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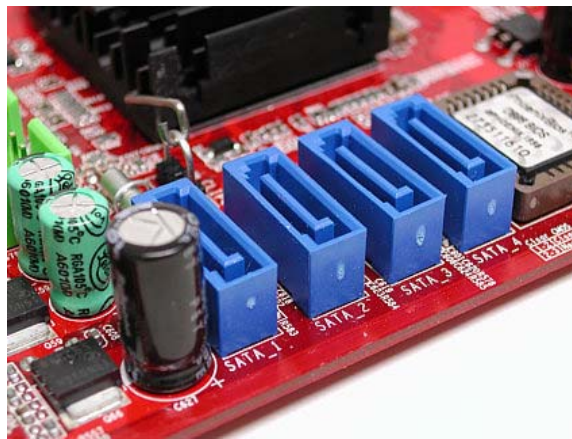
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## **Hardware Requirements / SATA Compatibility**

Before you go taking apart your Xbox 360, you might as well make sure you have the right equipment to flash your drive. The Xbox 360 DVD-ROM drive uses a Serial ATA (SATA) interface, so you will need SATA ports on your desktop PC's motherboard. The picture below shows what a SATA port looks like. Having SATA is not enough though; you must have the right kind - the chipset that controls the SATA functions must be compatible with your version Xbox 360 drive.



### Hitachi 0078FK / 79FK / 79FL

These Hitachi drives are also flashed in Windows, using 360 Firmware Toolbox. Just like the other tools, the software should work with both XP and Vista, but only the 32-bit versions. These Hitachi versions must be flashed with a desktop PC with native SATA ports. A SATA-to-USB adapter will not work with this drive.

These drives can be flashed by most SATA chipsets. Silicon Image SATA chipsets will usually **NOT** work; they corrupt the data and will give you an error. Attempting to flash this drive with a SIL chipset could brick your drive. Also, in rare cases, there are reports that VIA chipsets have

problems with some drives. Personally, my VIA 8237 and 6421 are both iffy. I have to play with it for a while until I get it to read the drive. Shorter SATA cables seem to help with my setup. Many other chipsets should work fine.

## **VIA SATA**

Just some notes about users of VIA SATA chipsets. This applies to both onboard chipsets (like the 8237) as well as the PCI cards (6421).

A common problem is detecting the 360 drive with VIA chipsets. For some reason, many people have this problem when using the external ports on the VIA SATA cards, or the "1" port if using internal. What seems to work best for most people is always using the primary "0" SATA port. On the PCI SATA cards, this is almost always an internal port. If there are multiple internal ports, use the port closest to the front of your PC. In any case, you should always try every port possible before seeking further help.

If you still can't get the drive detected, you can try [\\_pk-'s suggestions](#).

Also, the latest VIA SATA drivers are always available at [viaarena.com](http://viaarena.com). Choose your operating system, then choose IDE, RAID & SATA, then choose either the 8237 or 6420/1. When you run through the installation wizard, uncheck (don't install) the VIA RAID Tool. Just install the drivers.



## Opening The Xbox 360

The outer Xbox 360 “shell” is entirely screwless. Plastic friction tabs hold the case together. There are many different tutorials for opening the Xbox 360, with different methods. Here are some links to “opening the Xbox 360” tutorials. I decided not to cover opening the Xbox 360 in this tutorial since it is already long enough and there are many other tutorials for opening the Xbox 360. Notes:

- The Anandtech guide says you need to use a Torx 12 screwdriver. There is no such thing. You need a Torx 10 screwdriver.
- Removing the grey side grill on the hard drive side is a little tricky. The first friction tab is actually inaccessible from the top holes in the case, so you need to stick your screwdriver in the hole by where the hard drive button is and unclip it. ([See Pic](#))
- In order to push in the back clips, you can do one of two things. You can use a thin metal object such as a precision flathead screwdriver / bobby pin / paperclip OR you can make an opening “key” out of a CD spindle case. The key would not work for me, it was too flimsy, but it works for some people. You can purchase an “unlock kit.”
- If all you want to do is just flash the firmware, you only need to remove the six long screws on the bottom. ([See Pic](#))

Read all these guides and watch all the videos, figure out how you want to go about opening the Xbox 360. It is not rocket science.

[Anandtech Guide](#)

[InformIT Guide](#)

[Xbox-Accessories Disassembly](#)

