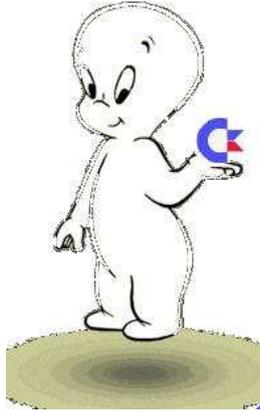


Introducing DriveGhost...

By Nicholas Coplin



Ever since the advent of larger disk drives there's been the question of how to back them up. CMD drives are no different in this respect. There are several tried and proven ways, all with their advantages and disadvantages. Now there is a "new kid" on the block...

The Ghosting concept...

No, this is not some paranormal spook... Ghosting is a technique used to copy every detail off a disk drive and onto a backup device. Its also called "imaging" and the process saves data at track and sector level, not file level as most copy programs do. More so, a good ghosting tool will save the contents of hidden disk data allowing for restoration of details such as partition tables and so on.

The established options...

Okay... disk backups are not new, so let's take a look at the established methods:

File Copiers: this is first, and simplest, method and there are many good programs out there. This class of program generally only copy files, not the disk's structure and hidden data.

BCOPY/BCOPY+, the second option, is a handy tool introduced by CMD back in the early '90s. BCOPY introduced the concept of partition imaging to the Commodore world, and probably remains the most common method presently used by CMD owners to make backups. Its primary purpose is to transfer whole partitions from one Commodore drive to another.

"Commodore meets Linux", sounds like a David and Goliath challenge, but its method number three... Most users know about "foreign partitions", and this is akin to that. Essentially your CMD SCSI mechanism is mounted as a "foreign partition" into a Linux based computer and the whole disk sucked across as one big file. The Linux computer doesn't understand what's in this file, but you now at least have a copy of your drive.



Each of the above methods has its advantages and disadvantages, but what is needed is tool that does it all.

The "New Kid" on the block...

DriveGhost was inspired by a request from a Commodore friend of my mine living in Melbourne, Australia. He's had several CMD setups for quite a few years and had never quite found a disk imaging tool that let him selectively put his RL and HD onto CDROM and restore parts of it as he worked on different projects. With no such thing as a CD-Writer for the C64, he asked if 64HDD could make it happen... Interested, I took up the challenge and got myself a CMD HD and RL.

DriveGhost strives to take Commodore disk ghosting to the next level, providing, in addition to basic backup and restore functions, the ability to import D64 images and manage things on a partition-by-partition basis. Individual partitions can be "tagged" for backup/restore; keyboard, joystick and the 1351 mouse is supported by the GUI. Like BCOPY, DriveGhost runs on a Commodore - and there's a demo version available from the 64HDD website for you to download and try. However, unlike the Linux method there is no need to remove the HD mechanism from your drive, you simply connect your Commodore setup to a DOS PC by a special cable.



Making the connection...

For years people have been connecting their Commodore 1541 drive to the PC to create D64 disk "images". 64HDD uses the same cable to allow the Commodore computer connect to a PC to directly work with those and other disk images. To get started you'll need an XE1541 or Pwr/XE cable, the 64HDD software and, of course, a PC.

If you're new to the world of PC-to-Commodore connectivity, then you'll need to patiently work through the setup process.

Unfortunately, PCs come in all differently shapes and flavours and not all units are as "compatible" as they claim to be... but the little bit of effort is well worth it, and you'll join the thousands of Commodore users enjoying the benefits of having made the PC link.



Can you make a turtle run?

How long will it all take? Let's face it, backups are a pain until the day your hard drive dies or the battery fails on your RL...

JiffyDOS is famous for its speed, but even when it's flat-chat during a plain LOAD it only transfers data at a few kilobytes per second. In order to track and sector "image" a disk, the command channel is used instead and this is even slower than a simple LOAD. And, writing to a HD takes twice as long as reading does. When you factor that the data has to be shuffled twice (first to the C64, then to the drive) the time starts to add up.

Fortunately, both the CMD HD and 64HDD support parallel data transfers with their special cables. DriveGhost takes advantage of this to dramatically reduce the time to backup and restore your partitions. It also supports a special FastSerial mode for restores.

DriveGhost Performance	D64 (Import) min:sec
With XE1541	
Restore to RL (CBM serial)	7:32
Restore to RL (DG FastSerial)	2:54
With Pwr/XE on a C128	
Restore to RAMLINK DRVGHOST	1:33
Restore to RAMLINK RL-GHOST (RL only)	0:36

The times recorded for restoring a 1541 image (D64) are in the ballpark of the benchmark set by those famous "3minute copiers", confirming that with the right gear there's nothing sluggish about DriveGhost.

If you have a SuperCPU, expect to see some further minor improvements in the time taken to calculate track and sector details whilst the DriveGhost runs.

DriveGhost Features:



- Complete backup solution for CMD drive users - HD, FD or RAMLINK
- Uses "imaging" to capture all disk data - not just the files
- Simple, intuitive point and click user interface
- Runs unsupervised once started
- Works with freeware and Professional versions of 64HDD using the popular X1541 cable
- Image files stored in PC format and can be transferred to CDROM
- Ideal for:
 - Backups
 - Restoration
 - Drive mechanism upgrades
 - Data exchange (emailing)
 - Installing D64 files
 - Shuffling partitions around
 - and more...