



NEWS

Vol 3

North Texas IBM Personal Computer Users Group

No. 10

Special Interest Programs

Programmers 12 noon Room 106

As Neil was away, the September meeting was led by Jim Hoisington. Topics discussed included patching the head settle time in DOS-2.1, installing the new BIOS upgrade into older PC's, object librarians, and IBM's Professional Debugger package. Jim discussed checking out Professional Basic on the new PC/AT and the new 80287 chip. There was also some discussion of the Bernoulli Box, and a 'head count' was taken of those members who would be interested in a TopView Programmers Seminar. If enough people are interested, IBM might give a class here in Dallas on proper programming in a TopView environment. (Cost unknown.)

The October meeting should be in our standard, open topic, round table format. You can expect some initial reactions to IBM's latest graphics announcements and more on the AT.

Carrington Dixon

Beginning Assembly Language

The Beginning Assembler SIG will not hold separate meetings as long as the "Beginning Assembly Language Class" is in progress. The October session will be the fourth class for this group.

At the conclusion of Jeanne's course, we will change the name of our SIG to "The Assembler Group" where the learning process will continue.

Room assignments may change at that time, so keep a close watch for announcements in the newsletter. Suggestions for meeting format and content will be appreciated.

Charles Shultz

Agenda

At the October meeting we will learn all about NETWORKING...

Larry Griffin and Ron Ogden of COM Systems, Dallas will tell us everything we ever wanted to know about networking, as well as specifics regarding Corvus, Sunol, and 3COM.

Charles

Business 12 noon Room 105

MicroSpec, a Plano-based software firm, will demonstrate their accounting modules which feature built-in audit trails, budgeting, and automatic flagging of over-budget items. The modules also include an easy-to-use bar chart graphing routine, showing monthly balances by account for the previous 12 months.

MicroSpec currently supports General Ledger, Accounts Receivable and Accounts Payable, and will soon offer Payroll, Inventory and Point-of-Sale modules. Introductory price of each module is \$69.95 until the first of the year.

After a half-hour general question and answer session, the MicroSpec presentation will begin at 12:30.

Burke/Talbott/Fries

Beginners 9:00 am Room 105
John Hall

BASIC 9:00 am Room 107
Mike Durbin

(For a complete listing of room assignments and meeting times, see page 4, Ed.)

Next Meeting October 13, 1984

Jesuit College Preparatory School
12345 Inwood Road, Dallas, Texas

(Schedule on page 4 - Map on page 13)



North Texas PC NEWS
STARMAIL ADDRESS 50573

Published monthly by members of North Texas IBM Personal Computer Users Group for their use. Members each receive a free subscription; for others, price of the NEWS is \$1.00 per copy. Advertising is accepted; contact Editor for rates. Members are requested to notify the editorial staff in writing of address changes. Send all editorial correspondence to the Editor, PC NEWS, 2025 Rockcreek Dr. Arlington, TX 76010.

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Illustrations by Mel. White and Marion Cutler

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Deadlines:

All material for publication in PC NEWS (articles and ads) must be received by the NEWS staff no later than the fourth Friday of the month prior to publication.

Articles:

Column width is 56 characters. Article submission is preferred by aodem or disk (ASCII format). Double-spaced, typewritten written copy is acceptable.

North Texas IBM Personal Computer Users Group

A non-profit, independent group, not associated with IBM Corporation. The Group meets on the second Saturday of each month. See page 1 for meeting time and place.

Officials:

President	Chris Morgan	(214)739-5895
President Elect	open	
Program Chairman	Charles Kroboth	(214)739-5895
Treasurer	Bill Hood	(214)739-5895
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Special Interest Groups:

Beginners	John Hall	(214)495-2375
BASIC Applic.	Mike Durbin	(214)271-8779
Business Applic.	Shariene Talbott	(214)386-5596
	& Ricky Burke	(214)276-5003
	& Ed Fries	(214)783-8543
Disk of the Month	Doug Windham	(214)278-5321
Programmers	Neil Bennett	(214)238-7650
Beginning Assembly	Charles Shultz	(817)566-3919

Telephone (during business hours) (214)361-0304
Bulletin Board SYSOP: Mark Collard (214)223-0983
(24 hrs, download & upload, messages, 300/1200)

Dues: Regular Membership - \$24.00 year
Student membership - \$12.00 year

Dues are payable for full-year increments only. PCN mailing label shows your membership expiration date. Renewal must be received at least six weeks before that date for uninterrupted mailing of PC NEWS. Mail payment to: Treasurer, NT IBM PC UG,

10400 N. Central Expwy #210
Dallas, TX 75231

READ ME

...by Charles Kroboth, Program Chairman

Door Prizes

For those who haven't heard yet, a door prize is given away at the beginning of each meeting. To qualify, one must be present as well as a paid-up member of the club.

