



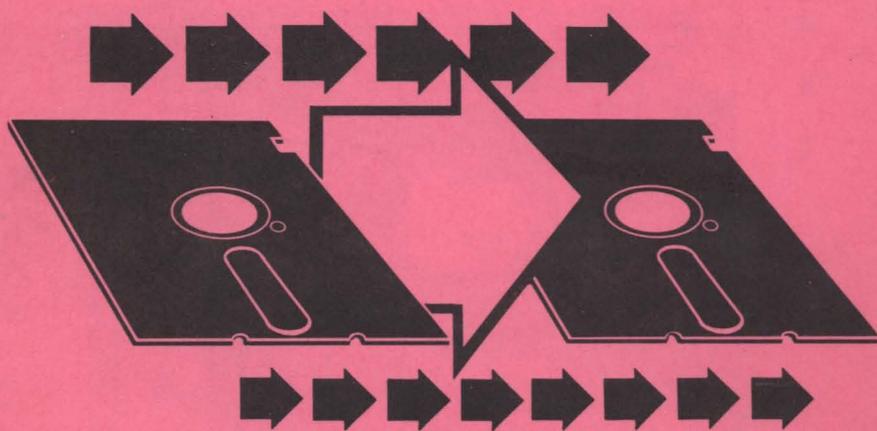
---

# DISDUP

T.M.

DISK SECTOR COPYING PROGRAM

---



SOFTWARE for the  
ATARI® 400/800/1200





# ATARI

## Learn to program the ATARI™ in 6502 Machine Language & BASIC.

Three new ATARI books for the serious programmer and beginner, are now distributed by IJG, for use with the ATARI 400 and 800 microcomputer systems.

### **ATARI BASIC, Learning by Using.**

This is an action book. You program with it more than you read it. You use it, you discover with it, you create it. Learn ATARI BASIC easily through the short programs provided. A great source of work problems for teacher or student. 73 pages. ISBN 3-92-1682-86-X \$5.95.

### **Games For The ATARI.**

Provides ideas on how to create your own computer games. Contains primarily BASIC examples but, for very advanced programmers, a machine language example is included at the end of the book. 115 pages. ISBN 3-911682-84-3 \$7.95.

**How to Program Your ATARI in 6502 Machine Language.** To teach the

novice computer user machine language, the use of an assembler, and how to call subroutines from the BASIC interpreter. 106 pages. ISBN 3-92-1682-97-5 \$9.95.

IJG products are available at computer stores, B. Dalton Booksellers and independent dealers around the world.

If IJG products are not available from your local dealer, order direct. Include \$4.00 for shipping and handling per item. Foreign residents add \$11.00 plus purchase price per item. U.S. funds only please.

IJG, Inc. 1953 W. 11th Street  
Upland, California 91786  
Phone: 714/946-5805

If it's from   
IT'S JUST GREAT!

ATARI™ TM Warner Communications, Inc.

**DISDUP**  
by  
Eric Verheiden and Carl Evans

Table of Contents

Section	Title	Page
1.0	Introduction	1
2.0	Loading Instructions	2
3.0	General Information	2
4.0	Detailed Operating Instructions	3
5.0	Error Messages	6
6.0	Hexadecimal Numbers	6
7.0	Simplified Operating Instructions	7

This program and the associated documentation are copyrighted and may not be reproduced by any means without prior written consent from **VERVAN Software**.

**ATARI is a trademark of Warner Communications, Inc.  
DISDUP copyright © 1982 VERVAN Software.  
DISDUP and VERVAN are trademarks of IJG, Inc.**

## **Section 1.0 INTRODUCTION**

---

1.1 DISDUP is a disk based machine language program that allows sector level copying of most ATARI 400/800/1200\* disks. If your original diskette should become unusable for any reason, simply send it back to us for a replacement. Please include a note or letter which explains your problem. Replacements will be made free of charge during the first 60 days after the purchase. Replacements after 60 days will be subject to a \$5.00 service charge. We will usually ship a replacement within three working days after receipt of the defective unit.

1.2 We at VERVAN Software, in selling a copy of this program, grant the purchaser a non-exclusive license for the use of the program. We do not agree with or endorse any form of software piracy. The law permits the owner of a computer program to make archival (backup) copies for personal use only. The law prohibits the giving away or sale of such copies. Please support us, the industry, and ultimately yourself by observing and obeying the law.

1.3 VERVAN Software makes no warranties, either expressed or implied, with respect to this product, its quality, performance, merchantability, or suitability for any particular purpose or use. This product is sold "as is" with the replacement policy stated in paragraph 1.1. VERVAN Software is not liable for any damages which result from the use or misuse of this product.