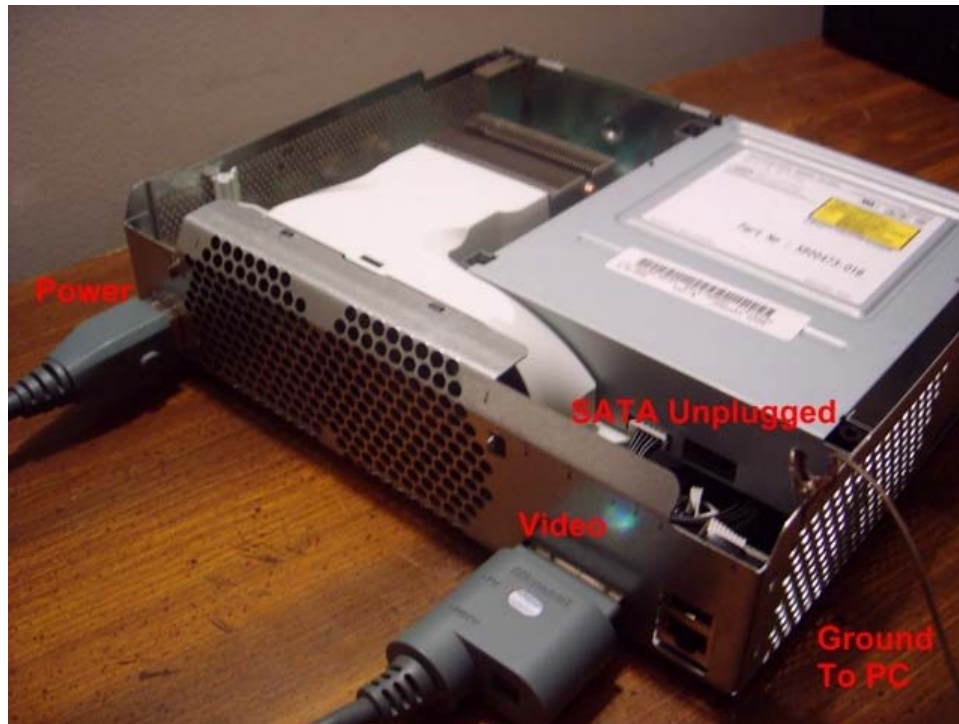
[Hydra's Guide to Making a CD Unlock Key](#)

[Textbook's Video](#)

[acDC's Video](#)

## Xbox 360 and PC Connections

Power off your PC and Xbox 360. Make sure the Xbox 360 power cable and video cable are both plugged in. You do not need to hook up the video to a TV, but it does have to be plugged into the back of the Xbox 360.



The Xbox 360 uses a floating point ground. Your PC uses a “true earth” ground. This difference can cause excess voltage to travel through your SATA cable and potentially damage your Xbox 360 DVD drive or PC Motherboard / SATA card. Remedy this problem by connecting the Xbox 360’s ground to the PC’s ground. The easiest way to do this is by using a “croc clip wire” and connecting the Xbox 360 metal casing to your PC’s metal case. You can use anything conductive to connect the Xbox 360 case to the PC case - you could just tape some bare/stripped wire to each, or even just set the Xbox 360 next to the PC so that they are touching.

Many people have flashed their drives completely ignoring this recommendation. The possibility of damaging something by ignoring this step is rare, but still possible. So, you could say grounding the PC and 360 together isn’t absolutely necessary, but it is recommended. If you have the ability to do so, it is safest to take the time to do it.

## ModeB

ModeB is the Hitachi drive's built-in debug mode that we need to get into before anything else can be done. When in ModeB, the drive can be recognized in Windows and flashed with the hacked firmware. There are a few different ways to get into ModeB. You only need to use whatever method works and you feel comfortable with.

### ModeB Method 1 – SLAX

The first method you can use to get your Hitachi drive into ModeB is by using a bootable SLAX Live CD. It is a specially edited Linux LiveCD that will send custom commands to the Hitachi drive on bootup.

1. [Download the latest SLAX image](#)
2. Burn the .iso image to a blank CD-R using [IMGBurn](#), [CloneCD](#), Nero, or any other recording software capable of burning .iso image files.
3. Make sure your computer's BIOS is set to boot from CD first. Most are set to this by default.
4. Power off both the Xbox 360 and PC.
5. Make sure both power and video cables are plugged into the Xbox 360. You should also provide a true path to ground between the Xbox 360 case and PC case by using croc clips, small wire, or setting them against each other so they are touching.
6. Unplug the small, black SATA cable from the back of the Hitachi DVD drive and connect your Hitachi drive to your PC via a SATA cable.
7. Power on the Xbox 360 and PC at the same time. Boot the PC from the Slax CD and wait until you reach the login prompt. If you get a message that says "Spinning up disc....", hit eject on your Hitachi drive, and the Slax disc should continue to load. If you get that message, that's a good thing, it means your drive is probably already in ModeB.
8. Check for ModeB! ([see below](#))

Troubleshooting: Some people are having problems with the Slax disc, and the only suggestion I can give you is to try turning on the Xbox 360 at a different time. I know with my VIA chipset, it usually works best if I don't turn on the 360 until just after the Slax disc starts to load. You can also check out [this video](#) of how to use Slax to get a Hitachi drive into ModeB.

(The video is for a Hitachi 78FK drive, but the information on using Slax would be useful for all drive versions.)

## ModeB Indicators

It is obvious that we must first get the Hitachi drive into ModeB before doing anything else. Before worrying about your PC, before worrying about flashing, or anything else, focus on ModeB. ModeB is a property of the DVD drive alone. It does not rely on SATA and has nothing to do with your computer. In fact, you can do the following checks with no SATA cable hooked up to the Hitachi drive at all. The following are signs of ModeB. Your Hitachi drive must be doing one of the following. Your drive does not have to display all these signs to be in ModeB. If your drive is showing just one of these, it is in ModeB.