Eric Sewell and Peter Lewis won the door prizes last month. The prizes included a family game called Cryptic Cube, contributed by Metropolitan Computer, and five disk carriers from Wildcat Computing. Metropolitan and Wildcat are both located in Plano.

Thanks!

A special thanks to Tom Fowlston of Crossroads Audio and Dave Brandenburg from Entre' Computer Center for loaning us equipment for the September meeting.

Wanted

We need someone to spend an hour or so a week phoning local retailers for club discounts. For details, call me at 739-5895.

Charles

Elections

Nominations for All Positions

The nominating committee for our User Group has been established and is now taking nominations for positions of President, President-Elect, Treasurer, Secretary, and Program Chairman. Please get in contact with any officer of the club if you wish to nominate yourself or someone else, or if you would like more details on what is involved. We need the nominations by November 1st.

Chris Morgan

SOFTWARE REPORT

by Dick Gall



Freeware - Personal Datebook

Apple fans might call this a program for the rest of us. Its very simplicity might entice one to use it to add at least a minimal appearance of planning to the chaotic progression of days that characterize life after the arrival of the PC.

PERSONAL DATEBOOK (PD) is an interpreted BASIC program. The action screen is divided into a calendar display of the selected month, holidays in the month or address book display, and a half-screen listing of memos for the chosen day of the month. The days for which memos have been entered and stored are highlighted on the calendar. The right half of the monitor screen is the memo section, and up to 20 half-lines are available in free text format for entering plans, dates, appointments, reminders, PC-NEWS copy deadlines, users' group meetings, etc. The built-in line editor for creating and updating memos is somewhat better than EDLIN, and at least it makes good use of the function keys for navigation. It's our guess that the producers of PD, Lateral Programming, Inc., of Altamonte Springs, FL., will receive so much flak over the lack of a full screen editor in the memo section that the next version will include it. Meantime its still easy to use, especially if you don't have to do a lot of editing to make changes.

The datebook section appears in the lower left screen, when requested, and includes all the standard functions for originating, manipulating, and deleting entries, space for two phone numbers, and comments.

Support our Advertisers

Metropolitan Computer and Wildcat Computing have been among our biggest supporters and advertisers for a long time. Wildcat has run an ad in PC NEWS continuously for the last 18 months. We appreciate that, and encourage you to support them with your purchases.

PD has been submitted to the disk of the month crew. If you can't wait till it appears there, request it by sending a blank diskette to Lateral Programming Inc., Box 337, Altamonte Springs, FL 32715. Registered owners receive a printed copy of the documentation and news of updates and revisions. Registration costs \$12.95. A 36K-byte documentation file is included in the evaluation sample sent to the club, but we never looked at it because we were able to use the program without it, and our unabashed "WHEN ALL ELSE FAILS, READ THE MANUAL" philosophy.

In addition to recommending PD generally as a quick & easy planner, we'll predict that someone will grow this baby into a really handy tool by adding autodialing from phone numbers in the address book, full screen memo editing, paging from one day's memos to another using the cursor keys, and several other features.

Next month: CLUBware (tm) Software
by Rayhawk Automation NW, Inc.

The STARTEXT OBSERVER reports that Disk of the Month Chairman Doug Hindha is now a STARTEXT subscriber. His STARTEXT mail ID is 35876.

Dick

Additional Leaders for Business SIG

by Ricky Burke

I would like to take a moment to introduce Ed Fries and Sharlene Talbott, co-chairpersons of the Business Applications Special Interest Group.

Ed is a partner and founder of Communications Plus in Richardson. Communication Plus is a full service advertising and public relations firm specializing in business to business communications. They produce annual reports, audio/visual presentations, brochures, and direct mail programs.

Sharlene has recently joined Cardinal Computers, a leader in the field of microcomputer-based bar coding and bar reading systems. Cardinal Computers develops innovative solutions for a variety of business needs using the IBM PC, XT and compatibles.

Ricky



DISK OF THE MONTH
by Doug Windham

OCTOBER HIGHLIGHTS

The latest development for the disk of the month is SALES TAX. Effective October 2, all computer software, other than custom contract programs, are taxed by the state of Texas. This brought up a discussion of the disk of the month program at the last meeting, and the result is the increase in price from \$5 each to \$6 each (\$5.65 plus .35 tax). This applies to all disks purchased at the meeting and by mail. If you do not like computer software being taxed, write your state representative, don't blame me.

