLEM

In the NetWare Loadable Module Library Reference Volume I, page 3-8 under the description of compiler option /3s, it mentions that stack-based parameter passing is the compiler default. This is not true.

#### SOLUTION

Register based parameter passing (switch /3r) is the compiler default for the Watcom 32 bit compiler.

FYI: NetWare Technical Overview

FYI

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TITLE: NetWare Technical Overview  
DOCUMENT ID#: FYI.A.3831  
DATE: 11FEB92  
PRODUCT: Network C for Windows  
PRODUCT VERSION: 1.22  
SUPERSEDES: NA  
  
SYMPTOM: NA

#### ISSUE/PROBLEM

The index for NetWare C Interface for Windows has references to the NetWare System Interface Technical Overview. However, the Technical Overview is not part of the NetWare C Interface for Windows SDK.

#### SOLUTION

The Technical Overview comes with NetWare C Interface for DOS, or it can be purchased separately by calling 800-RED-WORD.

FYI: NetBios Documentation Error

FYI

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TITLE: NetBios Documentation Error  
DOCUMENT ID#: FYI.A.2935

DATE: 11FEB92  
PRODUCT: NetWare OS/2 SDK  
PRODUCT VERSION: 1.3a  
SUPERSEDES: NA  
  
SYMPTOM: NA

#### ISSUE/PROBLEM

The documentation for the OS/2 SPX section specifies the wrong SPX return codes for the following functions:

```
SpxAbortConnection()  
SpxCancelPacket()  
SPXEstablishConnection()  
SpxEstablishConnection2()  
SpxGetConfiguration()  
SpxGetConnectionStatus()  
SpxGetConnectionStatus()  
SpxListenForConnection()  
SpxListenForConnection2()  
SpxListenForConnectionPacket()  
SpxSendSequencePacket()  
SpxTerminateConnection()
```

The documentation specifies that the above SPX function calls return "0x3000 SPX\_SUCCESSFUL". This return code should be "0x0000 SPX\_SUCCESSFUL" instead. There is no way for an SPX function to return successful with 0x3000 as the return code. The documentation should specify that the "0x3000" return code is for the ECB's completion code and not for the SPX function completion code.

#### SOLUTION

NA

FYI: Communications and VIPX.386 1.1

FYI

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TITLE: Communications and VIPX.386 1.1  
DOCUMENT ID#: FYI.A.2654  
DATE: 11FEB92  
PRODUCT: NetWare C Interface for Windows  
PRODUCT VERSION: 1.22  
SUPERSEDES: NA

SYMPTOM: Machine hangs

#### ISSUE/PROBLEM

Using VIPX version 1.1 may cause the machine to hang as a result of calling the IPXCancelEvent function. This results from a problem involving a circular ECB list that is posted to IPX via VIPX.

#### SOLUTION

There is no workaround available at this time.

FYI: Multiple Threads Using The Same Socket  
FYI

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TITLE: Multiple Threads Using The Same Socket  
DOCUMENT ID#: FYI.A.2936  
DATE: 11FEB92  
PRODUCT: NetWare OS/2 SDK  
PRODUCT VERSION: 1.3a  
SUPERSEDES: NA

SYMPTOM: NA

#### ISSUE/PROBLEM

It is important to note that OS/2 and NetWare 3.x are both

connection based operating systems, as opposed to the DOS operating system, which is socket based. Under DOS, different processes should not use the same socket number. The same rules apply under the OS/2 operating system, except when generating multiple threads under OS/2. Multiple threads can share the same socket number, but each thread has its own connection number. The main thread will open the socket once, and the rest of the threads will just use the socket. SPX under OS/2 distinguishes the sending and receiving of packets for multiple threads using the same socket. Also, it is important to note that all of the packets under the OS/2 environment are received in the same order they are sent, since the OS/2 operating system set them up in a queue.

#### SOLUTION

NA

FYI: Incorrect Grace Login Message Displayed on Macintosh Workstation

FYI

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TITLE: Incorrect Grace Login Message Displayed on Macintosh Workstation

DOCUMENT ID#: FYI.W.0107

DATE: 26MAR92

PRODUCT: NetWare for Macintosh

PRODUCT VERSION: v3.x

SUPERSEDES: NA

SYMPTOM: User logging in from a Macintosh workstation receives a message that their password has expired and that they have 255 grace logins remaining. The 255 grace login number does not increment as the user keeps logging in.

#### ISSUE/PROBLEM

The AFFFIX3.NLM allows Macintoshes to receive a notification message when a grace login is used. When using the AFFFIX3.NLM

patch on the File Server, this error will occur with the Force Periodic Password Changes option in Syscon-Account Restrictions set to YES, but the Limit Grace Logins options set to NO. When the password expiration date arrives, NetWare for Macintosh displays this incorrect message saying there 255 grace logins remaining when in fact the Limit Grace Logins option has been turned off.

#### SOLUTION

Disregard the 'Grace Login' portion of the error message. Or set the 'Limit Grace Logins' option in Syscon-Account Restrictions to YES, and NetWare for Macintosh will display the correct number of grace logins remaining.

FYI: Atalk error message

FYI

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TITLE: Atalk error message  
DOCUMENT ID#: FYI.W.0106  
DATE: 25MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: v3.01  
SUPERSEDES: NA

SYMPTOM: A customer noticed the following error message in their system error log, "Atalk warning: severity 1, 0XFE Bad dst socket"

#### ISSUE/PROBLEM

This error indicates that an application tried to send a packet to an illegal DDP destination socket, 0XFE which is socket 254. In our implementation of the Appletalk stack, socket 254 is illegal. Possibly an application could not find an open socket and just happened to pick socket 254.

#### SOLUTION

This should be a rare error message and since the severity was 1, which is only a warning, it is nothing to worry about.

FYI: FINDER block size algorithmns and file size statistics  
FYI

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TITLE: FINDER block size algorithmns and file size statistics  
DOCUMENT ID#: FYI.W.0103  
DATE: 24MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: v3.x  
SUPERSEDES: NA

SYMPTOM: The Macintosh FINDER does not accurately report file/folder sizes for NetWare file server resident files/folders.

#### ISSUE/PROBLEM

This problem is caused by the block size allocation algorithm used by FINDER and how it differs from NetWare's method of determining the same information. NetWare allows the user to configure block sizes in the installation procedure (4k, 16k, etc...). Once this parameter has been set, a table is constructed which lists each file/folder and the disk space occupied by the file/folder. The number of entries in this table is dependent on the number files/folders on the volume, the block size (which is user configured) and the size of the volume. The Macintosh operating system uses a different algorithm. FINDER employs a fixed number (64k) of entries in it's file system table (called a BIT MAP TABLE). Therefore, the block size is largely dependent on the volume size. For example, the FINDER would AUTOMATICALLY divide a 640meg hard drive into 65,536 10k storage blocks. However, NetWare allows the USER to specify a 4k (or 16k, 32k, etc...) block size at system installation.

This means that the Macintosh's FINDER has no accurate method for determining block size (and thus file/folder size) on a NetWare volume. Therefore, a file's/folder's reported volume



space occupation statistics may diverge widely between the two platforms (Macintosh and native NetWare or DOS). In other words, one may save a 1k MS WORD file to the NetWare server, only to have the FINDER window report the size as 10k. One may use the GET INFO utility to find the accurate file size. Reported will be the actual file size (in parenthesis) and the occupied volume space. The file size is accurate while the occupied volume space statistic is incorrect because of the reasons reported above. On the other hand, the NetWare NDIR and FILER utilities will report the file size as 1k and will also indicate how many blocks (and bytes in the block(s)) have been used. Assuming the NetWare volume was configured to use 4k block sizes, this 1k file would occupy a single 4k block. Therefore, the NDIR and FINDER utilities should be relied on to return ACCURATE file sizes and occupied volume spaces for all files and folders on the NetWare file server's volume(s).

#### SOLUTION

If truly accurate file size statistics are needed, use either the NDIR or FILER utility. The Macintosh FINDER cannot accurately determine this information. This is the only "solution" to this "problem." In short, the differences in file sizes reported by FINDER and NDIR or FILER are direct results of the differences in file system algorithms used by the Macintosh and NetWare.

FYI: A PostScript error "NOSTRINGVAL" is generated when printing through the ATPS queue from a Macintosh client.

FYI

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TITLE: A PostScript error "NOSTRINGVAL" is generated when printing through the ATPS queue from a Macintosh client.

DOCUMENT ID#: FYI.W.0104

DATE: 24MAR92

PRODUCT: NetWare for Macintosh

PRODUCT VERSION: v2.x and v3.x

SUPERSEDES: NA

SYMPTOM: When printing from a Macintosh (with 5.2 LaserPrep) to a queue attached to a LaserWriter IIG, a "NOSTRINGVAL" PostScript error was reported on the banner page at the printer. The print job fails. If the printer was printed to directly it worked fine. And after that, one could print through the queue. If the printer was re-started, the same failure occurred. We had to send the job directly to the LaserWriter IIG before the queue would work.

#### ISSUE/PROBLEM

The dictionary (or server resident LaserPrep) file had somehow been corrupted.

#### SOLUTION

After deleting the \*.PRS file from the SYS:SYSTEM\ATPS, power-cycling the printer, and then re-sending a print job (so the \*.PRS was re-created) all printed fine. Even after re-starting the printer (so the LaserPrep had to be downloaded by ATPS) the printing worked as needed. For the future we have devised a brute force method for fixing this problem: Create a SYS:SYSTEM\PRINTER.BAT which contains a single line that deletes the SYS:SYSTEM\ATPS\\*.PRS. Create a SYS:\SYSTEM\PRINTER.NCF to UNLOAD and LOAD ATPS.NLM. If the problem occurs again, verify the queues are not in use, and no jobs are waiting to be serviced. Then, invoke PRINTER.BAT to delete the dictionary (\*.PDF) files. PRINTER.NCF can be invoked from the server console prompt. Finally, re-start the printer and send a print job (from a Macintosh) through the NetWare queue so the \*.PRS file gets created.

FYI: DIABLO 630 EMULATION is not supported by the IIG and IIF LaserWriters

FYI

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TITLE: DIABLO 630 EMULATION is not supported by the IIG and IIF LaserWriters  
DOCUMENT ID#: FYI.W.0102

DATE: 24MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: 2.x and 3.x  
SUPERSEDES: NA

SYMPTOM: The Apple LaserWriter IIG and IIF light flashes, but no job emerges from the printer when the job has been sent from the DOS workstation. In this scenario, a print job has been configured to use the DIABLO 630 EMULATION MODE.

#### ISSUE/PROBLEM

The new LaserWriter IIGs and IIFs do not support DIABLO 630 emulation. Apparently this functionality will be added in subsequent ROM versions, but the time table is not know for that addition.

#### SOLUTION

As a workaround, use the POSTTEXT MODE in the print job configuration. Appropriate PDF files are located on NetWare under NOVLIB 8 The file name is PDF.ZIP. These print devices are also bundled with the 3.01 NetWare for Macintosh product. Both the APLASER2.PDF and PSTSCRPT.PDF printer definition files provide the POSTTEXT MODE in the print job configuration (PRINTCON) utility.

FYI: Finder imposed volume size limitations

FYI

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TITLE: Finder imposed volume size limitations  
DOCUMENT ID#: FYI.W.0105  
DATE: 24MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: v3.x  
SUPERSEDES: NA

SYMPTOM: The Macintosh cannot save file(s)/folder(s) to the NetWare server because the volume is reportedly out of

space. But it is known that there is plenty of space on this LARGE volume. Furthermore, other absurd file statistics (like negative file sizes) are reported by the Macintosh FINDER.

#### ISSUE/PROBLEM

The problem appears to be caused by the fact that FINDER treats a volume parameter variables as a SIGNED LONG INT. This variable type has 2k billion (2 gig) unique values. So, one can thus uniquely identify 2 trillion different volume sizes (from 1 byte to 2 gigabytes). Therefore, larger volumes (for example, 2.00001 gigabytes) cannot be uniquely identified, so the Macintosh FINDER reports absurd file system statistics when dealing with volumes of this size. Block size algorithms may further reduce this 2 gig volume size limit. Volumes as small as 1.3 gigabytes may have similar problems, but these reports have not been verified in the laboratory.

#### SOLUTION

At this point there is only one solution to this problem: NetWare volumes that will support Macintosh users should not exceed 2 gigabytes in size. To avoid all questions of this nature, volume sizes should not exceed 1.3 gigabytes. If the volume sizes are over 2 gigabytes, the user must reduce the volume size to eliminate this problem. This is a problem in the Macintosh FINDER.

FYI: AppleTalk Print Server Cannot Attach to a 'Hidden'  
LaserWriter

FYI

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TITLE: AppleTalk Print Server Cannot Attach to a  
'Hidden' LaserWriter  
DOCUMENT ID#: FYI.W.0101  
DATE: 23MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: v2.x  
SUPERSEDES: NA

SYMPTOM: When APSVAP (the Macintosh Print Services VAP) tries to attach to a LaserWriter IINT, an error message occurs 'Printer type does not match queue type.' This error occurs even when the queue type has been selected correctly as 'LASERNT,' either in MacSetup or using the file server console ATTACH command. The LaserWriter IINT also shows up as 'running off-line servicing 0 queues.' However, Macintosh users can see the printer from the Chooser and can also print to it directly by bypassing the NetWare print queue.

#### ISSUE/PROBLEM

Check to see if Apple's AppleShare Print Server program is running on an AppleShare server elsewhere on the network. The AppleShare Print Server program changes the LaserWriter IINT's NBP type to LaserShared (thus making it 'hidden' from users) and advertises its AppleShare spooler with the same name that the LaserWriter IINT had previously. The Macintosh users are actually printing to the AppleShare spooler even though it appears with the same name as the LaserWriter IINT printer. When APSVAP tries to attach to what it thinks is a LaserWriter IINT (but is really the AppleShare spooler), it receives incorrect information about the printer type and fails to attach.

#### SOLUTION

If it's not needed, delete/remove the AppleShare queue using the AppleShare Print Server program, and reboot the LaserWriter IINT to return the printer to its regular NBP type of 'LaserWriter'.

FYI: ATPSHIDE command

FYI

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TITLE: ATPSHIDE command  
DOCUMENT ID#: FYI.W.0098  
DATE: 19MAR92  
PRODUCT: NetWare for Macintosh

PRODUCT VERSION: v3.01  
SUPERSEDES: NA

SYMPTOM: ATPSHIDE command returns the error ATPS:  
invalid printer/spooler name < printer name > when trying to hide  
a printer.

#### ISSUE/PROBLEM

The customer was trying to hide the printer with the  
following command, ATPSHIDE "LaserWriter Plus". The above error  
was returned every time. The ATPSHIDE command will not allow the  
use of double quotes around a printer name.

#### SOLUTION

Do not put quotes around the printer name when using the  
ATPSHIDE command even if the printer name has spaces in it.

FYI: ATPS and QMS PS 410 and QMS PS 815 Printers  
FYI

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TITLE: ATPS and QMS PS 410 and QMS PS 815 Printers  
DOCUMENT ID#: FYI.W.0094  
DATE: 17MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: 3.0 and 3.01  
SUPERSEDES: NA

SYMPTOM: QMS PS 410 and PS 815 LaserWriter printers  
might drop off the network when connected via LocalTalk. ATPS,  
if loaded with the verbose option, will encounter: "Can't find  
printer:Retrying" messages.

#### ISSUE/PROBLEM

There is a problem with some units of these popular laser  
printers, where they might unexpectedly drop off the network when

used over AppleTalk.

#### SOLUTION

QMS has eliminated this AppleTalk problem on currently shipping units and that users of an older PS 410 and PS 815 with this problem can request a corrected ROM from QMS technical support at 205-633-4500.

FYI: 3720 LAN Workstation for Macintosh and Printing

FYI

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TITLE: 3720 LAN Workstation for Macintosh and  
Printing  
DOCUMENT ID#: FYI.W.0093  
DATE: 17MAR92  
PRODUCT: 3270 LAN Workstation for Macintosh  
PRODUCT VERSION: 1.0  
SUPERSEDES: NA

SYMPTOM: Trying to print to a locally attached printer might not work. Symptoms will range anywhere from the Macintosh crashing with a system error to the printer light continually blinking, with no print job emerging.

#### ISSUE/PROBLEM

One can print within the 3270 Macintosh Workstation application by selecting the Print, PrintOIA key, or the Print menu item in the File menu. The application uses as a default the Novell 3270 font. This font includes all the 3270 special characters, and are not part of the ASCII character set. There is a problem when selecting this font.

#### SOLUTION

Do not use the Novell 3270 font. Select a different font by going into "Settings" and selecting "Terminal Setup". Any other

available font will not pose this printing problem.

FYI: System 7 TuneUp and Background Printing  
FYI

(Note: The origin of this information may be internal or external to Novell. Novell makes every effort within its means to verify this information. However, the information provided in this document is FOR YOUR INFORMATION only. Novell makes no explicit or implied claims to the validity of this information.)

TITLE: System 7 TuneUp and Background Printing  
DOCUMENT ID#: FYI.W.0095  
DATE: 17MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: 3.01  
SUPERSEDES: NA

SYMPTOM: ATPS.CFG was configured to advertise a HPIIISI queue, being serviced by another print server other than ATPS\_PSRVR. Whenever a System 7 Macintosh submitted a print job, Print Monitor would report an error message indicating that it could not find the HPIIISI queue, even though it was readily available in the Chooser.

#### ISSUE/PROBLEM

When background printing was turned off through the Chooser, this eliminated the problem, and the queue was readily available.

#### SOLUTION

Do not turn Background Printing to "on" after the System 7 TuneUp kit has been installed.

FYI: HandsOff Init

FYI

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TITLE: HandsOff Init  
DOCUMENT ID#: FYI.W.0096  
DATE: 17MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: 3.0 and 3.01  
SUPERSEDES: NA

SYMPTOM: When certain workstations accessed files on a NetWare file server, users noticed that the Creator would randomly change to either DOS, Word, Excel, and WordPerfect. This caused confusion and usage problems for the users, while other users accessing the same files would not experience any problem.

#### ISSUE/PROBLEM

There is a Macintosh init available through some BBS's called HandsOff. When this system init is loaded on the Macintosh, it will arbitrarily change the Creator type to something other than the actual application that created the file.

#### SOLUTION

Do not install the HandsOff init in your Macintosh. This is applicable for Macintoshes running 6.x and 7.x. When this init is either turned off or not installed, the problem of the Creator type does not occur.

FYI: 2.2 Server can't see Agfa printer on EtherTalk.

FYI

(Note: The origin of this information may be internal or external to Novell. Novell makes every effort within its means to verify this information. However, the information provided in this document is FOR YOUR INFORMATION only. Novell makes no explicit or implied claims to the validity of this information.)

TITLE: 2.2 Server can't see Agfa printer on  
EtherTalk.  
DOCUMENT ID#: FYI.W.0091  
DATE: 17MAR92

PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: v2.2  
SUPERSEDES: NA

SYMPTOM: PLIST console command shows the Agfa printer running off-line servicing 0 queues.

#### ISSUE/PROBLEM

The customer has NetWare 2.2 and the Macintosh VAPs. They also have a high end Agfa RIP printer that is connected via EtherTalk and LocalTalk. The printer can switch automatically between EtherTalk and LocalTalk. When the printer's name was in both upper and lower case, the printer would not be seen on EtherTalk by the Macintosh VAPs, it would however be seen on LocalTalk. The Macintoshes could also print directly to it. A packet trace revealed that the printer had a NBP (Name Binding Protocol) case sensitivity problem. When the printer was renamed to all uppercase, the Macintosh VAPs would communicate with the printer without a problem.

#### SOLUTION

Rename the printer to all uppercase.

FYI: Can't logout of server

FYI

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TITLE: Can't logout of server  
DOCUMENT ID#: FYI.W.0092  
DATE: 12MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: 3.0  
SUPERSEDES: NA

SYMPTOM: User could not logout of the server by dragging the server's file cabinet icon to the trash.

## ISSUE/PROBLEM

The customer has v3.11 and v3.0 Macintosh NLM's, and when they attempt to logout of the server by dragging the file cabinet icon to the trash, the trashcan would be highlighted but the icon would not go away. Turns out that the Macintosh had an init called MACPUKE that was causing the problem.

## SOLUTION

Remove the MACPUKE init and you will be able to logout of the server by dragging the file cabinet icon to the trashcan.

FYI: Volume not in Chooser

FYI

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TITLE: Volume not in Chooser  
DOCUMENT ID#: FYI.W.0087  
DATE: 11MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: 3.0  
SUPERSEDES: NA

SYMPTOM: There is no volume to mount in the Chooser even though the Macintosh Name Space was added to that volume.

## ISSUE/PROBLEM

After the Macintosh Name Space is added to the volume, the AFP.NLN must be loaded. When the AFP.NLM loads, it creates the desktop on the root of the volume and this is what allows the Macintosh workstations to mount the servers volume.

## SOLUTION

Load the AFP.NLM after adding the Macintosh Name Space.

FYI: Server disappears from Chooser

FYI

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TITLE: Server disappears from Chooser  
DOCUMENT ID#: FYI.W.0079  
DATE: 11MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: v3.0 and v3.01  
SUPERSEDES: NA

SYMPTOM: Multiple servers running the NetWare for Macintosh NLM's would appear and disappear from the Chooser.

#### ISSUE/PROBLEM

Customer had two servers both running v3.11 with the v3.x NetWare for Macintosh NLM's, a simple setup with the servers connected by Ethernet. In the Chooser the servers would appear and disappear randomly. There were no error messages on either server. But the internal AppleTalk network number from the "load APPLTLK net=50000 zone=("my\_zone")" line of both servers was the same.

#### SOLUTION

The internal net numbers of each server must be unique. Change the internal net number of one of the servers to a unique number.

FYI: Installing System 7.0.1 from a Server

FYI

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implied claims to the validity of this information.)

TITLE: Installing System 7.0.1 from a Server  
DOCUMENT ID#: FYI.W.0086  
DATE: 11MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: v3.0 and v3.01  
SUPERSEDES: NA

SYMPTOM: When running Apple's System 7.0.1 installer from a file server (3.11) you will receive the error message: "The file "filename(i.e. Chooser)" already on "Hard Drive Name" is more recent than what you are about to install. Click Continue to replace "filename" with the older version. Click cancel to leave Hard Drive Name" untouched.

#### ISSUE/PROBLEM

The problem is that NetWare evenizes the time stamp. Apple's installer reads that time stamp and if it is evenized it says that there is a problem in the date of the file and you will get the error message above.

#### SOLUTION

As a work-around until Apple fixes the installer scripts, a user can install the 7.0.1 on a Macintosh and copy all files into a folder. Use Apple's Personal AppleShare to enable users to log into that Macintosh and see the folder that has the 7.0.1 installer on it and install from there.

FYI: Can't install NetWare for Macintosh NLM's

FYI

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TITLE: Can't install NetWare for Macintosh NLM's  
DOCUMENT ID#: FYI.W.0080  
DATE: 11MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: v3.01

SUPERSEDES: NA

SYMPTOM: The NetWare for Macintosh NLM's would not install from the NW-MAC diskette from the product install menu.

ISSUE/PROBLEM

The NetWare for Macintosh disk was missing its label. The disk should have a label "NW-MAC".

SOLUTION

Label the disk by typing Label a:at the DOS prompt. It will ask you for the label, so enter:NW-MAC

FYI: Copying alias, editions, or custom icons without Modify rights

FYI

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TITLE: Copying alias', editions, or custom icons without Modify rights  
DOCUMENT ID#: FYI.W.0088  
DATE: 11MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: 3.0 and 3.01  
SUPERSEDES: NA

SYMPTOM: If a user does not have Modify rights and they try to copy an alias, edition, or use custom icons to the directory in which they don't have that right, they will get an error. The error can vary from "editions don't work the way they are suppose to work. ...." , " Creation error...."...

ISSUE/PROBLEM

The problem has to do with setting the Finder info flags. You need the Modify right to set the Finder info flags. Previous to System 7, the Finder info flags didn't need to be set because there was no concept of alias, editions etc...

## SOLUTION

Currently Novell is looking into creating a patch for this. It will be fixed in future releases of NetWare for Macintosh. As a work-around include the Modify right, or use a System 6.x Macintosh.

FYI: Creating a folder without Access Control

FYI

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TITLE: Creating a folder without Access Control  
DOCUMENT ID#: FYI.W.0089  
DATE: 11MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: 3.0 and 3.01  
SUPERSEDES: NA

SYMPTOM: If a user doesn't have the Access Control right to a folder and tries to create another folder inside that folder they will get an error, You cannot create a folder in the window <folder name>, because you do not have enough access privileges, but the folder will be created anyway.

## ISSUE/PROBLEM

The Macintosh Finder doesn't know about inherited rights, it needs to set the rights of the ancestry (the above folder) and of the folder just created.

## SOLUTION

Currently the only solution is to grant the Access Control right to the user or use a System 6.x Macintosh. Novell is working on a solution for future releases.

FYI: Ehandler

FYI

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TITLE: Ehandler  
DOCUMENT ID#: FYI.W.0085  
DATE: 10MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: v3.01  
SUPERSEDES: NA

SYMPTOM: I'm having problems printing to my serial or parallel PostScript printer through the NetWare for Macintosh queues, but I don't get any banner pages with errors indicating a problem. How can I get my serial or parallel PostScript printer to display PostScript error messages when trying to troubleshoot a printing problem?

#### ISSUE/PROBLEM

PostScript printers that are attached through a serial or parallel connection need to have this support turned on. By printing a file called EHANDLER.PS to the printer from a DOS workstation this support can be turned on.

#### SOLUTION

This file can be downloaded from CompuServe in Adobe's forum in library 4. The file is called EHNDLR.TXT and you must capture to the queue that supports the printer and then type: COPY EHNDLR.TXT LPT1 from the DOS workstation. This will turn on PostScript error messages on the printer. To turn this off just reboot the printer.

FYI: Error "ATALK error (...) DDP msg is not ATP, has type 2"

FYI

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TITLE: Error "ATALK error (...) DDP msg is not ATP,  
has type 2"  
DOCUMENT ID#: FYI.W.0081  
DATE: 09MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: v3.x  
SUPERSEDES: NA

SYMPTOM: The server error log shows the following  
message, "ATALK error (...) DDP msg is not ATP, has type 2."

#### ISSUE/PROBLEM

This error indicates a packet was passed to the AppleTalk stack that did not have a valid ATP type. This would usually be a garbage packet and can indicate a hardware problem, like a bad LAN card on the network or a LAN driver problem.

#### SOLUTION

If only a few of these messages are received over a long period of time, it would not be something to be concerned about. If several messages appear in a short time period, it would be something to look into. One thing to do would be to verify the LAN drivers on the server are current. Otherwise, a packet trace of the network may need to be gathered and analyzed to find the source device of these garbage packets.

FYI: DeskWriter or PaintWriter problem  
FYI

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TITLE: DeskWriter or PaintWriter problem  
DOCUMENT ID#: FYI.W.0084  
DATE: 09MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: v3.0 or 3.01  
SUPERSEDES: NA

SYMPTOM: When trying to print to a queue with the PaintWriter or DeskWriter driver on my Macintosh, it hangs.

#### ISSUE/PROBLEM

If someone attempts to use the PaintWriter or DeskWriter driver with the released versions of ATPS (v3.0, v3.01) it will cause the Macintosh to hang indefinitely. The problem is that the driver was designed to send data in chunks as the printer processes it (considerably slower than spooling to the queue). The driver can't handle the queue accepting all the job data without pause for processing so it hangs the Macintosh.

#### SOLUTION

The problem is in the PaintWriter and DeskWriter driver and is not a Novell problem, but Novell may be providing a workaround in a future release of NetWare for Macintosh.

FYI: MACPAC bug

FYI

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TITLE: MACPAC bug  
DOCUMENT ID#: FYI.W.0082  
DATE: 09MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: all  
SUPERSEDES: NA

SYMPTOM: There is a new compression utility call MACPAC. It will compress Macintosh files and will decompress them from a DOS workstation. This utility is used out on Business Talk or NetWare Express for upgrading to the v2.2 and v3.11 updates. There is a bug with this utility causing it not to allow the files to be uncompressed. An error will be generated indicating the file server is not AFP compatible.

#### ISSUE/PROBLEM

The problem occurs if the Macintosh Name Space is not on the SYS volume. Even if the file you are decompressing is on another volume that does have the Macintosh Name Space, SYS must have the Mac name space as well.

#### SOLUTION

The workaround is to add the Macintosh Name Space to SYS before decompressing the files. If the Macintosh Name Space is not there you will get errors when trying to decompress saying the server is not AFP compatible.

FYI: Macintosh interface cards

FYI

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TITLE: Macintosh interface cards  
DOCUMENT ID#: FYI.W.0083  
DATE: 09MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: all  
SUPERSEDES: NA

SYMPTOM: When installing an Ethernet card into the Macintosh workstation the EtherTalk icon did not appear in the Network portion of the Control Panel even when the driver was installed.

#### ISSUE/PROBLEM

If there is a problem with the mother board on the Macintosh communicating to the LAN board this will occur. The same symptom will appear if no LAN board is installed.

#### SOLUTION

Replace the Ethernet board in the Macintosh with a known working board. If the problem persists try a different slot on the Macintosh. This is usually a hardware problem with the LAN board of the Macintosh.

FYI: ATPS error while printing to a queue  
FYI

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TITLE: ATPS error while printing to a queue  
DOCUMENT ID#: FYI.W.0097  
DATE: 03MAR92  
PRODUCT: NetWare for Macintosh  
PRODUCT VERSION: 3.01  
SUPERSEDES: NA

SYMPTOM: Whenever a user tried to print to an ATPS print queue from a Macintosh, the user would see in the ATPS Verbose screen the following error "Write job to queue: No space left on device" followed on the next line with "-ATPS: aborted job 480 due to reception error". On the Macintosh screen, the error "ATPS: can't place job in queue, queue write error" also occurs.

#### ISSUE/PROBLEM

The user had his print queues defined in the ATPS.CFG file with the -a option which means that the user must be logged in via AFP and must be defined as a queue user also. They were limiting the amount of Volume/Disk space available per user. Turns out there was not enough space left on volume SYS/ for the print job to be written to the queue because of the disk space limitation imposed.

#### SOLUTION

They increased the amount of space the user was allocated for the SYS/ volume. Printing to the queue from a Macintosh worked without a problem after that.

Document 1000

Document 1000

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Novell Desktop Systems Group

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NEC DOS  
SN

Description:

NEC DOS 3.3 PARTITIONS WITH DR DOS 5.0 and 6.0

INSTALL says that "you must first FDISK your hard drive;" When you go into DR DOS FDISK and try to remove the partition, FDISK indicates that "This is not a DOS partition."

End users are able to remove the partitions with NEC's FDISK, then recreate them with DR DOS's FDISK. DR DOS then installs fine. NEC Powermates are shipped with NEC DOS 3.3. This version has been HIGHLY modified from normal DOS 3.3. One of the changes is that their FDISK utility will create larger-than-32 MB partitions on the hard drive, however their method of doing this is NOT compatible with either the Compaq DOS 3.31 scheme or the MS DOS 4.01 scheme. Removing the partitions with NEC FDISK is the only solution - this is also required if the user wishes to install regular MS DOS 4.01.

It is important to note that running FDISK will result in the loss of all data on the disk. Please have a backup before doing this procedure.

Document 1105

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BOOTING WITH DR DOS  
BPT/RR

Description:



In order to install DR DOS you must make sure that you are booting from a floppy in drive A:. DR DOS will not install from drive B:. DR DOS comes on 3 1/2 inch low density floppies and 5 1/4 inch Hi-density floppies. If you need 5 1/4 inch low-density disks (360K) send in the coupon that comes with your DR DOS.

If the boot disk hangs while trying to load, usually it means there is an incompatible or faulty piece of hardware.

One of the things it can be is simply an older floppy drive that is out of alignment. Sometimes the situation can be salvaged by formatting a floppy on the boot drive with the old DOS, then doing a diskcopy. The potential problem is that the diskcopy may not be able to read the boot disk either. If you can't make a backup then it may be necessary to get a replacement disk set from Digital Research (in case there is an actual error with the disk, which does sometime happen) or see about getting the drives aligned.

\*\*\*\*\*

Another problem is where you can make valid diskcopies but all you get is the message "Loading...". Here the potential problem may be the computer's bios. DR DOS must be able to direct the system to the area where DOS Kernel files are located. Older bioses are not able to perform this function. If your bios dates from around 1987 or earlier you may need an update.

\*\*\*\*\*

And finally, if you can read the disks but are unable to format a disk or make a diskcopy DR DOS may think you have a different type of floppy than you actually have. Another symptom of this is if you are making a floppy installation and DR DOS asks you for 5 1/4" floppies when you actually have 3 1/2" floppies. If this is an XT type computer (by which we mean it has no CMOS configuration program) then you can place a DRIVPARM statement in your CONFIG.SYS. Refer to the DR DOS manual to see how to use this parameter. DRIVPARM uses no RAM. It merely updates the DR

DOS drive tables with the type drive you specify. If your computer does have a CMOS setup program then you need to correct the entries for your floppy drives in CMOS.