### Signs of ModeB:

1. If using the Xbox 360 to power the drive and using the wire/resistor trick, your Xbox 360's power LED should flash rapidly
2. With all methods, it should take two presses of the eject button to either open or close the DVD tray.
3. With all methods, when you eject the drive back in using the eject button, it should auto-eject back open a second later. This only occurs if you are using the Xbox 360 to power the drive.
4. Obviously, if the drive shows up in Windows, then it is in ModeB.

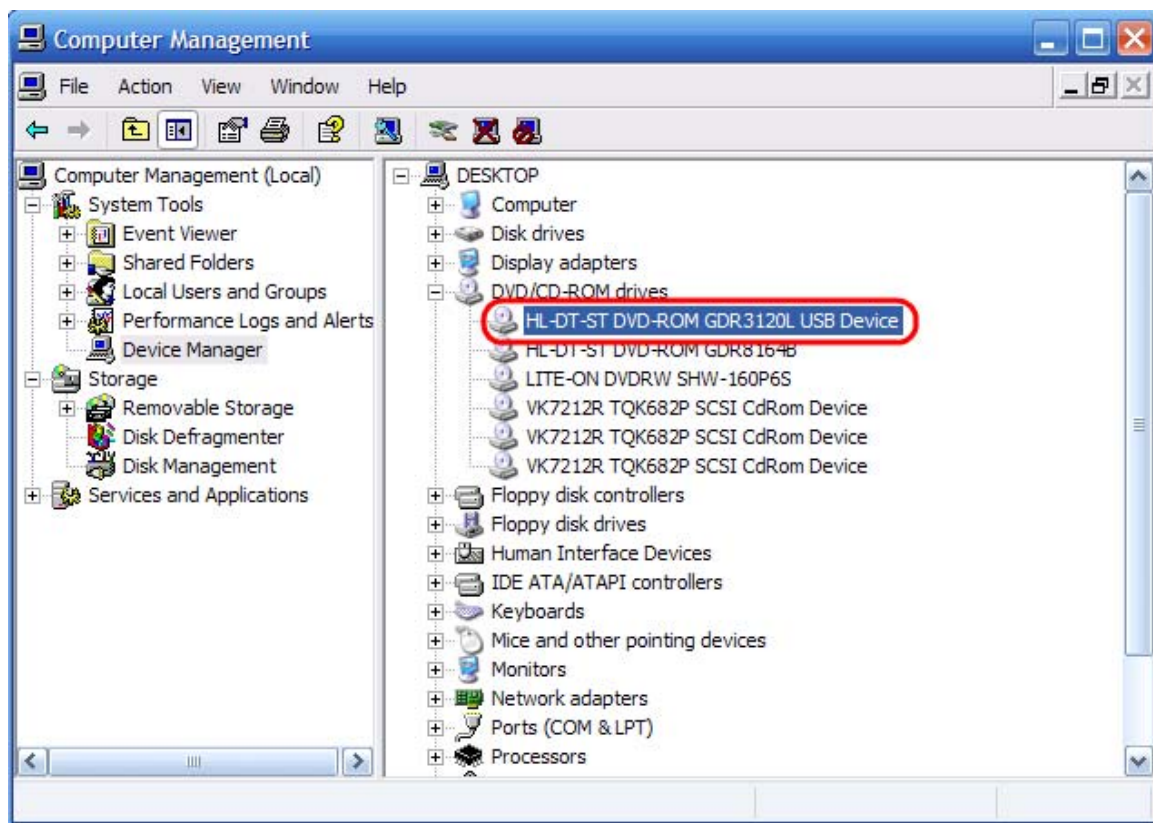
When you do get into ModeB, do not power off the drive. Powering off the drive will make you lose ModeB and you would have to repeat your steps all over again.

## Drive Detection in Windows

When you have made sure your drive is in ModeB, connect it to your PC and power up your PC. If you used Slax, remember to take out the Slax disc because you need to boot from the hard drive into Windows. At the Windows loading bar, you should eject the Hitachi drive in and out a few times. Some people believe that they only need to eject the drive if the loading gets stuck, but this is NOT true! Testing has shown that device I/O errors while flashing were a result from the failure to eject the Hitachi drive at the Windows loading bar.

When Windows boots up, check to see if the drive is detected. First, open device manager. Right-click "My Computer" and select "Manage." A Computer Management window should open up with a list to the left. In that list to the left, under System Tools, is Device Manager.

Check your CD/DVD drives to see if the Hitachi GDR-3120L is listed.



Open up "My Computer" and see if you have a new CD-ROM drive. Right-click on your drive and eject it. You just want to make sure you know which drive is the Hitachi drive. Remember the drive letter.

## v0079 Instructions

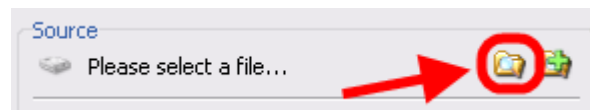
The Hitachi v0079FK and v0079FL drives had security that made them more difficult to flash prior to August 3, 2008. On that day, Podger released his 79 Unlock software to unlock a v79 drive and allow it to be flashed using software alone. No need to solder anything or even open up the drive at all. That method is what follows as the “simple” method. I have retained the modchip and programmer methods in this tutorial under the “advanced” heading for anybody who may still want to use that information.