October 1984 (Double sided)
PC-FILE III V2.0 (C) Copyright 1984 by Jim Button PO BOX 5786 Bellevue, WA 98006

===== A USER SUPPORTED PROGRAM =====
PC-FILE III is a general purpose "Data Base Manager" program. This is the latest version from Jim Button. Enhancements since version 1.0 (on April 1984 DOM)

- Full screen editing.
- Browse during MOD, DEL, and DIS.
- Masks to specify allowed input chars.
- Field names ignore case.
- Global update and delete function added.
- Default database at database
- Default program to run at end of PC-FILE
- Export of fixed length files provided

PD0014 (Double sided)
FINANCE MANAGER Version 3.0 (Version 2.0 was on PD0010)
A User Supported general ledger system by Genesis Software. This is a menu-driven double entry bookkeeping system. It is easy to use, but you must understand double entry bookkeeping. Enhancements since version 2.0 are:

- Multiple debits/credits per transaction
- Trended financial reports
- Graphics capability added
- Adjustable fiscal year capability
- Send reports to disk file
- Date input format changed
- Accept up to 9 million in balances
- Better error checks
- Display of file names on disk

PD0015 (Double sided)

The files on this disk are for use in the Beginning Assembly Language course being held July-Oct 1984.
Prepared by Jeanne Pitz.

MOVINST mov instructions run single step under debug
ASCADJ decimal and ascii adjust instructions
JUMP near jmp instructions
ARITH arithmetic instructions
LOGIC logical instructions
STRING string instructions
ODDS odds and ends
ASCIIBIN Ascii to binary conversion example
ASCIIBINI Variation on ascii/binary conversion
MEMSIZE checks memory size and if > 512 updates
 memsize variable

Room Assignments

Room #	9	10	11	Noon	1	2	3	4
AUD.			IBM Main Meeting		Apple MAC/LISA		Apple Main Meeting	
105		IBM Beginners	Apple Geneology		IBM Business Application			
106		IBM Ambly. Lan.	Apple Education		IBM Advanced Prog.		IBM Assembly Lang. Inst.	
107		IBM BASIC	Apple Education		Apple Pascal			
108		IBM C.A.I.	Apple Adv. Topics		IBM Engineering/Sci.			
109		Apple Beginners	Apple Business					
111		Apple BASIC	Apple Apple III		Apple Communications			
113		Apple CP/M	Apple 6502		Apple Graphics			
114		Apple Stock Market/In.	Apple Games		Apple Spreadsheets			
116			Apple Hardware		Apple Beginning Apple Corp.			

DISK OF THE MONTH (continued)

PASSWORD For dos 2.1, a way to setup a password for system

FREE Shows free space on a disk under 2.1 - details

FCB DUMP Allows file contents to be dumped to printer, file or screen details file handles in 2.1

P00016 (Double sided)
Genealogy on Display V1.3 by Melvin O. Duke P.O. BOX 20836 San Jose, CA 95160
 ===== A USER SUPPORTED PROGRAM =====

DIRECTOR BAS Prints the documentation of the contents of the diskette

ALPHAMAR BAS Provides an alphabetical list of the marriages

ALPHAPER BAS Provides an alphabetical list of persons

CREATMAR BAS Creates a marriage file

CREATORD BAS Creates an ordinances file

CREATPER BAS Creates a person file

DISPLAY BAS Provides an the display of all the info on file in the form of pedigrees, family groups, personal and ordinance information.

FAMILY BAS Provides a printout of a family group sheet for any marriage

INDEXMAR BAS Creates a marriage index

INDEXPC BAS Creates a parent/child index

LISTMAR BAS Provides a list of marriages

LISTPCI BAS Lists the parent/child index

LISTPER BAS Lists the persons in the person file

PEDIGREE BAS Provides a printout of the pedigree chart for any person

PRINTMAR BAS Prints the contents of the marriages file

PRINTPER BAS Prints the combined contents of the persons and ordinances file

UPDATMAR BAS Update the marriage file

UPDATORD BAS Update the ordinances file

UPDATPER BAS Update the person file

Requires: At least two diskette drives or hard disk, IBM Matrix Printer or equivalent w/132 print positions. At least 96K RAM for DOS 1.1, 128K for DOS 2.0

P00017 (Double sided)
ACCTG PRG 1536 dBASE II accounting package. To run, enter "DO ACCTG" at dBASE II dot prompt.

BACKUP PRG 2048 dBASE II Backup routine. To run, enter "DO BACKUP" at dBASE II dot prompt.

GUIDE PRG 2560 dBASE II library routine. To run, enter "DO GUIDE" at dBASE II dot prompt.

MAIL PRG 1536 dBASE II form letter generator. To run, enter "DO MAIL" at dBASE II dot prompt.

ML2 PRG 1152 dBASE II mailing label manager. To run, enter "DO ML2" at dBASE II dot prompt.

