

## Re: Can't boot off of new SATA drive

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*Source:*

<http://www.tech-archive.net/Archive/WinXP/microsoft.public.windowsxp.hardware/2006-07/msg00038.html>

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- *From:* "Vanguard" <[vanguard.news@xxxxxxxxxxxxx](mailto:vanguard.news@xxxxxxxxxxxxx)>
  - *Date:* Sun, 2 Jul 2006 03:31:49 -0500
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<mickeddie@xxxxxxxxxxxx> wrote in message  
[news:1151790906.732581.182300@xx](mailto:news:1151790906.732581.182300@xx)

So if I, as you said above, disconnect the IDE drive and boot off the Windows CD it will make the SATA drive bootable? The install will re-wirte the boot.ini? Or can I just edit the boot.ini with wordpad?

You boot from the install CD, select Recovery Console mode, and use the bootcfg utility to alter the boot.ini file. You will use Recovery Console mode for the first instance of Windows, the one on the IDE drive, because that is where you need to edit the boot.ini file. It is a text file (but with hidden file attribute) so you could use a text editor but I don't recall if Recovery Console mode has one. I doubt you will have access to wordpad.exe (or notepad.exe). In Recovery Console mode, you would "attrib -h boot.ini" to make the file unhidden, edit it with a text editor, then "attrib +h boot.ini" and reboot. With bootcfg, you would run:

```
bootcfg /copy (make backup copy of boot.ini)
bootcfg /scan (to see what it finds)
bootcfg /rebuild (includes in boot.ini each instance of
Windows that it finds)
bootcfg /list (show what got put into boot.ini)
bootcfg /delete /id <value> (get rid of the old entry for Windows
on the IDE drive)
```

Because you have 2 Windows installs, one on the IDE drive and another on the SATA drive, the boot.ini will list both so you'll have to select the one on the second hard drive. Start -> Help and Support has a lot more info on bootcfg. Once you boot using the SATA drive, you could then go edit the boot.ini over on the IDE drive to remove the ARC path listed for the instance of Windows over on the IDE drive. You could also significantly reduce the size of the Windows partition on the IDE drive since all you are using over there is the loader and boot.ini files (i.e., you don't need the rest of Windows on the IDE drive). The assumption is the booting into Recovery Console mode means bootcfg can see the SATA drive (i.e., no drivers needed).

Of course, after I make the SATA drive bootable I still have the issue of there being no SATA controller in the "boot sequence" of the BIOS.

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I'll have to check with Dell support on this.

You cloned the IDE drive to the SATA drive. That means the boot.ini on the SATA drive is identical to the one on the IDE drive. If you disconnect the IDE drive, the SATA drive becomes the first physical drive that can be detected, so the boot.ini on it should work – EXCEPT that your BIOS doesn't let you boot from a SATA controller on that motherboard. If your BIOS let you boot from the SATA controller, you could boot from the SATA drive as it is currently cloned as long as you never connected a hard drive to any of the IDE ports (while they are enabled in the BIOS). To fix for now, one solution would be for you to add a SATA controller card that has the option in its BIOS to boot from connected a SATA drive connected to it. Then do not attach an IDE drive to the IDE ports, disable the IDE ports (probably not an option if you have CD/DVD drives), or see if one of the boot sequences in the BIOS does \*not\* list [IDE] hard drives.

The problem with above is that you lose your IDE drive. You could get an IDE controller card to use with the IDE hard drive because the system BIOS won't use it as a boot drive (and make sure the IDE controller isn't configured to boot from any drives connected to it). This gets to be a mess of having to add 2 controller cards: one for the SATA drive (so you can boot from it) and another for the IDE drive (so the system BIOS won't see it on a mobo IDE port).

What FG is getting to is having an install of Windows on the IDE drive (connected to an IDE port on the mobo) and use it to load the rest of Windows on your SATA drive. You could even reduce the size of the partition on the IDE drive since all you would need there is space for the partition's boot sector and the loader files for Windows. What you would have then is: the BIOS completes its POST, it finds the first physically detectable hard drive (your IDE hard drive) on a mobo IDE port, it loads the bootstrap program in the MBR (1st physical sector) from that IDE hard drive and passes control to it, the bootstrap program then reads the partition table in the MBR to find which is the "active" marked partition and loads that partition's boot sector (first one) and passes control to it, and the partition's boot sector is the OS loader which reads the boot.ini file. That partition boot sector loader reads the boot.ini file to find where is the rest of the operating system. You would have to edit the boot.ini to point to the second hard drive, the SATA drive, which would be disk(1), the second hard drive, to load the rest of the OS from there.

Windows' loader can be on one drive (which Microsoft calls the system partition) but the rest of it can be on the same or different partition or drive (called the boot partition). See <http://support.microsoft.com/kb/100525/en-us>. Because of limitations in your BIOS, you would have the BIOS load the Windows loader on the IDE drive which then loads the rest of Windows on the SATA drive. Obviously this chaining is susceptible to a loss of your IDE drive. I

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personally don't like this chaining. You are slicing the OS across 2 drives: loader on the IDE drive and rest of the OS on the SATA drive. A bit cleaner would be to step back one step in the boot process and replace the MBR bootstrap program with a multi-boot manager program.