Document 1106

FYI

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Document 1106

MANUAL INSTALLATION

TJ/JD

2/6/92

Description:

#### INTRODUCTION

It is possible that users may need to perform a manual installation of DR DOS if the normal DR DOS installation fails or if a custom installation is required. If the installation fails while executing SYS.COM the customer should manually "SYS" the drive (see steps 1-3) and continue with steps 4-13. If the installation fails when copying files to the disk (due to possible media error) but the target disk has been "SYSed" with DR DOS 6 the users can proceed with just steps 4-13.

#### INSTRUCTIONS

Note: for this example of a manual installation we have assumed that the bootable partition is lettered C:. If your bootable partition is labeled other than C:, please replace "C:" below with the drive letter representing your bootable partition.

The instructions for a manual install are as follows:

1. Boot the DR DOS Startup diskette to the first installation screen. (If this is a 360K set of disks strike CTRL-C, then Y when the screen asks you to insert the Utilities #1 disk. Proceed with step 3.)

2. Break out of the installation by pressing <F10> and choosing "Exit to DR DOS".

3. From the A: prompt type "SYS C:" This will transfer the proper boot files from the installation diskette in drive A: to your C: bootable partition. Now drive C: is a bootable DR DOS 6.0 drive.

4. Move to the C: root directory. This would be accomplished by typing "C:" and then "CD\"

5. Type "MD DRDOS." This will create a DR DOS directory on your C: drive.

6. Type "A:" This will move you back to the A: root directory.

7. Type "COPY \*.\* C:\DRDOS." This will transfer all of the files from the installation diskette to the C:\DRDOS subdirectory.

8. Repeat step #7 (above) with the remaining DR DOS 6.0 diskettes.

9. Move to the DR DOS subdirectory on the C: drive. This would be accomplished by typing "C:" and then "CD\DRDOS"

10. Type "MOVE SSTORDRV.SYS C:\\" This moves the SSTORDRV.SYS device driver to its proper position in the C: root directory.

11. Type "MOVE DEVSWAP.COM C:\\" This moves the DEVSWAP.COM device driver to its proper position in the C: root directory.

12. Type "REN INSTALL.EXE SETUP.EXE." This renames the INSTALL.EXE to SETUP.EXE which is the setup program for DR DOS 6.0.

13. type "SETUP." This executes the setup program and will allow the customer to manually configure and install all of the individual portions of DR DOS 6.0.

#### NOTES

Files on the DR DOS 6.0 diskette may fail to transfer to the DR DOS subdirectory if the initial automated installation failed due

to a media (diskette) error. If this is the case, focus on copying as much of the operating system into the DR DOS subdirectory as possible and manually installing using SETUP.

Example: if the Viewmax portion of the installation results in a diskette error, skip this installation portion and continue to install as much of the remaining portions of DR DOS.

Please contact the Digital Research Technical Support if you were unable to successfully install any portion of DR DOS.

Document 1107

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SECURITY  
BPT

Description:

Problem: How do you access a security protected hard drive that has one or both of the following:

1. Corrupted essential file (COMMAND.COM)
2. Confused configuration that fails load

Solution: Use the Install/Boot disk which will ask for the password, answer it, then exit from the install to the OS and correct the Hard drive problem.

Example:

A virus that has attacked COMMAND.COM  
A corrupted primary file  
An error in judgment on configuration

1. Boot from install disk

2. Enter password
3. Esc to DOS or reinstall
4. The hard drive should now be accessible for repair.

Document 1109

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SCRIPT  
RR  
12/28/91

Description:

SCRIPT will not load as a TSR for LPT1. It will give the error message "Invalid Destination". It will, however, work correctly for LPT2 & LPT3. Documents can be printed through SCRIPT to LPT1. Only the TSR portion will return the error message. A workaround is to first load MODE with the parameters LPT1=LPT2. Then load SCRIPT for LPT2.

Example:

```
MODE LPT1=LPT2
SCRIPT LPT2
```

\*\*\*\*\*

Description:

The syntax list by the internal help of SCRIPT has the position of the switches incorrectly listed. All switches for SCRIPT should be at the end of the command line not at the beginning. DOSBOOK and the DR DOS manual have the correct order for command syntax.

Document 1110

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## BEGINNERS TIPS

BPT

Description:

Q- I'm just beginning to explore computers & DOS and want to know what I should look at first?

A- The most important concept to grasp is that of PATHS. The next item is skill with commands such as TREE, XDIR, etc. And perhaps the most fun is in the creation of BATCH files. Then the real exploration can begin.

PATH:

The back of the "Users Guide" has an excellent index that will help you find explanations of these primary path commands:

TREE  
CHDIR  
MDIR  
CD \  
CD ..  
PATH

It's important to remember that going into a path is much like driving a car up a cul-de-sac to find someone's house with a map.

- You start out on a main boulevard that you know (c:\)
- take various turns onto side streets (cd \drdos)

- and finally find the name your searching for (c:\drdos\tree.exe)
- To get back home, you must backup and retrace your steps (cd..) or you may know of a shortcut (cd \)

#### COMMANDS:

The DR DOS command set is quite a long listing but the first ones to get familiar with are:

TREE  
DIR  
REN  
COPY  
DEL  
UNDEL

Some of them, like DEL are quite destructive so exercise caution. There are quite often "switches" that will customize the command that may suit your purpose better, these can be found by typing the command and a /h after it, for instance:

TREE /H

Or you can browse through DOSBOOK, just type:

DOSBOOK

#### BATCH FILES:

You could say that the machine (PC) is bi-lingual, there are two types of files it reads:

1. "Executables" that can only be read by the machine , (they just look like gobblety gook to us).
2. "Text" files that do make some sense! I say some sense because they often contain instructions for our machine.

Most of these files are critical to the happy operation of your PC and should not be changed, but it is certainly ok to go and look at them.

Some of the files that are "Text" based are:

1. AUTOEXEC.BAT
2. CONFIG.SYS
3. \*.INI

A safe way to look at them is to use the command "TYPE". Refer to \*\*\* below.

Example:

```
TYPE AUTOEXEC.BAT /P
```

There are things listed in your DR DOS "Users Guide" that will show you what can be done or ways to simplify loading programs, all it takes is making a "Batch" file (text file) or editing an existing file. Look in the back of the guide under the words:

```
BATCH  
CONFIGURATION  
AUTOEXEC.BAT  
CONFIG.SYS  
PROMPT
```

There are examples given in the guide that will get you started on your exploration of DOS and the PC. Best of success to you.

\*\*\*To do a DOS command like "TYPE", you must know how to get to the command line first. If a machine has been setup by a consultant or store, they sometimes put you in a menu program which gives a list of choices, or straight into an application like a data base. Often, these programs or applications offer a way to get to the COMMAND LINE, or as it's sometimes called, the DOS PROMPT. Typing EXIT will usually return to you to normal, but if it doesn't rebooting the machine will start everything all over again. There is an important rule regarding rebooting, "NEVER REBOOT IF YOU ARE IN THE MIDDLE OF A PROGRAM" you should always exit to the DOS PROMPT or use the "QUIT" option that is



usually available from a programs option list.

Example:

Page 35 to 44 Paths/Directories  
Page 145 to 352 Commands  
Page 113 to 136 Batch commands  
Page 356 to 397 Config.sys  
Page 294 Prompt

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Command Comparison

Description:

Command Comparison

This chapter contains a comparison chart of the DR DOS 6.0 operating system commands and the PC DOS and MS-DOS command sets. Note that Int. and I refers to internal commands (E are external) and Enh are enhanced over their MS/PC DOS equivalents.

	DOS 3.3 (PC DOS)	DOS 4.1 (MS-DOS)	DR DOS 5.0	MS-DOS 5.0
APPEND-E	X	X	X	X
X				

ASSIGN-E X(Enh)	X	X	X(Int)	X
			(Enh)	
ATTRIB-E X(Enh)	X	X	X(Enh)	X
BACKUP-E X	X	X	X	X
BREAK-I X	X	X	X	X
CACHE Super			X	X
PC-Kwik				
CHCP-I X	X	X	X	X
CHDIR/ CD-I X	X	X	X	X
CHKDSK-E X(Enh)	X	X	X(Enh)	X
CLS-I X	X	X	X	X
COMMAND -E X	X	X	X	X
COMP-E	X	X	X(Enh)	X



DISK	X	X	X (Enh)	X
X (Enh)				
COMP-E				
-----				
DISK				
COPY-E	X	X	X	X
X (Enh)				
-----				
DISKMAP				
X				
-E				
-----				
DISKOPT				
-E				
X				
Document 1111				
-----				
DOSBOOK				
-E				
X				
-----				
DOSKEY				X
-----				
DOS				
SHELL			VIEWMAX	X
VIEWMAX				
-----				
EDIT				X
-----				
EDLIN-E	X	X	EDITOR	X
EDITOR				
-----				
EMM386		X	X	X
X				
-----				
ERAQ-I			X	
X				

ERASE-I X (& ERAQ	X		X (& ERAQ)	X
EXE2BIN -E X		X	X	X
EXIT-I X		X	X	X
EXPAND				X (req. for MS-DOS 5 comp. files only)
FAST OPEN-I/E X	X	X	X	X
FC-E X		X		X
FDISK-E X (Enh)	X	X	X (Enh)	X
FILE LINK-E X			X	
FIND-E X (Enh)	X	X	X (Enh)	X
FOR-I				X

FORMAT-E X(Enh)	X	X	X(Enh)	X
GRAFTABL -E X	X	X	X	X
GRAPHICS -E X	X	X	X	X
HELP-I X(-h opt)			X(-h opt)	X
DOSBOOK				
HILOAD-I X			X	
JOIN-E X Document 1111	X	X	X	X
KEYB-E X	X	X	X	X
LABEL-E X	X	X	X	X
LOADHIGH HILOAD				X
LOCK-E X				
MEM-E		X	X(Enh)	X

X (Enh)

MEMMAX-E			X		
MIRROR DISKMAP				X	
MKDIR /MD-I	X	X	X	X	
MODE-E	X	X	X	X	
MORE-I	X	X	X	X	
MOVE-E, X					
NLSFUNC -E	X	X	X	X	
PASSWORD -E			X		
PATH-I	X	X	X	X	
PRINT-E	X	X	X	X	
PROMPT-I	X	X	X	X	





X (Enh)

SETVER				X
SHARE-E X (Enh)	X	X	X (Enh)	X
SID-E X			X	
SORT-E X	X	X	X	X
SSTOR-E X				
SUBST-E X	X	X	X (Int)	X
SUPERPCK X				
SYS-E X (Enh)	X	X	X (Enh)	X
TASKMAX -E X				
TIME-I X	X	X	X	X
TOUCH-E X			X	

TREE-E X (Enh)	X	X	X (Enh)	X
TYPE-I X (Enh)	X	X	X (Enh)	X
UNDELETE X				X
UNFORMAT X				X
UNINSTAL X				X
VER-I X	X	X	X	X
VERIFY-I X	X	X	X	X
VIEWMAX -E X			X	
VOL-I X	X	X	X	X
XCOPY-E X (Enh)	X	X	X (Enh)	X
XDEL-E X			X	
XDIR-E X			X	

-----|-----|-----|-----|-----|-----|  
-----

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DR DOS Configuration files  
JL/RR  
12/26/91

Description:

These are some sample configuration files to help you decide how best to set up your system. It is not necessary for you to use them exactly as written but they can be used to give you ideas on what can be done with DR DOS 6.0. What your computer can actually accomplish is dependent on the hardware of your system.

PC / XT Computers 640K (only)

CONFIG.SYS

```
SHELL=C:\COMMAND.COM C:\ /P /E:256  
BREAK=ON  
BUFFERS=20  
FILES=30  
FCBS=4,4  
FASTOPEN=256  
HISTORY=ON, 256, ON, OFF, OFF  
?"Load Netware (Y/N)? " set lan=on  
?"Enable DelWatch TSR (Y/N)? " set delw=on
```

AUTOEXEC.BAT

```
@ECHO OFF
```

```
:DRDOSBEG
PATH C:\;C:\DRDOS;C:\NETWARE
VERIFY OFF
PROMPT [DR DOS] $P$G
if "%lan%"=="on" IPX
if "%lan%"=="on" NET3
if "%delw%"=="on" DELWATCH C: /M:200
DISKMAP C:
```

These files will setup an XT-type computer to use the following DR DOS 6.0 features:

The DELWATCH command is a 5k TSR loaded to keep track of deleted files. The options indicate that Drive C: will be watched and no more than 200 deletions will be tracked.

The DISKMAP command takes a snap-shot of Drive C:'s file allocation table. In the instance of serious disk or file corruption problems this feature will aid in the recovery of your disk and files. This command, however, can be executed as many times as needed during your computing session in order to get the most recent FAT image (via the \$x variable in PROMPT, see page 294 of the DR DOS manual).

Depending on the use of this type of configuration, this PC/XT could be used for other "light-duty" services on networks, et cetera, and therefore, other drivers can be implemented which would take more conventional memory such as SuperStor'ing the hard-disk for additional document storage for a printer server. SuperStor would take about 50K of conventional memory to run, and could have a serious impact on the ability to run some DOS applications. The examples for SuperStor in this document are for drives other than C:.. If C: is compressed SuperStor will create a DCONFIG.SYS file on the uncompressed side and will place the SuperStor driver there. Refer to Document 1200 for more information on SuperStor.

PC / XT Computers 640K and LIM 4.0 Expanded Memory

CONFIG.SYS

```
SHELL=C:\COMMAND.COM C:\ /P /E:256
BREAK=ON
BUFFERS=20
FILES=30
FCBS=4,4
FASTOPEN=256
HISTORY=ON, 256, ON, OFF, OFF
DEVICE=C:\REMM.SYS
?"MemoryMAX w/no LIM (y/n)? "DEVICE=C:\DRDOS\HIDOS.SYS
/C=EMSALL /B=AUTO
?"MemoryMAX w/ LIM (y/n)? "DEVICE=C:\DRDOS\HIDOS.SYS /C=EMSUMB
/B=AUTO
HIDOS=ON
?"Use the Compressed Disk (Y/N)? "DEVICE=C:\SSTORDRV.SYS
?"Enable DelWatch TSR (Y/N)? " set delw=on
?"Load Netware (Y/N)? " set lan=on
```

AUTOEXEC.BAT

```
@ECHO OFF
:DRDOSBEG
PATH C:\;C:\DRDOS;C:\NETWARE
VERIFY OFF
PROMPT [DR DOS] $P$G
if "%lan%"=="on" IPX
if "%lan%"=="on" NET3
if "%delw%"=="on" DELWATCH C: /M:200
DISKMAP C:
:DRDOSEND
```

An XT-type computer, with LIM 4.0 expanded memory, will take advantage of the following DR DOS 6.0 features:

First, the computer's expanded memory driver is loaded (named REMM.SYS in this example). The driver supplied with your computer will probably be named something different, however, specify the use of this driver in the same location.

Second, the MemoryMAX driver HIDOS.SYS allows the operating system to relocate into Upper Memory via the /B=AUTO switch. The other switches, /CHIPSET=EMSALL or EMSUMB, allow either all the Upper Memory (128K) to be used for the operating system's purpose (but with no LIM support) or to allow an EMS page frame (LIM

support) and an Upper Memory Block of 64K. The EMS memory manager and hardware must be LIM 4.0 compatible for this to properly work.

The Compressed Disk driver, SSTORDRV.SYS, could be used to access leftover disk space on another fixed disk partition.

The DELWATCH command is a 5k TSR loaded to keep track of deleted files. The options indicate that Drive C: will be watched and no more than 200 deletions will be tracked or saved. The DISKMAP command takes a snap-shot of Drive C:'s file allocation table and will further increase chances of a successful file "undeletion".

Document 1113

PC/AT or 286 based Computers with 640K and LIM 4.0 Expansion Boards

CONFIG.SYS

```
SHELL=C:\COMMAND.COM C:\ /P /E:256 /R
BREAK=ON
BUFFERS=20
FILES=30
FCBS=4,4
FASTOPEN=256
HISTORY=ON, 256, ON, OFF, OFF
device=remm.sys
?"MemoryMAX w/no LIM (y/n)? "DEVICE=C:\DRDOS\HIDOS.SYS
/C=EMSALL /B=FFFF
?"MemoryMAX w/ LIM (y/n)? "DEVICE=C:\DRDOS\HIDOS.SYS /C=EMSUMB
/B=FFFF
HIDOS=ON
?"Use the Compressed Disk (Y/N)? "DEVICE=C:\SSTORDRV.SYS
?"Load Netware (Y/N)? " set lan=on
?"Enable DelWatch TSR (Y/N)? " set delw=on
```

AUTOEXEC.BAT

```
@ECHO OFF
:DRDOSBEG
PATH C:\;C:\DRDOS;C:\NETWARE
VERIFY OFF
PROMPT [DR DOS] $P$G
```

```
if "%lan%"=="on" IPX
if "%lan%"=="on" NET3
if "%delw%"=="on" DELWATCH C: /M:200
DISKMAP C:
:DRDOSEND
```

This basic setup is similar to an XT with 640K RAM and additional LIM 4.0 expanded memory.

The LIM 4.0 Expansion Board will be outfitted with some amount of memory and they will come with a device driver which enables it to work and function with DOS applications. The device driver that the memory expansion board comes with could be named REMM.SYS. Please read your documentation for your memory expansion board for the location and name of the driver that enables that memory. If the driver supplied with your computer is named differently, you can still specify the use of this driver in the same location as indicated by the REMM.SYS line above.

The MemoryMAX driver HIDOS.SYS is allowing the operating system to relocate into High Memory via the /B=FFFF switch. You must be able to configure at least 64K of extended memory at FFFF (decimal 1Meg) for this option to work. Otherwise, you can use /B=AUTO.

The other switches, /CHIPSET=EMSALL or EMSUMB allow either all the Upper Memory to be used for the operating system's purpose or to allow an EMS (LIM) page frame as well as an extra portion of upper memory. As stated earlier the EMS memory manager and the LIM hardware must be LIM 4.0 to work properly.

The DELWATCH command is a 5k TSR loaded to keep track of deleted files. The options indicate that Drive C: will be watched and no more than 200 deletions will be tracked (the tracked being saved in a hidden file of the same drive). The DISKMAP command takes a snap-shot of Drive C's file allocation table.

## CONFIG.SYS

```
SHELL=C:\COMMAND.COM C:\ /P /E:256
BREAK=ON
BUFFERS=20
FILES=30
FCBS=4,4
FASTOPEN=256
HISTORY=ON, 256, ON, OFF, OFF
device=remm.sys
?"Load MemoryMAX (y/n)? "DEVICE=C:\DRDOS\HIDOS.SYS /B=FFFF
/C=AUTO
HIDOS=ON
?"Use the Compressed Disk (Y/N)? "DEVICE=C:\SSTORDRV.SYS
?"Enable DelWatch TSR (Y/N)? " set delw=on
?"Load Netware (Y/N)? " set lan=on
```

## AUTOEXEC.BAT

```
@ECHO OFF
:DRDOSBEG
PATH C:\;C:\DRDOS;C:\NETWARE
VERIFY OFF
PROMPT [DR DOS] $P$G
if "%lan%"=="on" hoload IPX
if "%lan%"=="on" hoload NET3
if "%delw%"=="on" DELWATCH C: /M:200
DISKMAP C:
:DRDOSEND
```

These files can be used if your 286/AT has been manufactured with special ROM chips which offer control of certain memory functions (page 418-423). These systems offer favorable upper memory support for DR DOS's MemoryMAX software to enable and use Upper Memory for TSR's and device drivers. Shadowing should be enabled in the computer's CMOS to support the creation of upper memory by DR DOS 6.0.

The important line in this example is the MemoryMAX driver HIDOS.SYS. This allows the operating system to sense the type of chipset within the 286/AT, enable Upper Memory and relocate the operating system files into Upper or High Memory via the /B= switch. The valid switch options for /CHIPSET= are:



EMSALL  
or  
EMSUMB (for 286s with LIM 4.0 compatible hardware/drivers)

NEAT (for 286s with Chips & Technologies NEAT, NEATsx,  
LeAPSet, or LeAPSetsx)

SCAT (for 286s with Chips & Technologies SCAT chipset)

RAM (for permanent Upper Memory. Must be used with the /USE  
option on the HIDOS.SYS driver)

NONE (for telling HIDOS.SYS not to use Shadow RAM)

AUTO (for AUTO detection of chipset installed)

Document 1113

386/486 Based Computers with 1 Megabyte of RAM

CONFIG.SYS

```
SHELL=C:\COMMAND.COM C:\ /P /E:512
BREAK=ON
HIBUFFERS=20
FILES=30
FCBS=4,4
FASTOPEN=256
HISTORY=ON, 256, ON, OFF, OFF
DEVICE=C:\DRDOS\HIDOS.SYS /B=FFFF /C=RAM /I=C800-EFFF
HIDOS=ON
?"Use the Compressed Disk (Y/N)? "DEVICE=C:\SSTORDRV.SYS
?"Enable DelWatch TSR (Y/N)? " set delw=on
?"Load Netware (Y/N)? " set lan=on
```

AUTOEXEC.BAT

```
@ECHO OFF
:DRDOSBEG
PATH C:\;C:\DRDOS;C:\NETWARE
VERIFY OFF
PROMPT [DR DOS] $P$G
if "%lan%"=="on" hiload IPX
if "%lan%"=="on" hiload NET3
```

```
if "%delw%"=="on" DELWATCH C: /M:200
DISKMAP C:
:DRDOSEND
```

This configuration will allow a 386 or 486 based computer to relocate the operating system into High Memory and enable the use of Upper Memory. With an average of 120K of RAM in Upper Memory, one can put network and other drivers, as well as TSR programs, into that 120K space by using HIDEVICE, HIINSTALL or HILOAD (for TSRs).

**IMPORTANT:**

EMM386.SYS can be used on some systems but the majority of computers will not have any extended memory, which is required by EMM386. HIDOS.SYS is used instead with the /C=RAM option. This option may not be valid on some computers and the actual addresses of RAM that can be included will vary due to the variety of hardware that may be installed in the computer. The user must define the RAM addresses to be included. Do not use the addresses we list above as an absolute because usable addresses will vary from machine to machine. If you are unsure what address to use try the range D000-EFFF. Be sure and use a "?" at the beginning of HIDOS.SYS. This will allow you to bypass this line in case you get an error.

The SuperStor driver is useful in doubling the apparent capacity of the disk partition to which it's applied. If this has not been applied to your disk drive, you can elect not to use this driver and therefore save a substantial amount of conventional memory. Therefore, the "?" allows the driver to be loaded at will, whenever that particular partition needs to be accessed. If the driver is loaded, you can expect to achieve about 603K of conventional memory. The above example is for a drive other than C:. If C: is compressed SuperStor will create a DCONFIG.SYS file on the uncompressed side and will place the SuperStor driver there. Refer to Document 1200 for more information on SuperStor.

386/486 Based Computers with GREATER than 1 Megabyte of  
RAM

CONFIG.SYS

```
SHELL=C:\COMMAND.COM C:\ /P /E:512
BREAK=ON
HIBUFFERS=20
FILES=30
FCBS=4,4
FASTOPEN=256
HISTORY=ON, 256, ON, OFF, OFF
HIDOS=ON
DEVICE=C:\DRDOS\EMM386.SYS /F=NONE /K=AUTO /B=FFFF /R=AUTO
?"Use the Compressed Disk (Y/N)? "DEVICE=C:\SSTORDRV.SYS
?"Enable DelWatch TSR (Y/N)? " set delw=on
?"Load Netware (Y/N)? " set lan=on
```

AUTOEXEC.BAT

```
@ECHO OFF
:DRDOSBEG
PATH C:\;C:\DRDOS;C:\NETWARE
VERIFY OFF
PROMPT [DR DOS] $P$G
if "%lan%"=="on" hload IPX
if "%lan%"=="on" hload NET3
if "%delw%"=="on" DELWATCH C: /M:200
DISKMAP C:
:DRDOSEND
```

This configuration will allow a 386 or 486 based computer to relocate the operating system into High Memory. With an average of 120K of RAM in Upper Memory, a portion of the SuperStor driver, the IPX and possibly the NET3 (or NETX) software will also fit into Upper Memory.

The SuperStor driver is useful in doubling the apparent capacity of the disk partition to which it's applied. If this has not been applied to your main disk drive, you can elect not to use this driver and therefore save a substantial amount of conventional memory. Therefore, the "?" allows the driver to be loaded at will, whenever that particular partition needs to be accessed. The above examples have been for drives other than C:. If C: is compressed SuperStor will create a DCONFIG.SYS file on the uncompressed side and will place the SuperStor driver there. Refer to Document 1200.

386/486 Based Computers with greater than 1 Megabyte of RAM  
running TaskMAX

CONFIG.SYS

```
SHELL=C:\COMMAND.COM C:\ /P /E:512
BREAK=ON
HIBUFFERS=20
FILES=30
FCBS=4,4
FASTOPEN=256
HISTORY=ON, 256, ON, OFF, OFF
HIDOS=ON
DEVICE=C:\DRDOS\EMM386.SYS /F=NONE /K=AUTO /B=AUTO /R=AUTO
?"Use the TaskMAX task switcher (Y/N)? " set tasker=on
?"Enable DelWatch TSR (Y/N)? " set delw=on
?"Load Netware (Y/N)? " set lan=on
```

Document 1113  
AUTOEXEC.BAT

```
@ECHO OFF
:DRDOSBEG
PATH C:\;C:\DRDOS;C:\NETWARE
VERIFY OFF
PROMPT [DR DOS] $P$G
if "%lan%"=="on" hiload IPX
if "%lan%"=="on" hiload NETX
if "%tasker%"=="on" share
if "%tasker%"=="on" taskmax
if "%delw%"=="on" DELWATCH C: /M:200
DISKMAP C:
:DRDOSEND
```

This minimal configuration will allow a 386 or 486 based computer to relocate the operating system into Upper Memory. Although this is not optimal for the EMM386.SYS driver, the amount of memory available on most 386/486 computers will allow the Upper Memory to be addressed and used for the relocation of the operating system files, drivers or TSR's. With an average of 120K of RAM in UPPER Memory, the operating system will be able to get SHARE into HMA, TaskMAX and the Netware drivers into UPPER Memory. Before Netware is loaded you should be able to have 625K available conventional memory. Alternately, you can load the drivers in the AUTOEXEC file from the command line (eg. SHARE, TASKMAX, HILOAD

IPX and HILOAD NETX).

The NETX utility found on the last DR DOS 6.0 floppy disk is included to allow you to task-switch on the Network. This will not allow multiple logins. However, it is designed to allow you to execute more than one on application on the network.

WINDOWS Enhanced mode Configuration for 386/486  
Based Computers 4 Megabytes or better

CONFIG.SYS

```
SHELL=C:\COMMAND.COM C:\ /P /E:512
BREAK=ON
HIBUFFERS=8
FILES=30
FCBS=4,4
FASTOPEN=0
HISTORY=ON, 256, ON, OFF, OFF
HIDOS=ON
DEVICE=C:\DRDOS\EMM386.SYS /F=NONE /K=AUTO /B=FFFF /R=AUTO
DEVICE=C:\DRDOS\PCKWIN.SYS
?"Load Netware (Y/N)? " set lan=on
?"Enable DelWatch TSR (Y/N)? " set delw=on
```

AUTOEXEC.BAT

```
@ECHO OFF
:DRDOSBEG
PATH C:\;C:\DRDOS;C:\NETWARE;C;\WINDOWS
VERIFY OFF
PROMPT [DR DOS] $P$G
if "%lan%"=="on" hilight IPX
if "%lan%"=="on" hilight NET3
SUPERPCK /EM /S:2048
if "%delw%"=="on" DELWATCH C: /M:200
DISKMAP C:
:DRDOSEND
```

This basic configuration allows a 386 or 486 based computer to run WINDOWS in the "enhanced mode" or "real mode". The EMM386.SYS driver indicates that a LIM page-frame location is

being established by the operating system driver (/F=AUTO). The amount of memory allocated to be converted to expanded memory is 1024K (/K=1024). The operating system is being relocated to HMA (/B=FFFF) and the information in the video and system BIOS ROMs are being "shadowed" to faster RAM (/R=AUTO). If you want more upper memory you can disable the LIM Page Frame with the parameter /F=NONE. This will give you an additional 64K of upper memory but you will not have any EMS. SuperPCKwik is going to be 2 Megabytes in size (/S:2048) and use the extended memory (/EM) set aside with the EMM386.SYS driver. It will lend approximately half of its memory for use as XMS memory for WINDOWS. SuperPCK is using the WINDOWS compatible portion of its driver (PCKWIN.SYS) so that WINDOWS performance is enhanced because of better disk performance. With the EMM386.SYS driver, an average of 120K of RAM may be available to relocate network drivers, TSRs and other drivers into Upper Memory. This configuration has been able to provide 625K of Conventional Memory before WINDOWS is loaded.

WINDOWS Standard mode Configuration for 386/486  
Based Computers with more than 2 Megabytes

CONFIG.SYS

```
SHELL=C:\COMMAND.COM C:\ /P /E:512
BREAK=ON
HIBUFFERS=20
FILES=30
FCBS=4,4
FASTOPEN=256
HISTORY=ON, 256, ON, OFF, OFF
HIDOS=ON
DEVICE=C:\DRDOS\EMM386.SYS /F=NONE /B=FFFF /R=AUTO /WINSTD
DEVICE=C:\DRDOS\PCKWIN.SYS
?"Load Netware (Y/N)? " set lan=on
?"Enable DelWatch TSR (Y/N)? " set delw=on
```

AUTOEXEC.BAT

```
@ECHO OFF
:DRDOSBEG
PATH C:\;C:\DRDOS;C:\NETWARE;C:\WINDOWS
VERIFY OFF
PROMPT [DR DOS] $P$G
if "%lan%"=="on" hiload IPX
```

```
if "%lan%"=="on" hiload NET3
SUPERPCK /EM
if "%delw%"=="on" DELWATCH C: /M:200
DISKMAP C:
:DRDOSEND
```

This basic configuration allows a 386 or 486 based computer to run WINDOWS in the "Standard mode" or "real mode". The EMM386.SYS driver indicates that NO LIM page-frame be established by the driver (/F=NONE), the operating system is being relocated to HMA (/B=FFFF) and the information in the video and system BIOS ROMs are being "shadowed" to faster RAM. SuperPCKwik is going to use all of the extended memory enabled by EMM386.SYS for caching the disk drive. Half of this amount will be "lent" to Windows. SuperPCK is using the WINDOWS compatible portion of its driver so that WINDOWS performance is enhanced because of better disk performance. This configuration has been able to provide 625K of Conventional Memory before WINDOWS is loaded.

Document 1113

Windows Enhanced mode Configuration for 386/486 with 2  
Megabytes

CONFIG.SYS

```
SHELL=C:\COMMAND.COM C:\ /P /E:512 /MU
BREAK=ON
BUFFERS=20
FILES=30
FCBS=4,4
FASTOPEN=256
HISTORY=ON, 256, ON, OFF, OFF
HIDOS=ON
DEVICE=C:\DRDOS\EMM386.SYS /F=NONE /B=AUTO /R=NONE
?"Load Netware (Y/N)? " set lan=on
?"Enable DelWatch TSR (Y/N)? " set delw=on
```

AUTOEXEC.BAT

```
@ECHO OFF
:DRDOSBEG
PATH C:\;C:\DRDOS;C:\NETWARE;C;\WINDOWS
VERIFY OFF
```

```
PROMPT [DR DOS] $P$G
if "%lan%"=="on" hiload IPX
if "%lan%"=="on" hiload NET3
if "%delw%"=="on" DELWATCH C: /M:200
DISKMAP C:
:DRDOSEND
```

A 2 megabyte computer is not the optimal system for Windows in enhanced mode. System performance may be greatly reduced because Windows will need to use swap files and no cache can be used to help accelerate disk I/O.

This configuration will allow a 386/486 with 2 Megabytes to run Windows in Enhanced mode. Because Windows requires a minimum of 1 Megabyte of XMS this configuration does not use the HMA. The SHELL statement has the switch /MU to force it to upper memory. EMM386 is loading the kernel into upper memory with /B=AUTO and we use BUFFERS (upper) instead of HIBUFFERS (HMA). Finally, because we need all of the XMS memory available SuperPCK is not used in this configuration. Start Windows with "WIN /3". HIDOS.SYS can also be used to replace EMM386.SYS.

\*\*\*\*\*

#### MODELS OF CONFIGURATION FILES

The following configuration ideas should be considered advanced and for those who are interested in more sophisticated organization of their configuration and autoexec files.

Only the basic ideas are outlined in each example. The rest of the file can be filled in with your own specifications.

