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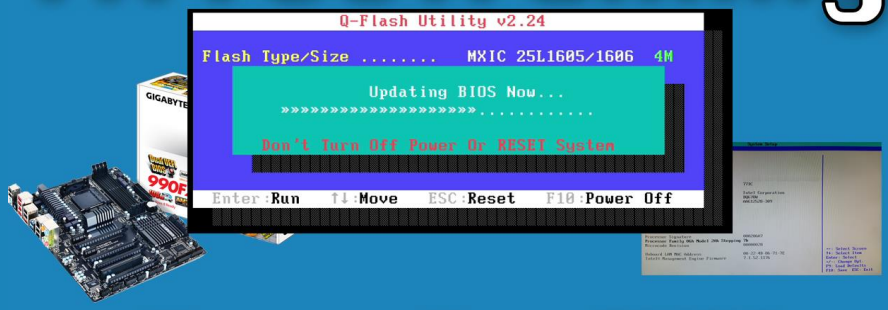
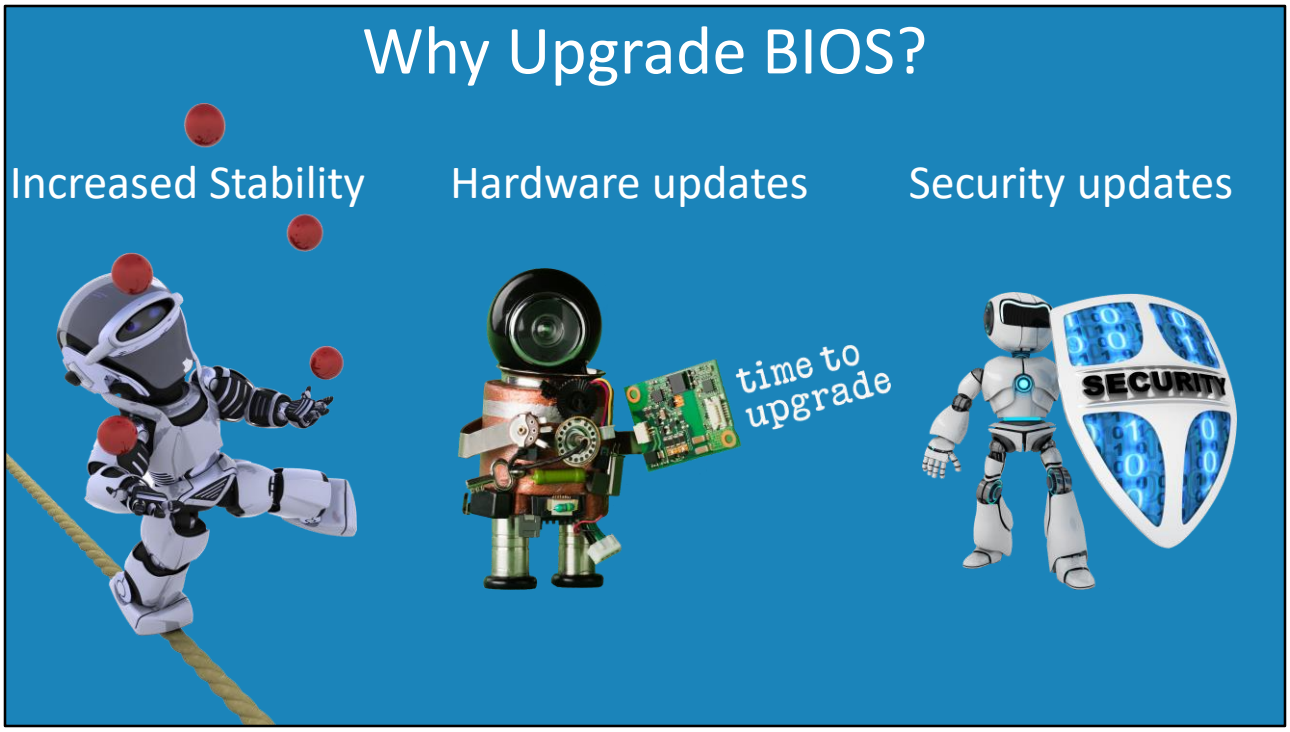


Upgrading BIOS

For the free video please see
http://itfreetraining.com/ap/1b55

In this video from ITFreeTraining I will look at how to upgrade the BIOS in your computer. To do this, I will first look at how to determine what BIOS you have, where to get the update from and how to apply the update.



0:12 Before I get started, I will first look at why you would upgrade a BIOS. There are three main reasons why you would want to upgrade your BIOS. The first being increased stability. If you have a computer that is crashing all the time, this may be a result of an incorrect memory or CPU setting. It is not uncommon by the time a motherboard is manufactured, shipped and purchased that newer CPUs and memory modules are released. If these are detected incorrectly by the motherboard, this can cause the computer to crash. Updating the BIOS can help fix these kinds of issues.