1.4 This product and the associated documentation are copyrighted and may not be reproduced by any means without express written permission from VERVAN Software.

## Section 2.0 **LOADING INSTRUCTIONS**

---

2.1 Remove any cartridge from the computer. If the computer is ON, then turn it OFF. Also turn OFF all peripheral devices such as the Interface Module.

2.2 Turn your disk drive (number 1) ON and wait for the busy light to turn off. Open the door on the disk drive and gently insert the DISDUP diskette with the label side UP. Close the door on the disk drive.

2.3 Turn the computer ON. DISDUP will automatically load and run ("boot"). You will know you have a successful load when the opening credits appear.

2.4 Remove the DISDUP diskette from the disk drive and put it away.

2.5 If the program fails to load properly, then one of the following paragraphs may help you.

2.5.1 Check for the presence of a cartridge in the computer. DISDUP is designed to "crash" if any cartridges are in the computer. Remove any cartridges.

2.5.2 Turn everything OFF and repeat the boot procedure.

2.5.3 Check your power and data cable connections. This is unlikely cause of loading problems, but it does occur occasionally. Make sure all connections are firm.

2.5.4 Run a diagnostic program on your disk drive. Some of the older drives have speed control problems. If the speed of your disk drive is less than 284 or greater than 292 RPM's, then you should have your drive serviced.

2.5.5 If all else fails, try booting DISDUP using a friend's disk drive. If you still have no success, send the diskette back to us for a replacement.

2.6 The minimum hardware required for use of DISDUP is:

- (1) ATARI 400/800/1200
- (2) At least 16K RAM
- (3) ATARI 810 Disk Drive

## Section 3.0 **GENERAL INFORMATION**

---

3.1 DISDUP occupies a little less than 3K bytes of RAM.

3.2 No joysticks or other special controllers are required.

3.3 DISDUP allows you to copy all of the information on unprotected ATARI compatible diskettes. Copies are made on the sector level. DISDUP will *not* "copy" protected software.

3.4 A diskette is a place to store information, which may be a program or data. A disk is round and is divided into tracks, with each track divided into 18 sectors. To visualize these divisions, think of the tracks as "rings" on the disk, much like the growth

rings on a tree, and the sectors as "slices" of a pie, with each pie-slice dividing the disk from the center to the edge of the disk. This is what a diskette looks like to the computer.

3.5 DISDUP supports sector level copying of disk information. Sectors may be copied individually or in groups. A single sector, a range of sectors, a list of sectors, or all sectors may be copied.

3.6 Sectors which cannot be read from and sectors which cannot be written to are displayed on the screen and may optionally be listed on a printer.

3.7 Sectors which have been "zeroed" may be excluded from your copy to speed processing.

3.8 Copies may be made with or without a read verify.

3.9 DISDUP is an *information* copier intended for use by intermediate to advanced users. Although neophyte computerists can use DISDUP for their everyday copying needs, full exercise of DISDUP's capabilities will require some expertise on the part of the user.

## Section 4.0 **DETAILED OPERATING INSTRUCTIONS**

---

If you are a beginner or novice at computer programming, skip to Section 7.0 which is a simplified summary of these operating instructions which will suffice for simple copying. However, to obtain working copies of most programs will require some advanced programming knowledge. The following detailed operating instructions will be of some use in those cases. DISDUP is a very useful tool, but we assume that you will have the knowledge and wisdom for properly using it.

4.1 Upon booting the DISDUP diskette, opening credits will appear, the computer will "beep" twice, and a message will appear which says "\*\*\*\* TURN ON PRINTER NOW FOR HARDCOPY\*\*\*\*". At this point you must turn your printer on if you desire hardcopy listing of "bad" sectors. This message will appear again only if you re-initialize DISDUP by pressing the SYSTEM RESET button.

4.2 After initializing DISDUP the last message displayed on the screen is "PRESS START TO COPY, SELECT TO FORMAT". If the destination diskette is already formatted, then skip to paragraph 4.3. Pressing the SELECT button will cause the computer to display the message "DISK TO FORMAT". You should enter a number from 1 to 4 indicating which drive the diskette is in. When you have entered a number and have pressed the RETURN, the computer will display "PRESS START TO FORMAT". Pressing the BREAK key at any time will cancel the request to format. If you elect to format the disk, then press the START button instead. A diskette formatted by DISDUP is no longer compatible with DOS unless you copy a DOS formatted disk to it.

4.3 If you pressed the START button, then the computer will display "COPY FROM, TO". You should enter the appropriate drive numbers. If you only have one disk drive, then enter "1,1" and press the RETURN key.