STATEZIP PRG 3328 dBASE II state and zipcode checker. To run enter "DO STATEZIP" at the dBASE II dot prompt. ▶



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8087 Arithmetic Coprocessor ... 195.00
 8087 Coprocessor Kit ... 295.00
 (Kit Includes Software for use with Macro-86 Assembler & Basic Compiler)

Set of 9 Chips:
 64K 200 Nano ... 62.50
 Set of 9 Chips:
 64K 150 Nano ... 67.50

Price and availability subject to change without notice.



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DISK OF THE MONTH (continued)

SUPERBAK PRG 2944 dBASE II backup routine. To run, enter "DO SUPERBAK" at dBASE II dot prompt.

All of the above are for use with dBASE II from Ashton-Tate. You must have dBASE II to use the above programs. The files listed above are just the primary programs. There are a total of 109 programs, file, indexes, etc. on this diskette.

EX0007 ANNOUNCEMENTS (Double sided)
This is the IBM EXCHANGE Announcement diskette dated August, 1984. This double-sided diskette has articles and information on the following - IBM PC AT Detail description of all of the AT hardware announcements IBM PC DOS 3.00 Announcements of DOS 3.0, BASIC 3.0, and Macro Assembler 2.0 TOPVIEW Announcing TopView and TopView Programmer's Toolkit NETWORKING More detail on IBM's Network, Adapter, Programs and Manuals Displaywrite 2 Five announcements on PC Displaywrite 2 software and hardware

EX0008 EXCHANGE (Double sided)
This is the IBM EXCHANGE Announcement diskette dated September, 1984. This contains the following -
Views and Reviews
Why Pascal?
PCIX
Tips and Techniques
IBM Printer Control
Commands
Blank Color Screen and Set Text
Bit Manipulation
Increasing BASIC Execution Speed
DOS 2.0 Ansi.sys
Ergonomics for You and Your Computer
New Users Column
The Parameter Conundrum
Parameter Transmission in Pascal.

All members of the club are encouraged to contribute copies of public domain programs to the club library. For each new diskette of software contributed, you may select any diskette in the club library in exchange.

Doug

Disk details are on page 9 ▶

MAIL ORDERS October, 1984

All members may order any diskette from the club library, and have it mailed to them. All current issues as well as back issues are available by mail order.

PRICING: \$6.00 per diskette (\$5.65 + .35 sales tax) plus \$.50 postage and handling for each diskette. (\$2.00 minimum postage and handling.)

Diskettes available:
(please check box to left of diskette desired.)

- Jan. 83 - Games & Songs
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- Apr. 83 - Games & RT-BAS
- May 83 - Games
- June 83 - PC-TALK.III
- July 83 - Games
- Aug. 83 - Utilities
- Oct. 83 - CHASM
- Nov. 83 - 747,Sort,&Spooler
- Jan. 84 - Sample Pascal progs.
- Feb. 84 - 1RD & Math Tutor
- Mar. 84 - Games
- May 84 - PC-ENTRY & NEWKEYS
- June 84 - IBM UG Newsletter
- July 84 - PC-WRITE 2.2
- Aug. 84 - PCPG & PC-TOUCH
- Sep. 84 - Galaxy Trek,UTIL&Corewar
- Oct. 84 - PC-FILE.III Ver 2.0
- PD #1 - Income tax & LOTUS templates
- PD #2 - Utilities, XDIR, & BAT
- PD #3 - LADYBUG (LOGO)
- PD #4 - UTIL, SPEED411, & SWLPT
- PD #5 - DND (Dungeons & Dragons)
- PD #6 - Freecalc & Micro Acct
- PD #7 - Games
- PD #8 - Utils, Finance, programs to use w/DBASE II

- PD #9 - PC Firing Line/PC Underground
- PD #11 - RBBS-PC (Remote Bulletin Board System)
- PD #12 - Utilities
- PD #13 - EPISTAT
- PD #14 - Finance Manager V3.0
- PD #15 - Assembly Language class examples
- PD #16 - Genealogy on Display V1.3
- PD #17 - dBASE II Acct,form letter,library,etc
- EX #2 - EXCHANGE April 1984
- EX #3 - EXCHANGE May 1984
- EX #4 - EXCHANGE June 1984
- EX #5 - EXCHANGE July 1984
- EX #6 - EXCHANGE Aug. 1984
- EX #7 - EXCHANGE Sept. 1984
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NEWSLETTER EXCHANGE

(The following article offers some excellent advice on chip installation and checkout. Read it before you install that next bank of memory. The article is a reprint from one of the IBM Exchange diskettes. Ed.)

Installing Computer Chips

Guy Pinte
New York IBM PC Users Group

There are no real problems to installing chips, just a little common sense and care are all that is required.