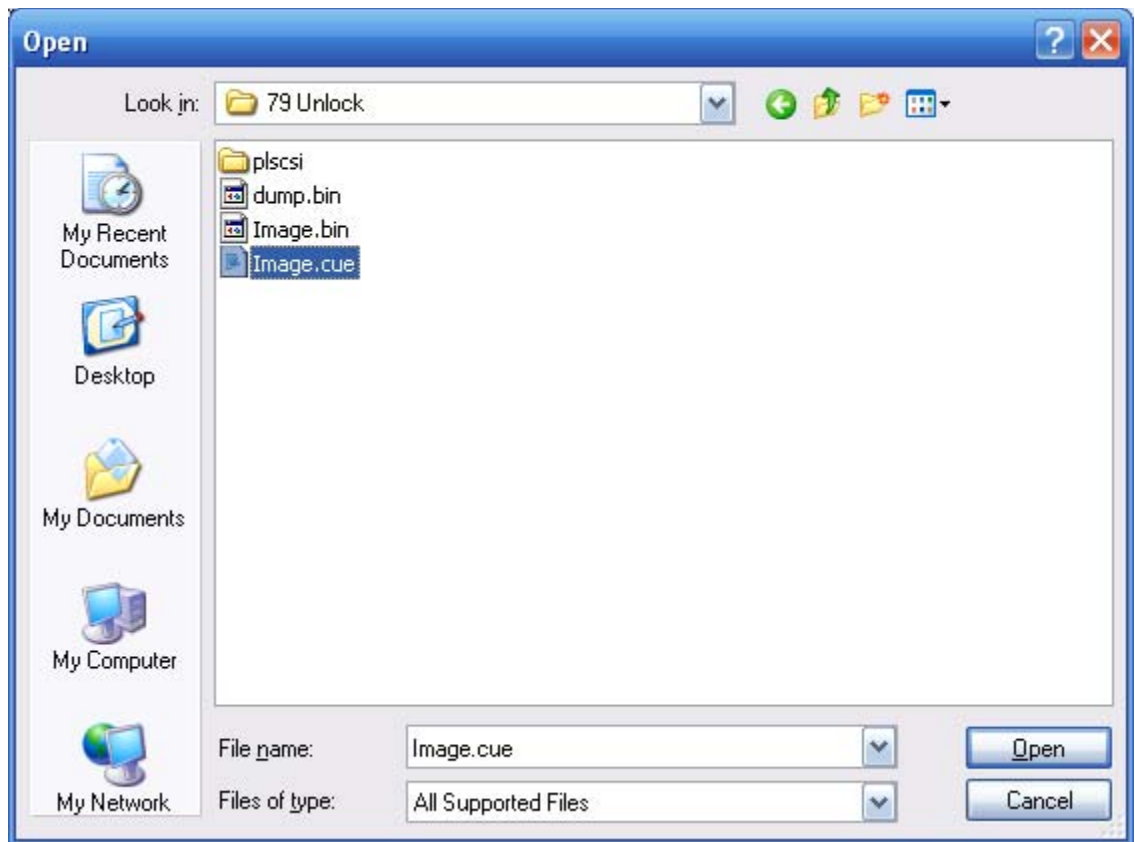
### Simple Method – 79 Unlock

[Video Tutorial Here](#)

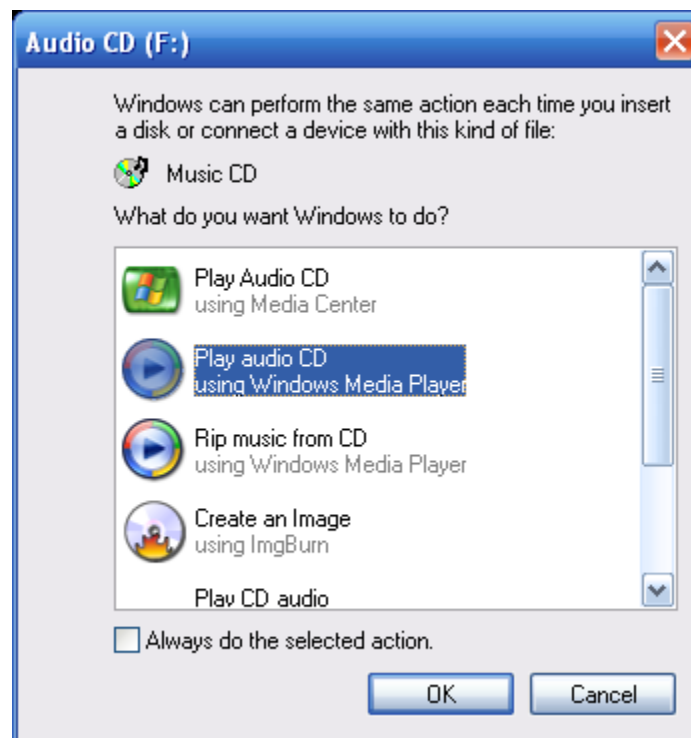
Once you have the v79 drive in ModeB using the Slax disc and detected in Windows, follow these instructions for flashing the drive.

