

DISK UTILITIES

IN THE SOUTH WING OF THE JEFFERSON COMPUTER MUSEUM

[TERAK MUSEUM](#) - [UCSD PASCAL MUSEUM](#) - [USUS LIBRARY](#)
[ANCIENT ALPHABETIC ART](#) - [LIBRARY](#) - [ALTAIR AND IMSAI EMULATORS](#)
[REVIVING CASSETTE DATA](#) - [DISK UTILITIES](#) - [COMPUTER RESCUE](#)
[WHAT'S WRONG WITH THIS PICTURE](#)

Reading UCSD and RT-11 disks

Transferring disk images

Under the UCSD P-System, the easiest way to transfer an entire disk image is to use the File / Transfer command to copy the entire disk drive device such as #4: to the REMOTE: device. This sends the disk's blocks out the serial port as unfiltered binary. By capturing the serial stream with a nearby computer, using a terminal program that won't filter the bytes, you can easily create a disk image in a few minutes.

This transfers the disk image in logical blocks, as opposed to the physical order of blocks on the disk, so no de-skewing is necessary to read the blocks. Note that the DOS-hosted P-System used DOS disk image files like "PSYSTEM.VOL" in this same format.

Because this works in a raw fashion, I can use this to read RT-11 disks under the P-System, too. However, RT-11 floppy disk format is somewhat sequential, meaning UCSD often thinks it's read past the end of the disk and gets an error reading an unformatted part of the disk, but this doesn't invalidate

Later versions of the P-System used .SVOL files in this fashion. I believe these tools are compatible with .SVOL files. These tools are also endian-insensitive. They can handle both types of UCSD disks.

My tools for reading RT-11 and UCSD P-System disks

My programs are:

td

This program displays a directory of the files in a UCSD disk image file.

bu

This program bursts the files from a UCSD disk image file. It is smart about recognizing UCSD text files, and performs the conversion from the compressed text format to ordinary ASCII. It optionally makes filenames compliant with WinNT. It also sets the file dates to match those on the original disk.

tdrt

This program displays a directory of the files in an RT-11 disk image file.

burt

This program bursts the files from a RT-11 disk image file. It optionally makes filenames compliant with WinNT. It also sets the file dates to match those on the original disk.

Source code

Here is a link to a Zip file containing the ANSI C source code to my utilities for reading UCSD and RT-11 disk images. Here's a zip [of the source code](#). Here's a zip of the [Windows command-line](#) versions.

The source should be very portable. It is not dependent on the processor endian. The time-stamp code hasn't been ported to Unix, but it should be easy to do if you need it. The code includes a routine to translate Radix-50 (RAD50) characters to ASCII.

Future plans

One disadvantage to this disk-copying method is that it doesn't recover from errors. Under the UCSD P-System I.5 system on my Terak, a simple CRC error while reading a disk causes it to abort. The system becomes unstable at this point, and the REMOTE: device no longer works, forcing a warm reboot.

A better scheme would be less sensitive to errors, and incorporate at least some way to mark which blocks of the disk were unreadable.

Alternative disk copying methods

On a PC, one alternative is Anadisk, a shareware program from [Sydex](#). It can copy a disk image from a disk drive connected to your PC. This can include a properly wired eight-inch disk drive. I've found this program doesn't work under WinNT, forcing you to reboot to DOS. Anadisk has defined its own optional file format that adds an eight-byte header to each sector of the disk image. This scheme could be used to record which blocks had errors.

Return to the main page of the [Jefferson Computer Museum](#).

Copyright 2003 jfoust@threedee.com. All Rights Reserved. THIS PAGE MAY NOT BE USED OR PUBLISHED IN ANY FORM (WRITTEN, CD-ROM, ETC.) WITHOUT EXPRESS WRITTEN (HARDCOPY) PERMISSION FROM JOHN FOUST.

www.threedee.com - www.goJefferson.com - www.foust.org - www.saltglaze.com