TURN OFF THE POWER. Remove the PC cover and any cards, but remember which slots the cards were in. An installation tool is not required; however a chip extractor, special tweezers with hooks at the tips, is highly recommended when removing chips.

The three main problems encountered are static electricity, broken pins, and carelessness.

STATIC. Do not wear synthetic clothes or leather soled shoes. Work and stand on newspaper. Discharge yourself before beginning. Do not use aluminum foil as a work surface!!

PINS. The pins on most chips are spread apart in too much of a "v" shape to align easily with the socket holes. You will probably need to place the chip on its side and press on it gently, bending the set of pins resting on the table inward SLIGHTLY to move them more near vertical. Do this one chip at a time as you install them into the sockets.



Each chip has a "U" shaped notch at one end. This is important! This notch should match up with a similar mark on the socket or you may have to use other chips of the same type as a guide. Set each chip into its socket GENTLY and push it firmly in with both thumbs. Do not rush.

NEVER DISCONNECT A CABLE, INSTALL OR PULL EITHER A CARD OR CHIP WITH THE POWER ON!!!

After the chips are installed, you will need to set the dip switches, assuming you are adding memory chips. There are two switch units on the PC and one on the XT. Positions 1-4 of switch #2 reflects the total memory of all the installed memory on the PC. The single switch unit on the XT reflects only the total on the system board and does not deal with expansion card memory.

Some switches 'slide' while others 'rock'. Consult the Guide to Operations manual or expansion card documentation for the proper switch settings.

Note: Rocker settings are not always intuitive. The active end is pushed down (use a ball point pen). However, some diagrams show the raised end of the rocker as black. Black in this case is the 'other end'. Confusing? Beware of illustrations. Compare the illustration for the pre-upgrade settings to what you had before, this will help you determine whether a switch should be down or up in the illustration.

Some expansion cards have switches to 'switch in' individual banks of memory as needed. This should not be confused with setting the starting address of the card which is usually equal to the amount of memory on the system board. Some cards require to be told the total memory on the card itself.

Now, reinstall the cards, insert DOS in drive A and turn on the power. It will take longer than you are accustomed to.

Run CHKDSK and note the total memory at the bottom of the screen. this should be your new total memory. If it is not, then the switches are set incorrectly.

If the memory failed the diagnostic and gave an error message on the screen, you have a bad chip(s). This is rare but it does happen. If you have a special diagnostic that can locate the chip use it.

The first step is to locate the row of chips with the bad one(s). POWER OFF. Set the memory switches to the next lower 64K and power on again. If the diagnostic passes, then the bad chip is in the last 64K. If it does not pass, reduce the memory (by the switches) by another 64K etc. until the row harboring the culprit is isolated.

Note: Since the XT switches do not deal with expansion card memory and therefore the total memory, a different technique will have to be used. If the card allows the switching out of individual memory banks, use them. ▶

NEWSLETTER EXCHANGE

Installing Computer Chips

(continued)

Otherwise you may have to remove chips a row at a time until the fault goes away.

Once the row has been isolated, pull a chip from a good row and set it aside. Pull a chip from the bad row and install it in the good row. Repeat until you get a failure. Remember when you pull and install each chip Power Down first. There could be more than one bad chip.

After you have tried all the chips from the bad row and not found a bad one, things may be okay. If a chip was not fully seated, or if oxidation has formed, an undeserved error may point to a perfectly good chip. When you moved the chip, you may have corrected the fault when it was reseated. Install the chips you removed from the good row and install them in the row that you removed all the "suspect" chips from. Rerun the diagnostics with all the memory switched on again. If all goes well, power off, button up, and enjoy.

Guy Pinte

(The following article is a reprint from the June, 1984 edition of PC Report, the newsletter of the Boston Computer Society IBM PC Users' Group. Ed.)

CHKDSK -- Checking up on DOS

By Howard White

Think of DOS as a bookkeeper. Then think of CHKDSK as the auditor, coming in on call to verify the bookkeeper's work, find errors, and, if asked, help set things straight.

I would guess, on the basis of absolutely no evidence at all, that a lot of PC users who could be helped by using CHKDSK have never heard of -- and therefore never used -- this valuable tool. They've never read the official word from IBM (in the DOS manual) that "You should run CHKDSK occasionally for each fixed disk and diskette to ensure the integrity of the file structures."

Let's start by exploring a couple of the problems that CHKDSK can find. Then we'll talk more about running the program and interpreting its findings.