4.3.1 DISDUP allows you to selectively copy any or all sectors on a disk. When the computer asks "SECTORS TO COPY (HIT RETURN FOR ALL)", you may specify a single sector, a range or ranges of sectors, or all sectors on a disk to be copied. The specific format is **a, b-c, d, e-f**, where **a** through **f** are sector numbers. The format is restricted to hexadecimal numbers (See Section 6.0). For example, the following is a valid input: **10, 05-Section 6.0**). For example the following is a valid input: **10, 05-08, 0F, 1B**. The "-" sign indicates a range where the sector number. The commas separate ranges which need not be in any order. In the above example, decimal sectors 5, 6, 7, 8, 15, 16, and 27 will be the only ones copied. A specific application might require you to extract a single sector of information, modify it, and write it back to a disk. This option is useful for that purpose. After entering the sectors to be copied, you need to hit the RETURN. Note that hitting the RETURN without specifying particular sectors will automatically select all sectors on a disk for copying.

4.3.2 After you have selected the sectors to copy, the computer will display "COPY ZERO SECTORS? (Y OR N)". When DOS formats a disk, it normally fills all unused data bytes in each sector with "zero". When a program is written on a diskette, the sectors not used for program storage usually are not altered. If you respond with a "N" followed by a RETURN, then such "zero" sectors will not be written during the copying process. The net effect is an increase in speed. For most purposes it does not matter which answer you give.

4.3.3 The next request for user response is "VERIFY WRITE? (Y OR N)". A "Y" followed by a RETURN will enable the "write verify" option which causes the computer to read what is written to the new disk and compare this data to what was supposed to be written there. A "N" followed by a RETURN disables this function. The tradeoff is simple. Disabling the write verify speeds the copying process tremendously; but a copy made with a write verify is more reliable. Unless you are in a particular hurry we recommend that you respond with a "Y" to this request.

4.4 SINGLE DRIVE COPYING - The next request for user response is "INSERT SOURCE DISK" and "PRESS START TO COPY". Make sure the source disk is in the drive specified first in paragraph 4.3. When you are ready to proceed, press the START button. The computer will begin loading the source information.

4.4.1 Presently the computer will display "INSERT DESTINATION DISK" and "PRESS START TO COPY". At this point, remove your source disk, insert the disk you wish to write on (destination disk), and press the START button.

4.4.2 You may have to repeat the previous two steps one or more times, depending upon your computer's memory size and the amount of information on the source disk. However, once all data has been transferred to the destination disk, the computer will display any sectors which could not be read from or written to and give you the hex value of the ID of the last non-zero sector. If you had previously turned your printer on (see paragraph 4.1), then this same information would be dumped to your printer at this point. Upon completion of this phase, you will have copied all available data on the diskette. Whether or not the data so copied will run as copied, depends upon the nature of the data.

4.5 TWO DRIVE COPYING— Two drive copying is assumed if the user response to "COPY FROM, TO" specifies two different drive numbers. Everything is the same as single drive copying, except that the final message is:

```
INSERT SOURCE DISK  
INSERT DESTINATION DISK  
PRESS START TO COPY
```

and that the copying process does not require you to remove a disk from a drive until the copying is complete.

4.6 The BREAK key functions as a general purpose manual interrupt. When used, the BREAK key immediately halts whatever operation is currently being performed. Used indiscriminately, this can cause any of several "error" conditions to be flagged. The data buffer is not affected.

4.7 The SYSTEM RESET button causes any current operation to halt, zeroes the data storage buffer, and re-initializes DISDUP to read in a new diskette. If you had not previously turned your printer on, you could do so at this time. Zeroing the data storage buffer means that any files which have previously been loaded into the computer are lost (something like typing NEW while using BASIC).

4.8 DISDUP can be used to make a "recovery" backup of some protected diskette programs. For example, a commercial program that is copy protected with unformatted sectors cannot normally be saved (revived) if a sector develops errors. What you can do is make a revival backup so that you can write the program information back on the commercial disk. The revival backup will not run by itself, because the code checks for unformatted sectors; but the commercial disk will still have the proper format, so by rewriting the program data on it, you can "revive" the bad disk.

## Section 5.0 ERROR MESSAGES

---

5.1 BAD WRITE – You will get this message if you press the BREAK key during a write operation or if some other glitch occurs. When this happens, simply press SYSTEM RESET and start again at paragraph 4.1.

5.2 FORMAT ERROR – This message generally means that the diskette you are trying to use is defective. We suggest that you try a different diskette.

## Section 6.0 HEXADECIMAL NUMBERS

---

We will not fully explain the nature of hexadecimal numbers here. Basically, “hexadecimal” means that the counting base is 16 instead of your everyday 10. The following is a quick reference only — see a math handbook for more details.