1. Download [79 Unlock](#). The download is in the form of a .rar archive, you will need to use WinRAR to extract the folder.
2. Burn the Image.cue to a CD using ImgBurn. You can just use the options “Write Image File to Disc” and load the Image.cue file. The .cue file only works for blank CDs , not DVDs. You should use a slow burn speed, the file is not large and faster speeds will not help you. For the remainder of this tutorial, this will be referred to as the “79 Unlock Audio CD”





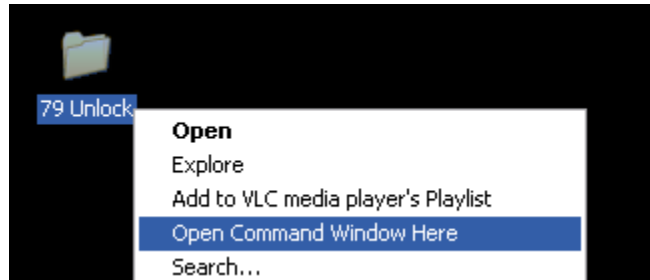
3. Insert the 79 Unlock Audio CD into your Hitachi 79 DVD drive (that should already be detected in Windows).
4. Windows will probably display an Autorun window asking what you want to do with the disc you just inserted.



5. You should select to Play the Audio CD using Windows Media Player. Let the track play completely, it is about 3 seconds long. After it has

finished, hit play again to start playing it again, then immediately hit pause. Hit eject on the Xbox 360 to remove the 79 Unlock Audio CD.

6. 79Unlock is a command line program. For those not experienced with command prompts, it will be easier to open a command window just by right-clicking on the 79 Unlock folder. In Vista, you are given this option simply by holding the Shift button when you right-click a folder. In XP, you need to download and install the [OpenCMDHere XP Powertoy](#).



7. From the command prompt, in the 79 Unlock directory, you need to type 79unlock X and hit enter. Where X is the Hitachi drive letter as recognized in Windows.

```
C:\WINDOWS\system32\cmd.exe
C:\Documents and Settings\Administrator\Desktop\79 Unlock>79unlock F
```

8. Depending on your SATA chipset, you may get a done! reply or an error. This means the drive is unlocked and can now be flashed just like a Hitachi 78 using 360 Firmware Toolbox.

```
C:\WINDOWS\system32\cmd.exe
C:\Documents and Settings\Administrator\Desktop\79 Unlock>79unlock F
done!
C:\Documents and Settings\Administrator\Desktop\79 Unlock>
```

9. Download the latest version of Maximus 360 Firmware Toolbox from Xbins. It is a .NET application that requires Microsoft [.NET framework](#) v2 to run properly. It is available on Xbins in /XBOX 360/firmware/firmware tools/Firmware Toolbox/
10. Insert an original retail game or movie DVD into the Hitachi drive. Remember that the Hitachi drive in ModeB likes to automatically eject

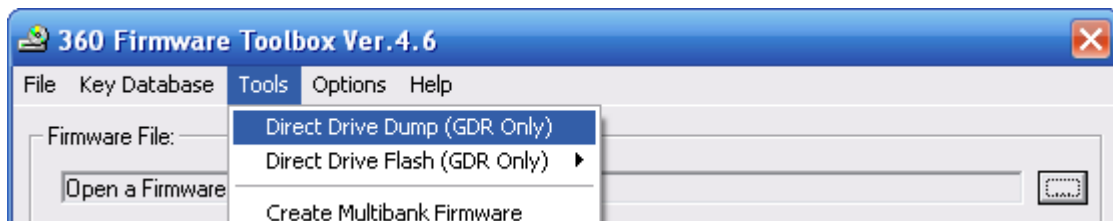
after a few seconds. Follow one of these methods to keep the drive closed.

- With the Hitachi drive tray open, press the eject button once, and then push the tray in manually or...
- Press eject a third time, while the tray is closing

11.Wait for Windows to recognize the disc inserted, then close out of any autoruns caused by the disc.

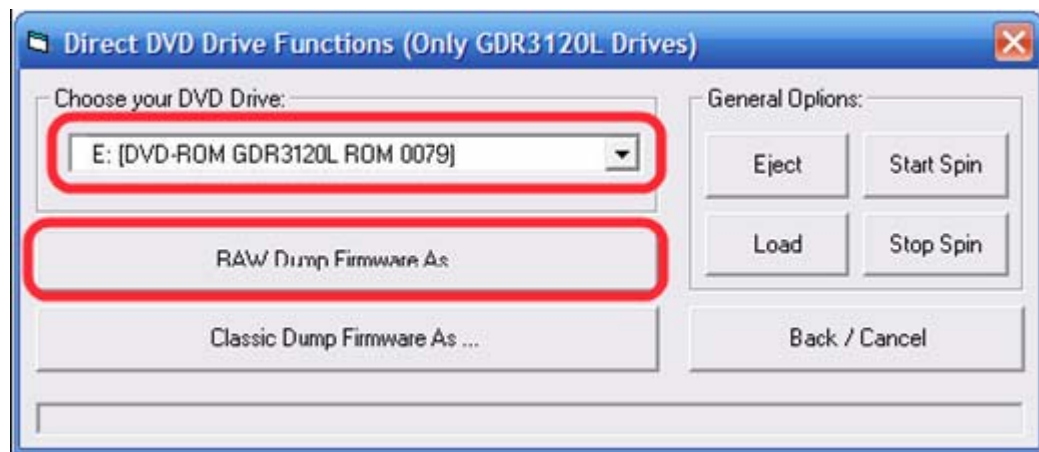
12.Open 360 Firmware Toolbox.