Rather than have the standard MBR bootstrap program which can only read from partitions on the same drive (which is the first physically detected drive by the system BIOS), use a multi-boot manager because they can load partition boot sectors that are on different drives, plus they can load partition boot sectors in logical drives in extended partitions (whereas the standard MBR bootstrap can only load boot sectors for primary partitions). The GAG Boot Manager (at <http://gag.sourceforge.net/>) is free. In fact, you could leave Windows installed on both your IDE and SATA drives and switch between them (until you decide to get rid of one of them). The only change you would have to make is to edit the boot.ini on the SATA drive so the ARC paths listed in it point to the SATA drive which would be your second drive so disk(0) would change to disk(1). I believe it even has a drive mapping feature which means it will boot from the SATA drive, the second drive, but make it look like the first drive so you don't even have to edit the boot.ini file. I haven't explored that feature. With GAG, you don't even need it to replace the MBR bootstrap program since you can boot from its bootable floppy and run that boot manager from there, but it is more convenient to copy it to the hard drive's MBR bootstrap area rather than have a floppy in the drive on each boot (but it permits you to configure the bootup sequence on the floppy and then copy it anytime later should the MBR bootstrap area get overwritten). Nothing of GAG resides in any partition so it is completely independent of any OS. That means you can delete, wipe, resize, move, or whatever to your partitions and never touch GAG.

So you have lots of solutions (read the last one first; I thought about it after all the rest):

#1: Lose the IDE drive. Get a SATA controller card and use it to boot from the SATA drive. Since the SATA drive will be the first physical hard drive, the boot.ini on it (cloned from the IDE drive when it used to be the only drive) should work okay. You end up getting a controller card.

#2: Keep the IDE drive but use an IDE controller card for it. Configure that IDE card to \*not\* boot using any drives connected to it. You get the keep the IDE ports on the mobo enabled to use for your CD/DVD drives but the system BIOS has no hard drive from which it can boot. You might want to see if one of the BIOS boot drive sequences does \*not\* include hard drives so you don't waste time waiting for the BIOS to try to find one when none are connected to the mobo's IDE ports. Get a SATA controller card for the SATA drive and configure that card's BIOS to boot from the SATA drive. Since it is likely that the IDE card's drives will be detected first, you will need to edit the boot.ini on the SATA card to the ARC paths point to

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the second drive, the SATA drive; i.e., change disk(0) to disk(1). See <http://support.microsoft.com/kb/291980/en-us>. You end up getting 2 controller cards and having to edit the boot.ini file on the SATA drive.

#3: Keep the IDE drive on an IDE port on the mobo. Keep the SATA drive on the SATA port on the mobo. The BIOS boot drive sequence uses the IDE drive's MBR bootstrap program. That looks in the partition table to find the active primary partition (i.e., your old Windows install on the IDE drive) to load that partition's boot sector (which has the OS loader). That loader reads the boot.ini file to find the rest of the OS, so you will need to edit the boot.ini file to have the loader look on the SATA drive for the rest of the OS. Change disk(0) to disk(1). You can then delete all but the root directory files in the Windows partition on your IDE drive and resize it (to make smaller) because you won't be using all of that OS over there. You just need its loader and boot.ini files. I believe all the required files are in the root directory but haven't verified that yet. The boot.ini isn't used on the SATA drive because it was used on the IDE drive. You end up with no extra controller cards but do have to edit the boot.ini file on the IDE drive to point at the SATA drive, and you use the IDE drive to boot from the SATA drive. If you lose the IDE drive and remove it, the SATA drive becomes disk(0) so the boot.ini that was left over there would work (because you are back to #1 above).

#4: Keep the IDE drive on an IDE port on the mobo. Keep the SATA drive on the SATA port on the mobo. Replace the standard MBR bootstrap program with GAG or another capable multi-boot manager (GAG doesn't reside in any partition, however, so whatever you do with the partitions won't affect the operation of GAG). Because you are no longer using the remnant of Windows on the IDE drive (to use its loader to read that boot.ini file), you could blow away that partition, reformat it, merge it, or whatever you want. Configure GAG to boot from the SATA drive. GAG will be in the MBR (first sector) of the IDE drive but this eliminates from the chain of having to then load a partition's boot sector (to use the Windows loader to read that boot.ini). You end up with no extra cards and you might not have to edit the boot.ini file on the SATA drive. However, I do see a flaw with this setup: the SATA drive must be visible from a DOS shell. The GAG boot manager needs to be able to see the SATA drive, its partitions, and read into those partitions. It doesn't actually use an OS to run itself (the BIOS loads it into memory to run) but it also won't have any SATA drivers included. If you can see the SATA drive from a DOS bootable floppy (get one at <http://www.bootdisk.com>) then GAG can see it, too.

#5: The easiest solution: Check with Dell if they have a BIOS flash update for your model which would add the SATA item to the boot drive sequence. Then all you would have to do (after the BIOS flash), and assuming you keep the IDE drive connected to a IDE port on the mobo,

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is to edit the boot.ini file on the SATA drive since it would be the second physical drive; i.e., change disk(0) to disk(1). You could even boot from your IDE drive for now so you could edit the boot.ini file (on an NTFS partition, if you used NTFS) and then change the boot sequence to the SATA drive whose boot.ini is now correct; else, you need to boot into Recovery Console mode (to load the OS on the SATA drive) to use the bootcfg command to update the boot.ini. You end up flashing the BIOS, change the boot drive sequence in BIOS, and edit the boot.ini on the SATA drive. Dell lists a BIOS update dated 3/17/2006 (<http://tinyurl.com/nxk4q>, but YOU should make sure this is the right one). Could be the update includes SATA support.

Definitely check if a BIOS update will eliminate all the headaches by adding SATA to the boot drive sequence option in BIOS. Then all you're left with is having to edit the boot.ini file on the SATA drive (and you don't need to keep anything of Windows on the IDE drive so all that space gets recovered).

You do have backups, right?

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