Decimal	Hex	Decimal	Hex
1	01	17	11
2	02	18	12
3	03	19	13
4	04	20	14
5	05	21	15
6	06	22	16
7	07	23	17
8	08	24	18
9	09	25	19
10	0A	26	1A
11	0B	27	1B
12	0C	28	1C
13	0D	29	1D
14	0E	30	1E
15	0F	31	1F
16	10	32	20

## **Section 7.0 SIMPLIFIED OPERATING INSTRUCTIONS**

---

How to copy to an unprotected disk:

- Step 1. Load the DISDUP program as described in Section 2.0
- Step 2. TV Display: \*\*\* TURN PRINTER ON NOW FOR HARD-COPY\*\*\* PRESS START TO COPY, SELECT TO FORMAT  
User Response: Press START
- Step 3. TV Display: COPY FROM, TO?  
User Response: press 1, press comma ",", press 1, press RETURN
- Step 4. TV Display: SECTORS TO COPY (PRESS RETURN FOR ALL)  
User Response: press RETURN
- Step 5. TV Display: COPY ZERO SECTORS? (Y OR N)  
User Response: press N, press RETURN
- Step 6. TV Display: VERIFY WRITE? (Y OR N)  
User Response: press Y, press RETURN
- Step 7. TV Display: INSERT SOURCE DISK PRESS START TO COPY  
User Response: place your source disk in the disk drive, close the drive door, press START
- Step 8. TV Display: INSERT DESTINATION DISK PRESS START TO COPY  
User Response: place your formatted empty disk in the disk drive (after removing the source disk), close the drive door, press START

You may have to repeat Steps 7 and 8 several times. When the TV Display goes back to "PRESS START TO COPY, SELECT TO FORMAT", then your copy will be complete.

TERMS AND CONDITIONS OF SALE AND LICENSE OF IJG COMPUTER SOFTWARE  
PURCHASED FROM IJG OR AN AUTHORIZED IJG DEALER

**LIMITED WARRANTY**

**I. CUSTOMER OBLIGATIONS**

- A. CUSTOMER assumes full responsibility that this IJG, Inc. ("IJG") software (the "Software") meets the specifications, capacity, capabilities, versatility, and other requirements of the CUSTOMER.
- B. CUSTOMER assumes full responsibility for the condition and effectiveness of the operating environment in which the Software is to function.

**II. IJG LIMITED WARRANTIES AND CONDITIONS OF SALE**

- A. For a period of thirty (30) calendar days from the date of the sales document received upon purchase of the Software, IJG warrants to the original CUSTOMER that the medium upon which the Software is stored is free from manufacturing defects. THIS WARRANTY IS ONLY APPLICABLE TO PURCHASES OF IJG SOFTWARE BY THE ORIGINAL CUSTOMER FROM IJG OR AUTHORIZED IJG DEALERS. The warranty is void if the Software is subjected to improper or abnormal use.
- B. IJG makes no warranty as to the design, capability, capacity, or suitability for use of the Software, except as provided in this paragraph. Software is licensed on an "AS IS" basis, without warranty. The original CUSTOMER'S exclusive remedy in the event of a Software manufacturing defect, is its repair or replacement within thirty (30) calendar days of the date of the sales document received upon license of the Software. The defective Software shall be returned to IJG or an authorized IJG dealer along with the sales document.
- C. Except as provided herein no employee, agent, franchisee, dealer or other person is authorized to give any warranties of any nature on behalf of IJG.
- D. Except as provided herein, IJG MAKES NO WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.
- E. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to CUSTOMER.

**III. LIMITATION OF LIABILITY**

- A. EXCEPT AS PROVIDED HEREIN, IJG SHALL HAVE NO LIABILITY OR RESPONSIBILITY TO CUSTOMER OR ANY OTHER PERSON OR ENTITY WITH RESPECT TO ANY LIABILITY, LOSS OR DAMAGE CAUSED OR ALLEGED TO BE CAUSED DIRECTLY OR INDIRECTLY BY "SOFTWARE" SOLD, LEASED, LICENSED OR FURNISHED BY IJG, INCLUDING, BUT NOT LIMITED TO, ANY INTERRUPTION OF SERVICE, LOSS OF BUSINESS OR ANTICIPATORY PROFITS OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR OPERATION OF "SOFTWARE". IN NO EVENT SHALL IJG BE LIABLE FOR LOSS OF PROFITS, OR ANY INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY BREACH OF THIS WARRANTY OR IN ANY MANNER ARISING OUT OF OR CONNECTED WITH THE SALE, LEASE, LICENSE, USE, OR ANTICIPATED USE OF THE "SOFTWARE".