EXAMPLE 1 - The use of GOTO in the CONFIG file.

```
"Do you want to run QEMM (y/n)? " goto QEMM
"Do you want to run MemoryMAX (y/n)? " goto DRDOS

:QEMM
DEVICE=c:\QTR_DECK\QEMM386.SYS
DEVICE=C:\DRDOS\HIDOS.SYS /B=FFFF
```



```
(additional QEMM driver lines go here...)
goto COMMON
```

```
:DRDOS
hidos=on
DEVICE=C:\DRDOS\EMM386.SYS /F=AUTO...
....
```

```
:COMMON
files=40
hibuffers=20
...
```

EXAMPLE 2 - The use of CHAIN in the CONFIG file. This example shows that you can "link" to other files that hold your configurations for each system "setup". In the following CONFIG.SYS file, the two lines direct the configuration process to the files: QCONFIG and MCONFIG.SYS-files. The appropriate FILES, BUFFERS, etc. information is contained within those files and not the main CONFIG.SYS file.

```
? "Do you want to run QEMM (y/n)? " chain=QCONFIG.SYS
? "Do you want to run MemoryMAX (y/n)? " chain=MCONFIG.SYS
```

EXAMPLE 3 - The following CONFIG file demonstrates the use of SWITCH/RETURN commands and use of labels. Select the option by number and continue processing. Notice the use of the ECHO statement for setting up the menu options.

```
ECHO =          Choose how much Extended Memory you want to
convert
ECHO =          to LIM Memory for this session.
ECHO =
ECHO =          1 (or ENTER)      No LIM Memory
ECHO =          2                512K of Memory
ECHO =          3                1024K of Memory
ECHO =          4                2048K of Memory
ECHO =
ECHO =          Make your selection...
```

```
SWITCH NOLIM, 512K, 1024K, 2048K
```

GOTO DEFAULTS  
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```
:NOLIM  
DEVICE=C:\DRDOS\EMM386.SYS /F=NONE /K=AUTO /B=FFFF /R=AUTO  
RETURN
```

```
:512K  
DEVICE=C:\DRDOS\EMM386.SYS /F=AUTO /K=512 /B=FFFF /R=AUTO  
RETURN
```

```
:1024K  
DEVICE=C:\DRDOS\EMM386.SYS /F=AUTO /K=1024 /B=FFFF /R=AUTO  
RETURN
```

```
:2048K  
DEVICE=C:\DRDOS\EMM386.SYS /F=AUTO /K=2048 /B=FFFF /R=AUTO  
RETURN
```

```
:DEFAULTS  
SHELL=C:\COMMAND.COM \C: /P /E:512  
HIDOS=ON  
HIBUFFERS=20  
FILES=30  
etc...
```

EXAMPLE 4 - The following CONFIG file section shows how "environment variables" can be set according to the configuration options one chooses. These variables are passed to the command processor (COMMAND.COM) where they can be tested and processed through the AUTOEXEC.BAT or other batch files. The CLS, CPOS, EXIT and SET commands are featured in this example.

```
:DEFAULTS  
SHELL=C:\COMMAND.COM \C: /P /E:512  
HIDOS=ON  
HIBUFFERS=20  
FILES=30  
etc....
```

```
ECHO =          Choose which TSRs and Utilities you want loaded  
ECHO =          at BOOT time for this session.  
ECHO =
```

```
ECHO =          1 (or ENTER)          None... just continue
ECHO =          2                    Mouse & Cursor Drivers
ECHO =          3                    Keyboard "Speeder"
ECHO =          4                    Novell Network
ECHO =          5                    Done with selections
ECHO =
ECHO =          Make your selection...
```

```
:MORE
CPOS 10,33
SWITCH NOTHING, CURSMOUS, SPEEDKEY, NOVELL, DONE
GOTO MORE
```

```
:DONE
:NOHING
CLS
EXIT
```

```
:CURSMOUS
SET THINGS=ON
RETURN
```

```
:SPEEDKEY
SET SPEEDKEY=ON
RETURN
```

```
:NOVELL
SET NETWORK=ON
RETURN
```

The accompanying AUTOEXEC below picks up the environment variables.

The AUTOEXEC.BAT file now allows testing of the environment variables and executes commands based upon the conditionals as illustrated below:

```
@ECHO OFF
:drdosbeg
VERIFY OFF
PATH C:\;C:\DRDOS;C:\BATS;C:\TOOLS;C:\WINDOWS
if "%ansi%"=="on" prompt $e[s$e[0;70H$e[1;36m$t$e[u$e[1;36mDR
```

```
DOS6$p$g$e[2;32m
if "%ansi%"=="off" PROMPT [DR DOS] $P$G
SET TEMP=C:\TEMP
IF NOT "%TEMP%"==" " MD %TEMP% >NUL
if "%things%"=="on" HILOAD MOUSE
if "%things%"=="on" HILOAD CURSOR /s10
if "%speedkey%"=="on" c:\drdos\mode con:rate=30 delay=1
if "%network%"=="on" hiload c:\lan\ipx
if "%network%"=="on" hiload c:\lan\net3
:drdosend
```

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OTHER EXAMPLES

Select different configuration options from the CONFIG.SYS file using the ?

```
?SHELL=C:\COMMAND.COM C:\ /P /E:512
?SHELL=C:\COMMAND.COM C:\ /P /E:1024
?BREAK=OFF
?BREAK=ON
BUFFERS=20
FILES=20
?HISTORY=ON, 256, ON, OFF, OFF
?DEVICE=C:\DRDOS\ANSI.SYS
```

Select different AUTOEXEC.BAT's from CONFIG.SYS using the ?

```
?"Default Autoexec? (y/n) "SHELL=C:\COMMAND.COM C:\ /P /E:256
?"Alternate Autoexec? (y/n) "SHELL=C:\COMMAND.COM C:\
/P:ALTERNAT.BAT /E:256
```

Select and use different configuration files from CONFIG.SYS at bootup.

```
?"Do you want to run Windows? (y/n) " chain = WCONFIG.SYS
?"Do you want to use QEMM? (y/n) " chain = QCONFIG.SYS
?"Do you want to use MemoryMAX? (y/n) chain = MCONFIG.SYS
?"Do you want to use 386MAX? (y/n) chain = 386CONF.SYS
```

(Each line is printed on the screen and you are asked to load/run the chained configuration file. Each configuration file is a complete CONFIG.SYS-like file complete with all appropriate options.)

The idea above can be accomplished by making number-selectable "menu" choices using SWITCH. Note how the "SET environment" variables can be used and tested for different "autoexec.bat" files in this example:

```
ECHO =    1   For Windows Configuration
ECHO =    2   For QEMM Configuration
ECHO =    3   For DR DOS' MemoryMAX Configuration
ECHO =    4   For 386MAX Configuration
ECHO =    5   For no Configuration... just exit
SWITCH win, qemm, memm, 386m, none
:none
```

```
set autoexec=norm
exit
```

```
:win
set autoexec=win
chain=wconfig.sys
```

```
:qemm
set autoexec=qemm
chain=qconfig.sys
```

```
:memm
set autoexec=memm
chain=mconfig.sys
```

```
:386m
set autoexec=386m
chain=386conf.sys
```

Autoexec.bat for the above

```
@echo off
PATH C:\DRDOS;C:\;C:\UTIL;
VERIFY OFF
```

```
PROMPT $P$G
DISKMAP C: D:
IF "%autoexec%"=="norm" goto DRDOSEXIT
SHARE /L:40
IF "%autoexec%"=="win" SUPERPCK /EM /L:2048
IF "%autoexec%"=="qemm" CALL QEMM.BAT
IF "%autoexec%"=="memm" SUPERPCK /A /L:2048
IF "%autoexec%"=="386m" CALL 386.BAT
:DRDOSEXIT
```

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```
SID and DEBUG
04/13.92
BK
```

SID AND THE DEBUG PATCH

Often software manufacturers will have to make changes to their software after it has been released to customers. Usually these are very small changes to the instructions that make up the software, sometimes only affecting 1 or 2 bytes out of the entire program. Since the changes are so small, they can often be completed by the customer by following a patch listing from the manufacturer. These patch listings depend on the use of DEBUG. A typical patch listing will look something like this:

- 1) COPY BROKFILE.EXE BROKFILE.SAV
- 2) DEBUG BROKFILE.EXE
- 3) -S 100 L FFFF B2 01 7C 56 8B 1E
- 4) -E xxxx:yyyy 91 92 93 94 88 1F
- 5) -W
- 6) -Q

DR DOS 6.0 has a similar utility called SID. While the function of the two applications is the same, the actual commands are a little different. Below is the typical listing with the purpose of each step explained and the SID equivalent described.

The format in each step explained here is:

DEBUG COMMAND LINE

GENERAL COMMENTS AND CLARIFICATION

EQUIVALENT SID COMMAND LINE

1) COPY BROKFILE.EXE BROKFILE.BAK

Just in case things do not go as planned, make a backup.

(same command)

2) DEBUG BROKFILE.EXE

DEBUG is loading and reading the subject file into memory. To accomplish this in SID, type SID at the command line and then use the R command to read the subject file into memory starting at memory offset address 100. SID will display the starting and ending address of the file in memory in a SEGMENT:OFFSET format. Note these addresses.

SID  
#RBROKFILE.EXE,100

3) -S 100 L FFFF B2 01 7C 56 8B 1E

DEBUG is searching from the offset address 100 to the last address of FFFF (a hexadecimal number) for the pattern of bytes listed (B2 01 7C 56 8B 1E B8). this is a pattern that is unique to the area or areas of the file that need to be changed. DEBUG will return the addresses of the desired patterns in a SEGMENT:OFFSET format like 2345:1DF5. The specific values returned will vary. There may be more than one found. The patch listing will usually refer to these values as 'xxxx:yyyy'.

The SID SR command is very similar. Some of the arguments are separated with commas instead of spaces. The address or addresses that contain the desired pattern will be returned in the same xxxx:yyyy format. Record the addresses returned.

```
#SR100,FFFF,B2 01 7c 56 8B 1E
```

4) -E xxxx:yyyy 91 92 93 94 88 1F

DEBUG is entering new values for the bytes in memory. This is how the software is actually changed. The xxxx:yyyy is the address at which the new values should be added. The following numbers are the new values themselves. In SID, use the S command and specify where the new values should start.

SID will display that starting address and the current value in memory and be waiting for the new value. Enter the first value listed after xxxx:yyyy in the -E command line of the patch listing. Press Enter. SID will now show the next address and its current value and be waiting for the new value. Enter the next value in the -E command line. Continue entering the remaining values. After the last value has been entered, SID will display the next address and be waiting for a new value. Simply enter a '.' and press ENTER. SID will return to its '#' prompt.

```
#Sxxxx:yyyy
xxxx:yyyy B2 91
xxxx:yyyz 01 92
xxxx:yyya 7C 93
xxxx:yyyb 56 94
xxxx:yyyb 8B 88
xxxx:yyyb 1E 1F
xxxx:yyyb 22 .
#
```

5) -W

The update version of the software is written from memory to the original file name. In SID use the W command followed by the filename.



#WBROKFILE.EXE

6) -Q

You're done. Quit. SID's command is the same.

#Q

On the next page is a sample of what this patch process would look like in SID.

[DR DOS] C:\MYFILES>SID

```
-----  
*** Symbolic Instruction Debugger *** Release 3.2  
    Copyright (c) 1983,1984,1985,1988,1990,1991  
    Digital Research, Inc. All Rights Reserved  
-----
```

```
#RBROKFILE.EXE,100  
  Start      End  
1056:0100 2056:7BF2  
#SR100,FFFF,B2 01 7C 56 8B 1E  
1056:2344  
#S1056:2344  
1056:2344 B2 91  
1056:2345 01 92  
1056:2346 7C 93  
1056:2347 56 94  
1056:2348 8B 88  
1056:2349 1E 1F  
1056:234A B8 .  
#WBROKFILE.EXE  
#Q
```

[DR DOS] C:\MYFILES>

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SID and DEBUG Script  
04/13/92  
BK

## SID AND THE DEBUG SCRIPT

Below is a generic listing of a typical DEBUG script that one can often find on BBS's or in magazines that will create some nice little utility file using the command:

```
DEBUG < filename.ext
```

What follows are the steps that one would use to adjust a script so that DR DOS 6.0's SID utility will produce the same file using the command:

```
SID < filename.ext
```

These scripts will usually follow a pattern. They will first establish the name of the file. SID does not require the name of the file until it is actually saved at the end. Then they will use the 'A' command to start assembling the instruction. DEBUG defaults to an offset of 100. In SID, one specifies that assembly should begin at offset 100 by the A100 command. Then the instructions for the utility itself are listed. These instructions should be identical under both DEBUG and SID. Finally, DEBUG is told how many bytes of information to save using the RCX command.

When one saves the file using SID, one specifies what the beginning and ending addresses should be. The beginning address is 100. The ending address is 100 + the number of bytes to be saved - 1 (In the example below, the ending address is represented by the word END). Since the arithmetic is in hexadecimal values, one may want to use the H command in SID to do the calculations (See the HEX NOTE below). The last command is to quit. It is the same under both utilities.

GENERIC SCRIPT

DEBUG SCRIPT	SID SCRIPT	COMMENTS
N filename.ext it is saved.	(not required)	-SID uses file name when
A instructions. (instructions commands. go here)	A100 (instructions go here)	-----+ -Begin assembling   -Use the original   
<CR> RCX save y bytes	<CR> (not required)	-<CR> to exit assembling   -DEBUG is preparing to
y +-----+ W 100 to END	(not required) Wfilename.ext,100,END	of data.   -SID writes from offset   ( 100 + y - 1 = END )   +-----+
Q	Q	-And Quit.

Below is an example of a script that will build BEEP.COM, a program that simply beeps the speaker once. Notice again that the arithmetic is in hexadecimal. (If that is something with which you are unfamiliar, see the HEX NOTE at the end of this example.)

DEBUG SCRIPT	SID SCRIPT	COMMENTS
N BEEP.COM end	(not required)	SID saves file name at
A instructions MOV AH,2 MOV DL,07 INT 21 MOV AH,4C	A100 MOV AH,2 MOV DL,07 INT 21 MOV AH,4C	-----+ Begin assembling   Use the original commands       

```

INT 21          INT 21          |
<CR>           <CR>           | <CR> to exit assembling
RCX            (not required)  | DEBUG is preparing to
save 10 (A Hex)
A              (not required)  | of data.
+-----+
W              WKEYD.COM,100,109 | SID writes|from offset
100 to 109
Q              Q                | ( 100 + A - 1 = 109 )
                    |
                    +-----+

```

HEX NOTE: SID can do the hex math for you. In the above example, to do the first addition ( 100 + A ), load SID and type

```
H100 A
```

SID will respond:

```
+ 010A - 00F6 * 00000A00 / 0019 (0006)
```

The first value, 010A, is the sum. Use that value in the next command:

```
H10A 1
```

SID will respond:

```
+ 010B - 0109 * 0000010A / 010A (0000)
```

The second value, 0109, is the END value you want to use.

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SID Memory detection of ROMs  
03/13/92  
BK

#### SID, THE MEMORY DETECTOR

Occasionally when loading DR DOS 6.0's EMM386.SYS memory management driver, one will find that the MEM /A display shows an area of upper memory excluded from use. After attempts to access the memory area through the use of the /Include or /Use switches for EMM386.SYS have failed, one might begin to suspect that some memory addressed ROM chips are occupying that area. One can use DR DOS 6.0's SID to check on that. To do this, load SID and have it search the desired areas of memory for a copyright. If one is found, displaying it will probably tell one which piece of hardware is using the memory addresses. Below is an example:

Here is an excerpt of a MEM /A display that shows an area excluded at D7FF:0000 and a ROM chip at D800:0000 (the exclusion will precede the ROM chip itself to protect the ROM's address).

```
.. CF00:0000 . ----- .    9000h,  36,864 . ----- Upper RAM
.....
.
.. CF00:0000 .    DR DOS .    8FF0h,  36,848 . System
.. CFE3:15C0 .    DR DOS .    DE0h,   3,552 . DR DOS BIOS code
.. D7FF:0000 . EXCLUDED .    2010h,   8,208 . Upper system memory
.....
.
.. D800:0000 . ----- .    2000h,   8,192 . ----- ROM
---
.. DA00:0000 . ----- .   16000h,  90,112 . ----- Upper RAM
.....
.
.. DA00:0000 .    DR DOS .    9450h,  37,968 . System
.. D701:3000 .    DR DOS .    9440h,  37,952 . DR DOS kernel code
```

To get SID to investigate that area, first load SID. SID will display its '#' prompt. Tell it to search the area of memory using the SR command looking for all the permutations of copyright markings. For example, the MEM display shows something at D800:0000, so use the command

```
SRD800:0000,FFFF,"COPYRIGHT"  
|_____|-> Change this number to investigate different areas of  
memory.
```

"COPYRIGHT", "Copyright", "copyright", "(C)", and "(c)" will usually cover all the bases. Notice that upper case/lower case IS important. If SID finds some data in memory that matches one's search parameters, it will display the address of that data in the SEGMENT:OFFSET format. There may be more than one. Record those addresses. Then display the data at each of those locations using the D command. The company name should give one some idea of the hardware occupying the area of memory. Below is what the investigation of the above machine looks like:

```
[DR DOS] C:\>SID  
-----  
*** Symbolic Instruction Debugger *** Release 3.2  
    Copyright (c) 1983,1984,1985,1988,1990,1991  
    Digital Research, Inc. All Rights Reserved  
-----  
                                ( COMMENTS )  
#SRD800:0,FFFF,"COPYRIGHT      ( Nothing found )  
#SRD800:0,FFFF,"copyright      ( Nothing found )  
#SRD800:0,FFFF,"Copyright  
D800:0056                        ( BINGO !! )  
#DD800:0056                       ( Display that area )  
  
D800:0056 43 67 68 74 20 28 43 29 20 31 39 Copyright (C) 19  
D800:0066 38 42 54 72 61 6E 74 6F 72 20 53 89-90, Trantor S  
D800:0076 79 73 2C 20 4C 74 64 2E 0D 0A 00 1A ystems, Ltd.....  
D800:0086 00 07 73 01 CB 8D 36 34 00 E8 A6 04 ....9.s...64....  
D800:0096 B8 C6 06 74 00 00 C6 06 75 00 00 C6 .@.....t.....u...  
#
```

The copyright is held by the company that made the card that connects to the CDROM player in this particular machine, thus the presence of the card is why this area of memory is excluded.

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CREATION OF A BOOTABLE DR DOS FLOPPY DISK  
LS/JJ  
3/19/92

Description:

PROCEDURE TO CREATE A DR DOS 6 BOOTABLE DISK

The disk created by this procedure will allow access to a SuperStor'ed hard disk as well as a secure one.

1. When booted from your hard disk, insert a blank floppy into drive A: Then type the following:-

FORMAT A: /S

The floppy will be formatted and the operating systems files transferred.

2. When this is complete, you will need to copy some device drivers on to the floppy too.

Copy the following files from hard disk to floppy:-





## INSTALLATION

A full installation and usage of the SuperStor disk compression utility consists of several user steps. First, the user should prepare their drive in order to ensure a smooth compression process. Second, the user will compress the drive using the SSTOR.EXE compression utility. Finally, the user will observe and maintain their compressed partitions using DR DOS utilities.

SuperStor requires that a Config.sys file be present in the root directory on a bootable drive to run properly. If you do not have a Config.sys file, you can create one using the DR DOS 6.0 EDITOR. Use the DR DOS "DEVICE=" statement to load the SSTORDRV.SYS and DEVSWAP.COM drivers.

### STEP #1: Preparation of Drive

The preparation of a prospective compressed drive is the most vital step in order to ensure a smooth compression process and smoothly operating compressed partition.

#### Backup

It is HIGHLY recommended that the user backup their hard disk drive previous to running the SSTOR program. This is done for two reasons. First, BACKUP is done to ensure that a user is able to recover from any error which may occur with the disk compression. Second, if the user wanted to return their compressed drive to a non-compressed state, they would have to remove their SuperStor partition, thus losing all their data on that partition. Note: There is no uncompress feature which restores a currently compressed drive back to its previous uncompressed state.

#### Remove Copy Protected Software

Generally copy protected software cannot reside on a SuperStor drive. This is because copy protected software will generally put its copy protection at a specific location on the drive. As soon as SuperStor is used, the copy protection will be moved and the application will not work. Copy protected software may be reinstalled after a drive has been compressed with SuperStor.

#### Free Up Disk Space

SuperStor requires a minimum of 1.5 MB of drive space. Make sure that you have at least 1.5 MB prior to running SSTOR. Please see the Delwatch/Delpurge section for further information regarding freeing up drive space.

#### Delwatch/Delpurge

Often the DR DOS 6.0 SETUP will install a delete tracking utility

called DELWATCH. DELWATCH then becomes active as a TSR which loads from the Autoexec.bat. As files are deleted from DOS they are marked by DELWATCH as Pending Deletes. These files no longer show in a directory, but still exist on the disk until they are purged with a second utility called DELPURGE. It is recommended that all files which have been deleted, with DELWATCH active, be DELPURGED from the soon to be compressed drive prior to compressing the drive with SuperStor. Please see the DR DOS 6.0 User Guide for additional information about DELWATCH and DELPURGE.

NOTE: The 12/6/91 DR DOS 6.0 Business Update will allow users to use DELWATCH and DELPURGE on a SuperStor compressed partition. The DR DOS 6.0 Business Update is currently being shipped to all registered DR DOS 6.0 users.

#### CHKDSK

It is recommended that a user use CHKDSK on a drive prior to using SuperStor. CHKDSK is helpful in order to verify the current integrity of your hard disk. Any errors reported by CHKDSK may be fixed using the CHKDSK /F command. Please see the DR DOS 6.0 User Guide for additional information regarding the CHKDSK and CHKDSK /F commands.

#### DISKOPT

DISKOPT is a DR DOS utility which helps to optimize the performance of a hard disk drive. It is recommended to run DISKOPT on a drive prior to using the SuperStor compress utility on the drive. Please see the DR DOS 6.0 User Guide for additional information about the DISKOPT utility.

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#### Third Party Surface Analysis

As a third and final aid to ensure a smooth compression, a surface analysis of your hard disk is recommended. There are several third party surface scanning utilities on the market. These utilities will further verify the integrity of your hard disk's low level formatting.

#### Virus Programs and SuperStor

Many of today's viral detection software report viruses on the basis of the changes the viral program detects within various system structures. These viral programs may incorrectly report a virus on a SuperStor drive if the program was installed prior to the compression of the drive. This is due to the virus program suddenly seeing vast changes to the drive structure after the drive has been compressed. It is recommended that virus protection software be removed prior to compression by SuperStor

and then reinstalled once compression is complete. This will allow the virus program to accept the SuperStor structures as normal DOS structures.

#### STEP #2: Compression of Partition

Once a user is confident that their drive is void of any hardware or software level defects, they may continue to the compression of a particular partition. This particular phase is described in the DR DOS 6.0 User Guide. However, key areas of interest are outlined in additional detail below.

#### Choosing Amount of Uncompressed Area (in k)

The SSTOR compression utility allows the user to define an amount of space to be left uncompressed by SuperStor. Certain applications such as a programming compiler may perform better if on an uncompressed portion of a drive.

Note: that a Windows 3.0 permanent swap file cannot reside on a compressed volume. Also, applications which create fixed length data files should also be stored on an uncompressed volume.

The actual amount left uncompressed will depend on the data compression ratio and the disk space available before the compression was done (in other words, SuperStor will use as much space as necessary to compress all of your files). Uncompressed space should be entered in K. For instance, if a user wants to set aside 4mb of a 20mb drive as uncompressed, the number entered would be 4000.

#### Verify, Compress, and Defragment

Verify, Compress, and Defragment are the three phases of actual disk compression which are performed by SuperStor. Verify further analyzes the chosen SuperStor drive for its integrity. Compress, the longest of the three phases, actually does the compression of the files on the drive. Defragment reorders the compressed files so that they are in a contiguous order.

### Operation

#### STEP #3: Understanding and Maintenance of a SuperStor Drive

The results of compression on a drive can be difficult to understand. There are two particular scenarios which can occur. That is, one can compress their primary Boot Partition or a Secondary Non-Boot Partition.

#### Installation to a Boot Partition (scenario #1)

On default, a 512k uncompressed boot partition will be created

when SuperStor is utilized on the Entire Boot Partition of a hard disk. As the user you have the option to increase the size of this partition as explained above in "Choosing Amount of Uncompressed Area (in k)." This uncompressed boot partition is needed to accommodate system files which must remain in an uncompressed state in order to boot the system. During the booting process the SuperStor driver will load from this uncompressed boot partition and mount all of the compressed partitions found. Then, the uncompressed boot partition will swap drive letters with the original boot partition where the remaining of the DR DOS operating files exist.

The following is a list of files which MUST be in the root directory on the uncompressed boot drive in order for SuperStor to operate properly.

IBMBIO.COM - Hidden system file used in booting process

IBMDOS.COM - Hidden system file used in booting process

COMMAND.COM - DR DOS Command Processor

DCONFIG.SYS - Your computer's boot configuration file

DEVSWAP.COM - Device swap allows for the swapping of drive letters.

SSTORDRV.SYS - SuperStor driver which mounts all presently compressed drives.

SSPARTSS.\* - This is the SuperStor compressed drive. It is marked read-only, system, and hidden so it is not harmed. ANY MANIPULATION OF THIS FILE COULD LEAD TO THE LOSS OF ALL DATA ON THE COMPRESSED PARTITION.

Additional files may be needed in the root directory such as a device driver for an additional I/O device or for a Memory Manager. The DR DOS memory manager should also exist in the DRDOS subdirectory on this uncompressed boot partition.

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DCONFIG.SYS

The DCONFIG.SYS file is the acting boot configuration file which will be created on the uncompressed boot drive after SuperStor has been used on the boot partition of a hard disk. The basic contents of this file, in the proper order, are as follows:

MEMORY MANAGER - A DR DOS or 3rd party memory manager which creates Upper Memory Blocks (UMBs) should begin the DCONFIG.SYS file. This will allow SUPERSTOR.DRV to put a portion of itself into the available Upper Memory Blocks created. For further information about SuperStor and memory management see DR DOS Tip #1202.

ADDITIONAL I/O DEVICE DRIVER - If a driver is needed on your system to access a certain drive, (disk partitioning utility) it should be placed here (before SSTORDRV.SYS). Drivers such as Disk Manager's DMDRVR.BIN or a CD ROM driver should be loaded prior to SuperStor so that their existence is properly recognized by the SuperStor driver.

SSTORDRV.SYS - The SuperStor device driver

DEVSWAP.COM - Device Swap device driver.

ADDITIONAL I/O DEVICE DRIVER - It is possible that an additional I/O device driver will be loaded after loading the SuperStor drivers.

CHAIN STATEMENT - Chains or jumps to execute the CONFIG.SYS which exists on the now compressed old boot partition.

EXAMPLE (Compression of a Bootable Drive):

Prior to using the SuperStor compression utility a user has one C: drive partition. The user decides to compress this entire boot partition. Once the SSTOR compression utility has done its job the user reboots and watches the booting messages display.

The machine now boots and activates the DCONFIG.SYS which exists on what now is the 512k uncompressed C: boot partition. The first SuperStor message to display is:

SuperStor fixed disk drive C: mounted as drive D:

The above message is displayed by the SSTORDRV.SYS device driver as it mounts the newly compressed C: drive as D:.

Drives C: and D: swapped

The above message is displayed by the DEVSWAP.COM device driver as it swaps drive letters so that the newly compressed C: drive shows once again as C:.

REMEMBER, the drive letter used for the uncompressed boot partition will vary depending on the next available drive letter.

Installation to a Non-Bootable Drive (scenerio #2)

Installation of SuperStor to a Non-Bootable Drive is a much simpler process than to that of the boot partition. As with the Bootable Partition, the full Non-Bootable Drive may be compressed entirely or uncompressed space may be set aside as another drive letter (see "Choosing Amount of Uncompressed Area (in k)" above).

The following is a list of the files seen on a Non-Bootable Drive having booted without the SuperStor driver installed.

SSPARTSS.\* - This is the SuperStor compressed drive. It is marked read-only, system, and hidden so it is not harmed. ANY MANIPULATION OF THIS FILE COULD LEAD TO THE LOSS OF ALL DATA ON THE COMPRESSED PARTITION.

EXAMPLE (compression of a Non-Bootable Drive):

Prior to using the SuperStor compression utility a user has one C: partition and a D: partition. The user decides to compress the entire D: partition. Once the SSTOR compression utility has done its job the user reboots and watches the booting messages display.

The machine now boots and activates the CONFIG.SYS which exists on the C: drive. The first SuperStor message to display is:

SuperStor fixed disk drive D: attached

The above message is displayed by the SSTORDRV.SYS device driver as it mounts the newly compressed D:.

Note: DEVSWAP.COM is not needed as a device driver if Non-Bootable Drives are the only to be compressed.

Common Questions

Q: Can SuperStor be used on a network server to compress the drive?

A: No, SuperStor is not designed to be used on a network server.

Q: If a previous version of DOS had a partition which was created

using SuperStor, can it be used under DR DOS 6.0?

A: Possibly. The AddStor retail version 1.3 partitions will be recognized using DR DOS 6.0's SuperStor drivers.

Q: Can the version of SuperStor which comes with DR DOS 6.0 work with another version of DOS?

A: ABSOLUTLEY NOT! DR DOS 6.0's version of SuperStor was designed specifically for DR DOS 6.0 and may cause severe disk corruption if used with any other DOS version.

Q: What is the largest SuperStor compressed partition I can create with SuperStor?

A: You can compress physical partitions of up to 256 Mbytes to create a 512 Mbyte SuperStor partition. If you have a larger than 256 Mbyte partitions you will have to back up your hard disk and use FDISK to create a smaller partition size before using SuperStor to compress the partition.

Q: Can I use a third party disk optimizer on my SuperStor partition?

A: It is not recommended to use a third party disk optimizer on a SuperStor partition as data may be lost or corrupted. This is because third party optimizers might not properly recognize the structure of the SuperStor partition and will therefore cause worse fragmentation than that which existed prior to the optimization process. Therefore, we recommend that you use the DR DOS 6.0 DISKOPT utility, which will properly handle the SuperStor partition.

Q: How large is the cluster size for the SuperStor partition?

A: The cluster size is 512 bytes. Therefore, 512 bytes is the smallest size compressed file possible.

Q: What if there are 30Mb of compressed (zip'd or Arc'd) files on a 30Mb drive that has been SuperStor'd?

A: There will be very little drive space left for other files. This is a very inefficient use of a SuperStor'd drive. The best files to compress will be data, document, or ASCII files. The files which compress the least will be .COM or .EXE files as well as files which have already been compressed (eg. arc'd or zip'd files). The compression ratios will show using the XDIR command or the statistics option in the SSTOR.EXE utility.

Q: How does SuperStor Work?

A: It works transparent to the person using it. Once the driver has been installed and the SuperStor utility has created the partition, it is completely unnoticeable to the user. It provides the compression and decompression activity to the files as they are read or written to the partition. Also, a user who has compressed a drive using SuperStor shouldn't notice any reduction in speed with respect to file execution on average systems.

Q: Does it effect data going to tape of floppy drives?

A: No. It will require that you have as much backup space as is shown in the SuperStor partition. For example, if the SuperStor partition reports 45Mb used out of 60Mb, you will need 45Mb of floppy or tape storage to backup the drive. In this sense, it is compatible with your existing backup software.

Q: Can I try SuperStor on a diskette before trying it on my hard drive?

A: No. The DR DOS 6.0 version of SuperStor will only work on media which is considered fixed.

Sources: DR DOS 6.0 Optimization and Configuration Tips Guide  
DR DOS 6.0 User Guide



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Document 1201

SUPERSTOR - UTILITIES/TROUBLESHOOTING

JD/RS

2/6/92

### UTILITIES

#### \*Maintenance

Third Party - Most disk utilities, other than those shipped with DR DOS 6.0, will not be able to properly define the internal structure of a SuperStor drive. This is why it is recommended that utilities which access internal drive information SHOULD NOT be used on a SuperStor drive.

DISKOPT - DISKOPT is a DR DOS 6.0 disk optimization utility which is recommended for optimization of a SuperStor drive. DISKOPT is able to properly analyze the internal allocation tables of a SuperStor drive by letting the SuperStor driver act as an interpreter to the drive.

CHKDSK - CHKDSK is another DOS command which allows the analysis of a drive. CHKDSK may be used to check the SuperStor drive integrity and fix lost clusters which occur on a SuperStor drive or any on any other drive. However, as noted below, CHKDSK may not always accurately report available space on a SuperStor drive.

#### \*Reported Statistics

Often the statistics reported by various DR DOS utilities and third party utilities will vary with respect to space available on a SuperStor drive. This is due to the utilities' individual understanding of SuperStor and its internal tables.

CHKDSK/Third Party Utilities - CHKDSK WILL NOT normally portray the proper amount of available space on a SuperStor drive. This is because CHKDSK bases all of its information on a perfectly formatted hard drive. That is to say, CHKDSK will always assume

the optimum result. In SuperStor's case, CHKDSK will assume that a perfect 2:1 compression ratio is always maintained. However, as SuperStor is used, its compression ratio will vary due to the differing compression ratios of the individual files put on the drive. Some files will have better than 2:1 compression ratios and some will have less than 2:1. Therefore, actual statistics will vary from CHKDSK and third party utilities as they are using this perfect 2:1 compression ratio to calculate free space.

DIR/XDIR/SuperStor Statistics - DIR, XDIR, and the SuperStor Statistics option may be used to properly determine the current SuperStor free space. All three of these options have adjustments built into them to account for the different compression ratios of each individual file kept on the SuperStor drive. In fact these three commands are kept aware of the internal allocation tables which SuperStor keeps.

**\*Reserved Units**

While performing a CHKDSK on a SuperStor partition, a user may notice the reporting of: XXXX Bytes in SuperStor Reserved Units. Also, the user may notice a great reduction in the amount of disk space free on their SuperStor partition.

