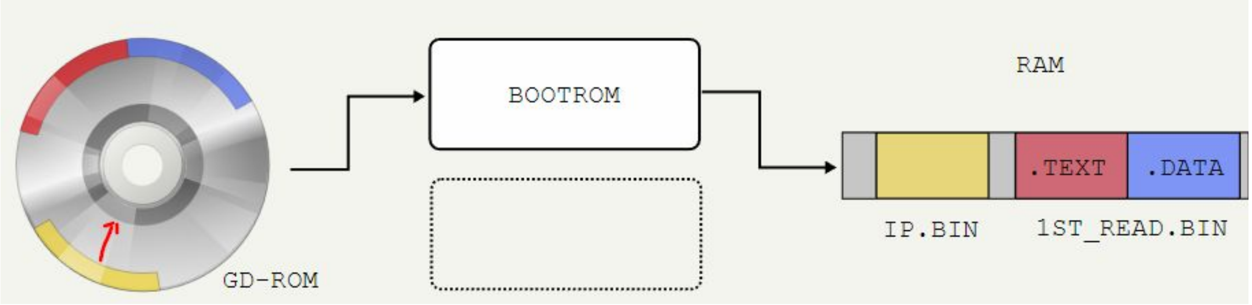
Under normal usage, running an official game, a freshly powered up Dreamcast's BOOTROM started by loading the bootstrap from the GD-ROM to the RAM. Located in the last track on the GD-ROM and known in the community as "IP.BIN", the tiny program was in charge of displaying SEGA's license screen and ran two bootstrap level to setup the hardware registers, create the CPU stack, and initialize the VBR[5].

-The IP.BIN always lives in track 3, and depending on how the gd-rom layout, could be the last or somewhere in the middle. Common layouts being 3 track, (1&2 are low density, 3 occupies all high density), 5 track (1&2 low density, track3 stores ip.bin and iso 9660 volume descriptor + path table, track4 is typically small to large audio track, but all data is in track5 at the edge of the disc for faster access) and many track 5-99 (1&2 low density, track3 stores ip.bin and iso 9660 volume descriptor + path table, track 4-X are audio tracks, and last track holds all the actual data)

https://i.imgur.com/LJrJCW8.png and https://i.imgur.com/8DLdivn.png

That would also necessitate the change for this image to move the IP.BIN to the beginning of the high density track



Minor note(not worth changing, but useful info for the community as a whole): IP.BIN when created using the official Sega IP.BIN Maker does in fact have 2 bootstraps but the only time bootstrap2 is referenced is from bootstrap1, if you make your own IP.BIN from scratch without sega tools, you don't have to abide by the 2 bootstrap rule) – https://github.com/mrneo240/neoIP

Originally intended to add multimedia functions to music CDs, the functionality called "MIL-CD" was never used much, accounting for a mere seven karaoke applications.

-They are multimedia discs, containing 1 or more music videos and a web browser. None contained any karaoke functions, also 8 official MIL-CDs

https://assemblergames.com/threads/mil-cd-legitimate-music-exploration-and-research-need-your-help.69257/

https://segaretro.org/Mil-CD

3rd protection (missing section, but maybe worth adding): 1st_read.bin must be located exactly 150 sectors before the end of the track on GD-ROMs. Doesnt apply for Mil-CDs that contain bootlegged games.

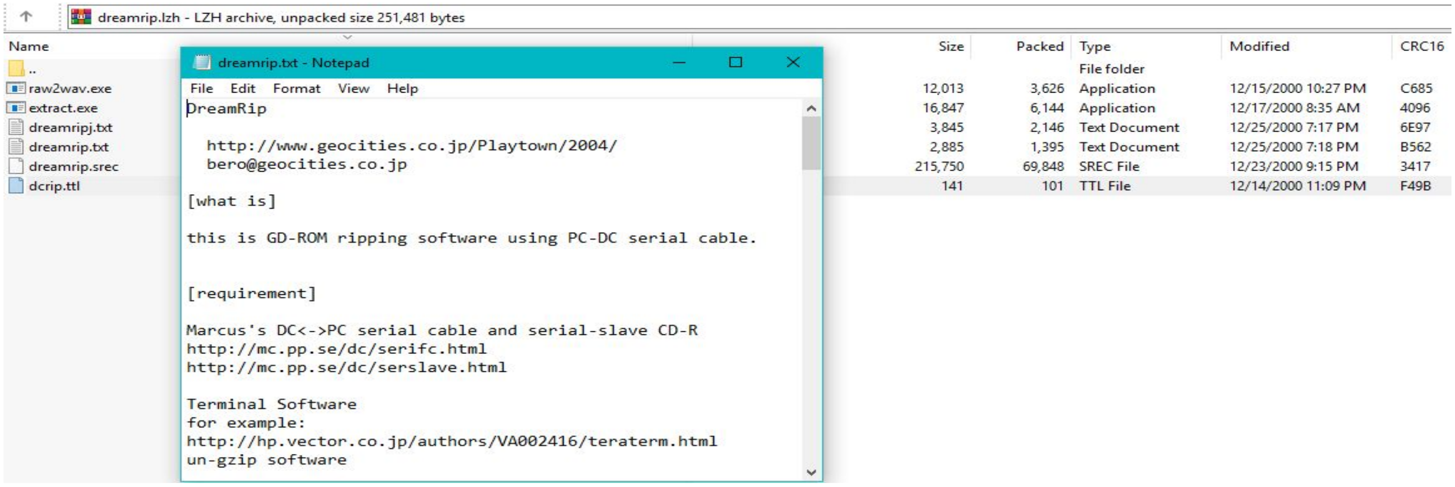
“The DC is going to read the TOC, and as soon as it finds 1ST_READ.BIN, it's going to look at the location of it. If the LBA of the file is wrong, it won't be loaded. The end of 1ST_READ.BIN must always be 150 sectors before the end of the image. (There's that 150 offset again that we saw in IP.BIN) In other words, if your 1ST_READ.BIN is 1,297,060 bytes in size like the SA2 demo, that means takes up 634 sectors. (Ceiling of 1297060 / 2048.) A complete DC disc is 549150 sectors, so 549150 - 150 - 634 = 548366. Your 1ST_READ.BIN in this case must be located at LBA 548366.”