File Fragmentation

A file on a PC disk consists of a series of chunks of data stored in disk sectors, which are little sections of disk space at precise locations known by the disk drive. When you format a disk, it is divided up into either eight or (with DOS 2.0), optionally nine pie slices. The disk drive itself divides the disk into 40 tracks, bands rather like the grooves on a record, moving from the outside toward the center of a disk. Each of the eight (or nine) pie slice pieces of a track is called a sector, and a sector holds 512 bytes of data. Thus with a double sided DOS 2.0 nine-sector format (the usual default) there are $512 * 9 * 40 * 2$ (for two sides) or 368,640 bytes ("360K") available.

When you create or add to a file, DOS "allocates" disk space to it as needed. On a double-sided disk, it allocates space in chunks of 1,024 bytes at a time; two sectors at the same physical location on opposite sides of the disk. IBM calls these units of two sectors "clusters". When you delete a file, DOS frees up the clusters associated with it, making them available for use.

When a disk is relatively new and you have not yet done lots of creating and deleting, the disk is neatly organized. A file which starts on track 2, sector 8 (both sides), will continue on track 2, sector 9. If you add to it, the next part will go on track 3, sector 1. The idea is to minimize the movement of the disk ▶

DISK OF THE MONTH

(continued from page 7)

MAIL ORDERS

As long as the members use it, I will fill mail orders on the following basis. All orders must have payment enclosed and addressed to: Doug Windham, DOM Chairman, PO Box 475205, Garland, Tx, 75047. Postage and handling must be enclosed per the following: \$.50 per diskette ordered with a \$2.00 MINIMUM charge, and \$1.00 postage for each catalog.

DISK DETAILS

Price: \$6.00 (\$5.65 + .35 sales tax) Catalogs: \$2.00 Available at the meeting, in the cafeteria at the specially marked table, before and after the general meetings. Media: DSDD 5 1/4" diskettes formatted without DOS (320k). Public domain software only, standard full disclaimers. Call disk of the month chairman Doug Windham at 278-5321 any time (have answering machine) to contribute new programs for future Disk of the Month issues. All back issues are be available at the meeting and by mail.

NEWSLETTER EXCHANGE

CHKDSK -- (continued)

drive's read-write heads, which switch from track to track with the familiar grinding noise that tells us our drives are working hard. Head movement is the slowest thing your PC does.

But when a disk has been in use for a while, DOS has trouble finding these nice "contiguous" locations for files, so it starts putting things wherever there is space available -- generally space freed up by earlier deletions. The result is that a file may start on track 4, sector 9, but then leap to track 27, sector 4. That means it takes longer to read a file from disk because the drive has to go looking all over the place for it. A file that has such gaps is called a "fragmented file."

If you run CHKDSK with a filename, it will report back whether a file is fragmented, and if you run it with a wildcard specification: CHKDSK *.* , it will report on the general state of disk fragmentation:

```
B:\ZORK.DAT
    Contains 4 non-contiguous blocks.
B:\PIFFLE.BAS
    Contains 3 non-contiguous blocks.
```

or it will report "All specified files are contiguous."

The cure for disk fragmentation is simple. When you back up your files onto another disk (you DO back up don't you?), use the COPY A:*.* B: command instead of DISKCOPY A: B: . The wildcard COPY command restores files to non-fragmented status, while DISKCOPY simply reproduces the state of the original disk. Even if you don't want to back up the disk, you can eliminate fragmentation by COPYING its files to a blank disk, then DISKCOPYing them back to the original.

More Serious Problems

The real purpose of CHKDSK is to discover more serious problems than file fragmentation. The principal consequence of spreading files all over a disk is that it slows down access to them. But the REALLY bad thing that can happen to a file is that DOS won't be able to make sense out of it.

A disk file is very literally a chain of clusters, whose definition is maintained in the File Allocation Table

(FAT). The first link is a directory entry which among other things defines the first data cluster of the file. The last link is an entry in the FAT saying the cluster contains the end of file. If the chain lacks a beginning or ending link, or if one of the intermediate links isn't properly connected to a preceding and following link, the file chain is corrupted.

A data cluster that lacks proper connections is called a "lost cluster." The data it contains is presumably still intact, but DOS doesn't know where it belongs. When it finds such a situation, CHKDSK reports "xxx lost clusters found in yyy chains". Here, xxx is the total number of lost clusters and yyy is the number of separate partial chains containing those clusters.

Immediately after this message, CHKDSK also asks "Convert lost chains to files (Y/N)". This is a bit tricky. If you answer "Y", nothing will happen unless you had already specified that CHKDSK should try to fix things -- by saying CHKDSK /F (for Fix). It's strange that DOS should encourage you to do something totally useless, but not the strangest thing about DOS.

Assuming you had run CHKDSK with the /F option, answering "Y" at this prompt will result in the lost clusters being put into a series of files FILE0001.CHK, FILE0002.CHK, etc., which you can then look at with your editor, or whatever.