NOTWITHSTANDING THE ABOVE LIMITATIONS AND WARRANTIES, IJG'S LIABILITY HEREUNDER FOR DAMAGES INCURRED BY CUSTOMER OR OTHERS SHALL NOT EXCEED THE AMOUNT PAID BY CUSTOMER FOR THE PARTICULAR SOFTWARE INVOLVED.

- B. IJG shall not be liable for any damages caused by delay in delivering or furnishing Software.
- C. No action arising out of any claimed breach of this Warranty or transactions under this Warranty may be brought more than two (2) years after the cause of action has accrued or more than four (4) years after the date of the sales document for the Software, whichever first occurs.
- D. Some states do not allow the limitation or exclusion of incidental or consequential damages, so the above limitation(s) or exclusion(s) may not apply to CUSTOMER.

**IV. IJG SOFTWARE LICENSE**

IJG grants to CUSTOMER a non-exclusive, paid-up license to use the IJG Software on ONE computer, subject to the following provisions:

- A. Except as otherwise provided in this Software License, applicable copyright laws shall apply to the Software.
- B. Title to the medium on which the Software is recorded (cassette and/or diskette) or stored (ROM) is transferred to CUSTOMER, but not title to the Software.
- C. CUSTOMER may use Software on one host computer and access that Software through one or more terminals if the Software permits this function. CUSTOMER shall not use, make, manufacture, or reproduce copies of Software except for use on ONE computer and as is specifically provided in this Software License.
- D. CUSTOMER is permitted to make additional copies of the Software ONLY for backup or archival purpose or if additional copies are required in the operation of ONE computer with the Software, but only to the extent the Software allows a backup copy to be made.
- F. CUSTOMER may resell or distribute unmodified copies of the Software provided CUSTOMER has purchased one copy of the Software for each one sold or distributed. WITHIN SPECIFIC CASES A SEPARATE SOFTWARE LICENSE SHALL BE REQUIRED. The provisions of this Software License shall also be applicable to third parties receiving copies of the Software from CUSTOMER.
- G. All copyright notices shall be retained on all copies of the Software.

**V. APPLICABILITY OF WARRANTY**

- A. The terms and conditions of this Warranty are applicable as between IJG and CUSTOMER to either a sale of Software License to CUSTOMER or to a transaction whereby IJG sells or conveys such Software to a third party for lease to CUSTOMER.
- B. The limitations of liability and Warranty provisions herein shall inure to the benefit of IJG, author, owner and/or licensor of the Software and any manufacturer of the Software sold by IJG.

**VI. STATE LAW RIGHTS**

The Warranties given herein give the ORIGINAL CUSTOMER specific legal rights, and the ORIGINAL CUSTOMER may have other rights which vary from state to state.

**Now Available**

# SOFTWARE for the ATARI® 400/800/1200

**CASDUP**™ - machine language program that allows you to copy most "boot" tapes and cassette data files as easily as you normally copy a BASIC tape  
Cassette only \$24.95

**CASDIS**™ - machine language program that allows you to transfer most "boot" tapes and cassette data files to disk. No special programming knowledge required. Programs that normally read cassette files during execution may be up-loaded to disk and operate normally without software modifications. Only difference is the program is on disk and loads at disk transfer speeds

Diskette only \$24.95

**FULMAP**™ (Now Available!) machine language utility package for developers of BASIC programs. Features: variable cross reference generator lists all program variables alphabetically with line numbers which reference them; line number cross reference generator which tells you how and where all line numbers are used; address utility which lists all indirect address references and tells you where they are used. This program resides in high memory and accessed from BASIC by entering "MAP". All outputs can be dumped to a printer

Specify Cassette or Diskette \$39.95

**DISASM**™ - machine language program that allows you to disassemble machine language programs. You can load a file from cassette or disk and the program will display all the file's addresses and their contents in hex, ASCII (if any), and 6502 op code mnemonics. All outputs can be dumped to a printer

Cassette or Diskette \$24.95

**DISDUP**™ - machine language program for sector level copying of disk information. User may specify single sector, range of sectors or all sectors on a disk to be copied. Copies may be made with or without a read verify. Sectors which cannot be read from or written to are displayed on the screen and optionally to a printer

Diskette only \$24.95



**Utility Programs  
for the**

**ATARI® 400/800/1200**

**FROM**



1953 West  
11th Street  
Upland, CA  
91786 (714)  
946-5805

ATARI is a trademark of ATARI Inc. a division of Warner Communications Company.

VERVAN is a trademark of IJG Inc.