SuperStor reserved units are entries in the SSTOR allocation table that are marked as unusable due to the storage of uncompressable data on the SuperStor partition. Note: Table entries refer to SuperStor's own internal allocation table; uncompressable data is defined as that which cannot be compressed further by using SuperStor (Arc'd, Zip, Gif files, Exepacked files, etc.) The following is an explanation of how reserved units are applied:

Drive	Actual Drive	SuperStored (compressed)
	50 MB	100 MB (2:1 compression ratio)
20% of drive (uncompressed)	10 MB Zipped File	10 MB
	-----	
	-----	
Space	40 MB Free Space	90 MB Free

(reported)

SuperStor 10 MB  
Reserved Units

Document 1201

-----  
80 MB Free  
Space (actual)

Above: a 50 MB hard disk has been compressed with SuperStor to create a 100 MB SuperStor partition. On this partition exists a uncompressable zip file 10 MB in size. Prior to using SuperStor the zipped file would have taken up approximately 20% of the 50 MB drive. (i.e. 10MB zipped file / 50 MB of total space = .20 or 20%.) The same applies after a SuperStor volume is created on the drive. However, in order to maintain the 20% occupancy of the zipped file, 10 MB of Reserved Units are needed. i.e. 10MB zipped file + 10 MB Reserved Units = 20 MB compressed. 20 MB compressed / 100 total space (after SuperStor) = .20 or 20%.

Since the 10 MB zipped file cannot be compressed it is stored on the SuperStor drive uncompressed. It is actually using 10 physical MB of disk space (as if SuperStor had never been used). Since the zipped file was not compressed, it has essentially a 1:1 compression ratio (Remember, SSTOR cannot further compress a file which already is compressed). Using a CHKDSK /F may clear the Reserved Units message shown previously by CHKDSK, but will not free up the disk space. In fact, the message will usually reappear after a few reads or writes have been made to the SuperStor partition.

Reserved Units will generally appear when your drive is 90% full or greater. If Reserved Units have appeared due to the storage of uncompressable data on a SuperStor drive, move the uncompressable data to a uncompressed drive. Then, free the SuperStor Reserved Units by performing a CHKDSK /F on the SuperStor drive.

#### \*Backing Up a SuperStor Drive

Direct Memory Access- Today's backup software offer a vast array of backup and restore options. Many of these backup options allow Direct Memory Access (DMA) backups which are sometimes called direct access or fast backups. These types of backups do not use

conventional DOS routines. This method does not allow the SuperStor driver (SSTORDRV.SYS) to act as a translator during the backup process. Use of a DMA backup option on a SuperStor compressed partition can result in an error message from the backup program such as "Drive not ready".

Image Backup (or Mirror Backup)- Image backup options allow a user to take an entire physical backup of a drive from beginning to ending cylinder of a drive. Think of it as a photograph that duplicates the entire contents of a disk including all system, hidden and read-only files along with FATs and directories. These backups are not recommended for a SuperStor drive as the prospective restore drive may not properly accept the backup. The restore drive MUST have the exact same parameters as the backup drive (drive size, total sectors, sectors per track, etc.).

File-by-File Backup- File-by-file backups are the most reliable backup method for use on a SuperStor compressed partition. This backup option will allow intervention of the SuperStor driver so that files on the backup are uncompressed and can be restored to either a compressed or a non-compressed drive.

#### HELPFUL TROUBLESHOOTING TIPS

\*If SuperStor will not compress a Non-bootable partition.

If SuperStor detects any files marked with the S for System attribute, SuperStor will not install. Use XDIR on the prospective drive to locate files with the System attribute active. Then, remove these files, or their System attribute so that SuperStor will execute.

\*SuperStor has been used on a boot drive which was partitioned with a 3rd party disk partitioning scheme. Now, the drive letters are out of sequence.

This is because the partitioning driver (Diskmanager, Speedstor) is loading after the SuperStor (disk compression) drivers have loaded. Place the partitioning driver before the SuperStor drivers in the correct configuration file. Please see Tip #1200 for additional information regarding third party driver placement with respect to a SuperStor drive.

\*A third party disk partitioning scheme had been used on a drive in which SuperStor has now been used to compress data. All

precautions to move the partitioning driver to its correct positioning have been taken. However, several additional "phantom" drive letter now appear which did not appear prior to SuperStor.

Check to see if the disk partitioning scheme has a driver loading in another configuration file as well. Make sure that this driver is only loading once in the appropriate location. Please see Tip #1200 for further information regarding third party driver placement with respect to a SuperStor drive.

\*Available space on the SuperStor drive is quickly reduced

First, scan the current compression ratios of the various files on the SuperStor drive. Using the XDIR command will allow the user to determine the compression ratios of each individual file. Once you have determined which files have poor compression ratios (1.3:1 or less), you may wish to move them to an uncompressed portion of the drive to improve the performance of SuperStor.

Second, perform a CHKDSK on the SuperStor drive and see if there are any bytes used by SuperStor Reserved Units. If so, check for and remove any files which may be uncompressable (those which have a approximately a 1:1 compression ratio). The SuperStor Reserved Units may be freed up by performing a CHKDSK /F. However, the Reserved Units message in CHKDSK may reappear if uncompressable data remains on the SuperStor drive.

Sources: DR DOS 6.0 Optimization and Configuration Tips Guide DR DOS 6.0 User Guide

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HILOADING SUPERSTOR

Description:

The device driver which loads SuperStor, SSTORDRV.SYS, is designed to load portions of its code into upper memory when that memory has been made available via an XMS (eXtended Memory Specification) compatible UMB (Upper Memory Block) provider, like EMM386.SYS.

When using EMM386.SYS, loading SSTORDRV.SYS is made simple, that is, DEVICE=C:\SSTORDRV.SYS or HIDEVICE=C:\SSTORDRV.SYS will load the driver properly. This is because SSTORDRV.SYS has been altered to load the same with either command. It knows when HIDEVICE is used, but loads like it does with DEVICE anyway.

Because a portion of SSTORDRV.SYS must remain in conventional memory there will be approximately 22K less conventional memory. If the driver cannot be loaded into upper memory users will see about a 48K loss of conventional memory.

When using Third Party XMS UMB providers with SSTORDR.SYS however, loading SSTORDRV.SYS may not be so straight forward. We have seen that users have had problems with 386MAX's 386MAX.SYS driver and QEMM's QEMM386.SYS driver. The problem seems to arise when users (or the Memory Manager's "optimize" program) tries to load ALL of SSTORDRV.SYS into upper memory with their own "HIDEVICE" equivalent. The SuperStor driver is unable to tell when it has been loaded with "HIDEVICE" equivalent commands. Users of QEMM and 386MAX (and other Third Party XMS UMB providers) should only load SSTORDRV.SYS with the DEVICE=C:\SSTORDRV.SYS syntax.

Example:

Loading SSTORDRV.SYS with the following commands may cause problems:

```
DEVICE=C:\QEMM\LOADHI.SYS C:\SSTORDRV.SYS
DEVICE=C:\386MAX\386LOAD.SYS PROG=C:\SSTORDRV.SYS
```

Use :

```
DEVICE=C:\SSTORDRV.SYS instead.
```

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#### DELWATCH TIPS

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#### Description:

If Delwatch has been enabled and an end-user then compresses his disk he will receive an error message from Delwatch indicating that compressed drives cannot be Delwatched. Because of the dynamic nature of the compressed drive any memory resident delete tracking utility will have trouble with SuperStor. However, utilities such as Diskmap will work on the compressed drive. This type of utility makes a copy of the FAT to use for recovery.

Superstor will compress pending delete files so be sure and perform a Delpurge of the pending delete files to remove them from the disk before compressing the drive.

It is highly recommended that Delwatch be turned off and the pending delete files be purged prior to compressing the drive.

\*\*\*\*\*

#### Description:

Delwatch is also reported to cause problems with Norton's Speedisk and Disk Doctor. This may also be true of other utilites such as PCTools' Diskfix. The applications in question think of the pending delete files as lost clusters or invalid directories. The problem is due to the fact that when a file is deleted with Delwatch the cluster chain in the FAT is left intact and the filename in the directory has the first character replaced with an ascii 05dec. Programs can think of this character as an indication of a corrupted directory entry.

\*\*\*\*\*

#### Description:

Because of the way Delwatch keeps pending files some programs may think that they have run out of disk space as they check the disk with a direct call on free space. If this happens just have the end-user perform a del purge to clear the necessary space for the application and reinstall.

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Slow Disk Transfers

Description:

Some customers may experience very slow data transfer rates when their applications are doing direct disk input. The slow transfer rate is a result of how DR DOS handles device drivers or applications which use upper memory blocks while writing data to the disk drive

Under DR DOS, disk access going through UMBs is transferred to conventional memory before it is written. It is then written one sector at a time. This reduces 1:1 interleave down to 17:1 which results in disk writes being 3 to 8 times slower than disk writes going directly through conventional memory. It is only a problem with writes to the disk, not reads.

What would cause this slow transfer rate under DR DOS?

1) A disk I/O driver loaded into upper memory, such as the Stacker disk compressor or Disk Manager. The workaround is to load the driver in conventional memory.



Note: The DR DOS SuperStor driver averts this problem by leaving the DMA TRANSFER part of its code in conventional memory.

2) An application that makes disk transfers through UMBs, such as Lotus 3, Paradox 3, Autocad 386, Autocad 11.

Digital Research designed DR DOS to make disk writes through conventional memory in order to protect customers with Bus Master controllers (newer PS/2 models) or some older hardware. Without this protection, data on their drives could be severely corrupted. Digital Research is currently investigating this problem. Please keep in contact with technical support for more information.

\*\*\*\*\*

Slow disk access on older systems

Some customers with old systems, BIOS etc. report slow disk access time. This is not at initial log to the drive, but rather during file reads from within specific applications. This is not resolved by eliminating memory manager, or booting without TSR's, etc. SUPERPCK cannot be run due to memory limitations. Customers have reported that the problem is resolved by using DRIVER.SYS in CONFIG.SYS. After DRIVER.SYS is loaded, refer to the drive with the new drive spec assigned; for example, A: drive might be accessed with D:. You may use the command ASSIGN A=D, for example, in order to continue to access the drive as A: for consistency with existing applications.

Note that DRIVEPARM does achieve the same results, because the BIOS is still used for drive access.

\*\*\*\*\*

There is an apparent delay when first accessing a floppy drive, during which DR DOS actually reads data from the disk. This initial read will make subsequent commands from a floppy run faster since the directory and FAT tables have already been accessed.

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SUPER PC-KWIK

DESCRIPTION:

Using Super PC-Kwik and Windows 3.0

Disk caching with Super PC-Kwik is recommended for improved performance with Windows. Important notes on using PC-Kwik with Windows are in Chapter 13 of the DR DOS 6.0 User Guide.

Although PC-Kwik attempts by default to use all available extended memory, it lends back up to half of that to applications as requested.

Windows is unique in that it allocates all extended memory as it is loaded. Other applications use varying amounts of extended memory as they need it.

Because Windows needs 2 Mbytes or more of extended memory to run efficiently in enhanced mode, you must force PC-Kwik to lend at least 2 Mbytes of extended memory back to Windows on systems with insufficient extended memory for both the cache and Windows (i.e., those with less than 4 Mbytes of extended memory).

For example, on a system with a total of 4 Mbytes of memory (3 Mbytes extended), Super PC-Kwik would lend only 1536 Kbytes by default ( $3072 / 2 = 1536$ ). Because Windows prefers 2048 Kbytes or more, increase the default by using the following command:

SUPERPCK /L:2048

If total system memory is 5 Mbytes, or more, the Super PC-Kwik default lending of one-half of extended memory is sufficient to have an effective cache and run Windows in enhanced mode. If you run several applications through Windows and run out of memory, you can increase the lending amount with the PC-Kwik /L:xxxx switch.

If total system memory is large, for example 8 Mbytes or more, and you use Windows extensively, turn off lending completely and set the allocated amount for the cache buffer. For example, on a system with a 10 Mbyte total (9 Mbyte extended) use the following PC-Kwik switch: SUPERPCK /L- /S:3072. This keeps the cache buffer high, while giving Windows 6,144 Kbytes of extended memory for its own use. Once again, enable lending if Windows is running out of memory.

Using Super PC-Kwik

Size of Cache

Super PC-Kwik moves as much of its code into upper memory as possible; you do not need to use HILOAD or HIINSTALL on Super PC-Kwik. Super PC-Kwik will use the least amount of memory for its executable code if it is configured to cache in expanded (EMS) memory. The Super PC-Kwik code "footprint" is typically about 17 Kbytes in upper memory.

When Super PC-Kwik is configured to cache extended memory, the code footprint in the first 1 Mbyte of memory varies in size according to the amount of extended memory that is cached.

The Super PC-Kwik footprint in upper memory can be controlled by limiting the amount of extended memory allocated to the cache. If your system has more than 8 Mbytes of RAM, you might want to use the Super PCKwik /S:xxxx switch to limit the cache buffer size.

The Super PC-Kwik maximum cache buffer size is 16 Mbytes.

For information about running Super PC-Kwik with Windows, see "Running EMM386.SYS with Windows" on page 22 and Chapter 13 of the DR DOS 6.0 User Guide.

### Using Super PC-Kwik with Networks

You can load Super PC-Kwik on a DOS-based network server (e.g., Lantastic 4.0). However, advanced cache reads and writes should be disabled (use the Super PC-Kwik /H- and /D- switches.)

If you are using Novell NetWare, load Novell drivers before loading Super PC-Kwik to permit unloading the cache. You can load the Novell drivers after, but you must then leave Super PC-Kwik in memory.

Super PC-Kwik will not cache remote network drives (i.e, across the network). However, local drives can be cached.

When used on a network, the DR DOS 6.0 operating system must reload COMMAND.COM after Super PC-Kwik loads. You must use the DR DOS SHELL and SET COMSPEC commands to point to the location of COMMAND.COM. See Chapter 11 of the DR DOS 6.0 User Guide for a discussion of how to use the SHELL command, and Chapter 10 on how to use the SET command.

Do not use the DR DOS VERIFY=ON command when using a network as it will negate any gain from caching.

Also, when using Super PC-Kwik, the BUFFERS=4 command in the config.sys file is adequate, and the FASTOPEN command is generally not needed.

Generally, Super PC-Kwik should be loaded early in autoexec.bat. TSRs loaded after Super PC-Kwik must be unloaded from memory before Super PC-Kwik can be unloaded with the /U parameter.

If you use Lotus 1-2-3 v3.1, note that it uses the Rational

Systems DOS Extender. Use the DR DOS SET DOS16M=:384 command in the autoexec.bat file and use the Super PC-Kwik /R:400 switch.

### Troubleshooting Super PC-Kwik

If, after eliminating the factors listed above, Super PC-Kwik still malfunctions, check the parameters used when loading Super PC-Kwik. Begin with the simplest settings, such as /H-, /T-, and /D-.

If you suspect an upper memory conflict, use the Super PC-Kwik /&U- switch to prevent parts of Super PC-Kwik from moving into upper memory.

If you are having problems reading a drive, try the Super PC-Kwik /I+, /X /I+, or /T- switches. Also, see "Upper Memory Conflicts" on page 17.

### Floppy Drive Does Not Work

If you have installed Super PC-Kwik and have enabled the /D+ switch, your disk controller must be 100% IBM compatible. Reset the /D+ switch to /D- (the /D# switch works on some controllers) to turn off PC-Kwik's advanced caching for the floppy drives (advanced caching for your hard drive remains in effect).

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### FDISK CLUSTER SIZE

Description:

The cluster size that FDISK will select depends on the size of the partition being created. The cluster size for a particular partition size is shown in the following table:

Partition Size	Bytes/Sector	Sectors/Cluster	Cluster Size
0 - 127.9MB	512	4	2K
128 - 255.9MB	512	8	4K
256 - 511.9MB	512	16	8K
512MB - 2GB	512	32	16K

The cluster size is adjusted for different partitions because of the use of a 16 bit File Allocation Table (FAT). DR/PC/MS DOS use a 16 bit FAT and can therefore keep track of 65,536 clusters. If each of these clusters is 2k, 2k x 65,536 is about 127.9MB. If a larger partition is desired, the cluster size has to be increased since the number of clusters is limited. Thus the cluster size goes to 4k. 4k x 65,536 is about 255.9MB. At that point, the cluster size has to be adjusted again.

If a third party utility is used to create a partition using different cluster sizes, the bytes per sector setting must be a power of 2 (... ,64,128,256,512,1024,...).

The above information is based upon using the FDISK utility included in the February Business Update of DR DOS 5 or in releases manufactured after that time. This includes DR DOS 6 and DR MULTI-USER DOS.

The following is for releases of DR DOS prior to 2/1/91

Partition Size	Bytes/Sector	Sectors/Cluster	Cluster Size
0 - 63.9MB	512	4	2K
64 - 127.9MB	512	8	4K

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Document 1209

ViewMAX

1/6/92

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Description:

#### Installing ViewMAX through DR DOS Setup

DR DOS Setup has a section that allows end users to choose basic configuration options for ViewMAX. Available options include the ability to select screen type, mouse type and port, and color palette.

Video

The DR DOS default for screen driver is VGA. If a user is not sure what screen type to select choose the default. If a blank screen appears when running ViewMAX the wrong screen driver has probably been selected. Try Ctrl-Q to restore the DOS prompt. Ctrl-Q is the keyboard shortcut for quitting ViewMAX. Check the video card manual for the type of video card installed. DR DOS comes with drivers for the most common types of video cards.

Setup also allows a choice of color palette. There are 8 different color palettes available, although more can be created by editing the VIEWMAX.INI file. Two of the palettes (Monochrome and LCD/Plasma) can be used on the special displays that come with some laptops. These same two palettes are also usable on color systems.

IMPORTANT for monochrome video displays

If a monochrome display is installed it is recommended that the user choose the monochrome palette. Choosing a full color palette could result in some sections of the ViewMAX screen having the same foreground and background color.

#### IMPORTANT for CGA video displays

Because of the limited amount of video memory in a CGA video card, ViewMAX can only display in black and white (2 color mode) on CGA displays. Any of the color palettes can be selected when installing ViewMAX for CGA but the screen may not be acceptable when translated into black and white (this is the same problem that was mentioned above for monochrome displays). It is recommended that CGA users select the monochrome palette when setting up ViewMAX.

#### IMPORTANT for EGA video displays

Early EGA displays did not come with enough memory to display 640x350 in 16 colors. If one of these cards is installed select the CGA driver. If an end user is not sure what type of EGA card is being used try the EGA driver. If it is one of the older cards vertical stripes that may have blinking characters in them will appear or the screen may fill with random characters as the mouse is moved.

If the video adapter is not an EGA card and the screen gets characters as mentioned above or simply gets a blank screen with a cursor blinking in the upper left corner then the video card is not 100% compatible with the video driver selected. Check hardware manuals for compatibility.

At this time Digital Research does not offer any screen drivers other than the ones found on the DR DOS 6 ViewMAX disk. If the video card is not compatible with the drivers included please submit an SPR form detailing the manufacturer, type and model of the video card.

#### Mouse

The ViewMAX setup offers 5 different choices for mouse. The first option is for keyboard only support. The second option is for Bus mouse or a pointing device that requires its own driver. This option is the default. As long as the device has a driver that can emulate a mouse then it can be used with ViewMAX. This includes devices such as trackballs and graphics tablets. The PS/2 mouse option is for any computer that uses a PS/2 type mouse. The other options are drivers for the specific devices listed.



IMPORTANT for mice that use drivers

If a mouse driver is loaded in CONFIG.SYS, AUTOEXEC.BAT or command line prior to running ViewMAX then the Bus Mouse option (default) should be used.

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This option is also recommended if there is trouble configuring a mouse to work with ViewMAX. Set ViewMAX for bus mouse and load the driver. If the problem continues make sure the mouse is installed correctly. Most pointing devices come with their own diagnostic software to help trouble shoot problems. When ViewMAX is set for Bus it does not matter if the mouse is a true bus mouse or is attached to a COM port. ViewMAX does not try to control the mouse directly but instead communicates with the mouse driver.

The Microsoft and Logitech options in Setup are drivers. If a driver is already loaded and either of these options is chosen the mouse may behave erratically or not move at all. Either unload the mouse driver or change the ViewMAX setup to bus mouse.

If you find yourself in ViewMAX with your mouse not working you can exit ViewMAX with a CTRL-Q (holding the Control key and striking Q ). If you wish to continue using ViewMAX a CTRL-RIGHT SHIFT will toggle the cursor to keyboard control. This is not the same as choosing keyboard control from Setup. When cursor control has shifted to keyboard the HOME key takes the place of the mouse button, not the ENTER or SPACEBAR key. To drag a selection box use the END key. Double clicking is accomplished by striking the HOME key twice quickly.

IMPORTANT for all mouse users

If you have trouble executing applications from ViewMAX (double clicking) you may wish to adjust the double click speed in the Options/Preferences menu in ViewMAX. The default setting is 3 (medium) but it may be easier for some users to select 1 (slow). If you change this setting be sure to Save Preferences so that this speed setting is preserved.

Automatic startup

The final question in Setup is whether to load ViewMAX at boot time. If the answer is yes then the ViewMAX command will be added to your AUTOEXEC.BAT.

Users can enter Setup at any time and change the ViewMAX configuration without affecting any other installation settings. Changing the configuration through Setup will not affect any User Preferences set previously nor will it affect configured

applications.

### Configuration Tips and Common Questions about ViewMAX

ViewMAX requires 512K of RAM to run. ViewMAX memory requirements can be reduced by disabling the clock and calculator accessory. To do this rename VIEWMAX.ACC (for example to VIEWMAX.ACX). ViewMAX will then not attempt to load the accessory. This will save approximately 20K. Refer to the RENAME command description in the DR DOS 6.0 User Guide.

ViewMAX will use approximately 20K of the available DOS memory to execute an application. This is due to overhead required to shell.

ViewMAX will not reduce DOS memory when executing an application if TaskMAX is running and ViewMAX controls TaskMAX. Each application that is executed from ViewMAX will be spawned as a new task.

If ViewMAX is used to control TaskMAX it is recommended that the Bus mouse option be used. This will allow the user to have mouse control in other applications. It is important to remember that any device loaded before TaskMAX is universal to all tasks. Any driver or TSR loaded after TaskMAX is available only in the task in which it was loaded.

The Format command in the ViewMAX File Menu does not pass parameters. This means that if a computer has a high-density drive then no low-density disks can be formatted using this menu command. The workaround for this is to execute the FORMAT utility in the DR DOS directory. ViewMAX will then ask for any parameters that need to be entered.

Changing the date and time on the ViewMAX clock will update system date and time in the CMOS. This is a convenient way to update the clock without having to enter CMOS Setup.

Users who have complex sub-directory structures (such as network drives) may wish to turn off the Tree. This is due to the fact that ViewMAX reads the entire directory file structure when it starts or returns from an application. Not displaying the Tree will cause ViewMAX to read only the current directory, not the entire drive structure.

Under some configurations ViewMAX may want a user to insert a floppy disk every time that ViewMAX loads. The user has Saved

Preferences with a window open on a floppy drive. To stop this from happening simply Save Preferences when no window is open on a floppy drive.

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### Advanced User Configuration of VIEWMAX.INI

This section is primarily intended for advanced users who feel comfortable with changing configurations and would like a better understanding of how ViewMAX works. Novices will find the first section of this note on DR DOS setup useful in understanding what choices are available and how to do some basic trouble shooting but we do not recommend that they try to directly edit the VIEWMAX.INI file.

#### ViewMAX configuration

The file VIEWMAX.INI is an ASCII file that contains the configuration information that ViewMAX uses on initialization. The file includes parameters for screen colors, mouse type and port, screen driver to be used, and programs that have been configured. Also stored in this file are the User Preferences, starting directories for each window, window size, and other defaults.

If a user makes a mistake and ViewMAX indicates that the VIEWMAX.INI file is missing or unusable just copy the file from the ViewMAX disk or better yet make sure there is a backup copy before making any changes. The DR DOS Editor will automatically make a backup with the extension .BAK when a file is changed and saved.

#### Editing the VIEWMAX.INI file

The DR DOS EDITOR program or any other ASCII editor can be used to edit the VIEWMAX.INI file. Keywords in the file are case sensitive. For example, if a colorset is added it must be spelled "ColorSet". The C and S must be upper case and all other letters lower case or ViewMAX will not recognize the line.

Anything after a pound sign "#" is regarded as a comment and is ignored by ViewMAX. Comments will not affect Setup's ability to read the file but beware: Changing the VIEWMAX.INI file with Setup will remove all comments.

Brackets "[ ]" indicate different paragraphs within the configuration file. It is not recommended that the order of these be changed.

#### VIEWMAX.INI fields

[PREFS] A series of switches from the OPTIONS/PREFERENCES menu where 0=off and 1=on. It is not really necessary to manually edit these functions as ViewMAX has the ability to adjust these values easily.

[WINDOW] This section controls the size of the two ViewMAX windows. While this may give the impression that users can configure ViewMAX windows to any size they want on the screen, there are only 3 windows sizes that can be used. It is recommended that users not adjust these except via the ViewMAX program. Also stored here are the sort order, view, path, tree and wildcards. These are also easily configurable from within ViewMAX.

[PROGRAMS] This is for configured applications. The paragraph contains information about the selected icon, the name of the application, whether or not it takes parameters and what the associated document extensions are. Do not change or modify the first 6 entries that contain wildcards (\*.exe, \*.\* , etc.). ViewMAX sets aside a 1K buffer for the storage of the information in this section. That amounts to approximately 35 configured applications. If you need to enter more applications you can remove the GEM and DR DOS applications that are preconfigured in this section.

Example:

```
a b c      d          e
| | |      |          |
```

```
(G:12,44) DRAW.APP *.GEM
```

syntax: (a:b,c) d [e]

a D = folder

G = GEM application

m = DOS, no params, needs full memory

M = DOS, no params

p = DOS, params, needs full memory

P = DOS, params

b,c internal id numbers for app and document icons; -1 means no

icon

d application name; ~ means not applicable

e document type(s); ~ means none

[COLORS] This section is the one that will probably attract the attention of most users. This is where information on colorsets are stored for the various windows and dialog boxes. Remember that CGA and Monochrome monitors will interpret the color to black and white and so little will be gained by changing palettes on these systems. MaxColors should equal the total number of ColorSets. MaxColors will determine the total number of colors listed in the OPTIONS/COLOR SCHEMES dialog. CurrentColor indicates the palette that is currently selected to be the startup palette. This value can be changed by both Setup or the OPTIONS/COLOR SCHEMES dialog. If using the OPTIONS/COLOR SCHEMES dialog be sure to SAVE PREFERENCES to change the CurrentColor in VIEWMAX.INI.

Information contained in the ColorSets indicates individual colors and fills for each component of a window. Below is a listing of the ColorSet variables and a reference of where they appear on the ViewMAX screen. Refer to page 20 of the ViewMAX User Guide for a diagram of the ViewMAX screen.

ColorSet	ViewMAX diagram page 20
-----	-----
NAME	TITLE BAR (active window)
INFO	INFORMATION TITLE
SLCTDNAME	TITLE BAR (inactive window)
DESKTOP	background color
SLIDER	SLIDER
BUTTON	SCROLL BAR

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The ColorSet called Button is also used as the color of ViewMAX

dialog boxes.

Each ColorSet setting has 4 numbers that are in groups of 2. The first 2 digits are colors. The next 2 numbers establish the fill by which the two colors are blended together. The following is a section of a ColorSet called Bright. The name of the ColorSet must be in quotes. The chart indicates what portions of the sequence are colors and which ones are fill patterns. Commas must be used as delimiters for proper syntax. All spaces are ignored.

```
ColorSet3="Bright"
```

```
Name= 2,0, 1,0
```

```
Info= 3,4, 2,4
```

ColorSet	Color 1	Color 2	Fill	Fill
-----	-----	-----	----	----
Name	2,	0,	1,	0
Info	3,	4,	2,	4

There are 16 possible colors in ViewMAX. Valid numbers are 0-15 with the first 8 as high intensity colors.

Color number	Color
-----	-----
0	white
1	black
2	red
3	green
4	blue
5	cyan
6	yellow

- 7                   magenta
- 8                   light gray
- 9                   dark gray
- 10                  dark red
- 11                  dark green
- 12                  dark blue
- 13                  dark cyan
- 14                  dark yellow
- 15                  dark magenta

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There are a total of 39 fills that can be used with the above colors. ViewMAX will generally use the first few fills in its default ColorSets.

As indicated earlier it takes a pair of numbers to define a fill. If the first digit is 0 a hollow or white fill is displayed. If the first digit is 1 then the first number is used as a solid fill. In both of the cases the second digit has no meaning. For example the fill 1,n has the same result as 2,8. If the first digit is 2, then a pattern is generated where the two colors are blended together in various proportions. There are 24 combinations possible whose values range from 2,1 to 2,24. A first digit of 3 indicates a hatch. Valid values for hatches are 3,1 to 3,12. Some of these fills can be very busy so test them first. If a color or fill is out of range ViewMAX will substitute a 0 in its place.

Here are the total range of color combinations that are possible. The letter "n" indicates that any number can be used.

Hollow	Pattern	Pattern	Pattern	Hatch	Hatch
-----	-----	-----	-----	-----	-----

0,n	2,1	2,9	2,17	3,1	3,9
	2,2	2,10	2,18	3,2	3,10
Filled	2,3	2,11	2,19	3,3	3,11
1,n	2,4	2,12	2,20	3,4	3,12
	2,5	2,13	2,21	3,5	
	2,6	2,14	2,22	3,6	
	2,7	2,15	2,23	3,7	
	2,8	2,16	2,24	3,8	

[DRIVERS] This section is for screen and mouse drivers. MaxDrv indicates the total number of drivers listed. DR DOS comes with 4 screen drivers that can be used on 7 different type of video cards.

CurrentDrv is the driver that ViewMAX is configured to use on startup.

VidPatch sets internal switches for screen drivers. When ViewMAX is configured to use an EGA or VGA display, it automatically determines the current display type, either Monochrome or Color, EGA, or VGA. If, for any reason, a different display mode is required, ViewMAX can be forced to work with a specified display type by editing the VIDPATCH keyword with the following contents:  
VIDPATCH = nn

where nn is replaced by a digit between 00 and 03.

- 00 Monochrome EGA Display
- 01 Color EGA Display
- 02 Monochrome VGA Display
- 03 Color VGA Display

MouseType describes the type of mouse chosen in DR DOS Setup.



MousePort is the communications port to be used by the mouse. Any device that uses the Bus mouse option will have 255 as the port number.

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Memory Management

Description:

Memory Management Overview

The purpose of a memory management system is to effectively manage the Random Access Memory (RAM) available on your computer and to maximize memory in which to load your applications. When personal computers were first introduced, they operated with as little as 64 kilobytes (Kbytes) of RAM. However, as PCs became more sophisticated and powerful, so did the application programs that ran on them.

Today, modern applications frequently require 540 Kbytes of memory, or more, to load. Ten years ago, that amount of required RAM would have seemed vastly excessive. Many common configurations do not have sufficient memory for proper fractioning of large applications.

And, although today's computers typically have over 1 Mbyte of RAM available, only a portion of the first 640 Kbytes are available for DOS applications. Device drivers and TSRs are also typically loaded into this area, reducing the memory available for an application.

Memory management software is designed to overcome the problem of insufficient conventional memory. The DR DOS memory management system is called MemoryMAX.

## The DR DOS MemoryMAX System

The term MemoryMAX describes the collection of device drivers and commands that are used for memory management under the DR DOS 6.0 operating system to take advantage of all RAM memory available on your computer.

The MemoryMAX system is designed to free-up as much conventional memory as possible. It achieves this goal by utilizing certain previously unused areas of high and lower memory and by remapping and moving other memory areas.

The MemoryMAX system extends the amount of memory available to applications, so that even with network drivers and TSRs loaded, there can still be 620 Kbytes, or more, conventional memory available. However, the exact amount of additional memory that MemoryMAX provides is dependent on your particular system's configuration.

The MemoryMAX system consists of three device drivers and six commands. The MemoryMAX device drivers and commands are detailed in Chapter 11 of the DR DOS 6.0 User Guide, "Customizing your System". This table lists MemoryMAX drivers and features by various hardware configurations.

### MemoryMAX Features Available with Hardware/Device Driver Combinations

Applicable Hardware	Driver	LIM	DR DOS Kernel Kernel Relocation	XMS	DRDOS UpperMemory
386sx, 386 or 486	EMM386.SYS	YES	YES	YES	YES

386sx, 386, or 486,	HIDOS.SYS with Third- Party XMS Memory Mgr				?	YES		YES	N/S
-----	-----				-----	-----		-----	-----
IBM PS/2 80286 with IBM XMA card	EMMXMA.SYS		YES			N/S		N/S	N/S
-----	-----		-----		-----	-----		-----	-----
80286 with Extended Mem	HIDOS.SYS		N/S			YES		YES	N/S
-----	-----		-----		-----	-----		-----	-----
80286 with Mappable Shadow Ram with Ext Memory	HIDOS.SYS		N/S			YES		YES	YES
-----	-----		-----		-----	-----		-----	-----
80286 with Mappable Shadow Ram No Extended Memory	HIDOS.SYS		N/S			YES		YES	YES
-----	-----		-----		-----	-----		-----	-----
80286 with NeAT, LeAP, or SCAT	HIDOS.SYS		N/S			YES		YES	YES
-----	-----		-----		-----	-----		-----	-----
80286 with LIM 4.0 driver and extended memory Document 1300	HIDOS.SYS with third party driver		YES			YES		YES	YES
-----	-----		-----		-----	-----		-----	-----
8088/8086/ 80286 with LIM 4.0 EMS card and no extended	HIDOS.SYS with third party LIM 4.0 driver		YES			YES		YES	YES
-----	-----		-----		-----	-----		-----	-----

-----|-----|-----|-----|-----|-----  
-----

Supported feature = YES

Unsupported feature = N/S

? = This entry depends on the features offered by third-party memory manager

If upper memory is not supported, HIDEVICE, HIBUFFERS, HIINSTALL, and HILOAD commands have no effect. HIDOS=ON|OFF might be supported if the third-party memory manager allocates XMS upper memory blocks (UMBs).