https://assemblergames.com/threads/building-a-valid-gdi-from-scratch-help-wanted.54705/

looking for better source on this, cant find anything in official docs.

The stolen SDK was all pirates needed. With the ability to run code on the machine, the Dreamcast was re-purposed to act not as a game console but as a GD-ROM drive. The SDK's "Coder's Cable"[7] allowed to connect the console to a PC and establish a physical connection. To trigger the console to dump the GD track content, a special executable was written, reverse-scrambled and burned onto a CD-ROM in order to output the whole 1 GiB via the console's serial port. It was an error prone process which took up to 18 hours[8] to complete[9]. The result was stored in a custom made format called ".gdi".

-GDI Format was created after that, in the early days it was all manually done. Typically with dreamrip which directly connected over serial and dumped each part sequentially.



dreamrip.lzh - LZH archive, unpacked size 251,481 bytes

Name	Size	Packed	Type	Modified	CRC16
..			File folder		
raw2wav.exe	12,013	3,626	Application	12/15/2000 10:27 PM	C685
extract.exe	16,847	6,144	Application	12/17/2000 8:35 AM	4096
dreamripj.txt	3,845	2,146	Text Document	12/25/2000 7:17 PM	6E97
dreamrip.txt	2,885	1,395	Text Document	12/25/2000 7:18 PM	B562
dreamrip.srec	215,750	69,848	SREC File	12/23/2000 9:15 PM	3417
dcrip.ttl	141	101	TTL File	12/14/2000 11:09 PM	F49B

dreamrip.txt - Notepad

```
DreamRip

  http://www.geocities.co.jp/Playtown/2004/
  bero@geocities.co.jp

[what is]

this is GD-ROM ripping software using PC-DC serial cable.


[requirement]

Marcus's DC<->PC serial cable and serial-slave CD-R
http://mc.pp.se/dc/serifc.html
http://mc.pp.se/dc/serslave.html

Terminal Software
for example:
http://hp.vector.co.jp/authors/VA002416/teraterm.html
un-gzip software
```

http://stc.hacking-cult.org/gd-rom_stuff/

http://dcemulation.org/1-newsdump/QRandom/DC%20stuff/dreamrip/DREAMRIP.TXT

period tutorials from SCENE:

https://hastebin.com/lomosedese.http and https://hastebin.com/uhituhoxin.http

The last two steps of the process were to reverse-scramble 1ST_READ.BIN and pack everything into a .cdi archive so **DiscJuggler** could burn the image on a CD-R. The result ran flawlessly on any vanilla Dreamcast without need for a modification chip.

-Early days there were burned directly to disc and then read back with discjuggler into a cdi file to be distributed.

or another utility and other formats

https://hastebin.com/hiheqefute.sql

https://www.consolecopyworld.com/dc/dc_backup_faq.shtml#2.4 sections 2.4 – 3.6 being relevant

Defacto format soon shifted into CDI made by padus discjuggler, due it being powerful configurable software and easily supporting multitrack dual format disc images, and being able to burn them back exactly how they were read.

SEGA quickly released a DC v2 which disabled MIL-CD altogether but unfortunately damage had been done.

- V2 dreamcast didn’t immediately end mil-cd booting, it was during the v2 run that sega changed the bios and hardware configuration that led to removing mil-cd support
- Generally agreed upon dates are anything made before October 2000 are compatible, November 2000 is when it changed and December 2000 and later are not compatible.

https://www.reddit.com/r/dreamcast/comments/6zudpb/question_about_boot_discs/

https://segaretro.org/Mil-CD