The next reason to upgrade the BIOS is hardware updates. Newer CPUs come with hardware virtualization. This needs to be enabled in the BIOS. I once had a computer where this setting did not appear in the BIOS. After a BIOS update, this setting then became available. If you are finding that you are missing a setting this may fix the problem. Another problem I have experienced is that I purchased RAM with a motherboard the BIOS did not support. This resulted in the computer not being able to start. The manufacturer released a BIOS update to fix the problem, but how can I update the BIOS if the computer will not start?

To fix the problem, I contacted a friend who had some RAM that would work with that motherboard and BIOS. I borrowed the RAM and used it to update the BIOS. Hopefully you will never have to do this, but sometimes you may need to borrow a CPU or some RAM in order to update a BIOS.

The last reason you would want to update your BIOS is for security updates. BIOS will do some checks to help prevent tampering and detecting of boot sector viruses. Updating the BIOS may make your computer a little more secure.

What Motherboard do I have?

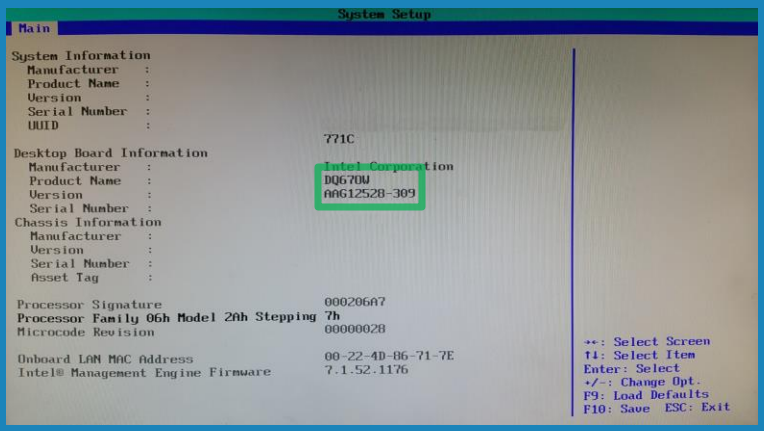
1:55 The next step is to determine what motherboard you have. Although there are two main manufacturers of BIOS, a BIOS is generally customized to work with only the one motherboard. Thus you need to download it from the manufacturer of the motherboard.

To determine what kind of motherboard you have, the easiest way is to look at the box it came in. In a lot of cases you may not have the box anymore. In this case, printed on the motherboard will be the details of what motherboard you have. In this example, the motherboard model is printed on the motherboard. This should be the case for all motherboards.

If you cannot find this information on the motherboard, it is possible it is printed in a location which is being blocked from view. Anything from CPU coolers to video cards can block this information. If you cannot see the motherboard model, remove extra cards like video cards and keep looking. The information should be there somewhere. In some cases, you may not have access to the motherboard. For example, maybe the computer is locked up or in a difficult place to get to.

Information Provided by BIOS

- Shown during boot up
- Accessed by pressing a key during start up

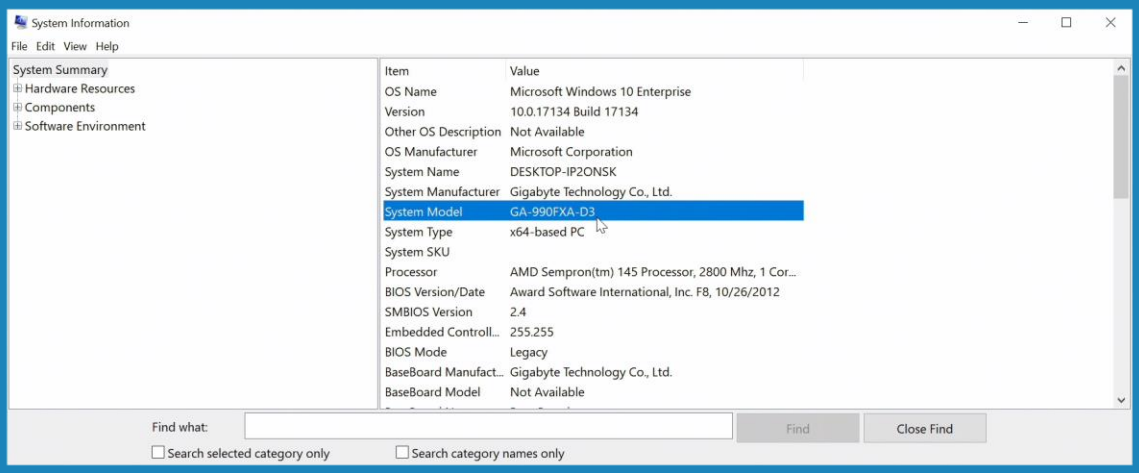


2:57 In some cases, you may get lucky and the information will be displayed during boot up. In other cases, you may need to press a key in order to get into the setup. Common keys are F2, F10, delete and escape. Once in the setup, if you are lucky, information about the product may be displayed.

In this example, you can see the product name and the version of the BIOS is shown. As the BIOS is customized to the computer, you will need this information in order to determine where to get a newer version of the BIOS. On some computers, this information will not be shown and you will need to look at other ways to get this information.