## MemoryMAX System Commands and Drivers

The following is a listing and brief description of the components of the MemoryMAX memory management system. Refer to the DR DOS 6.0 User Guide for a complete description of each of these features and commands.

### EMM386.SYS

EMM386.SYS is a device driver that allows the DR DOS 6.0 operating system to make better use of the memory available on Intel i386, i386SX, and i486-based computers. Using EMM386.SYS, you can use LIM 4.0 expanded memory without the need for special add-on cards; relocate the DR DOS operating system kernel to upper or high memory, and enable upper memory to be used for TSRs, device drivers and operating system data structures by using the /AUTOSCAN, /INCLUDE, /EXCLUDE, and /USE options. You can also add up to 96 Kbytes to conventional memory using the /VIDEO option.

### HIDOS.SYS

If you have an Intel 80286-based computer with extended memory, you can use the HIDOS.SYS driver to relocate the DR DOS operating system kernel to high memory (see the /BDOS option). On computers that support Shadow RAM, HIDOS.SYS relocates the kernel to upper memory, and enables you to load TSRs, drivers and operating

system data structures into upper memory. Using the /VIDEO option, you can also add up to 96 Kbytes to conventional memory.

Example config.sys entry:

```
DEVICE=C:\DRDOS\HIDOS.SYS /BDOS=AUTO
```

HIDOS.SYS can also work in conjunction with LIM 4.0 expanded memory (EMS) device drivers to provide upper memory support on 8088/8086/80286 computers. This feature is detailed in the readme file or Release Notes.

Note:

The HIDOS.SYS driver should not be confused with the similarly-named DR DOS MemoryMAX "HIDOS = ON/OFF" command (see below).

EMMXMA.SYS

Use this driver on PS/2 80286 computers with IBM XMA and 100% compatible memory cards, to convert memory from extended to LIM expanded memory.

Example config.sys entry:

```
DEVICE=C:\DRDOS\EMMXMA.SYS /FRAME=D000
```

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Note:

The EMMXMA.SYS driver can be used only on PS/2 computers, and you cannot use the EMMXMA.SYS driver with any third-party memory managers (e.g., the Qualitas 386/MAX, or the Quarterdeck Expanded Memory Manager 386). You can use HIDOS.SYS following EMMXMA.SYS to obtain upper memory support.

The MemoryMAX commands listed below can be used when upper memory is supported by loading the EMM386.SYS or HIDOS.SYS drivers in the config.sys file.

## HIBUFFERS

Use HIBUFFERS to specify the number of memory buffers that the DR DOS 6.0 operating system uses. HIBUFFERS performs the same function as BUFFERS, except that HIBUFFERS allocates as many buffers as possible into high memory rather than conventional memory. The following entry in your config.sys file sets the number of buffers to 20 and forces the DR DOS 6.0 operating system to allocate as many as possible from high memory.

Example config.sys entry:

```
HIBUFFERS = 20
```

## HIDEVICE

The HIDEVICE command loads specified device drivers into upper memory. If the device is unable to load into upper memory using HIDEVICE, it will be loaded into conventional memory. The following command loads the ANSI.SYS device driver into upper memory:

```
HIDEVICE=C:\DRDOS\ANSI.SYS
```

## HIDOS

The HIDOS command relocates as much of the DR DOS operating system data structures as possible into upper memory. The default is OFF.

Example config.sys entry:

```
HIDOS=ON
```

## HIINSTALL

The HIINSTALL command loads specified TSRs into upper memory. If there is insufficient upper memory for the specified TSR, it is loaded into conventional memory. Although similar to the HILOAD

command (see below), HIINSTALL must be loaded via the config.sys file. Use HIINSTALL when you want a TSR permanently loaded at boot time because of best memory allocation (see the example in Chapter 2). The following command installs the CURSOR program into upper memory:

```
HIINSTALL=C:\DRDOS\CURSOR.EXE
```

Notice that you must give the full path name to the program and its extension (.com or .exe).

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HILOAD

HILOAD loads specified TSRs and network drivers into upper memory. HILOAD is similar to the HIINSTALL command (which must be loaded using the config.sys file), but can be executed from the command line or from the autoexec.bat or other batch file. Before using HILOAD, you must be sure that upper memory has been enabled with the MEMMAX +U command.

For example,

```
C:> HILOAD C:\LAN\NET3
```

MEMMAX

The MEMMAX command selectively enables and disables those enhanced memory areas provided by the DR DOS 6.0 operating system that might conflict with some applications. By using the MEMMAX +V switch, MEMMAX also enables extra memory if it has been reserved in the video adapter area by EMM386.SYS or HIDOS.SYS. You can execute the MEMMAX command from the command line or a batch file (see Chapter 10 of the DR DOS 6.0 User Guide).

Note:

If you enabled the video adapter area by using MEMMAX +V, you must use the MEMMAX -V command to release this memory before loading graphics applications.

The HIDOS.SYS and EMM386.SYS device drivers can increase the conventional memory available to applications by using upper memory. However, some programs fail because they do not expect to find memory in this region. MEMMAX allows you to selectively enable and disable upper and lower memory from the command line or from batch files. MEMMAX +U and -U will respectively enable and disable upper memory. The DR DOS 6.0 installation will place the command "MEMMAX -U > nul" onto the autoexec.bat file. The "> nul" disables the display of the MEMMAX status message on the screen.

MEMMAX -L and +L will respectively disable and enable the first 64 Kbytes of conventional memory. This region is termed "low memory". Usually the operating system resides in low memory; however, by using the DR DOS 6.0 MemoryMAX features, most of this area can be made available for running applications. Some applications were written using packing utilities that become confused when run in this low memory. If this happens, the following message appears:

"Packed file is corrupt".

To correct this situation, use the MEMMAX -L command to disable low memory before running the application. After exiting the application, use MEMMAX +L to enable the low memory area once again.

Example:

The following example shows how you can use the MEMMAX command in a batch file that loads network drivers into upper memory. The example assumes that you have already loaded a DR DOS 6.0 device driver that supports upper memory.

```
REM * * * MEMMAX to open upper memory * * *
MEMMAX +U
HILOAD C:\LAN\IPX
HILOAD C:\LAN\NET3
REM * * * * Disable lower memory * * *
MEMMAX -L
I:
CD LOGIN
REM * * * * Reopen lower memory * * * *
MEMMAX +L
```



## Conclusion

While the MemoryMAX memory system works well with most application programs, you might still encounter occasional difficulty. The following chapters present the steps recommended for resolving such memory conflicts.

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## Basic Memory Optimization

### Description:

## System Memory Optimization

Because the DR DOS 6.0 operating system has been designed to work with all IBM-compatible personal computers and software applications, there is no single perfect memory setup that will optimize memory use for all situations. Memory optimization will depend both on your particular hardware setup and the software applications you will be using. However, with a bit of trial-and-error system fine tuning, you can optimize DR DOS memory management to meet your particular needs. Below are techniques and suggestions that will help you optimize your computer/software setup.

## Changing Order of Memory Allocation

The first step in optimizing your system memory can be as simple as rearranging the order in which memory blocks are assigned by

the config.sys and autoexec.bat files. The general rule here is to use upper memory and high memory as much as possible to free conventional memory for your applications. With this in mind, you should typically use HIBUFFERS and relocate the DR DOS kernel code to high memory by using the /BDOS=FFFF option of the DR DOS memory management drivers, HIDOS.SYS and EMM386.SYS. Also, if you have any add-on cards that use RAM, make sure that they are configured so that their RAM is allocated from the beginning or end of upper memory. For example, place a network card immediately above the video RAM area instead of in the middle of upper memory.

Following this, device drivers and TSRs can be loaded into upper memory. For best memory allocation, those drivers and TSRs that occupy the largest blocks of memory should be loaded first and contiguously. For example, if you need to load three device drivers and two TSR programs, order them in descending order in your config.sys file, beginning with the driver that will occupy the most RAM, to the driver or TSR that will occupy the least RAM. The documentation for the drivers and TSRs should indicate the amount of RAM they require; however, if they do not, you can determine this yourself by using the following procedure:

1. Load the driver or TSR.
2. Use the MEM /U or /B command to see a report of your memory usage (see Chapter 10 of the DR DOS 6.0 User Guide for a full description of the MEM command and Chapter 12 regarding loading device drivers and TSRs).

### Expanding Files

If, after determining the size of your drivers and TSRs and loading them into high memory, a driver or program fails to run properly or produces an out of memory error message, the problem might be that the driver or program is expanding itself in RAM.

Some device drivers and TSR programs occupy a minimal amount of RAM after they are loaded into memory, but, while initializing, might actually expand and take up considerably more RAM than they will ultimately need. Another method of verifying the program's true RAM size is to load it into conventional memory (i.e., by deactivating the HIDEVICE, HIINSTALL, or HILOAD commands),

activate the program, and then run the MEM /B command to see the actual amount of RAM the program occupies. If the program or driver is expanding itself in RAM, and you want to load it into upper memory, you will have to allow sufficient upper memory RAM to accommodate the initialization size of the program. It might be necessary to use trial-and-error to determine this size. See also "Using MemoryMAX with NetWare" on page 33 for an example.

#### Example

In the following example, let's assume you want to load Device Drivers 1, 2, and 3, and TSR programs 1 and 2, each requiring the following amounts of memory:

```
Driver #1      = 13Kbyte of RAM
Driver #2      = 10Kbyte of RAM
Driver #3      = 16Kbyte of RAM
TSR #1   = 4Kbyte of RAM
TSR #2   = 6Kbyte of RAM
```

Using the MemoryMAX HIDEVICE and/or HIINSTALL commands, enter these lines into your config.sys file:

```
HIDEVICE = C:\DRIVER#3.SYS      ; which uses 16kb RAM
HIDEVICE = C:\DRIVER#1.SYS      ; which uses 13kb RAM
HIDEVICE = C:\DRIVER#2.SYS      ; which uses 10kb RAM
HIINSTALL = TSR#2                ; which uses 6kb RAM
HIINSTALL = TSR#1                ; which uses 4kb RAM
```

#### Note:

There can be exceptions to loading TSRs and drivers in the "largest first" system described previously. Some device drivers must be loaded in a specific order. Read the manufacturer's documentation carefully before installing any driver.

Note that in the above example, you can load the two TSRs with the HILOAD command placed in the autoexec.bat file. For a discussion of the MemoryMAX HIINSTALL, HIDEVICE, and HILOAD commands, see "MemoryMAX System Commands and Drivers" on page 4 in the DR DOS 6.0 User Guide.

## LIM Page Frame

Some applications run better with the availability of LIM memory (sometimes called EMS, or expanded memory). The documentation for each of your applications will indicate if LIM memory is required.

If the application does not require LIM memory, be sure that no LIM page frame is defined. This will save 64 Kbytes of upper memory. In the EMM386.SYS line of your config.sys file, disable the page frame with the switch /F=NONE. If using HIDOS.SYS on a machine with a LIM 4.0 memory card, you can disable the page frame by specifying /CHIPSET=EMSALL.

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## Troubleshooting

### Description:

## Troubleshooting

## Isolating the Problem

If you encounter memory conflicts after you have arranged your device drivers and TSRs in the manner described in the previous chapter, your next step should be to isolate and identify the offending conflict. The best way to do this is to methodically load each of your drivers, TSRs, and application programs one at a time until you encounter the problem driver or program.

Note:

To complete the following steps, you should be familiar with editing your config.sys and autoexec.bat files with a wordprocessor or text editor such as the DR DOS EDITOR, and with the REM command. Refer to Chapters 7 and 11 of the DR DOS 6.0 User Guide.

Whenever you experiment with and change your config.sys and autoexec.bat files, you should always have a separate bootable floppy disk available containing the unedited, original versions of your config.sys and autoexec.bat files in case you need to reboot your computer from the A: drive. Then, if you need to go back to your original configuration, you can copy the original config.sys and autoexec.bat files from your backup diskettes onto your boot disk. (See Chapter 10 in the DR DOS 6.0 User Guide for information on how to create a bootable floppy disk.)

To isolate the source of your memory conflict, turn off those lines in your config.sys or autoexec.bat file that might be causing the problem. Do this by editing the config.sys or autoexec.bat file and placing a REM comment at the beginning of each line you want to turn off. For example, to turn off the following config.sys line:

```
DEVICE = C:\DRDOS\EMM386.SYS /F=AUTO /K=2024
```

add the REM comment to the beginning of the line:

```
REM DEVICE = C:\DRDOS\EMM386.SYS /F=AUTO /K=2024
```

If you find a particular line is not causing a problem, you can reactivate it by simply removing the REM statement.

Note:

You can also use the DR DOS conditional "?" statement to activate/deactivate config.sys line commands. See Chapter 11 of the DR DOS 6.0 User Guide for details. If you use this option, make careful note of whether you said "yes" or "no" to loading each line.

After turning off the suspect lines with a REM statement, reboot your computer to retest the driver/application with which you first encountered your memory problem. If the system runs correctly, reenter your config.sys or autoexec.bat file and remove the REM command from one line and then reboot and reload the application. Continue this process until you again encounter the memory problem. When it recurs, you will have isolated the line in the config.sys or autoexec.bat file that is causing the memory conflict. You can now take action to resolve the conflict, as described in the following sections.

#### Document 1302 Possible Problems

After you have isolated the problem driver or program, you can use the techniques described below to make the appropriate corrections to your computer's configuration.

Some problems that you might encounter after installing the MemoryMAX drivers include:

- \*Insufficient conventional memory to load a particular driver or program.
- \*HILOAD, HIINSTALL, or HIDEVICE features do not seem to operate correctly
- \*Computer locks up
- \*Upper memory conflicts
- \*Video problems
- \*Error message: "Packed file is corrupt."

Each of these problems, and the techniques to correct them, are described below.

#### Insufficient Conventional Memory

After using the DR DOS 6.0 memory management system to increase conventional memory, there should not be a problem due to insufficient memory. However, if a large number of device drivers or TSRs are in use, this problem might still occur. Review Chapter 1 of this guide to ensure you have taken the

proper steps to optimize system memory. Try the MEMMAX +L command in case an earlier command or batch file disabled available low memory. Finally, if the application does not use the graphics display area, try the /V switch of the DR DOS 6.0 memory manager, followed by MEMMAX +V before loading your application.

#### HILOAD, HIINSTALL, or HIDEVICE Considerations

Each of these commands requires the availability of upper memory blocks (UMBs). You can verify that the UMBs are available by using the DR DOS MEM /B or /U commands to see a report of your memory usage (see Chapter 10 of the DR DOS 6.0 User Guide for a full description of the MEM command). Available UMB blocks will be marked as FREE under the Type column in the MEM listing.

The HILOAD, HIINSTALL, and HIDEVICE commands require prior installation of the EMM386.SYS or HIDOS.SYS driver. If the MEM report shows that upper memory is not being utilized, check your config.sys to make sure the driver has been properly installed and that the option switches have been entered correctly. If they are set, pay particular attention to the /FRAME, /AUTOSCAN, /INCLUDE, /BDOS, and /EXCLUDE switches to ensure that any upper memory address specified by these switches have been correctly set (a common error is using an "oh" instead of a zero).

If you use Microsoft Windows 3.0, the /WINSTD switch might have been set. The /WINSTD switch automatically blocks access to the UMBs, making them unavailable to HILOAD, HIINSTALL, and HIDEVICE. Windows 3.0 will not run properly in standard mode if UMBs have been used by something else. (See the "Using EMM386.SYS with Windows" on page 22.)

If you do not require the use of expanded memory, set the /FRAME switch to /FRAME=NONE.

The HILOAD command must be invoked before using the MEMMAX -U command to disable upper memory. Use the MEMMAX +U command to re-enable upper memory, if necessary. (Note that the DR DOS installation program automatically inserts the MEMMAX -U command in the autoexec.bat file; therefore, you must either put HILOAD above it, or use MEMMAX +U to enable upper memory).

If there appears to be sufficient upper memory available, but HILOAD, HIINSTALL, or HIDEVICE fail to put a particular TSR or driver into upper memory, some device drivers and TSR programs when initializing might actually expand and take up considerably more RAM than they will ultimately need. See "System Memory Optimization" on page 9 for a complete description of this problem.

Computer will not boot or locks up

Reboot your machine with a bootable floppy disk in drive A:. Follow the instructions in "Isolating the Problem" above and edit the C: drive config.sys and/or autoexec.bat files to turn off and isolate, with the REM command, those lines in the files that might be causing the problem.

The most probable cause is that the DR DOS 6.0 memory manager has moved something into a region of upper memory required by a hardware device driver attempting to use the same areas of memory. Use the /EXCLUDE option (see page 18) switches to remedy the problem.

If a hardware device is not causing a conflict, and the lockup occurs with a particular program, this program might become confused when upper or low memory is available. Try using the command MEMMAX -U and/or MEMMAX -L before loading the program.

Upper Memory Conflicts: Using /EXCLUDE

Your machine or the accessories in your machine might be using upper memory addresses that are also being accessed by the DR DOS 6.0 memory manager. To prevent this, exclude EMM386.SYS or HIDOS.SYS access to the upper memory address range that is causing the conflict. The following recommendations apply to the EMM386.SYS driver for 386 and 486 computers, or the HIDOS.SYS driver on 286 computers with shadow RAM.



Some typical symptoms of upper memory conflict include:

- \*inability to log onto networks
- \*inability to access hard or floppy disk drives
- \*inability to format low-density floppy disks in high density drives
- \*error messages such as "card not found."

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A good starting place to check for upper memory usage is the documentation for any accessory boards or drivers you have installed; if they require upper memory, it will usually be indicated in the documentation.

If you encounter such problems and suspect that upper memory conflicts can be the cause, first REM out the memory manager line of the config.sys file completely. If the problem disappears, you know that the memory driver is part of the conflict and you can begin to look at changing switches to correct the problem. Use the DR DOS EDITOR and change the following settings in your config.sys file:

1. If the EMM386.SYS /BDOS option is set to /BDOS=AUTO, switch it to /BDOS=FFFF,
2. Save config.sys.
3. Reboot.
4. Retest.

If the problem recurs, change the /R=AUTO setting to /R=NONE, and then save the config.sys file, and reboot the computer to retest.

You can also use the /EXCLUDE switch to exclude an area of upper memory that the /AUTOSCAN feature detects as being available but, in fact, might be used by another device, such as a network card.

The /EXCLUDE Option

If the hardware documentation does not specify a memory range to be excluded, you can use the /EXCLUDE option to discover if there is an upper memory conflict. This option is used to systematically exclude sections of upper memory from being used

by EMM386.SYS by excluding upper memory "half-at-a-time." For example, use this "halving" method to exclude the top half of the upper memory range first, reboot the computer and test the problem. Then, if the problem recurs, change the /EXCLUDE setting to exclude the lower half of upper memory, reboot, and retest.

After discovering in which half of upper memory the conflict resides, repeat the process by dividing that memory range in half. You can use this technique to break down the entire upper memory range, half-by-half, until you pinpoint the area of conflict.

You must use the hexadecimal notation of the memory address with the /EXCLUDE switch. The following brief explanation is provided for those unfamiliar with using the hexadecimal system.

#### Hexadecimal Addresses

The 384 Kbyte range of upper memory resides between the hexadecimal memory addresses of A000 and FFFF. The upper half of this range lies between the addresses D000 and FFFF; the lower half lies between A000 and CFFF. Because A000 to BFFF is typically reserved for video display, you will normally work only with addresses C000 to FFFF.

To exclude the lower half of the C000 to FFFF range, enter the following /EXCLUDE command in your EMM386.SYS or HIDOS.SYS line in the config.sys file:

```
/E=C000-DFFF
```

Then, reboot your computer to test the exclusion. If the problem persists, edit the /EXCLUDE statement to exclude the other half of the C000 to FFFF range by entering the following in the config.sys file:

```
/E=E000-FFFF
```

Continue excluding a smaller and smaller range of memory until you have found the smallest possible exclusion, which still

permits proper functioning.

Note:

The first address in each range of memory (EXCLUDE, INCLUDE, etc.) must end in "00" and the second must end in "FF."

Note that you can also exclude multiple memory ranges with the /EXCLUDE statement by separating the ranges with a comma, e.g., /E=D000-D7FF,DA00-DBFF.

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The chart below shows how this process works, and shows the memory address for the 64 Kbyte range in the "D" segment of upper memory.

```
D000-DFFF = 64K = D000-D7FF = 32K + D800-DFFF = 32K = 64K TOTAL
D000-D7FF = 32K = D000-D3FF = 16K + D400-D7FF = 16K = 32K TOTAL
D800-DFFF = 32K = D800-DBFF = 16K + DC00-DFFF = 16K = 32K TOTAL
D000-D1FF = 8K + D200-D3FF = 8K = 16K TOTAL
D400-D5FF = 8K + D600-D7FF = 8K = 16K TOTAL
D800-D9FF = 8K + DA00-DBFF = 8K = 16K TOTAL
DC00-DDFF = 8K + DE00-DFFF = 8K = 16K TOTAL
```

(The first "D" in each hex address above can be replaced with C, E, or F when working with those segments.)

Once you find the conflicting range of upper memory, permanently exclude it from being used by EMM386.SYS or HIDOS.SYS by using the /EXCLUDE statement.

## Video Problems

If you experience problems with your video display after installing MemoryMAX drivers, a possible cause is that your video adapter is attempting to use some of the same upper memory addresses being allocated by EMM386.SYS or HIDOS.SYS.

A quick way to determine if your current memory setup is causing a conflict with a video (or other device) board is to "turn off the entire memory driver line in your config.sys file by using

the REM command or the "?" technique discussed previously in "Isolating the Problem." If the problem does not recur with the memory driver "turned off," the cause of the problem is probably an upper memory conflict.

See "The DR DOS MemoryMAX System" on page 2 for information about how to determine if upper memory is being used by drivers and hardware boards.

Use the EMM386.SYS or HIDOS.SYS /VIDEO option to reserve graphics memory addresses normally occupied by video display adapters (see Chapter 11 of the DR DOS 6.0 User Guide).

If the /VIDEO option is set, and the video corruption is occurring with a graphics program, be sure that the MEMMAX -V switch is operative. When only text displays are required, the MEMMAX +V switch can borrow some of the graphics memory areas and add it to conventional memory, providing more space for text applications. However, if an application requires graphical displays, you must be sure this memory area is available to video by issuing the MEMMAX -V command.

If the video display is corrupted only during use with the DR DOS TaskMAX task switcher, refer to the readme file (in the DR DOS directory) or the Release Note for instructions on how to use the TaskMAX /F switch.

Document 1302  
Network Hardware Interfacing

It is common for network hardware to utilize areas of upper memory and thus conflict with MemoryMAX allocations of that memory. If this occurs, you might be unable to log onto the network or random lockups might occur. See "Upper Memory Conflicts" on page 17, and "Using Network Software" on page 30, for a full discussion of how to deal with upper memory conflicts such as these and how to use the EMM386.SYS /EXCLUDE switch to exclude the conflicting areas of upper memory.

Another possible cause of network problems is that your network driver is designed for use with MS-DOS versions other than

versions 3.3+. Network drivers designed for use with MS-DOS versions 4.0+ and 5.0 would not be appropriate for the DR DOS 6.0 operating system. (See "Using Network Software" on page 30)

### Floppy Drive Does Not Work

If you have installed Super PC-Kwik and have enabled the /D+ switch, your disk controller must be 100% IBM compatible. Reset the /D+ switch to /D- (the /D# switch works on some controllers) to turn off PC-Kwik's advanced caching for the floppy drives (advanced caching for your hard drive remains in effect).

### SCSI Disk Drive Problems

The DR DOS 6.0 operating system supports virtual DMA and bus master controllers. Any problem with SCSI drives is probably due to a memory conflict (see "Upper Memory Conflicts" on page 17).

### Expanded (EMS) Memory Problems

If a program that requires EMS memory reports that no EMS is available or locks up when executed, the problem might be that the application assumes that the LIM page frame starts at a specified address.

Remedy this problem by ensuring that the LIM page frame defined in the application's SETUP program or documentation matches the settings in EMM386.SYS or EMMXMA.SYS. The /F= switch defines the start of the LIM page frame.

Another cause of insufficient LIM memory occurs if you are using TaskMAX in expanded memory and too many tasks have been loaded. Unload a few of the tasks and restart the program.

Error message: "Packed file is corrupt."

This error might occur when the first 64 Kbytes of conventional

memory (called low memory) have been made available through the use of MemoryMAX. Normally, the operating system occupies this entire area. Some applications were written using packing utilities that become confused when run in this low memory. If this happens, the following message appears:  
Packed file is corrupt.

For an easy workaroud, use the MEMMAX -L command to disable low memory before running the application. Then load and run your application. After exiting the application, use MEMMAX +L to enable the low memory area once again.

Because this problem can occur with other memory managers, including QEMM.386, your application vendor might be able to supply you with an updated application that does not exhibit this problem.

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Third Party Memory Managers

Description:

Relocating the Kernel

When you use a memory manager from another vendor, you can gain additional conventional memory space by relocating the DR DOS kernel to upper or high memory. The third-party memory manager must support the XMS specification, and upper or high memory must be available. To relocate the kernel, insert the statement:

```
DEVICE=C:\DRDOS\HIDOS.SYS
```

after the statement that loads the third-party memory manager.

HIDOS.SYS attempts, by default, to relocate the DR DOS kernel to upper memory. If upper memory is not supported or not available, the kernel is placed in high memory. You can force the kernel to high memory by using the following DEVICE statement:

```
DEVICE=C:\DRDOS\HIDOS.SYS /BDOS=FFFF
```

The following examples show how and where to add the statement when loading Qualitas 386MAX or the Quarterdeck QEMM or QRAM drivers.

Qualitas 386MAX

```
DEVICE=C:\386MAX\386MAX.SYS [...etc.]
DEVICE=C:\DRDOS\HIDOS.SYS [...etc.]
DEVICE=C:\386MAX\386LOAD.SYS [...etc.]
```

Quarterdeck QEMM.386

```
DEVICE=C:\QEMM\QEMM.SYS [...etc.]
DEVICE=C:\DRDOS\HIDOS.SYS [...etc.]
DEVICE=C:\QEMM\LOADHI.SYS [...etc.]
```

Quarterdeck QRAM (with Intel AboveBoard)

```
@SCREEN = DEVICE=C:\ABOARD\EMS.SYS AT 208 MC
DEVICE=C:\QRAM\QRAM.SYS.
DEVICE=C:\DRDOS\HIDOS.SYS
DEVICE=C:\QRAM\LOADHI.SYS [...etc.]
```

Note:

EMM386.SYS cannot be used with other memory managers.

When a third-party memory manager is loaded, the following config.sys statements have no effect:

HIINSTALL

## HIDEVICE

If a user loads a third party memory manager which creates and makes available XMS upper memory blocks compatible with the 2.0 specification, HIDOS=[ON|OFF] itself will relocate DR DOS 6.0 data structures in upper memory. Those blocks will appear as "XMS UMB"'s from within any memory mapping utilities provided with the third party memory manager. However, HILOAD, HIDEVICE, and HIINSTALL commands have no effect. Most memory managers offer equivalent commands that you can use.

## Quarterdeck DESQview

When running the Quarterdeck DESQview program under the DR DOS 6.0 operating system, use the QEMM386.SYS driver as the primary memory management driver instead of EMM386.SYS provided with the DR DOS 6.0 operating system. When QEMM386.SYS loads from the config.sys file, it then becomes responsible for controlling both the upper memory area, between 640 Kbytes and 1 Mbyte, and the high memory area, the first 64 Kbytes above 1 Mbyte.

Move device drivers and memory resident software to upper memory using the normal QEMM LOADHI commands. After loading QEMM386.SYS, the operating system kernel can still be moved to upper memory or high memory by loading the DR DOS HIDOS.SYS driver in the config.sys file right after the QEMM386.SYS driver. To move the kernel to upper memory, use the option /B=AUTO at the end of the HIDOS.SYS line in config.sys.

To specify that the kernel should be placed in high memory, leaving more upper memory available for device drivers and memory resident programs, use the option /B=FFFF.

Depending on the configuration of DESQview, a gain in available memory might not be seen after loading HIDOS.SYS. DESQview uses the high memory for 63Kbytes of code that normally sit in conventional memory, while HIDOS.SYS moves approximately 45Kbytes into that area. Because the high memory area can be used by only one application at a time, experiment with /B=AUTO, /B=FFFF, or do not load HIDOS.SYS. These different options can be quickly tested using the DR DOS 6.0 question mark option (?) in config.sys. Placing a ? in front of any line in config.sys



displays that line at boot-up and then you can select Y(es) or N(o) to execute that instruction.

You might insert the following lines while experimenting:

```
? "Do you want to avoid moving the KERNEL (Y/N) "GOTO SKIP
? "Kernel in Upper Memory (Y/N) "
DEVICE=C:\DRDOS\HIDOS.SYS /B=AUTO
? "Kernel in High Memory (Y/N) "
DEVICE=C:\DRDOS\HIDOS.SYS /B=FFFF
:SKIP
```

Refer to Chapter 11 of the DR DOS 6.0 User Guide for a full discussion of this feature.

If you are running QEMM386.SYS without DESQview, you should always move the kernel to high memory.

Document 1305

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MEMORY USE

Description:

When using the EMM386.SYS device driver, you may notice that the MEM command can display a memory report that seems to show more memory available than exists on your computer. For example, consider the following EMM386.SYS device driver line on a computer with 3,072 Kbytes of Extended memory:

```
DEVICE=C:\DRDOS\EMM386.SYS /F=AUTO /K=AUTO /B=FFFF /R=AUTO
```

This line has the effect of converting all Extended memory into Extended via XMS and EMS (expanded) memory. The resulting MEM report might show that the computer has 3,072 Kbytes of Extended memory and 3,072 Kbytes of EMS memory under the "Total Bytes" column, with 2,864 Kbytes of Extended via XMS memory and 2,864 Kbytes of EMS memory under the "Available" column as shown below.

Memory Type	Total	Available
Conventional	( 60K )	( 626K )
Upper	( 96K )	( 79K )
High	( 64K )	( 18K )
Extended	( 3,072K )	( 0K )
Extended via XMS	N/A	( 2,864K )
EMS	( 3,072K )	( 2,864K )

To understand this, it might be helpful to view the total Extended memory available on a computer as comprising a dynamic pool of memory. This memory can be viewed as dynamic because it is available to be accessed either as Extended via XMS memory or as EMS (expanded) memory depending on the "/K" setting on the EMM386.SYS device driver. In the case shown above, "/K=AUTO" tells EMM386.SYS to allow ALL of the Extended memory pool to be accessed as Extended via XMS memory and EMS memory in equal portions. The MEM command therefore shows both amounts of memory as being available because you or your applications might want to use a portion or all of the memory pool as either Extended via XMS memory or EMS memory. The "/K" switch can be used to put a limit on the amount of EMS memory to be created from the total memory pool. The following EMM386.SYS device driver line on the same computer with 3,072 Kbytes of Extended memory will limit the amount of EMS memory to be created from the total memory pool by setting the "/K" option to "/K=1024":

```
DEVICE=C:\DRDOS\EMM386.SYS /F=AUTO /K=1024 /B=FFFF /R=AUTO
```

This line will still cause EMM386.SYS to convert all of the memory pool into Extended via XMS, but it will limit the amount of EMS to 1,024 Kbytes. The resulting MEM report might show that the computer has 3,072 Kbytes of Extended memory and 1,024 Kbytes

of EMS memory under the "Total Bytes" column, with 2,864 Kbytes of Extended via XMS memory still available but only 896 Kbytes of EMS memory under the "Available" column as shown below.

Memory Type	Total	Available
Conventional	( 640K )	( 626K )
Upper	( 96K )	( 79K )
High	( 64K )	( 17K )
Extended	( 3,072K )	( 0K )
Extended via XMS	N/A	( 2,864K )
EMS	( 1,024K )	( 896K )

You will notice in both of the above examples, that there is a difference between the "Total Bytes" of Extended memory and the "Available" bytes of Extended via XMS memory and a similar difference between the "Total Bytes" of EMS memory and the "Available" bytes of EMS memory. This is due to the amount of "overhead" memory used by the EMM386.SYS software to convert the memory pool into both types of available memory.