13.Select Tools > Direct Drive Dump (GDR Only)

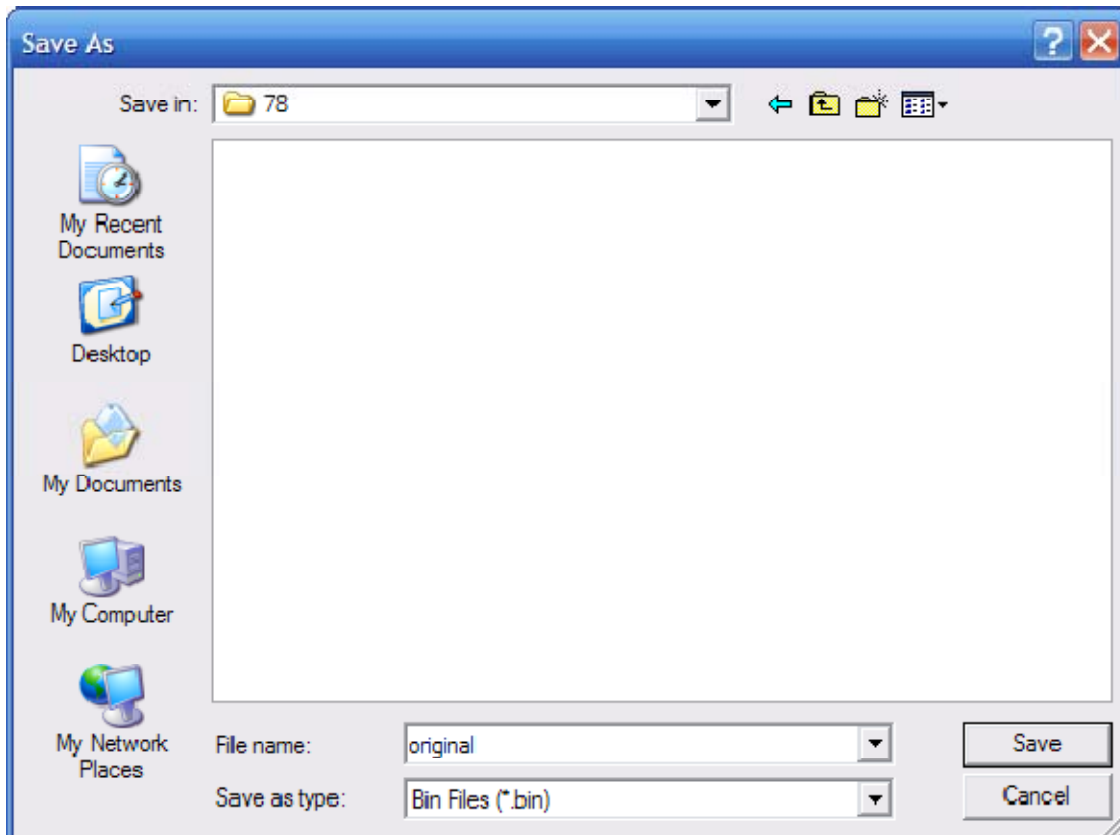


14.Make sure your Hitachi drive is selected in the drop-down list

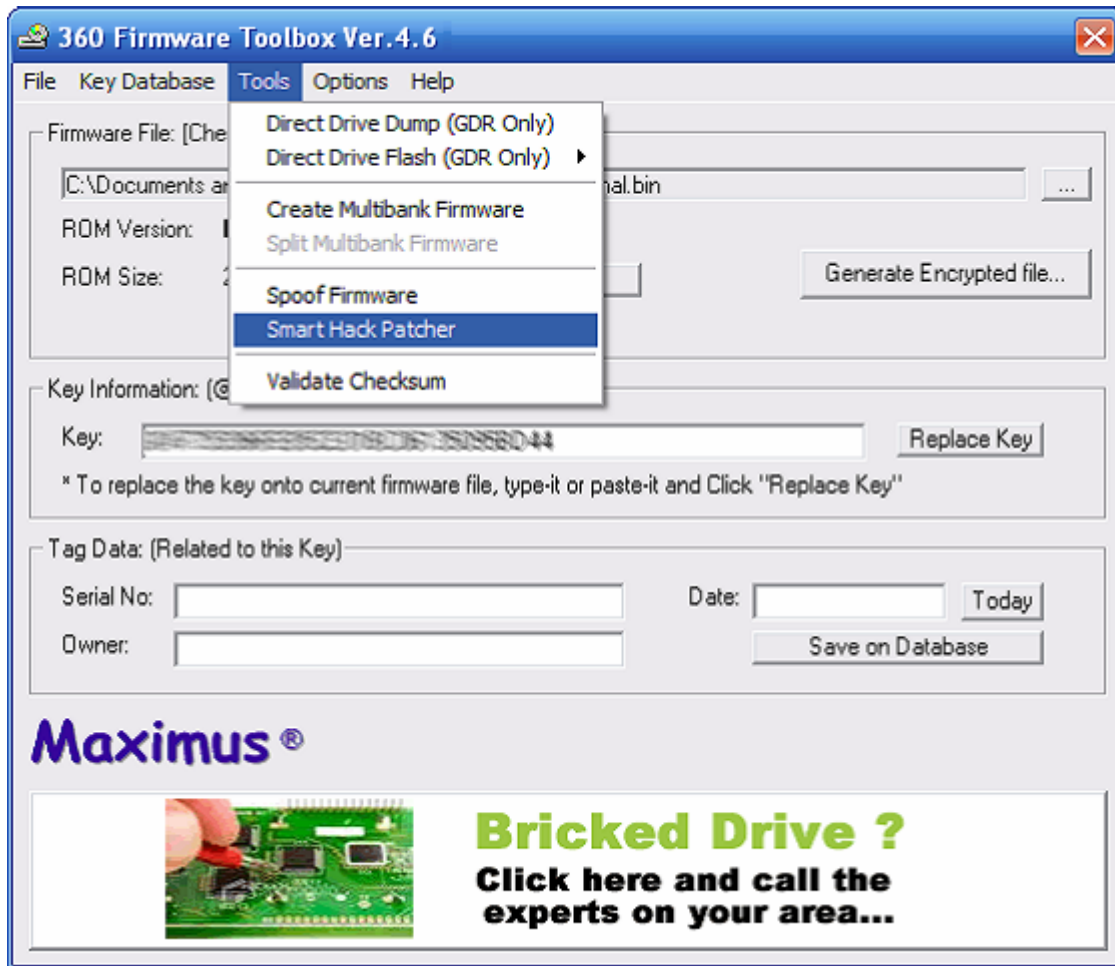
15.Select "Raw Dump Firmware As..."



16.Save the original firmware as original.bin somewhere safe

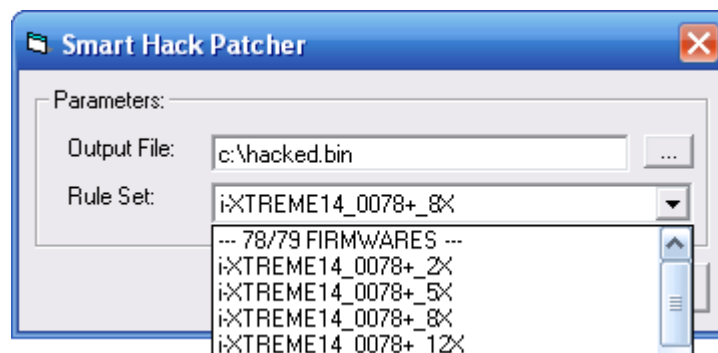


17. The program will tell you that your firmware has been dumped and asks if you want to open it, select "Yes"
18. Make sure the key displayed looks fairly unique, with no multiple FF or 00 bytes. You may also want to dump the firmware a couple times and make sure the key is the same for each dump.
19. Select Tools > Smart Hack Patcher



20. Read the warning and accept it

21. On the line labeled output file, click the box to the right with the ellipsis (three dots) and save the file as hacked.bin where you saved the original firmware



22. Select one of the v78+ firmwares, 2x, 5x, 8x, and 12x are the different read speeds for the firmware.

You now have a choice between different read speed firmwares. There are four available options. There is a firmware that reads backups at 2x speed, 5x speed, 8x speed, and 12x speed. There is no “right” choice, it is purely up to preference. 12x is the normal read speed of the drive. Higher speeds are louder, and may have trouble reading backups if you have a poor quality laser, burner, or media. Lower speeds are much quieter, and may read better, but you will have slower load times.