This technique is most useful for recovering straight ASCII text files. You may have to do some retyping and "cut and paste," but you may also save a lot of work. If the damaged file is a program, it is almost certainly beyond repair.

How do files get this way in the first place? Hardware and software problems or physical problems with the disk may be responsible in some cases, but the most common reason -- at least in my experience, is aborting an open file. I can create lost clusters almost at will by stopping a multi-pass compiler that creates a number of temporary files. The temporary files are left open -- with no end marks -- and they become chains of lost clusters. Pulling a disk out of a drive while the red light is on and DOS is writing is another invitation to lost clusters (and a bad idea for lots of other reasons.)

Another error that crops up is:

```
"File is cross-linked:FILENAM1 on cluster xx
File is cross-linked:FILENAM2 on cluster xx"
```


The Professional RETAIL INVENTORY CONTROL SYSTEM

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For
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People



```

RETAIL INVENTORY
CONTROL SYSTEM
MASTER PROGRAM
    
```

```

RETAIL INVENTORY CONTROL SYSTEM  87/31/82
>>>> MASTER MENU <<<<

(1) = ENTER STOCK NUMBERS      (7) = PRINT REPORTS
(2) = EDIT STOCK ENTRIES       (8) = CREATE NEW INVENTORY
(3) = ENTER ORDERS RECEIVED    (9) = STOCK UPDATE/CLOSING
(4) = ENTER ORDERS PLACED      (0) = SUMMARIZE TOTALS
(5) = ENTER INVOICES           (S) = SYSTEM STATUS
(6) = EDIT INVOICES           (D) = DATE CHANGE

(CLEAR) = EXIT SYSTEM

SELECT FUNCTION > _
    
```

```

INPUT NEW ITEMS  87/31/82
P 1 - STOCK NO. -----) 18824=ACCP
P 1 - DESCRIPTION ----> 3488 Hldgts.....
P 2 - STOCK QUANTITY --> 15..
P 3 - COST PRICE $----> $ 38.88      TOTAL      $458.88
P 4 - RETAIL PRICE $----> $ 48.88      TOTAL      $488.88
P 5 - REORDER LINE ----> 28..        GROSS PROFIT = 25.8 %
P 6 - REORDER QTY ----> 28..        OVER/UNDER LINE= -5
P 7 - NO. ON ORDER ----> 2...
P 8 - DATE LAST ORDER--> 8/15/82
P 9 - VENDOR -----> Alpha..
P 5 - STORAGE AREA ----> SOUTH ROO

ARE ENTRIES CORRECT ? _
    
```

```

PRINT REPORTS AND SUMMARIES
>>>> 1 = PRINTOUT STOCK COST SHEET
>>>> 2 = PRINTOUT INVENTORY LISTING
>>>> 3 = PRINTOUT ITEMS NOT IN STOCK
>>>> 4 = PRINTOUT ITEMS ON ORDER
>>>> 5 = PRINTOUT ITEMS ON OR BELOW REORDER LINE
>>>> 6 = PRINTOUT BY VENDOR
>>>> 7 = PRINTOUT PURCHASE ORDER TO VENDOR
>>>> 8 = PRINT SALES REGISTER
>>>> 9 = TEST PRINTER
>>>> F = FORM FEED
>>>> S = PRINT SYSTEM STATUS
(CLEAR)= TO EXIT TO MASTER MENU
SELECT OPTION --> _
    
```

```

RETAIL INVENTORY
CONTROL SYSTEM
INVOICE UTILITY
    
```

```

Page 1  INVOICE REGISTER  87/31/82
(8) = TAX DEFAULT (Y=YES N=NO)      Y
(1) = SALESPERSON (1 TO 4)          1      D.O.F.
(2) = NEXT INVOICE NO.              123
(3) = (I=Cash OR 2=Charge)           1      Cash
(4) = DATE OF INVOICE                87/31/82
(5) = DATE OF SHIPMENT               87/31/82
(6) = DELIVER VIA                    Mill Call
(7) = FOB                             Dallas
(8) = ORDER NO.                      None
(9) = COPIES OF INVOICE (1-9)       1
(A) = ACCOUNT NUMBER                 1
(B) = COLUMN LABELS (Y=YES N=NO)    N

(CR) = RESET DEFAULT VALUES (CLEAR) FOR MASTER MENU
Line no. to change or (C) to continue _
    
```

```

Page 2  INVOICE REGISTER  87/31/82
QTY STOCK NO. DESCRIPTION PRICE TAX TOTAL
1 28 1188.....INDEXER $ 14.88 Y $ 328.88
2 18 1181.....FILE MARKER $ 8.87 Y $ 178.98
3 2 RC-95.....PANAS DIGITAL RADIO $ 59.95 Y $ 119.98
4 2 RC-123....PROGRAMS $ 29.95 N $ 59.98
5 ....
6 ....
7 ....
W/TAX $ 448.88 N/TAX $ 59.98 TAX $ 22.44 TTL $ 531.14
A NME Alpha Omega Software... B ADDR. 1132 Main St.....
C C/S/Z Chicago, Ill. 73384... D TERMS Ck. 1384....
Line (A to D) to edit or (C) to PRINT ? _
    
```