XMS memory is extended memory created by memory management software which conforms to the XMS specification developed by Lotus, Intel, and Microsoft. The DR DOS memory management software device driver (EMM386.SYS) fully supports this specification and, as a result, initially converts ALL of the computer's available extended memory into XMS extended memory. This is the reason that there is no "Extended" memory listed in the "Available" column of the DR DOS MEM report; it has all been converted to XMS memory by the EMM386.SYS device driver. This is also the reason why Extended via XMS lists as "N/A" under the "Total Bytes" column; XMS memory is created by a software device driver and is not present at boot time.

Note: EMS memory is listed with a specific value under the "Total Bytes" column by the MEM report unlike the Extended via XMS listing. EMS memory can be created by a software device driver (like EMM386.SYS alone) or can be created by EMS (LIM 4.0) hardware memory boards and their accompanying device driver. This specific value is intended to reflect this EMS memory created by the "/K" option on the EMM386.SYS device driver line or "hardware" EMS memory created by certain platforms, typically

non- 386/386sx/486 platforms, which actually contain EMS (LIM 4.0) hardware.

Document 1306

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LOADING DR DOS IN UPPER MEMORY ONLY

Description:

There are certain conditions under which you may wish to not load DR DOS system files into HMA (High Memory Area) due to the fact that other applications may need to use it. Some of these applications include Desqview and XMSNET (Novell Netware). Another application under which you may wish to not use the HMA is if you are trying to run Windows in enhanced mode on a 2 megabyte computer. Since Windows requires 1 megabyte of XMS memory you cannot use any of the HMA.

Example:

To keep DR DOS 6.0 out of the HMA:

- 1) Make sure that the /MH option is not used on any of the DR DOS 6.0 commands that support it. This includes SHELL, SHARE and Delwatch. Use the /MU option instead on these files.
- 2) Make sure that the HIBUFFERS command is not used in the CONFIG.SYS file. This command will use the HMA even if the Kernel is not put there with /BDOS=FFFF.
- 3) Make sure that the /BDOS option reads: /BDOS=AUTO.

386 computers can also use HIDOS.SYS with /B=AUTO. This will prevent you from hloading but this is not an issue with 3rd party memory managers.

Document 1308

FYI

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Document 1308

GATE A20 and Printing

BPT

2/7/92

Description:

286, 386, 486 machines may have a problem printing if their BIOS Setup has the ability to enable GATE A20. If the port seems to hang as though the printer is off line, then GATE A20 may be the problem.

GATE A20 indicates protected mode is already in use. Some motherboards have been found to set GATE A20 as active. If so, it will conflict with ANY protected mode program such as the EMM386.SYS driver that comes with DR DOS 6.0 with the result that the LPT port may hang.

Often, there is a solution in the BIOS SETUP (usually accessible just as the machine runs its memory count). Many BIOS Setup menus allows you to turn off GATE A-20. The type of printer is not relevant, nor the video or CPU. Newer version motherboards do not automatically set the GATE A20 on and will therefore work correctly.

Example:

ERROR: (pin A-20 already set), or the machine hangs when trying access the parallel port.

Enter BIOS Setup and disable GATE A20.

Document 1402

FYI

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Document 1402  
Novell Netware

Description:

The Novell NetWare Program

The DR DOS 6.0 operating system has been thoroughly tested on the Novell NetWare program from version 2.15 and above.

The vast majority of questions about the NetWare program deal with:

\*Installation/Compatibility considerations of the DR DOS 6.0 operating system on a Novell network.

\*Using TaskMAX with NetWare.

\*Using MemoryMAX with NetWare, or maximizing the amount of conventional memory for applications.

\*Installation/Compatibility Considerations

The DR DOS 6.0 operating system is internally compatible with DOS 3.31 data structures. As a result, when programs like the Novell NetWare shell programs ask the DR DOS 6.0 operating system for a version number, the DR DOS 6.0 operating system reports 3.31. It is important to understand this when installing the DR DOS 6.0 operating system onto NetWare workstations and onto NetWare servers. If you have a mix of different DOS versions, follow the manufacturer's suggestions in regard to configuring the network for COMPAQ DOS 3.31 workstations.

Server Installation

If you choose to install the DR DOS 6.0 operating system onto a non-dedicated server, consult the Novell NetWare reference

manuals or your network administrator for information on installing and configuring a non-dedicated server. The DR DOS 6.0 operating system requires no unique consideration in this case.

When configuring a network so that all the system utilities are loaded on the server, the NetWare server should contain copies of all the required DOS files used at each workstation. If certain workstations are running DOS 4.x, then a particular directory on the server will hold a copy of the set of all DOS 4.x system files used by the workstation when it is running independent of the network. When a DR DOS 6.0 workstation is logged onto the network, at least one of the workstation's network drives will be mapped to the directory on the server holding the DR DOS 6.0 system files.

Refer to the DR DOS 6.0 User Guide, Appendix F, for information on configuring a NetWare server to properly load the DR DOS 6.0 operating system on remote diskless workstations.

#### Workstation Installation

When installing the DR DOS 6.0 operating system on a network workstation that is part of an existing network, you will usually not have to make any changes to the workstation; simply install the DR DOS 6.0 operating system once the NetWare server has been updated with the DR DOS 6.0 operating system. If you are upgrading from DOS 3.x to the DR DOS 6.0 operating system, it should not be necessary to upgrade your existing NetWare shells. However, if you are upgrading from DOS 4.x or MS-DOS 5, you will have to use NetWare shells intended for use with DOS 3.x. You can use the proper set of NetWare shell programs obtained from your network administrator or Novell, or you can use the set provided in the NETWARE directory on the DR DOS 6.0 ViewMAX installation diskette.

If you have to change shell programs, you might need to generate a new IPX.COM program to accompany the new shell version. Consult the Novell NetWare reference manuals or your network administrator for information on how to accomplish this.

#### Using TaskMAX with NetWare

Before using TaskMAX on a NetWare workstation, you must update your NetWare shell programs. The necessary files are provided in the NETWARE directory on the last DR DOS 6.0 operating system diskette (typically labelled ViewMAX). This update should be

done by you Network System Administrator.

Under most circumstances, no further adjustments will be necessary to run TaskMAX on a NetWare workstation.

Load the NetWare shell programs and all drives and printers mapped before loading TaskMAX. If NetWare utilities like MAP, LOGIN, and SESSION are run from more than one DR DOS command prompt via TaskMAX, the resulting drive and printer mappings might not work as expected.

If within one or more tasks under TaskMAX, you choose to run an application that makes direct calls to the Novell IPX or SPX TSR program (sometimes called a peer-to-peer application), you might need to load the IPX data buffering program called TBMI2.COM before loading TaskMAX. This program will handle the buffering of information from IPX or SPX so that data is not lost after switching away from one of these peer-to-peer applications. Further information on TBMI2.COM can be found in a file called TBMI2.DOC on the DR DOS 6.0 ViewMAX diskette.

#### Using MemoryMAX with NetWare

When using the DR DOS 6.0 operating system on a NetWare workstation that supports upper memory, you can move both of the required NetWare programs outside conventional memory and into upper memory to maximize the amount of memory available to applications running after the NetWare programs have been loaded. (See Appendix C in the DR DOS 6.0 User Guide for a description of the various regions of memory within a computer, and Chapter 12 for information on what regions will be available on your particular computer.)

When upper memory is available, the NetWare programs IPX.COM and NETX.COM or NET3.COM (NETX is hereafter used to describe either program), can be loaded into upper memory using the HILOAD command from the AUTOEXEC.BAT file or from the DR DOS command line.

Document 1402  
Memory Usage

To determine if IPX and NETX programs will fit into upper memory, do the following:

1. Determine the memory size requirements of these programs by examining the output of the MEM /A /P command after the programs have been loaded into conventional memory or loaded



without MemoryMAX. (See the DR DOS 6.0 User Guide, Chapter 10, for more information on the MEM command.)

2. Disable any and all upper memory used by device drivers, TSRs, and/or applications by inserting a REM statement or a "?" command at the beginning of each line containing HIDEVICE, HIINSTALL, and HILOAD commands in your CONFIG.SYS and AUTOEXEC.BAT files. Use the DR DOS Editor program.

3. Make upper memory available on your machine by inserting the appropriate MemoryMAX device driver line into your CONFIG.SYS file or by running SETUP, and then reboot your computer by typing Ctrl-Alt-Del.

4. Without having loaded any of the NetWare programs, examine the size of areas in upper memory that are marked as FREE in the TYPE column of the MEM /U /P command output.

As a general rule, when the size of one or more of these upper memory areas marked as FREE exceeds the size of a program that is loaded into conventional memory, it will be possible to relocate that program into upper memory. It is important to note that the size of total FREE upper memory is not as important as the size of the individual FREE areas of upper memory, because applications require contiguous free memory to load.

#### Using HILOAD

When upper memory is available and when FREE areas exist large enough to contain the NetWare programs, the HILOAD command can be used to move the NetWare programs into upper memory. Upper memory is made available by loading the appropriate MemoryMAX driver at boot time and executing the MEMMAX +U command to "open" upper memory so that it will accept programs loaded by HILOAD. The following four lines describe one way you can load the NetWare programs using HILOAD:

```
MEMMAX +U
HILOAD IPX.COM
HILOAD NETX.COM
MEMMAX -U
```

These lines can be appended to your AUTOEXEC.BAT file or they can be executed from the DR DOS command line. Note that the DR DOS INSTALL program will automatically insert the command, MEMMAX -U >NUL, into your AUTOEXEC.BAT file, so you must insert MEMMAX +U to override it. (The >NUL portion of the command instructs the

DR DOS 6.0 operating system not to display the output of the MEMMAX command on the screen.) In addition, please note the following about the HILOAD command:

\*HILOAD will work only with the DR DOS MemoryMAX drivers, and not with third party memory managers such as QEMM386.SYS and 386MAX.SYS.

\*HILOAD will not run after NET3.COM has been loaded. This is because Novell replaces the DOS routines (INT 21 functions) that handle HILOADs under the DR DOS 6.0 operating system with their own routines, which cannot place programs into upper memory.

### Troubleshooting

\*NetWare shell programs won't load into upper memory.\*

Make sure that upper memory is available and that the size of one or more upper memory areas marked as FREE exceeds the size of the NetWare shell program that is loaded into conventional memory instead of upper memory. (See the DR DOS 6.0 User Guide, Chapter 10, for more information on the MEMMAX and MEM commands and how they can be used to determine if the above conditions are met.) Also, consider the following.

For EMM386.SYS users:

\*You can append the /LOWEMM switch to the EMM386.SYS device driver line in your CONFIG.SYS file. The EMM386.SYS device driver leaves its program code in conventional memory, which should give you an additional 28K of upper memory.

\*If LIM (Expanded memory) is not really necessary, you might consider disabling it: change the /FRAME switch on the EMM386.SYS device driver line so that it reads /F=NONE.

\*If LIM is necessary, you might consider using another NetWare shell instead of NETX.COM. (Refer to your Novell reference manuals for information on how EMSNETX.COM and XMSNETX.COM work.)

\*With both EMSNETX.COM and XMSNETX.COM, do not use the HILOAD command.

\*With XMSNETX.COM, the /BDOS switch on the EMM386.SYS device driver line should be changed so that it reads /B=AUTO or /B=NONE.

\*Try changing the line that reads HIDOS=ON in your CONFIG.SYS file so that it reads HIDOS=OFF. This prevents the DR DOS 6.0

operating system from automatically relocating certain portions of the operating system into upper memory.

\*If only text-based applications will be run at this workstation, use the /VIDEO switch on the EMM386.SYS device driver line along with the MEMMAX +V command to enable the use of video RAM for extending conventional memory. This relieves the need to relocate the NetWare shell programs into upper memory.

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For HIDOS.SYS users:

\*Make sure that your machine will support upper memory. (See the DR DOS 6.0 User Guide, Chapter 12, for information on what regions are available on your particular computer.)

\*Consider using XMSNETX.COM instead of NETX.COM. With XMSNETX.COM, change the /BDOS switch on the HIDOS.SYS device driver line so that it reads /B=AUTO or /B=NONE.

\*If you are using HIDOS.SYS with the /CHIPSET option set to EMSUMB, consider disabling the LIM (Expanded memory) support provided by your LIM 4.0 driver by using the /CHIPSET=EMSALL option instead. EMSALL will disable the LIM 4.0 page frame and make available a larger region of upper memory for mappable RAM.

\*If your machine is equipped with at least 64K of extended memory above one megabyte, make sure that the /BDOS switch on the HIDOS.SYS device driver line reads /B=FFFF.

\*Try changing the line that reads HIDOS=ON in your CONFIG.SYS file so that it reads HIDOS=OFF. This prevents the DR DOS 6.0 operating system from automatically relocating certain portions of the operating system into upper memory.

\*Use the /VIDEO switch on the HIDOS.SYS device driver line along with the MEMMAX +V command to enable the use of video RAM for extending conventional memory. This relieves the need to relocate the NetWare shell programs into upper memory.

\*Machine locks up when trying to load NetWare shell programs.\*

Some network cards maintain ROM addresses in the upper memory region. It is possible that the MemoryMAX driver (EMM386.SYS or HIDOS.SYS) is not able to recognize such areas as being already in use by the network card. If the DR DOS 6.0 operating system has written some portion of the operating system to a region of upper memory, which later gets used by the network card's ROM,

the system might hang unpredictably. To correct this problem, you can append an /EXCLUDE switch to the MemoryMAX device driver line in your CONFIG.SYS file to prevent the MemoryMAX driver from attempting to use an area known to be used by the network card. Refer to your documentation on the network card for information on areas used in upper memory and follow the instructions for using the /EXCLUDE switch on those areas as shown in the HIDOS.SYS and EMM386.SYS sections of Chapter 11 in the DR DOS 6.0 User Guide.

If you installed Novell NetWare, or you installed additional hardware in your computer after you installed the DR DOS 6.0 operating system, it is possible that the IRQ or DMA settings on the new hardware might be conflicting with existing hardware. In this case, it is best to resolve hardware conflicts by changing the configuration of one or more installed boards before changing the configuration of the DR DOS 6.0 operating system.

\*Machine locks or generates "Packed file corrupt" error message when executing Novell NetWare utility programs.\*

This situation might occur in older versions of the NetWare utilities. The error message does not reflect the true cause of the problem. Use the MEMMAX -L command before executing the problematic NetWare utility, and then use the MEMMAX +L command after. The following is an example of how this might look in your AUTOEXEC.BAT or login file:

```
MEMMAX -L
LOGIN
MEMMAX +L
Document 1402
COMPAQ DOS 3.31/DR DOS clients mapping same directories
```

When setting up a Novell NetWare Network Server machine, it is normal for a Network Administrator to actually create a directory structure on the server's hard drive which contains all the various DOS operating system files for all the various DOS operating systems being used by the network's DOS clients. This is often done to accommodate clients who do not have their own hard drive. That is, such clients can use the server to access their DOS files and programs instead of their local floppy drive.

For instance, a network server serving five clients using two different operating systems, say MS DOS 3.30 and COMPAQ DOS 3.31, will have two directories which contain all the operating system files contained in the clients' DOS directories. These

directories might have paths on the server like  
SYS:PUBLIC/MSDOS/V3.30 and SYS:PUBLIC/COMPAQ/V3.31.

When a client running MS DOS 3.30 attaches to the server and logs in to this environment, it is important that the client's DOS PATH and COMSPEC variables be adjusted to "point" (or MAP) to the server's copy of the client's DOS files. This is normally accomplished by the Network Administrator who makes some changes and adjustments to one of the server's files called the System Login Script. This Login Script is the NetWare Operating System's DOS operating system batch file equivalent. Using a few basic commands in this System Login Script, the Network Administrator can determine which DOS operating system the server client is currently using and then map that client in the right direction.

If a user is using DR DOS as the client operating system on a Novell Network, it may not be immediately apparent as to how a DR DOS client can be properly identified and mapped from within the System Login Script.

Normally, a line like MAP INS S2:=SYS:PUBLIC/%OS/%OS\_VERSION in the System Login Script will handle the mapping properly. When DR DOS is the DOS client's operating system, however, the %OS and %OS\_VERSION variables actually return MS DOS and v3.31 respectively. It is obvious how this can cause confusion. The DR DOS operating system is most compatible with MS DOS/COMPAQ DOS version 3.3X. It is for this reason that DR DOS appears to the NetWare operating system to be MS DOS 3.31. As a result, both COMPAQ DOS 3.31 and DR DOS versions 5.0 and 6.0 will end up being mapped to the same sub-directory on the NetWare server's hard drive.

In order to prevent such conflicts, a little extra work is required when writing the System Login Script. Because the DR DOS client operating system actually maintains two environment variables called OS and VER which equal DRDOS and 5.0 or 6.0 respectively, it is actually possible to test the DOS client operating system in the System Login Script to determine if the DOS client is running COMPAQ DOS 3.31, DR DOS 5.0 or DR DOS 6.0. Once the DR DOS client is detected, the Login Script should map the client to a directory with one of the following paths:

```
SYS:PUBLIC/%MACHINE/DRDOS/5.0  or  SYS:PUBLIC/%MACHINE/DRDOS/6.0
```

This sample System Login Script explains and implements such a technique:

```
REM These lines establish environment variables OS and VER
REM if the DOS client is NOT running DR DOS (any version.)
REM That is, any DOS client operating system other than
REM DR DOS does not already maintain the environment
REM variables OS and VER, and as a result,
REM they need to be set.
```

```
IF <OS> != "DRDOS" AND <OS> != "DRMDOS" THEN BEGIN
    DOS SET OS="%OS"
    DOS SET VER="%OS_VERSION"
END
```

```
REM All that's left to be done is to map the DOS client using
REM the DOS environment variables <OS> and <VER>.
```

```
MAP INS S2:=%FILE_SERVER/SYS:PUBLIC/%MACHINE/%<OS>/%<VER>
COMSPEC=S2:COMMAND.COM
```

The above script would result in the following:

Compaq DOS 3.31's map would be: SYS:PUBLIC\PC\_DOS\MSDOS\3.31\

DR DOS 6.0's map would be: SYS:PUBLIC\PC\_DOS\DRDOS\6.0\

DR Multiuser DOS's map would be: SYS:PUBLIC\PC\_DOS\DRMDOS\5.0\

Document 1404

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#### PATHS TO DR DOS CONFIGURATION FILES ON NETWORKS

##### Description:

If paths are being lost over the network, it is likely that the files:

- \*.INI
- \*.CFG

are being stored in the wrong place.

Use: DR DOS SETUP  
"System Parameters" menu  
Sub menu #6

to point configuration and information files to the users home directory.

Example:

ViewMax and other files, have .ini (information) files. If you load these utilities from a server (Z::)

```
z::viewmax
```

DR DOS will look for the VIEWMAX.INI file on the path set by the local SETUP, System Parameter menu, sub menu number 6. The default may not work on a network. Usually the network is setup so that you have a special "user path" that will allow you to write files, remember the Network knows who you are and what privileges you have. That "user path" is the one to put the preferences and information files.

Example:

```
z:\netusers\Boris\
```

Your network system administrator will know the name of your special "user path".

Document 1405  
BANYAN VINES

Description:

Loading BAN.EXE after having already loaded SUPERPCK locks the

system. The correct order for loading is BAN.EXE first then SUPERPCK. This was confirmed with Banyan Vines version 4.1 but may apply to all versions.

Document 1406

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DR DOS 6.0 COMPATIBILITY WITH LANTASTIC NETWORK

SKN

12-13-91

Description:

DR DOS 6.0 and LANTastic 4.0 have been tested together by both Digital Research and Artisoft, and were found to be extensively compatible. Customers with earlier versions of either DR DOS or LANTastic may achieve partial functionality when running the two products together, however such functionality is coincidental and is not supported by either Digital Research or Artisoft. Customers who have earlier products and who experience problems should upgrade LANTastic or DR DOS as necessary.

Testing of DR DOS 6.0 and LANTastic 4.0 revealed only a small number of minor configuration issues, which are as follows:

1. SUPER PC KWIK

Super PC Kwik advanced disk reads and writes should be disabled on LANTastic because the Super PC Kwik scheduler conflicts with the LANTastic scheduler causing machines to hang. To avoid this problem on a machine running SERVER, use the Super PC Kwik switches /D- /H- to disable advanced disk reads and writes. Normal caching is still active when these switches are used.

Note that you do not need to disable advanced disk writes on a



node which is not running SERVER.

As is true of most server/cache combinations, Super PC Kwik cannot cache redirected network drives.

## 2. WINDOWS 3.0 IN ENHANCED MODE

To run Windows 3.0 in enhanced mode using the DR DOS 6.0 EMM386.SYS memory manager, customers need to use an Artisoft LANTASTI.386 driver dated 08-16-91 or newer. Customers with older LANTASTI.386 files can obtain a current one from Artisoft Technical Support.

## 3. LANPUP UTILITY

Network redirections will work properly under DR DOS 6.0, however the LANPUP terminate and stay resident utility will not display the redirection properly.

## 4. DR DOS 6.0 DISK UTILITIES

Certain DR DOS 6.0 disk utilities are intentionally designed for use only on local drives and will return an error message if run on a redirected (network) drive or on a machine running the SERVER program. These utilities are summarized below:

Utility	On SERVER?	On network drive?
-----	-----	-----
CHKDSK	N	N
DELPURGE	N	N
DELWATCH	N	N
DISKMAP	Y	N
DISKOPT	N	N
FDISK	N	N
FORMAT	Y	N
PASSWORD	Y*	N
RECOVER	N	N
UNDELETE	Y	N
UNFORMAT	N	N

\* Files on a server protected by PASSWORD cannot be accessed from LAN workstations, even when the correct password is provided. They may, however, be accessed at the server on its own physical drive.

## 5. SUPERSTOR

One LANTastic 4.0 test system was run with a DR DOS 6.0 server whose hard drive had been prepared using the SuperSTOR disk compression utility. All nodes on the network, even non-DR DOS nodes, could access data on the SuperSTOR drive. Efforts were made to exercise the test system heavily, however customers should consider use of SuperSTOR partitions on LANTastic servers as "at their own risk" at the current time and use standard precautions such as frequent backups of essential data. We also strongly recommend that customers read DR DOS Technical Tip #1200 before creating or using a SuperSTOR drive.

## 6. RARE QUICKBASIC PROBLEM

The initial shipments of DR DOS 6.0 had a rare problem in which server pathing was not handled correctly by a Microsoft Quickbasic application under LANTastic 4.0. This problem was reported by only a single user in the field and was very difficult to reproduce even in our testing laboratories so is unlikely to be seen by most customers. The problem relates to the "double backslash" \\ before the server name, and has been corrected. Customers who see the problem, and who have DR DOS files dated prior to 12/91, should contact Digital Research technical support for updated files.

## 7. TASKMAX

LANTastic software should be loaded before TASKMAX is invoked. This permits all TASKMAX task sessions to access the network.

## 8. INTERNATIONALIZATION ISSUES (Country, Keyboard, Codepage, and Graftabl)

The U.S. version of LANTastic will run only with the default (U.S.) DR DOS 6.0 country and keyboard. DR DOS 6.0 customers who require alternate country support, codepage, or graftabl support should contact Artisoft for an international version of LANTastic 4.0.

## ADDITIONAL INFORMATION

Artisoft provides a similar but more extensive document on DR DOS 6.0 compatibility with LANTastic 4.0. This document, which details the hardware and network cards tested, can be obtained from Artisoft's technical support bulletin board at (602) 293-

0065 or from the Artisoft forum on CompuServe.

Document 1408

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COMSPEC MAPPING ON NOVELL NETWORK

Description:

LOGIN SCRIPT FOR SYSTEM WITH BOTH COMPAQ DOS 3.31 AND DR DOS 6.0

When setting up a Novell NetWare Network Server machine, it is normal for a Network Administrator to actually create a directory structure on the server's hard drive which contains all the various DOS operating system files for all the various DOS operating systems being used by network's DOS clients. This is often done to accommodate clients to the server who do not have their own hard drive. That is, such clients can use the server to access their DOS files and programs instead of their local floppy drive.

For instance, a network server serving five clients using two different operating systems, say MS DOS 3.30 and COMPAQ DOS 3.31, will have two directories which contain all the operating system files contained in the clients' DOS directories. These directories might have paths on the server like SYS:PUBLIC/MSDOS/V3.30 and SYS:PUBLIC/COMPAQ/V3.31.

When a client running MS DOS 3.30 attaches to the server and logs in to this environment, it is important that the client's DOS PATH and COMSPEC variables be adjusted to "point" (or MAP) to the server's copy of the client's DOS files. This is normally accomplished by the Network Administrator who makes some changes and adjustments to one of the server's files called the System Login Script. This Login Script is the NetWare Operating

System's DOS operating system batch file equivalent. Using a few basic commands in this System Login Script, the Network Administrator can determine which DOS operating system the server client is currently using and then map that client in the right direction.

If a user is using DR DOS as the client operating system on a Novell Network, it may not be immediately apparent as to how a DR DOS client can be properly identified and mapped from within the System Login Script.

Normally, a line like `MAP INS S2:=SYS:PUBLIC/%OS/%OS_VERSION` in the System Login Script will handle the mapping properly. When DR DOS is the DOS client's operating system, however, the `%OS` and `%OS_VERSION` variables actually return MS DOS and `v3.31` respectively. It is obvious how this can cause confusion. The DR DOS operating system is most compatible with MS DOS/COMPAQ DOS version 3.3X. It is for this reason that DR DOS appears to the NetWare operating system to be MS DOS 3.31. As a result, both COMPAQ DOS 3.31 and DR DOS versions 5.0 and 6.0 will end up being mapped to the same sub-directory on the NetWare server's hard drive.

In order to prevent such conflicts, a little extra work is required when writing the System Login Script. Because the DR DOS client operating system actually maintains two environment variables called `OS` and `VER` which equal `DRDOS` and `5.0` or `6.0` respectively, it is actually possible to test the DOS client operating system in the System Login Script to determine if the DOS client is running COMPAQ DOS 3.31, DR DOS 5.0 or DR DOS 6.0. Once the DR DOS client is detected, the Login Script should map the client to a directory with one of the following paths:

```
SYS:PUBLIC/%MACHINE/DRDOS/5.0 or SYS:PUBLIC/%MACHINE/DRDOS/6.0
```

This sample System Login Script explains and implements such a technique:

```
REM These lines establish environment variables OS and VER
REM if the DOS client is NOT running DR DOS (any version.)
REM That is, any DOS client operating system other than
REM DR DOS does not already maintain the environment
REM variables OS and VER, and as a result,
```

REM they need to be set.

```
IF <OS> != "DRDOS" AND <OS> != "DRMDOS" THEN BEGIN
    DOS SET OS="%OS"
    DOS SET VER="%OS_VERSION"
END
```

REM All that's left to be done is to map the DOS client using  
REM the DOS environment variables <OS> and <VER>.

```
MAP INS S2:=%FILE_SERVER/SYS:PUBLIC/%MACHINE/%<OS>/%<VER>
COMSPEC=S2:COMMAND.COM
```

The above script would result in the following:

Compaq DOS 3.31's map would be: SYS:PUBLIC\PC\_DOS\MSDOS\3.31\

DR DOS 6.0's map would be: SYS:PUBLIC\PC\_DOS\DRDOS\6.0\

DR Multiuser DOS's map would be: SYS:PUBLIC\PC\_DOS\DRMDOS\5.0\

Document 1501

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ALL CHARGE CARD

Description:

We've had reports that the ChargeCard from ALL Computers is functioning properly with DR DOS 6.0 where it did not with DR DOS 5.0.

The ALL ChargeCard is a device that plugs into the processor slot of a 286 machine giving it advanced memory addressing

capabilities. The ChargeCard can allow access to upper memory as RAM and can also convert Extended memory into Expanded memory with the use of their ALLEMM4.SYS v.2.7 device driver.

By loading HIDOS.SYS after the ALLEMM4.SYS driver in the CONFIG.SYS, DR DOS 6.0 users will find that HIDOS.SYS automatically detects and uses upper memory for relocating the Kernel, device drivers, and TSR's.

Document 1502

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I.T.T. Extra 286

Description:

Several users have reported that DR DOS memory management features do not work properly on I.T.T. Extra 286 machines. These machines are no longer in production.

On investigation, it appears that the A20 line which controls HMA access was not properly implemented at the hardware level on these machines. Therefore, DR DOS 6's HIDOS.SYS cannot use the HMA for memory management. Since there is no LIM memory capability on this computer, DR DOS utilizes this machine as a 640K 286 computer.

Document 1504

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MAXFAX FAX BOARD

Description:

MAXFAX TSR was incompatible with DR DOS 5.0 (the hot key was not recognized) The MAXFAX people have tested with DR DOS 6.0 and find it to be compatible. MAXFAX is a low price FAX card that can be upgraded to a more powerful unit, at full discounts, it runs about \$100.

Document 1505

FYI

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Document 1505

GRID Laptops and Resume Function

BPT

2/6/92

Description:

The resume feature (battery saver) has a section of code in the Upper Memory Blocks some where between the end of video (usually C000) and the D000 area. This function may not work if EMM386 is being used due to an upper memory conflict. To see if this is the problem, set EMM386.SYS to:

```
EMM386.SYS /E:C000-DFFF /F=AUTO /R=AUTO
```

Leave the original settings for /B and /K as the were.

Using trial and error, it is possible to use the EXCLUDE option and keep narrowing the scope of excluded areas to maximize memory while still isolating the problem area down to its smallest size.

See page 19 of the "Optimization and Configuration Tips" guide or page 410 of the "User Guide" for more information.

Example:

Edit CONFIG.SYS to ask these questions when loading:

```
? "c000 to dfff" EMM386.SYS /E:C000-DFFF /F=AUTO /R=AUTO
? "c000 to d7ff" EMM386.SYS /E:C000-D7FF /F=AUTO /R=AUTO
? "c000 to cfff" EMM386.SYS /E:C000-CFFF /F=AUTO /R=AUTO
```

Document 1602

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Windows 3.0

Description:

Overview

This document tries to address many of the questions that we have received regarding Windows compatibility. DR DOS 6 is compatible with Windows 3.0 and 3.0A in all 3 modes. DR DOS 6 is a feature rich operating system and many of the utilities that are a part of DR DOS have special configuration requirements when running with Windows. This document will address DR DOS 6 installation and those utilities most commonly used with Windows and how to configure them for optimum performance. Also because end-users will have various hardware configurations we will also discuss what type of hardware requirements are necessary to properly run Windows. Finally, there will be a list of the most common problems detected and how to correct them.



## Windows' Requirements

Microsoft Windows 3.0 is designed to run on only 286, 386SX, 386 and 486 computers. It has 3 modes of operation. The most basic is called Real Mode. This mode will run with only 640K of RAM but it will also make use of EMS memory if available. The EMS memory can be provided with either a third party memory manager or via EMM386.SYS. Real Mode is also used to create or delete Windows permanent swap files which we will discuss later. Windows Standard mode requires there be at least 1 Megabyte of total memory and the presence of an XMS memory manager such as HIDOS.SYS or EMM386.SYS. Enhanced Mode will only run on a 386SX or better CPU and requires a minimum of 1 Megabyte of XMS memory to function. If you are not sure what mode you are using you can find out by selecting the HELP menu from the Windows Program Manager. Select ABOUT PROGRAM MANAGER and you will see a dialog box that indicates the mode you are currently using.

## What Selections to Make in Install

The DR DOS Install program will have some sections that you will need to configure carefully if you are going to run Windows.

The MemoryMAX section of Install will first ask if you would want Memory Support. We recommend that you say YES unless you intend to use a third party memory manager such as QEMM or 386 to the MAX. Near the bottom of the screen there will be a couple of asterisks (\*). These indicate the type of CPU that you have and the amount of extended memory the Install program detects on your computer. The total amount of extended memory will be critical for running Windows so we will make recommendations for computers with 2, 3 and 4 Megabytes. Systems with more than 4 Megabytes can use recommendations for 4 Megabyte computers.

## Document 1602

The next screen on 386 and 486 machines will have some important selections. There will be a line concerning LIM 4.0 support. The LIM 4.0 EMS support is not required by Windows except for Real Mode. If you do not have any DOS applications that require EMS memory, select NO. If you use Windows Enhanced Mode as a Shell for running your DOS programs, Windows itself can provide your DOS applications with EMS memory, you can also say NO to EMS

Support (see the Windows documentation on how to PIF edit a DOS application for EMS support). Saying NO to EMS support will give you an additional 64K of Upper Memory (the size of the page frame) for use in Hiload drivers. If you have applications that require EMS memory and you do not use Windows Enhanced Mode as a DOS Shell, select YES and then enter the amount of EMS memory that you wish to create. DR DOS's EMM386 uses extended memory as a pool for use as both XMS and EMS memory. The amount of EMS memory you specify will cause EMM386.SYS to convert all of the memory pool into Extended via XMS, and will then lend from that XMS memory for EMS to use up to the amount specified. Also on this screen will be a line for support of Windows in Standard Mode. This switch will have serious repercussions on available DOS memory so a YES answer is not always appropriate. EMM386.SYS cannot provide upper memory support and run Windows in Standard Mode. This is a Windows limitation. If you choose YES, EMM386 will disable all upper memory. You will not be able to Hiload device drivers although you can still use the High Memory Area (HMA) for relocation of DOS and its structures. If you regularly use Windows in Standard Mode you should say YES here. There will be an impact on available conventional memory but since Windows will use your total system memory it will not affect Windows applications. DOS applications, however, may be impacted. If you regularly use Windows in Enhanced Mode or Real Mode you can say NO.