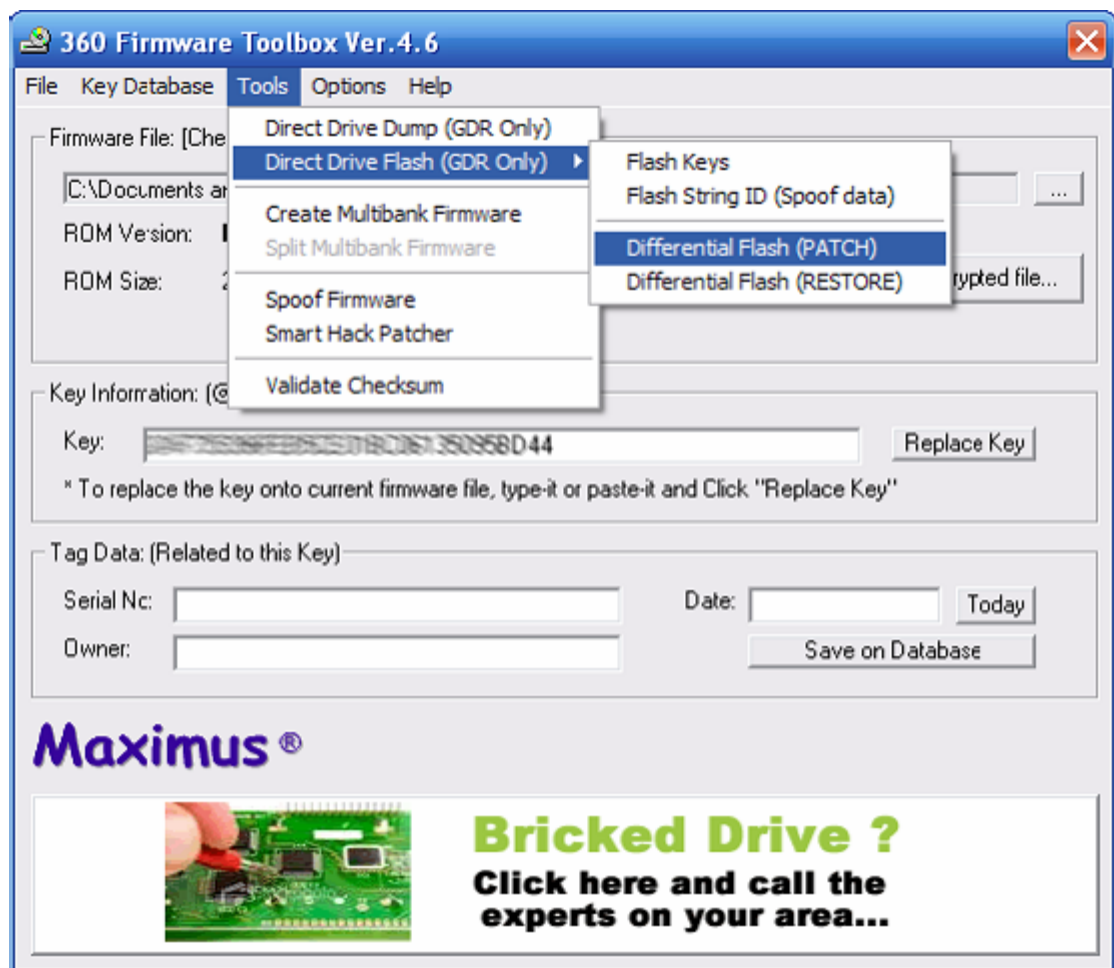
23. Select “Generate File”

24. It should say the hacked firmware was created, and asks if you want to open it, again select “Yes”

25. Verify that the key is still the same as before

26. Select Tools > Direct Drive Flash (GDR Only)

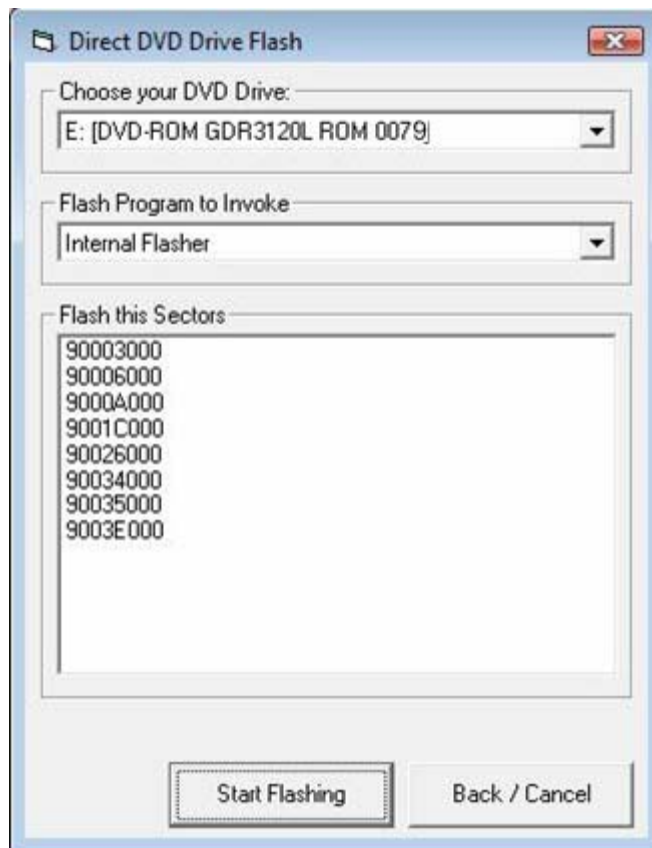
27. Select Differential Flash (Patch)



28. Check that your Hitachi drive is selected in the drop-down list

29. Hit “Read and Detect Differences”

30. Select “Start Flashing” and let it finish



31. Close out of the program, hook the drive back up to the 360, and test it out.

Email yourself the original.bin and hacked.bin for backup purposes.