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NEWSLETTER EXCHANGE

CHKDSK --

(continued)

Cross-linked files are files which jointly claim ownership of a disk cluster. Thus the chains that make up both FILENAM1 and FILENAM2 include a link referring to cluster xx (where xx is a hexadecimal number such as 3B or 2F.) The suggested correction for this problem is to COPY each of the files to another filename (on the same or preferably another disk), examine them to see whether they're o.k., and then delete the original offending files.

In my experience, cross-linked files have tended to be a symptom that the floppy disk itself is suspect; I copy the contents of the disk to another diskette, then format the offending disk, and often find many bad sectors reported.

There's another "switch" besides /F that you can use with CHKDSK: it's /V, which may or may not stand for "Verify" but in any case provides some useful additional information at no cost but a little time.

I recommend that you use the /V switch with CHKDSK, but not the /F switch, at least on the first pass. CHKDSK will report a lot of things without the /F but won't attempt to "correct" things. You can always run CHKDSK again using the /F if you decide you want corrections.

CHKDSK also can produce a variety of other reports. Here's a brief summary:

-- (FILENAME) Allocation error for file, size adjusted. [A link in the file allocation table points forward to a cluster that doesn't exist; the file is truncated at the bad link. DOS 2.1 manual says truncation occurs only if you specify /F parameter; otherwise the file is unchanged.]

-- (FILENAME) Contains invalid cluster, file truncated. [The IBM documentation says this means "the file contains an invalid pointer to the data area," but doesn't elaborate. Again, DOS 2.1 will fix the problem if you say /F.]

-- (Directory name) Convert directory to file Y/N? [In DOS 2.0 and beyond, subdirectories are really files in a special format. This error means that a subdirectory is so messed up that chkdsk can't handle it; if you convert it to a file you can look at it with DEBUG and possibly figure things out.

-- Disk error writing FAT x (where x is either 1 or 2 or, if it's really been a bad day, both.) [DOS keeps two supposedly identical copies of the all-important File Allocation Table on disk. If it can't write to one or both, you've got serious problems. Copy the data to another disk and reformat the offending one. Chances are the outer track of the disk has become damaged.]

-- Entry has a bad attribute (or size or link) [This message refers to entries in subdirectories. You will probably need a good understanding of directory structure and confidence in DEBUG or some other utility to get out of this one.]

-- (FILENAME) First cluster number is invalid, entry truncated. [The directory doesn't point to a valid disk cluster as the first one in the file; the file is useless.]

-- Insufficient room in root directory. [You have specified the /F option and directed recovery of lost clusters. They go into the root directory, which on a double-sided floppy disk can hold only 112 files. The files created by CHKDSK -- FILEnnnn.CHK have caused an overflow of this directory. Take a look at the ones already created, consolidate them if they're any good, and delete unneeded ones.]

-- (Directory name) Invalid sub-directory. [Something is amiss in the subdirectory. Using the /V parameter may help explain the problem and CHKDSK will try to fix it.]

-- Processing cannot continue... [Usually a memory problem; another message will usually narrow down the difficulty.]

-- Probable non-DOS disk. Continue (Y/N)? [CHKDSK is really confused; it can't figure out the FAT. The disk might be one which uses a copy protection scheme (in which case you would certainly not want CHKDSK to try to fix it) or might just be so messed up that it's probably not salvageable. IBM recommends NOT using the /F parameter before getting this error, as if you could know in advance you would get it.]

-- Tree past this point not processed. [Very bad news. Track 0, which contains lots of vital statistics, has gone to lunch. You are probably out of luck if you get this one.]

Howard White

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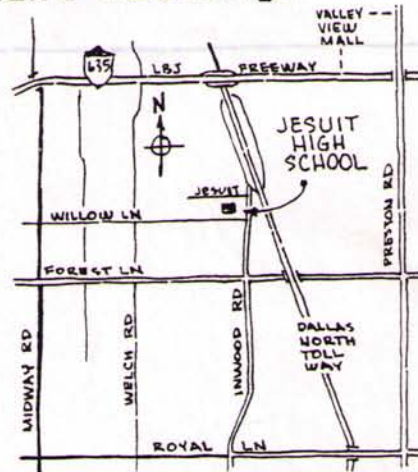
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