Note: Some Windows applications use Standard Mode to install from. If you have an install program that suddenly aborts when it tries to run Windows it may be trying to use Standard Mode. Go Back through SETUP and say YES to using Standard Mode.

For both 286 and 386 installations you will be asked if you want to use Spare Video Memory. This is a special switch for HIDOS.SYS and EMM386 that will take video memory addresses and assign them to conventional memory. This means that you can only run text based applications if you say YES to this option and then run MEMMAX +V. We recommend that you say NO to this option as Windows will not run if video memory is used for DOS.

The DiskMAX section of the Install program can also have an impact on Windows performance. Drivers such as SuperPCK and VDISK can run from extended memory so care must be exercised in deciding how large to create these systems.

## VDISKS

A VDISK can be used for the storage of Windows temporary files and is used in this manner to speed up Windows performance. Because Windows uses such large temporary files a VDISK must be several megabytes in size or Windows will fail when the VDISK is full. It is therefore not recommended for computers with less than 8 megabytes of RAM. If you use a VDISK for other purposes then all you need do is make sure that you have enough memory left to run the correct mode of Windows. Typing "MEM" at a DOS prompt will give you the total amount of available conventional and XMS memory. Remember that Windows Enhanced Mode will require at least 1 Megabyte of XMS memory available. Computers with only 2 Megabytes or less of total memory should not use a VDISK if they wish to run Windows in Enhanced Mode.

## SUPERPCK

SuperPCK is probably the most needed and most commonly misconfigured DiskMAX application for use with Windows. Windows users with 2 Megabytes or less of total memory who wish to run in Enhanced Mode should not use SuperPCK because of their limited memory resources.

When you say yes to SuperPCK you will see an additional screen with some configuration selections. Windows users should always say YES to the selection that asks if you run Windows in Standard or Enhanced Mode. This will configure SuperPCK to use XMS memory instead of EMS memory and will place the PCKWIN.SYS driver in the CONFIG.SYS. The PCKWIN.SYS driver is mandatory for running Windows in Standard or Enhanced Mode with SuperPCK. The next selection will be whether or not to use Automatic Memory Allocation. If this selection is YES (default) then SuperPCK will use all of the available XMS memory and will lend half of that amount back to Windows. We recommend that this option should only be used on computers with 4 or more Megabytes of total memory. If Automatic Allocation is YES then the next line will ask for an amount of RAM to reserve. This option will reserve the specified amount of memory for use by other applications and prevent SuperPCK from using this memory. Lending is still valid. On computers with less than 4 megabytes total memory or for machines where users wish to limit the size of the cache Automatic Memory

Allocation should be NO. This will change the next couple of options you see on the screen. You will now see selection boxes for the Cache Size and the Lending Amount. Users with 3 megabytes systems will be very close to the minimum needed to run Windows in Enhanced Mode. Make sure the size of the cache and the lending amount give you enough memory to run in the mode that you use.

For example: A 4 Megabyte computer can use SuperPCK with a 3 Megabyte cache size and 2 megabytes of lending. This means that when Windows runs the cache will be reduced to 1 megabyte (because of lending) and Windows will have 2 megabytes of XMS memory to use (the 1st megabyte is DOS conventional memory).

Document 1602

Examples:

```
SUPERPCK /EM /R:1024
```

These parameters instruct SuperPCK to use all XMS memory less 1 megabyte. On a system with 3 megabytes of XMS memory Superpck will use 2 megabytes. Half of that amount (1 megabyte) will still be available for lending. This gives Windows a total of 2 megabytes to use. Lending can be turned off with the switch /L-.

```
SUPERPCK /EM /L:1024
```

These parameters will instruct SuperPCK to lend 1 megabyte of memory no matter what the size of the cache is. This parameter could conceivably be more or less than half of the total cache size (default).

```
SUPERPCK /EM /S:1024
```

These parameters will restrict the size of the cache to only 1 megabyte. Any additional XMS memory will not be used by the cache. Half of the cache is still available for lending unless the /L- switch is used.

SUPERSTOR

We cannot emphasize enough the importance of not having Windows permanent swapfiles on a SuperStored drive. If you use a

permanent swap file make sure that you leave 5 to 10 megabytes of uncompressed disk space for this file.

Note: The Windows permanent swap file does not have to be located on the same drive as Windows. To find out if you have a permanent swapfile follow the steps in the example below.

Example:

- 1) Start Windows in real mode : WIN /R
- 2) From the Program Manager select the FILE menu.
- 3) select RUN
- 4) Key in SWAPFILE

If a permanent swapfile exists you will see a dialog box asking you if it is ok to delete the permanent swapfile. If one does not exist the dialog will ask you if you want to create one. It is important to remove permanent swap files before compressing your disk. You can then recreate the swapfile on the uncompressed drive after the SuperStor drive has been created.

Remember to leave enough uncompressed disk to create the permanent swap file. The SuperStor default is about 500k which is not enough for a permanent swapfile. We would also recommend that Windows temporary files be created on the uncompressed disk (the environment variable TEMP determines where Windows will create its temporary files). Endusers should DISKOPT their drive fairly regularly to remove any free spaces created when the temporary swap files are deleted.

Document 1602

Getting the Most From Windows

End-users with 2 megabyte systems should also refrain from loading DOS into High Memory if they wish to run in Enhanced Mode. Since Windows requires 1 megabyte of XMS memory to run in Enhanced Mode you cannot use any of the HMA. To keep DR DOS 6.0 out of the HMA you will need to:

- 1) Make sure that the /MH option is not used on any of the DR DOS 6.0 commands that support it. This includes SHELL, SHARE and

DELWATCH. Use the /MU option instead on these files. If no switch is used then DR DOS will try to locate them in the highest memory position by default. This means that you must use the /MU switch on these commands to keep them out of the HMA.

2) Make sure that the HIBUFFERS command is not used in the CONFIG.SYS file. This Command will use the HMA even if the Kernel is not put there with /BDOS=FFFF. Use the command BUFFERS instead.

3) Make sure that the /BDOS option reads: /BDOS=AUTO.

Using these switches will still enable an end-user to move DR DOS structures outside of conventional memory while using EMM386. However, there is a trade-off. EMM386 does use some of the XMS memory as overhead and on a machine with 1 megabyte of extended memory this means that you will have about 800-900K available as XMS. You can force Windows into Enhanced Mode by keying in "WIN /3" on the command line but application speed may be reduced due to additional disk access. If you feel it is absolutely imperative that you have 1 megabyte of XMS memory you can use HIDOS.SYS instead of EMM386.SYS with the parameter /B=AUTO. This will give you 1 Megabyte of XMS memory if you use the 3 steps outlined above.

Users with 3 megabyte system will be very close to the minimum needed to run Windows in enhanced mode but they should be able to use a small cache. VDISK would not be recommended. Use MEM and SUPERPCK /P to determine the total amount of XMS memory available. The SUPERPCK /P is the parameters listing of SuperPCK and the amount available for lending will be listed under the /L parameter. Make sure that the lending amount available is enough to enter the correct mode.

Users with 4 megabyte systems need to be careful about any device drivers loaded that use extended memory of any type such as VDISKs. This will impact on the amount of memory available for SuperPCK to use and the amount it is able to lend. Systems with greater than 4 megabytes of memory will probably always have enough XMS memory available but again other devices using any type of extended memory need to be considered. Also bear in mind that the less memory that is available to Windows means that

fewer applications will be running before it has to move to a swapfile. Going to a swapfile usually means a decrease in the speed of Windows. We have noticed that a good balance on performance is achieved when Windows has 2 megabytes or more of XMS memory.

#### Common Problems

- Windows begins but not in the mode that I was using previously.

First check available memory with the MEM command. Windows in Enhanced Mode will require 1024K (1 Megabyte) of available XMS memory to run.

If you are unable to enter Standard Mode make sure that MEM indicates that you have no EXTENDED memory available. If you do then you are not using an XMS memory manager and one is required for Enhanced or Standard Mode. Make sure that you have HIDOS.SYS, EMM386.SYS or a third party XMS memory manager in your CONFIG.SYS file.

If you are using SuperPCK the command "SUPERPCK /P" will give you a listing of the parameters that are currently in use. The /L command will indicate the total amount of memory available for lending, the amount currently lent and the amount remaining to be lent. Make sure that the amount remaining is enough for the mode that you are trying to enter. Also, make sure that the cache is using XMS memory. This will be indicated by the /EM option.

If you are trying to use Enhanced Mode, Windows may not have enough memory and is trying to start in Standard Mode. Unless you have the /W option in EMM386.SYS Windows will not be able to run Standard mode and will abort. Try placing the /W switch in EMM386 and see if Windows starts. If it runs in Standard Mode then you need to use the suggestions listed in the previous discussion to find out why you are not entering Enhanced Mode.

If the /W switch does not work check to see if your Windows TEMP directory has any files that begin with "~" and have the

extension .SWP. If you do and you are not currently running Windows then delete them. These files are Windows temporary files and should have been deleted when you quit Windows.

If you are using a permanent swapfile this file may have been corrupted. Try deleting the file and then creating a new one.

Document 1602

- Windows runs but it seems much slower than before.

Make sure that you are running in the correct mode. Use the ABOUT PROGRAM MANAGER dialog box on the Windows HELP menu to determine what mode you are using. If you are not in the correct mode use the above tips to determine why not.

Windows may be in the correct mode but you do not have enough XMS memory remaining and Windows is having to use swapfiles. Use MEM to find out your available XMS memory. If the figure is very near the minimum remember that DR DOS has several utilities that can use XMS memory. You may wish to change the size of a VDISK or cache to allow Windows to use more of your available RAM.

If you are using SuperPCK try increasing the lending amount (/L) or limiting the size of the cache (/S). Also SuperPCK should not be used with VERIFY=ON in AUTOEXEC.BAT. You should use VERIFY=OFF.

- When I start Windows a lot of strange characters appear on the screen and then it locks or drops back to DOS.

This one is unusual in that it generally happens on a SuperStor drive (or any other disk compression software that swaps disks) with a 3rd party memory manager. SuperStor has a utility called DEVSWAP.COM that swaps DOS drive letters around. This is so that if you compress a boot disk the applications that you have will still be installed to drive C: rather than the drive that was created by SuperStor. SuperStor boot disks will have an uncompressed segment where DOS can load from. This uncompressed drive will also have a file called DCONFIG.SYS. If you place your



memory manager in the DCONFIG.SYS SuperStor will be able to move a portion of itself into upper memory. Caution: Do not try to HILOAD the entire SuperStor driver (it can relocate itself and only portions of it may go into upper memory). Windows will reinitialize a memory manager as it starts. To do so it will look for the driver on the drive from which it was originally loaded from. In the case of a swapped drive though, the driver may no longer be there and Windows will abort. This can be a confusing issue so here is a step by step sequence.

1. A memory manager is loaded from C:\ (uncompressed segment of the disk)
2. The SuperStor driver is loaded creating a drive D: (compressed)
3. DEVSWAP.COM is run. This turns the drives around making uncompressed drive C: into drive D: and compressed D: into C:
4. Windows is run. As it initializes it looks for a memory manager in C:\ (which is where it was loaded in step 1) but the memory manager is no longer there. It is now in drive D: because of the swap. Windows aborts.

The solution to this is straightforward. Copy the memory manager into the same directory on the compressed drive that you loaded it from in the uncompressed drive. In the case above have a copy of the memory manager in both the compressed and uncompressed root directories ( C:\ & D:\ ).

This situation does not generally occur with the DR DOS utilities HIDOS.SYS and EMM386.SYS because the DR DOS Install program makes sure that the driver is located in the DR DOS directory on both drives.

- I am experiencing difficulty shelling to DOS from Windows. It either locks or I get a message that I am out of environment space.

Check your environment from DOS by typing "SET". There should be a variable called COMSPEC and it should point to the either the root directory (preferred) or to the directory where DR DOS files are located. On a network this variable may point to your network DOS directory. Make sure that this is the correct directory and

that DR DOS is located there. Check the SHELL statement and make sure that there is a /P statement and that an environment has been set ( /E:). Make sure that the environment size is large enough. Windows may need a fairly large environment size if you run several applications at the same time and it does add lines to the environment. It is not necessary to have a COMSPEC line in your AUTOEXEC.BAT with DR DOS as the shell statement will insert one.

If a third party memory manager is in use it is possible to receive an error loading a second command processor when you relocate COMMAND.COM to upper memory. Try loading COMMAND.COM in conventional memory.

There may also be a TSR that is interfering with loading another command processor. Try removing TSR's from memory to see if you have a conflict.

If you have a large environment and still get the message "Out of Environment Space" you can edit the properties of the DOS PROMPT Icon and put a /E:(# of bytes) parameter in the command line. Editing the properties of the DOS PROMPT Icon can also help to eliminate the message "COMMAND.COM NOT FOUND". Windows does not place the full path on the filename. The command line only shows "COMMAND.COM". If you change that to be "C:\COMMAND.COM", for example, Windows will not use the DOS path to locate the file. This can also alleviate any message about "INVALID COMMAND.COM". This message is usually due to the fact that you have another DOS's command interpreter somewhere in your path.

## Final Words

An update to DR DOS 6.0 is currently being sent to all registered users. If you are still having conflicts with getting Windows to run with DR DOS you may need this update. To determine if you have the update already (the updated files are combined with DR DOS as we manufacture it) look at the date of your COMMAND.COM. A date of December 1991 or later means that you have the update.

(Note: The origin of this information may be internal or external to Novell. Novell makes every effort within its means to verify this information. However, the information provided in this document is FOR YOUR INFORMATION only. Novell makes no explicit or implied claims to the validity of this information.)

Document 1603  
Windows 3.1  
06/05/92

Novell Desktop Systems Group

Microsoft Windows 3.1

The April update of DR DOS 6.0 is fully compatible with Microsoft Windows 3.1. If users do not have the update they can download it from the Novell Host System BBS or CompuServe. All registered users will be sent the business update at no charge. The update has already been incorporated into all currently manufactured product. The Novell Host System is at 408-649-3443 and is 2400,8,N,1.

Windows' Requirements

Microsoft Windows 3.1 is designed to run on only 286, 386SX, 386 and 486 computers. It has 2 modes of operation. Windows Standard mode requires there be at least 1 Megabyte of total memory and the presence of an XMS memory manager such as HIDOS.SYS or EMM386.SYS. Enhanced Mode will only run on a 386SX or better CPU and requires a minimum of 1 Megabyte of available XMS memory to function. If you are not sure what mode you are using you can find out by selecting the HELP menu from the Windows Program Manager. Select ABOUT PROGRAM MANAGER and you will see a dialog box that indicates the mode you are currently using.

Windows users cannot use the /V option for HIDOS.SYS and EMM386.SYS. This option takes video memory addresses and assigns them to conventional memory. This means that you can only run text based applications when this switch is on.

SuperStor

The Windows 3.1 default drive for temporary swap files is the drive on which Windows was installed. If Windows is installed on a SuperStor drive it is strongly recommended that users change the default drive for swap files to an uncompressed drive. This should be done for both temporary and permanent swap files.

To change the location of the swap file it is necessary to be in enhanced mode. Open the Control Panel by double clicking on the icon. Next select the 386 Enhanced icon. You should see a dialog box with several buttons. One of the buttons will be labeled Virtual Memory. Select this button. The next dialog will indicate whether or not a permanent swap file is in use and the drive that is being used for the swap file. It is very important that swap files not be created on a SuperStor drive. Select the appropriate options to place the swap file on the uncompressed drive.

If the uncompressed drive does not have enough space for the swap file do not continue to run Windows in enhanced mode until enough free space has been cleared on the uncompressed drive. Standard mode can still be used. It may be necessary to backup the compressed drive and remove it in order to create enough uncompressed free space for Windows swap files. Swap files range in size from about 2 MB to 8MB.

#### SuperPCK

Users must configure SuperPCK to use XMS memory instead of EMS memory and have the PCKWIN.SYS driver in the CONFIG.SYS. SuperPCK is configured to use XMS with the /EM option. The PCKWIN.SYS driver is mandatory for running Windows in Standard or Enhanced Mode with SuperPCK.

Both of these options can be enabled through DR DOS Setup. Go to the DISKMAX menu and say YES to SuperPCK. The next screen will be the SuperPCK dialog. There you check YES to the selection that asks if Windows is run in Standard or Enhanced modes.

The next selection in DR DOS Setup will be whether or not to use Automatic Memory Allocation. If this selection is YES (default) then SuperPCK will use all of the available XMS memory and will lend half of that amount back to Windows. We recommend that this option should only be used on computers with 4 or more Megabytes of total memory. If Automatic Allocation is YES then the next line will ask for an amount of RAM to reserve. This option will reserve the specified amount of memory for use by other applications and prevent SuperPCK from using this memory. Lending is still valid. On computers with less than 4 megabytes total memory or for machines where users wish to limit the size of the cache Automatic Memory Allocation should be NO. This will change the next couple of options you see on the screen. You will now see selection boxes for the Cache Size and the Lending Amount. Users with 3 megabytes systems will be very close to the minimum needed to run Windows in Enhanced Mode. Make sure the size of the cache and the lending amount give you enough memory

to run in the mode that you use.

For example: A 4 Megabyte computer can use SuperPCK with a 3 MB cache size and 2 MB of lending. This means that when Windows runs the cache will be reduced to 1 MB (because of lending) and Windows will have 2 MB of XMS memory to use (the 1st MB is DOS conventional memory).

Examples:

```
SUPERPCK /EM /R:1024
```

These parameters instruct SuperPCK to use all XMS memory less 1 MB (1024K). On a system with 3 MB of XMS memory Superpck will use 2 megabytes. Half of that amount (1 MB) will still be available for lending. This gives Windows a total of 2 MB to use. Lending can be turned off with the switch /L-.

```
SUPERPCK /EM /L:1024
```

These parameters will instruct SuperPCK to lend 1 MB of memory no matter what the size of the cache is. This parameter could conceivably be more or less than half of the total cache size (default).

```
SUPERPCK /EM /S:1024
```

These parameters will restrict the size of the cache to only 1 MB. Any additional XMS memory will not be used by the cache. Half of the cache is still available for lending unless the /L- switch is used.

Document 1603

Windows 3.1 Installation

If Super PC-Kwik is already loaded when you install Windows 3.1, you are informed by the Windows SETUP program that SUPERPCK.EXE is running and you are warned that your system may fail. Ignore this message and continue with the Windows installation procedure. This message will also appear whenever the Windows SETUP program is used to change Windows configurations.

The Windows 3.1 standard installation makes changes to AUTOEXEC.BAT and CONFIG.SYS on installation. It is recommended that backups of these files be made before installing.

By default, Windows installs the SMARTDrive disk cache program and the HIMEM.SYS memory manager. However, the DR DOS 6.0 disk cache, Super PC-Kwik, and the DR DOS 6.0 MemoryMAX drivers

provide superior functionality over the Windows 3.1 SMARTDrive disk cache and HIMEM.SYS.

To use Super PC-Kwik and the DR DOS MemoryMAX drivers instead of SMARTDrive and HIMEM.SYS, you simply remove one line from your AUTOEXEC.BAT and CONFIG.SYS files. Edit AUTOEXEC.BAT to remove the line:

```
C:\WINDOWS\SMARTDRV.EXE
```

and edit CONFIG.SYS to remove the line:

```
DEVICE=C:\WINDOWS\HIMEM.SYS
```

The above lines should be removed after Windows 3.1 has been installed but prior to rebooting.

If you are using the DR DOS 6.0 EMM386.SYS MemoryMAX driver, Windows may also replace the EMM386.SYS line in your CONFIG.SYS file with the Windows EMM386.EXE line. As a result of this change, an error may be generated when rebooting. The EMM386 line should be changed back to its original form after installing Windows 3.1 for the system to boot properly. Refer to the backup of CONFIG.SYS to be sure that the correct syntax is used. Windows will also change the path to the driver.

The Windows 3.1 installation will insert a STACKS command into the CONFIG.SYS. Even though DR DOS does not use a STACKS command, the line can be left in CONFIG.SYS. No error will result.

#### SMARTDrive

DR DOS 6.0 is compatible with both the SMARTDrive disk cache and with HIMEM.SYS. If you want to continue using these drivers, you must run the DR DOS SETUP program, and remove MemoryMAX and Super PC-Kwik. However, if you do use SMARTDrive instead of Super PC-Kwik, do not use the SMARTDrive + (plus) option to enable caching on a SuperStor compressed drive. Unexpected errors may result when this option is used.

EMM386.SYS supports upper memory for Windows 3.1 running in Standard or Enhanced mode. You no longer need to use the /WINSTD option on the EMM386.SYS command line to run Windows 3.1 in Standard mode. (Note: As a result, if you use SETUP to configure MemoryMAX /EMM386.SYS to run Windows 3.1, you should respond "No" to the question "Support Windows Standard Mode" when prompted.)

Issues/Troubleshooting:

\*DOS applications lock up when attached to a network but are fine when not loading the network. -Machines that have LPT1 ports and are using NE2000 network cards configured for I/O address 360 have occasionally hung or had trouble running DOS applications under Windows 3.1. If this is encountered, try setting the NE2000 for a lower I/O address.

\*Windows 3.1 will not run. But it was installed with no problems. - One of the key areas here is that it was installed over a Windows 3.0. The update has been installed and a check of IBMDOS.COM and EMM386.SYS indicate that they are from the April update. In order to install Windows 3.1 the install program will actually load Windows 3.1. So at least during the installation Windows was in fact running in Standard mode. However, one of the things that does change when running it again is that Windows will use the old WIN.INI file from Windows 3.0. This file contains 2 lines that may be effecting performance. One line begins with LOAD and the other with RUN. These two lines tell Windows to execute an application on startup. Not all old Windows 3.0 applications seem to be working under 3.1. Try commenting out the RUN and LOAD lines of the WIN.INI with a semicolon ";". If this does not seem to be of any help then rename WIN.INI and SYSTEM.INI and reinstall Windows 3.1. Windows will then create new INI files.

\*Following the update to the April files or after installing Windows 3.1 from defaults the system is crashing out of and loosing the AUTOEXEC.BAT. After dropping out of the AUTOEXEC the computer appears to have corrupt directories. Booting from a clean floppy such as the DR DOS Startup Disk shows that all is well with SSTOR. - Here SMARTDRV.EXE was added as the first line in the AUTOEXEC.BAT and the + option was used to cache the SuperStor drive. SMARTDRV will not normally cache a SuperStor drive and users are strongly cautioned not to do so. Super PC-Kwik is fully compatible with both SuperStor and Windows 3.1.

\* When trying to load, Windows 3.1 gets an error indicating that the SYSTEM.INI could not load EMM386.SYS. The user is then dropped to DOS. - The system has returned to a pre-April EMM386 driver. If SuperStor is involved make sure that all copies of EMM386 are the April version. This includes any copies that maybe on the uncompressed drive. This error will immediately go away

when the correct EMM386.SYS is used. Be sure and check all other updated files for the correct dates.

\*Windows has the ability to provide EMS memory to DOS based applications when in Enhanced Mode. Its ability to do this is dependent on which memory driver is being used and what options are selected.

- If the DR DOS EMM386.SYS is being used a page frame must be created to enable Windows to provide EMS support. To create a page frame with EMM386.SYS it is necessary to use the parameter /F=AUTO or /F=address. If DR DOS's HIDOS.SYS or Windows' HIMEM.SYS is being used Windows will be able to create EMS memory. HIDOS.SYS would be preferred because this will still permit DR DOS to use the HMA.

\*Windows begins but not in Enhanced Mode

-First check available memory with the MEM command. Windows in Enhanced Mode will require 1024K (1 Megabyte) of available XMS memory to run. If you are using SuperPCK the command "SUPERPCK /P" will give you a listing of the parameters that are currently in use. The /L command will indicate the total amount of memory available for lending, the amount currently lent and the amount remaining to be lent. Make sure that the amount remaining is enough for the mode that you are trying to enter. Also, make sure that the cache is using XMS memory. This will be indicated by the /EM option.

\* Windows seems to start but suddenly a lot of strange characters appear for the screen and then it locks or drops back to DOS. - This one is unusual in that it generally happens on a SuperStor drive (or any other disk compression software that swaps disks) with a 3rd party memory manager. SuperStor has a utility called DEVSWAP.COM that swaps DOS drive letters around. This is so that if you compress a boot disk the applications that you have will still be installed to drive C: rather than the drive that was created by SuperStor. SuperStor boot disks will have an uncompressed segment where DOS can load from. This uncompressed drive will also have a file called DCONFIG.SYS. If you place your memory manager in the DCONFIG.SYS SuperStor will be able to move a portion of itself into upper memory. Caution: Do not try to HILOAD the entire SuperStor driver (it can relocate itself and only portions of it may go into upper memory). Windows will reinitialize a memory manager as it starts. As it does the XMS driver will go back to the original path it was loaded from. In the case of a swapped drive though, the physical file may not be there because of the swap and Windows will abort. This can be a



confusing issue so here is a step by step sequence.

1. A memory manager is loaded from C:\ (uncompressed segment of the disk)
2. The SuperStor driver is loaded creating a drive D: (compressed)
3. DEVSWAP.COM is run. This turns the drives around making uncompressed drive C: into drive D: and compressed D: into C:
4. Windows is run. As the memory manager reinitializes it looks to the old path that it was originally loaded from in C:\ (which is where it was loaded in step 1) but the memory manager is no longer there. It is now in drive D: because of the swap. Windows aborts.

The solution to this is straightforward. Copy the memory manager into the same directory on the compressed drive that you loaded it from in the uncompressed drive. In the case above have a copy of the memory manager in both the compressed and uncompressed root directories ( C:\ & D:\ ).

Document 1604

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GEOWORKS

Description:

GeoWorks version 1.2 works fine under DR DOS but it does require some special configuration. Files need to be set at 120. This may seem like a high figure but it will only use about 9K of RAM and if you are using EMM386 no impact need occur on conventional memory. Ensemble will not even begin with files equal to 30.

TaskMAX can be initialized only with CTRL-ESC. No other hot keys can be used. Also end-users may find that they have no keyboard in their other tasks. We have also received reports that even if it does switch TaskMAX will eventually fail. At this time we cannot recommend the use of TaskMAX with GeoWorks Ensemble v.1.2.

Any version of GeoWorks prior to 1.2 will not work under DR DOS 6.

GeoWorks uses XMS memory when available and will use the HMA if it is available.

There have been some reports that GeoWorks will not run when SuperPCK is loaded into upper memory (/&U+). If you are having trouble loading Ensemble try the switch /&U-. Also if you are using SuperPCK in expanded memory (/A+) advanced disk transfers must be turned off with a /H-.

#### GeoWorks Pro

GeoWorks Pro now has an interface that is fully compatible with DR DOS 6.0s TaskMAX interface. In fact, if users have installed the new DR DOS 6.0 update that is dated 12/91 they will be able to use the TaskMAX cut and paste features with GeoWorks Pro.

Document 1605

FYI

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Document 1605

DESQVIEW

#### Description:

DesqView is a multi-tasking DOS based program that relies on very specific uses of system memory. Specifically, it accomplishes its multi-tasking by bank-switching applications in and out of conventional memory (much like Concurrent DOS XM) and can use XMS UMB's (Upper memory blocks) and the HMA (High Memory Area) for storing its own program code and data. For maximum performance

of DesqView under DRDOS 6.0, one should use QEMM386.SYS instead of EMM386.SYS and one should make sure that nothing from DRDOS is taking control of the A20 line (that is, using the HMA.)

QEMM386.SYS should be used instead of EMM386.SYS, because the LIM driver which is a part of QEMM386.SYS has been enhanced for DesqView multi-tasking in conventional memory.

HIDOS.SYS can be used along with QEMM386.SYS (as with DRDOS 5.0) to relocate the operating system, but, unlike DRDOS 5.0, it takes more work than just using the /BDOS=AUTO switch to keep DRDOS 6.0 out of the HMA. To keep DRDOS 6.0 out of the HMA for DesqView:

- 1) Make sure that the /MH option is not used on any of the DRDOS 6.0 commands that support it. This includes SHELL and SHARE.

- 2) Make sure that the HIBUFFERS command is not used in the CONFIG.SYS file. This command will use the HMA even if the Kernel is not put there with /BDOS=FFFF.

- 3) Make sure that the /BDOS option reads: /BDOS=AUTO.

(NOTE: If one is unsure if the HMA is being allocated to DRDOS 6.0 instead of DesqView, one can use MEM /F before starting DesqView. This command will display an empty box if DRDOS 6.0 is not using the HMA.)

Example:

Here is an example CONFIG.SYS that will work properly with DesqView:

```
SHELL=C:\DRDOS\COMMAND.COM C:\DRDOS6 /P /MU /E:512
BREAK=ON
BUFFERS=5
FILES=30
LASTDRIVE=M
HISTORY=ON, 256, ON, OFF, OFF
DEVICE=C:\QEMM60\QEMM386.SYS R:2 NOVIDEOFILL RAM ROM ST:
FXST=F000
DEVICE=C:\DRDOS\HIDOS.SYS /B=AUTO
DEVICE=C:\QEMM60\LOADHI.SYS /R:3 C:\DRDOS\PCKWIN.SYS
DEVICE=C:\QEMM60\LOADHI.SYS /R:1 C:\MOUSE\MOUSE.SYS
DEVICE=C:\SSTORDRV.SYS
HIDOS=ON
```

Document 1606

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NETROOM

Description:

We have had customer reports that NETROOM 1.1 (1.14?) was having a problem under DR DOS 6.0. The symptom was that certain applications were generating a DOS error message when the applications were terminated; "Can't load file : C:\COMMAND.COM Insert correct disk and press any key to retry..."

As it turns out, the NETROOM utility has the ability to relocate the DOS command interpreter into upper memory. When this option is disabled, the "problem" applications no longer generated the error message.

Current shipping product: NETROOM 2.0 (with an "update" to 2.1)

Helix Software  
47-89th Street  
Long Island City, NY 11101  
Technical Support: (718) 392-3735

Document 1607

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## SuperPCK with Coretest

### Description:

Coretest is a public domain application that comes in many different versions. It runs various benchmark tests on a system.

Some of the Taiwanese computer manufacturers rely on Coretest for their production quality assurance. Multisoft and the Digital Research engineering labs are working on a problem reported from Taiwan.

If SuperPCK is running in extended memory, Coretest causes the cache to get corrupted and Diskopt reports cross-linked files. Actual data on the drive is not lost or corrupted. Rebooting corrects the error.

Workaround to avoid any problems is:

1. Run SuperPCK in expanded memory, or
2. Set the switch /B- which decreases interrupt timeout.

This problem is expected to be fixed in the near future.

Document 1608

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QEMM v.6

### Description:

The third party compatibility unit at Quarterdeck reports that DR

DOS 6 and QEMM386 v6 are compatible. OPTIMIZE does not recognize all of the CONFIG.SYS enhancements offered by DR DOS 6, such as SWITCH, but will work properly otherwise

We have the most recent version of QEMM (v.6.01), and it seems to be working very well on the new 386/33mhz. AMD 386/40mhz. Processor machines with AMI BIOS we have.

There's been a lot of talk about their new and major feature STEALTH. The STEALTH technology actually relocates/re-maps ROM's off into extended memory, thus freeing up more contiguous upper memory for use by QEMM (as much as a 128k block on the AMD 386/33mhz. machine.) STEALTH has two specific modes of operation specified by using ST:F or ST:M on the QEMM device driver line. It is important to understand that an advanced feature like this is difficult to troubleshoot. The QEMM documentation (written, and on-line via the OPTIMIZE program) gives some very helpful "first-step" debugging hints.

If you are using QEMM with DR DOS 6.0 and are seeing strange behavior, try removing the ST option on the QEMM device driver line altogether.

STEALTH confuses many disk caches which use expanded memory (EMS) because STEALTH technology uses the LIM page frame in an advanced, non-standard way. To prevent data corruption advanced hard disk reads and writes (/H-) are automatically disabled by SuperPCK when STEALTH is used. Quarterdeck, Multisoft and Digital Research are working together on this problem.

Document 1609

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Applications that Check the DOS Version Number

Description:

The DR DOS 6.0 Version Numbers

A few applications and device drivers have been encountered which, when loading under the DR DOS 6.0 operating system, display an error message that states the current version of operating system is not supported. This can occur for several reasons, which are outlined below.

Device drivers for disk drives or networks are sometimes produced for specific versions of DOS or occasionally will use specific configurations for different versions of DOS. The DR DOS 6.0 operating system will appear to be COMPAQ DOS 3.31 to applications and drivers. Usually, a DOS 3.3 driver works properly. If you have been running previously with MS/PC DOS 4.x, the driver that you have been using might be designed specifically for that version. Contact the manufacturer of the driver to see if they have any specific configuration information or drivers for DOS 3.3x.

When applications request the DOS version number from the operating system, the DR DOS 6.0 operating system returns version 3.31. The application then knows that it should expect support for DOS 3.3-level calls and support for larger than 32 Mbyte partitions using the COMPAQ Extended Interrupt 25 and 26 convention. Most applications do follow these conventions and therefore work without any difficulty.

However, some applications have been designed to go beyond those conventions and actually attempt to directly manipulate DOS data structures or replace sections of the operating system code with their own. These applications depend on having intimate knowledge of each DOS version they detect and have been written to react differently for each of those versions. If an application uses this type of technique, the manufacturer will have to design the application to take the DR DOS 6.0 operating system into account as well. It is possible that the manufacturer has already produced another version of your application that runs under the DR DOS 6.0 operating system. Contact the manufacturer to see if there is any information about upgrades or specific configuration steps for the DR DOS 6.0 operating system. If the manufacturer is interested in more information about the DR DOS 6.0 operating

system, they are welcome to contact Digital Research Inc. directly and we will work with them on the situation.

Document 1610

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PCPAINT

Description:

PC PAINT may alter memory report drastically showing numbers such as 937k available if MEMMAX has been set with +U.

MEMMAX -U will solve the problem without taking away any functionality.

PCPAINT (ver.2.0? Oct.85) Serial Mouse

Example:

In the AUTOEXEC.BAT, be certain this command reads:

```
MEMMAX -U
```

Document 1611

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QUICKEN v 5

Description:

We have recieved reports concerning Quicken. The application seems to be having a difficult time executing from a SuperStor partition.

Apparently, the folks at Intuit have started getting reports from customers using Stacker from Stac Electronics and now from customers using SuperStor from AddStor that Quicken 5.0 has certain problems when executing from a compressed drive. As they are now in the process of tracking these problems, we should refer DRDOS 6.0/Quicken 5.0 users to Intuit for more information. Where possible, we recommend that users run Quicken from a non-compressed drive or from a floppy.

It has also been brought to our attention that TaskMAX will not work when Quicken 5 is run. Apparently, Quicken intercepts all keyboard input and TaskMAX is not getting any keystrokes. This does not cause TaskMAX to fail. It only means that you cannot switch tasks while Quicken is running. When you exit Quicken it will restore the keyboard and TaskMAX will function normally.

Intuit Technical Support: (415) 322-2800

Document 1612

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GLYPHIX

EM

01/02/92

Description:

Glyphix has been tested with DR DOS 6.0 and it exhibits the same symptoms that it did with DR DOS 5.0, ie. "GX" mode still does not work with the HP LaserJet. It is recommend that end-users change to GXL or GXS to start Glyphix.

If the you are using a Hewlett-Packard Series II, IID, or IIIP, you should be aware of the following restrictions:

GLYPHIX laser font package for WordPerfect 5.1 has three modes of operation. The user can choose any of the three modes when starting the application. Two of the modes are successful with DR DOS. The third is not.

These two modes run well under DR DOS...

GXL.EXE

This is the fastest mode, but it requires the most memory. (Which is no problem when you use DR DOSs memory features). Takes 110K of memory & can print 3-120 point sizes. Allows background printing.

GXS.EXE

The smaller memory version of GXL.EXE. Allows you to print up to 60 point, and takes approximately 59K of memory. Allows background printing.

The following mode is not compatible with DR DOS. It will not print correctly on the HP printers listed above.

GX.EXE

Requires about 26K of memory. Also requires over 500K of disk space to create a temp print file.

If the customer is using a Hewlett-Packard Deskjet, the Deskjet driver for Glyphix has no problems.

Document 1613

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PCGLOBE  
SGP  
1/6/92

Description:

Magnavox licenses a program called PCGLOBE to run on their CD 461 CD ROM external drive. The commercial version of PCGLOBE has no incompatibilities with DRDOS 6.0. However, the Magnavox version generates an error "CHECK TO SEE IF YOU HAVE THE RIGHT CD IN YOUR DRIVE". This occurs in a "vanilla" environment without loading MemoryMax etc. Magnavox technical support (800) 722-6224 has reproduced the problem and offers the following workaround: Remove the second line from the batch file that invokes PCGLOBE. This disables the hardware check. The exact circumstances of this error are being investigated and if any additional information becomes available this document will be updated.

Document 1614

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Falcon 3.0  
RR  
2/6/92

Description:

Falcon 3.0 is compatible with DR DOS 6.0. There are, however, very important memory requirements that must be met for this application to properly run. Falcon requires a minimum of 600K (614,400 bytes) of memory to run. This can make it difficult for some users with SuperStored drives to access the program. If this is the case it is possible to install the application to a non-compressed drive and create an alternate CONFIG.SYS (DCONFIG.SYS) that does not load the SuperStor driver. Other TSR's should also be avoided. One of the advantages of DR DOS 6.0 is its ability to run alternate configuration files. Additional configuration programming can be found in the DR DOS 6 users guide and in Document 1113.

The installation program may display an error that indicates the computer only has 575K free and more memory needs to be made available. DR DOS is detecting that the installation program may be exepacked and is using up the first 64K of base memory before launching the program. Users should ignore this message and continue. If the install program returns to a DOS prompt try using the command "MEMMAX -L" and restarting the install program. In some cases users may see a screen that contains control characters and asks for a Y/N response. Ignore the unreadable portion and answer "N" and the installation will proceed normally. Remember to use the command "MEMMAX +L" to free up locked memory before running Falcon.

\*There may also be an additional problem for users who have single floppy computers. When the installation program is "Decompressing Files" users may see a message that says, "Insert diskette for drive (A or B) and press any key when ready." Do not remove the floppy from the drive but merely strike any key. This may require repeated strikes to continue and will have to be done for every disk.

\*If the installation program freezes or gives an error message users should delete all installed files and the Falcon directory and reinstall.

\*If a user is unable to use the keyboard to select buttons in the interface or the cockpit functions while flying around, the user may need to add "BREAK=ON" to the CONFIG.SYS. If this fails to work, unplug the keyboard from the computer and then plug it back

in again.

\*Users need to be sure that they are using the latest version of their mouse driver. Genius mice can be a possible problem and need to be using a version 9.06 driver.

\*If digitized radio messages are not playing, be sure that there is at least 480K (491,520 bytes) of EMS memory for those sounds. This will require a computer of at least 2 MB of RAM. All other sound effects will be available without EMS memory. To determine the amount of EMS memory available with DR DOS type "MEM" at a DOS prompt.

\*Minimum System Requirements for Falcon 3.0

- . 12MHz 80286 IBM (or compatible) computer or IBM PS/2 Model 30-286 or higher

- . 1 MB of RAM

- . DOS 5.0 or higher

- . Hard drive with at least 11MB free space

- . VGA graphics card and VGA color monitor

- . One 1.2MB 5.25 in disk drive or one 1.44MB 3.5 in disk drive

\*Information courtesy of Spectrum HoloByte and not necessarily specific to DR DOS

Document 1615

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Manual installation with Stacker 2.0 currently installed  
JD  
3/12/92

#### NOTES

For these examples of a manual installation we have assumed that the original boot partition is lettered C:. If your boot partition is labeled other than C:, please replace "C:" below with the drive letter representing your boot partition.

BACKUP YOUR HARD DISK BEFORE TRYING THE FOLLOWING. ALSO, have a copy of your present operating system's CONFIG.SYS and AUTOEXEC.BAT handy for reference. A full understanding of the STACKER 2.0 disk compression utility is recommended before attempting the following steps. It is also recommended that you NOT install the security feature of DR DOS until we are sure DR DOS and Stacker are working properly after installation.

#### INSTRUCTIONS

The instructions for a manual installation on a hard disk with Stacker 2.0 already installed are as follows:

1. Using DISKCOPY, make a backup of the DR DOS 6.0 STARTUP diskette.
2. Reboot with the DR DOS backup STARTUP diskette. Eventually the drive will stop turning at the first installation screen.
3. Break out of the installation by pressing <F10> and choosing "Exit to DR DOS".
4. From the A: prompt type EDITOR CONFIG.SYS to edit the Config.sys on this backup diskette.
5. Add the following lines to the END of the Config.sys file:

```
DEVICE=C:\STACKER\STACKER.COM C:\STACVOL.DSK
DEVICE=C:\STACKER\SSWAP.COM C:\STACVOL.DSK /SYNC
```

These additions will make the DR DOS 6.0 INSTALL program "Stacker Aware". Meaning that DR DOS INSTALL will now recognize your Stacker Volumes, as well as your uncompressed volume.

6. Remove the lines: DEVICE=\SSTORDRV.SYS and DEVICE=\DEVSWAP.COM from this same CONFIG.SYS file. This will disable SuperStor, DR DOS's disk compression utility, from being loaded from the backup STARTUP diskette.

7. Save your changes to CONFIG.SYS by performing a CTRL-K and pressing X to Save and Exit. For additional information regarding DR DOS's EDITOR program, please see the DR DOS 6.0 User Guide.

NOTE: Remember that the DR DOS backup STARTUP diskette is now Stacker aware. Now if we were to reboot from this DR DOS backup STARTUP diskette, we should notice the Stacker drives loading and swapping the appropriate drive letters. PREPARE to determine which drive letter is mounting as your Stacker uncompressed volume (which drive is swapping with C:). We can do this by watching Stacker as it mounts.

Swapped drives C: and \_\_:

FILL in the above blank, and all of the below blanks (underscores), in this tip, with the drive letter representing the uncompressed boot partition that swaps with C:.

8. Reboot with the DR DOS backup STARTUP diskette and note the swap drive as explained in the NOTE above. Eventually the drive will stop turning at the first installation screen.

9. Break out of the installation by pressing <F10> and choosing "Exit to DR DOS".

10. From the A: prompt type SYS \_\_: This will transfer the proper boot files from the installation diskette in drive A: to your \_\_: uncompressed boot partition. Now drive \_\_: is a DR DOS 6.0 boot drive.

11. Also from the A: prompt type SYS C:. This will transfer the proper boot files from the installation diskette in drive A: to your C: Stacker partition. Most importantly, this will create a new DR DOS Boot Sector if your hard disk was previously formatted under another version of the operating system.

12. Move to drive \_\_: and create a DR DOS subdirectory by typing MD DRDOS.

13. Move to drive C: and create a DR DOS subdirectory by typing MD DRDOS.

14. Move back to A: and copy all of the files from all of your DR DOS 6.0 diskettes into the C: DRDOS subdirectory. The copying is accomplished by typing COPY \*.\* C:\DRDOS from the A: prompt with each individual DR DOS diskette. You may use either the original STARTUP or the backup STARTUP diskette here.

15. Move to the C:\DRDOS subdirectory by typing C:\ and then CD DRDOS.

16. Delete COMMAND.COM, CONFIG.SYS, and AUTOEXEC.BAT from this DR DOS subdirectory. These files will not be needed here. This is accomplished by typing DEL <FILENAME>.

17. Rename INSTALL.EXE to SETUP.EXE by typing REN INSTALL.EXE SETUP.EXE.

18. Run SETUP by typing SETUP, and install each portion of DR DOS. Note: DO NOT INSTALL THE SUPERSTOR PORTION OF DR DOS. SUPERSTOR AND STACKER CANNOT BE USED TOGETHER.

19. Once you are configured and have DR DOS installed, choose EXIT TO DRDOS. DO NOT REBOOT YOUR MACHINE!

20. From the C:\DRDOS subdirectory type EDITOR C:\CONFIG.SYS.



21. Add the following lines to the end of the CONFIG.SYS file:

```
DEVICE=C:\STACKER\STACKER.COM C:\STACKVOL.DSK  
DEVICE=C:\STACKER\SSWAP.COM C:\STACVOL.DSK /SYNC
```

These additions will make your DR DOS hard disk installation "Stacker Aware". Meaning that DR DOS configuration files will allow you to recognize your Stacker Volumes as well as your uncompressed volume.

22. Also, write down any of the NEW (DR DOS) drivers which are loaded prior to the last two lines added above. (NOTE: This is why it is recommended that you have a copy of your old CONFIG.SYS and AUTOEXEC.BAT handy. You may now compare your old CONFIG.SYS with the new CONFIG.SYS DR DOS created and determine which drivers DR DOS has added) Look for lines which begin with a DEVICE, HIDEVICE, INSTALL, or HIINSTALL command. REMEMBER, all of the drivers loading in your CONFIG.SYS before the above two lines will be loaded from this \_\_: drive. This is why we have to make sure they are in the DRDOS subdirectory on the \_\_: drive for CONFIG.SYS to find them.

23. Save your changes to CONFIG.SYS by performing a CTRL-K and then press X to Save and Exit. For additional information regarding DR DOS's EDITOR program, please see the DR DOS 6.0 User Guide.

24. Copy all of the files noted in step #22 above to the DRDOS subdirectory on \_\_: (\_\_:\DRDOS). This is accomplished by issuing a COPY <FILENAME> \_\_:\DRDOS.

25. Move back to the root directory by typing a CD \. From here, copy your CONFIG.SYS and AUTOEXEC.BAT to the \_\_: root directory (\_\_: \). This is accomplished by issuing a COPY <FILENAME> \_\_: \.

26. Stacker and DR DOS are now installed. You may now reboot your machine.

NOTE: If Stacker detects changes in your AUTOEXEC.BAT or CONFIG.SYS during boot, let Stacker make the changes by pressing a "Y".

## Disclaimer

Stacker is a trademark of Stac Electronics of Carlsbad, CA, and is in no way a product of the Novell Desktop Systems Group. While we make every effort to provide accurate information to assist the user in installing DR DOS 6.0 over Stacker 2.0, we cannot guarantee the accuracy of these instructions in every instance. Technical support questions involving Stacker software are best addressed to Stac Electronics.

## Document 1900

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CABLING A TERMINAL FOR DR MULTIUSER DOS  
4/1/92  
MG

The cable needed to connect a dumb terminal or a PC terminal to the host machine is an RS-232 Null Modem cable. The possible pin configurations are as follows:

### 25-to-25 pin cable

HOST MACHINE		PC/TERMINAL
Transmit	- 2	3 - Receive
Receive	- 3	2 - Transmit
DSR	- 6	20 - DTR
Ground	- 7	7 - Ground
DTR	- 20	6 - DSR

### 9-to-25 pin cable

HOST MACHINE		PC/TERMINAL
Transmit	- 3	3 - Receive

Receive	-	2	2	-	Transmit
DSR	-	6	20	-	DTR
Ground	-	5	7	-	Ground
DTR	-	4	6	-	DSR

25-to-9 pin cable

HOST MACHINE	PC/TERMINAL
--------------	-------------

Transmit	-	2	2	-	Receive
Receive	-	3	3	-	Transmit
DSR	-	6	4	-	DTR
Ground	-	7	5	-	Ground
DTR	-	20	6	-	DSR

9-to-9 pin cable

HOST MACHINE	PC/TERMINAL
--------------	-------------

Transmit	-	3	2	-	Receive
Receive	-	2	3	-	Transmit
DSR	-	6	4	-	DTR
Ground	-	5	5	-	Ground
DTR	-	4	6	-	DSR

Document 1901

FYI

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Document 1901

Troubleshooting CSPOOL

03/31/91

MG

TROUBLESHOOTING CSPOOL PROBLEMS - MULTIUSER DOS

1. Make sure the user has the Multiuser DOS Business Update of September, 1991. For upgrade information contact 1-800-NETWARE.

2. In CCONFIG.SYS, put the line: SET CSPOOL C:\OSUTILS\SPOOL.

3. If a secure system has not been installed, there will be a system-wide CCONFIG.SYS file, a system-wide AUTOEXEC.BAT file, and the possibility of STARTxxx.BAT files for each session on each terminal. The START files are numbered according to this convention: STARTxxy is the batch file that will be executed on startup for terminal xx, session y. For example, the file START032 is executed for terminal 03, session 2 upon booting. (The main console is terminal 00.) If a secure system has been installed, the system administrator should create an AUTOEXEC.BAT file for EACH USER (in that user's subdirectory), and execute that instead of a START file. Different programs can be executed from each session on the terminal by using IF "%1"=="x" for session x, in the user's AUTOEXEC file.

4. In the system-wide AUTOEXEC.BAT file, put the line: IF "%1"=="1" CSPOOL START This starts CSPOOL from the main console. If a secure system has been installed, and there are individual user AUTOEXEC.BAT files, do NOT include this line in each of those.

5. If STARTxxx.BAT files are used (in place of AUTOEXEC.BAT), CSPOOL may have trouble initializing simultaneously with other processes. The user can work around this problem by using START001.BAT to initialize CSPOOL with a pause, e.g.:

```
START001.BAT
PROMPT $P$G
PATH=C:\OSUTILS;C:\;...
SUSPEND=OFF
PAUSE
SET CSPOOL=C:\OSUTILS\SPOOL
CSPOOL START
```

thus giving other STARTxxx.BAT files time to start applications before the user initializes CSPOOL. If AUTOEXEC.BAT is used, and start files are not, the user can put this line: IF "%1"=="1" PAUSE before the line IF...CSPOOL START line in AUTOEXEC.BAT, to accomplish the same thing.

6. The C:\OSUTILS\SPOOL directory collects temporary files which are sent to the spooler. Occasionally, a logjam of corrupted files will block printouts. To solve this, get to a prompt and type: CSPOOL QUIT then go to the C:\OSUTILS\SPOOL

subdirectory, and delete all files EXCEPT for CONFIG.CPL.

7. CONFIG.CPL is used to control settings for CSPOOL. Most users want to reduce the TIME\_OUT setting. The minimum time out is 5 seconds. Most users also want to stop the form feed. To do so, set FORMFEED to 0. This file can be edited in any text editor.

8. CONFIG.CPL also contains a list of files not used by the spooler. Printers 3 and 4 are on this list. If the user has a printer on COM1 or COM2, these assignments need to be removed from the NOT\_PRINTER list. To exclude any other printer from the spooler, add its printer assignment to the NOT\_PRINTER list. If there is a modem running off the multiport board, add that port's printer assignment to the NOT\_PRINTER list.

Document 1902

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Document 1902

Troubleshooting Terminals

04/13/92

MG

#### TROUBLESHOOTING TERMINAL HANGING PROBLEMS - MULTIUSER DOS

1. Make sure the user has the Multiuser DOS Business Update of September, 1991 or later. For upgrade information contact 1-800-NETWARE.

2. If hanging problems occur that do not occur under singleuser DOS, slow down all hardware options. The user could disable Turbo (if the computer has Turbo), disable shadowing, disable any onboard cache, and increase wait states in the CMOS setup. If the video card is anything other than standard CGA/EGA/VGA, switch the card or monitor to one of these standard modes.

3. To check for drive fragmentation, run CHKDSK \*.\* on the hard drive. The first time CHKDSK is run, the user should choose

NOT to convert anything to files, and just see what's going to be converted. After the names of the affected files and directories have been noted, run CHKDSK \*.\* /F on the drive. NETDRIVE must be set to LOCAL in order for CHKDSK to run in Multiuser DOS.

4. Be sure to turn the computer off daily, to minimize the effect of memory fragmentation. (If 1k is used each time a program is loaded, eventually these 1k pieces will add up to all the available memory.)

5. Check the power supply. A dedicated, grounded line with surge protector is ideal. The humidity around the computer and peripherals ought to be kept between 40% and 60%, as static electricity can also cause hanging problems.

6. If the computer is too near appliances or the wall, or if the area isn't well ventilated, the computer could overheat and cause unpredictable problems.

7. Periodically (once every 6 months or so), the system administrator should open up the machine, clean the insides of the computer with canned air, and remove and reseat the cards, reseat the chips, and check the contacts. This will correct the effects of heat or dust on the computer.

Document 1903

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Using PCTERM  
04/13/92  
MG

SETTING UP A PC AS A TERMINAL IN MULTIUSER DOS

#### DOCUMENTATION REFERENCES

- Chapter 1 in the Multiuser DOS User Guide
- Chapter 3 in the Multiuser DOS User Guide
- Appendix B in the Multiuser DOS User Guide

## HARDWARE

- Host machine must be running Multiuser DOS, and have a free serial port.
- PC to be used as a terminal must have at least 256k of RAM, a monochrome or color display, and a free serial port (COM1 or COM2).

## CABLE

- The cable that will connect the serial port on the host to the serial port on the PC must be an RS-232 Null Modem cable. As there is no industry-wide specification, the cable must be wired EXACTLY as outlined in the "CABLING A TERMINAL" tip.

## SOFTWARE

### PCTERM

Since the setup procedure is clearly outlined in Chapter 3 of the Multiuser DOS User Guide, these points are to be used only as enhancement to that documentation:

- The program that runs PCTERM is called PCTERM.COM. It is stored in the OSUTILS subdirectory on the hard disk, and is on the MDOS installation disks. The first time PCTERM is run, it will create a file (in the same directory as itself) called PCTERM.CON. Every subsequent time PCTERM is run, it will write the changes to PCTERM.CON.

- It is recommended that the first time the user runs PCTERM, they run it from the hard disk of the host machine. That way, there will always be a backup file of PCTERM.CON in the OSUTILS subdirectory, should anything happen to the floppy on which the parameters are stored. - To run PCTERM, get to the C:\> prompt, and type PCTERM. The user will see the main PCTERM menu. To see or alter the terminal specifications, press F2. Most parameters will not need to be changed. Keep in mind that all these parameters refer to the CLIENT machine (the PC which you are connecting as a terminal). These parameters are as follows:

F1 - Into which serial communications port (ON THE PC, not the host) will the cable that is going to the host machine (from the PC) be plugged? \*

F2 - What is the speed at which these two machines will communicate? For troubleshooting purposes, use a baud rate of 9600. Once everything is working perfectly, one might be able to run the terminal at 19200 baud or 38400 baud.

\*F3 - Leave Parity at NONE.

\*F4 - Leave Word Length at 8 (this is DATA BITS in MDOS Setup).

\*F5 - Leave Flow Control at DTR (this is PROTOCOL in MDOS Setup).

F6 - Leave Colour Scroll Mode at FAST. If the PC has an older color adapter, this may need to be changed to Slow or Very Slow, if there is "snow" on the screen at FAST speed.

F7 - Leave Display Initial Menu at Yes, the first time that PCTERM is run. After the PC terminal is running perfectly, if the user wishes for the PC to act as a terminal on the host every time it boots up (rather than use the PC locally), this can be changed to No.

F8 - Leave Wrap-around at OFF.

F9 - Leave this at LPT1, to print to the local printer (off the printer port of the PC).

\*F10- If the PC being connected has a monochrome display, choose PCTerm. If the PC being connected supports graphics, choose PC/CGA. (This corresponds with "Terminal supports graphics" in Setup.)

Once all the parameters have been set, press ESCape to return to the PCTERM menu. Answer Y to the prompt "Update the configuration file?".



- At this point, the file PCTERM.CON has been created, with the parameters needed for the PC to act as a terminal. Copy PCTERM.COM and PCTERM.CON from the hard disk onto a floppy disk, and bring the floppy disk over to the PC. If the PC has a hard drive, these two files should be copied into the root directory of drive C on the PC (or into any other subdirectory which is addressed by the PATH statement in the PC's AUTOEXEC.BAT file). At this point, one should be able to turn on the PC, get to a C:\> prompt, type PCTERM, and see the main menu for the PCTERM program.

#### SETUP

Keep in mind that the options in the SETUP program refer primarily to the main console and the host machine. To run the SETUP program, get to a C:\> prompt, and type SETUP (enter). The screens are the same as those seen during the initial Multiuser DOS installation.

- Choose SERIAL PORTS as the area to configure in the SETUP program.
- Choose the appropriate multiport card, if applicable.
- Choose VIEW PORT SUMMARY from the port configuration menu.
- Choose the port into which the null modem cable is plugged.
- Choose PC TERMINAL for this port's function.
- \* Set Baud Rate to 9600.
- \* Set Parity to NONE.
- \* Set Data bits to 8.
- Set Stop bits to 1.
- \* Set Protocol to DTR/DSR.
- \* If the PC has a monochrome monitor with no graphics card,

answer NO to "Terminal Supports Graphics". If the PC has a Hercules (or compatible), CGA, EGA, or VGA card, answer YES.

- If the PC has an older, 84-key keyboard, change the keyboard default to be 84.

- Save all options, and finish Setup without any other changes.

\* - For these parameters, SETUP and PCTERM need to agree.

At this point, the user will be able to boot the host computer, with the PC turned on, and get to a C:\> prompt on the PC by typing PCTERM, and choosing F1 to emulate a terminal. This C:\> prompt is coming from the Host Machine, and at this point the PC is nothing more than a terminal connected to the host. To return to the PCTERM menu (so that you can ESCape to the PC's own C:\> prompt), type Control-Alt-F10.

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Document 1904

Printmap and Printer

04/13/92

MG

USING THE PRINTMAP AND PRINTER COMMANDS IN MULTIUSER DOS

DOCUMENTATION REFERENCES

- Page 16-42 in the Multiuser DOS User Guide
- Pages 13-2 to 13-4 in the Multiuser DOS User Guide
- Pages 11-115 to 11-116 in the Multiuser DOS User Guide

DEFAULTS

- The first concept to understand about MDOS port assignments is:

while most DOS applications (and therefore most DOS users) refer to the printer ports as LPT1, LPT2, etc., and to the serial ports as COM1, COM2, etc., Multiuser DOS uses these device names as logical names only, each of which can be mapped to any physical port. The physical ports are known to Multiuser DOS as PRN0, PRN1, etc. (for printer ports), and AUX0, AUX1, etc. (for serial ports). - The default assignments for PRINTMAP can be seen by typing PRINTMAP at a prompt. They are as follows:

Logical name	MDOS Physical name	Physical port
LPT 1	Printer 0	Parallel Port 0
LPT 2	Printer 1	Parallel Port 1
LPT 3	Printer 2	Parallel Port 2
COM 1	Aux 0	COM1 Port
COM 2	Aux 1	COM2 Port or Multiport 1

- The default descriptions for each possible printer and serial device are stored in a file called PRINTMAP.DAT (in the OSUTILS directory). For printing from the console, they are as follows:

MDOS Physical name	Physical port
Printer 0	Parallel port 0
Printer 1	Parallel port 1
Printer 2	Parallel port 2
Printer 3	COM1 port
Printer 4	COM2 port or Multiport 1
Printer 5	Multiport 2
Printer 6	Multiport 3
.	.
Printer 15	Multiport 12
Aux 0	COM1 port
Aux 1	COM2 port or Multiport 1
Aux 2	Multiport 2
Aux 3	Multiport 3
.	.
Aux 15	Multiport 15

For printing from a terminal:

\*\*\*The default printer for a terminal is the printer off the back of that terminal. To the software running on a terminal, "LPT1" is the printer that is local to the terminal, by default. To

change this, a PRINTMAP or PRINTER command would be needed.

- The syntax of PRINTMAP, in general is: PRINTMAP Logical name = MDOS Physical name The effect of this is to map the physical port to the logical port name for this session only. If the mapping needs to take effect for every session on a given terminal, put /\* after the mapping.

#### EXAMPLES

- To send all output that software has directed to LPT3 (from the session the terminal is in) to the printer defined by the system as Printer 3 (the printer that is plugged into the device which is plugged into port COM1), type

```
PRINTMAP LPT3 = PRN3
```

- To assign the label LPT4 to the printer plugged into the second parallel port on the system, type

```
PRINTMAP LPT4 = PRN1
```

- To reassign the value of LPT1 for a session, one could either type

```
PRINTMAP LPT1 = PRNx
```

where x is the printer number one wishes to use, or one could use the PRINTER command, to type PRINTER x. This will make all output to LPT1 from this session go to printer x. The x is from the MDOS physical device name, as listed above.

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Document 1905

Troubleshooting terminal installation

04/13/92

MG

TROUBLESHOOTING TERMINAL INSTALLATION - MULTIUSER DOS

1. Make sure the user has the Multiuser DOS Business Update of September, 1991. For upgrade information contact 1-800-NETWARE.

2. Cable is frequently a problem. A 5-wire null modem cable is needed. The pin configuration is shown on page B-3 of the Multiuser DOS User Guide. It is highly recommended that the protocol be DTR/DSR.

3. For troubleshooting purposes ONLY, the user could construct a cable with the following configuration:

25 pin PC end			Terminal end (DB25)	
Transmit	2	-----	3	Receive
Receive	3	-----	2	Transmit
Ground	7	-----	7	Ground

Using this cable, and setting the protocol (both in SETUP and on the terminal) to NONE, one will be able to see whether any signal at all is going from the main CPU to the terminal. (Protocol may be referred to as Flow Control.)

4. Another good test of signal transmission is to define the port into which the malfunctioning terminal is plugged as a Printer/Aux port (so the terminal is treated by the system as a serial printer), in SETUP. Reboot, select the correct printer number (from another terminal) using the PRINTER or PRINTMAP command on the working terminal, and type DIR > PRN. The directory should "print" on screen of the terminal in question.

5. Refer to Chapter 3 in the Multiuser DOS User Guide for setup specifications.

6. If a PC or terminal is having trouble at higher baud rates, set the baud rate (in Setup and on the terminal/PC) to 9600.

7. In Setup, make sure that the question "Does this terminal support graphics" is answered correctly. For standard monochrome terminals, such as a Wyse 60/150, the answer is NO. For a Wyse 370 to support graphics, its personality must be set to GR/CGA. A PC in Terminal Emulation mode can be configured for color graphics use, by selecting Emulation=PC/CGA in PCTERM.

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Document 1906  
Troubleshooting Memory  
06/04/92  
MG

## TROUBLESHOOTING MEMORY PROBLEMS - MULTIUSER DOS

### GENERAL RECOMMENDATIONS

If the version of Multiuser DOS being used is 5.0, make sure it has been upgraded with the Multiuser DOS Business Update of September, 1991.

If new memory has been installed, check the memory count upon bootup, to verify that the system recognizes all the memory available to it.

To minimize memory fragmentation, users could exit applications frequently (e.g., before breaks, and at lunch time). Be sure to turn the computer off daily. (If 1k is used each time a program is loaded, eventually the total of these 1k pieces will equal all the available memory.)

Be aware that loading something (e.g., a TSR) in CCONFIG.SYS or AUTOEXEC.BAT will load it globally, and detract from the available memory system-wide. If a TSR is only needed in one session, it's best to load it via (a) a START file, or (b) a conditional line in AUTOEXEC.BAT testing for the value of the console number (%1, e.g., IF "%1"=="4" CALL TSR.BAT).

### APPLICATION PROBLEMS

In order to increase the free memory available to all sessions, you can limit applications' access to memory in one of two ways:

1. To limit access for ALL applications on the system, lower the value of "Maximum memory per process" in SETUP.

2. To limit access for just one application, lower the value of "Maximum memory desired", on the PIFED screen for that application.

To use the second approach, one first needs to determine how much memory the application needs to run. This information is generally available from the application documentation, or from the manufacturer. If the user is not sure how much memory is needed, he/she could use the MEMSIZE command to limit the memory available, work with the program for a while, limit it some more, work with the program some more, and so forth, until the lowest limit that will allow the program to run comfortably has been reached. Thorough testing at this stage is essential, as an application with too little memory available to it may load and run for a while, but not be able to execute its more memory-intensive modules.

Once the maximum amount of memory needed for an application has been determined, run PIFED on the executable file that runs the application. (For example, to alter the specifications for wp.exe, one would type PIFED WP.EXE.) Each field in PIFED is explained on pages 15-8 to 15-13 of the Multiuser DOS User Guide. The most important steps would be to (a) reduce the value of the Maximum Memory Desired field, to get it closer to the amount demanded by the application, (b) set the Interrupt Vector Range from 0 to FF, so that all interrupt vectors are banked out and in with the application, and (c) alter the setting of the Program Waits in Idle Loop field; try "NO" first, then "YES."

For large multiuser systems, the value of the Additional System Memory Pool field in SETUP should be increased to allow for the additional system structures required.

When an application appears to be having memory problems, here are a few fields to check in SETUP:

- increase the system memory pool
- decrease the maximum memory per process
- choose NOT to set all upper memory to AUTOSCAN, then manually disable some of the blocks which are next to blocks disabled by Autoscan

#### TERMINAL HANGING PROBLEMS

Hanging terminals can be a result of memory shortages. The following changes may alleviate the situation:

- In the BIOS setup, reduce the speed of all possible parameters.
- In CCONFIG.SYS, set FILES=100 and FCBS=16,16.
- In SETUP, disable those memory blocks which are next to memory blocks that have been disabled by Autoscan.
- In AUTOEXEC.BAT, alter the setting of NETDRIVE. Try Remote first; if that doesn't help, try Local.
- In AUTOEXEC.BAT, use MEMSIZE to reduce the memory allocation for each session.
- PIFED the application, making these changes:
  - set memory allocation down closer to amount needed.
  - set the interrupt vector range to 00-ff, so all interrupt vectors are swapped out with the application.
  - answer NO to "Program waits in idle loop." If that doesn't help, reset it via PIFED to YES.

#### NOT ENOUGH MEMORY

Occasionally, when a user moves from an application in one session to another session, anything command issued by the user will result in a "NOT ENOUGH MEMORY" error. To determine the amount of memory available in the TPA (Transient Program Area), type SHOW /M at a prompt, and note the amount of DOS Free Memory. This is the maximum amount of conventional memory that is available for any one session. If SHOW /M shows no memory available after the user has switched from one session to another, the user ought to (a) verify that all existing memory is being recognized at boot time, then (b) run PIFED on the application in the first session.

#### PC TERM

Occasionally, PCTERM, upon exiting back to its menu on a PC terminal, will hang. In this case, the path is probably getting lost on the 286/terminals, which means that the environment variables are somehow being affected when they're stored in the memory of the host machine. To correct this problem: - In SETUP: increase system memory pool; decrease maximum memory per process (to about 512k). - In CCONFIG.SYS: increase FILES and buffers (a lot); increase FCBS to 16,16.