System Information

- Previously called MSInfo



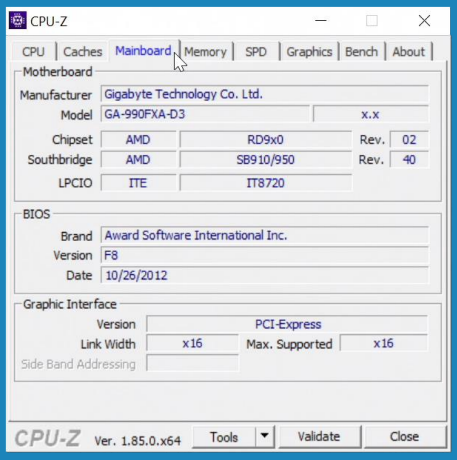
3:35 If you have Windows installed, you can use System Information to determine what motherboard you have. System Information on previous versions of Windows was called MSInfo.

To run it, from the search bar, enter in system and then select System Information. On older systems, enter in MSInfo. Once running, you will notice that under “System Manufacturer” the manufacturer of the motherboard is listed. Under this is “System Model”, which tells us the model of the motherboard.

In order for Windows to display this information, it requires a motherboard that supports the system calls to retrieve this information. On modern motherboards this should not be a problem, on older motherboards this information may not be displayed.

CPU-Z

- https://www.cpuid.com/softwares/cpu-z.html



4:22 There are a lot of other tools on the market that provide the same information. For example, CPU-Z is free software that can be used to obtain information about the motherboard. I have installed CPU-Z on this computer, if I open it, all I need to do is select the “Mainboard” tab in order to access information about the motherboard.

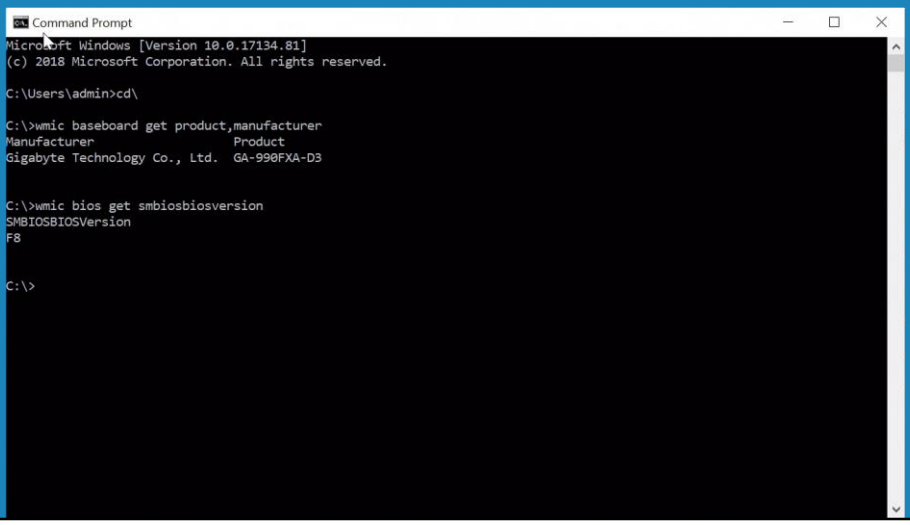
In this case, you can see the manufacturer is shown and under this you can see the model number. I will use this information to download the correct BIOS for this motherboard.

Below this, there is also some information about the BIOS. The data we are interested in is the version number, in this case F8. This will tell me if the current BIOS is the newest version or there is a newer version available.

CPU-Z also gives us a lot of other information that I will use later in the course.

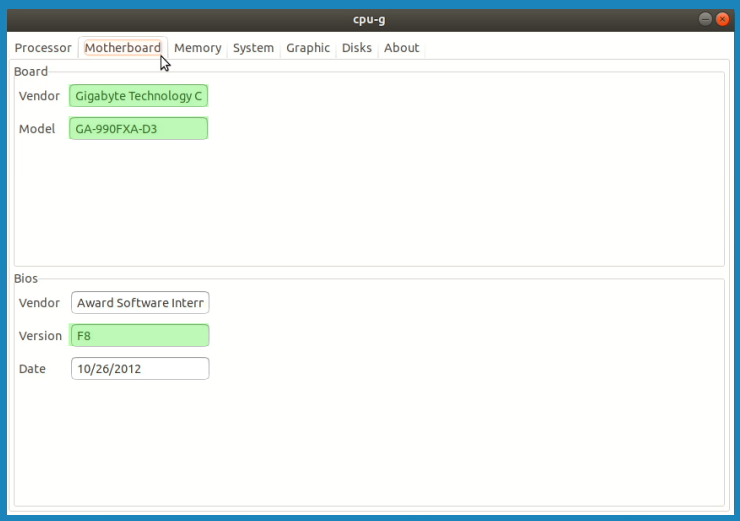
WMIC

- Wmic baseboard get product, manufacturer
- Wmic bios get smbiosbiosversion



5:12 If you don't want to install any additional software, you can get the same information from the command line. To do this, run the following two commands from the command prompt. These commands both use the Windows Management Instrumentation command-line tool in order to obtain information from the BIOS. You can see that using this tool, I have obtained information about the motherboard and also the version of the BIOS that is currently being used. Information that will be useful later on when downloading an updated BIOS.

CPU-G

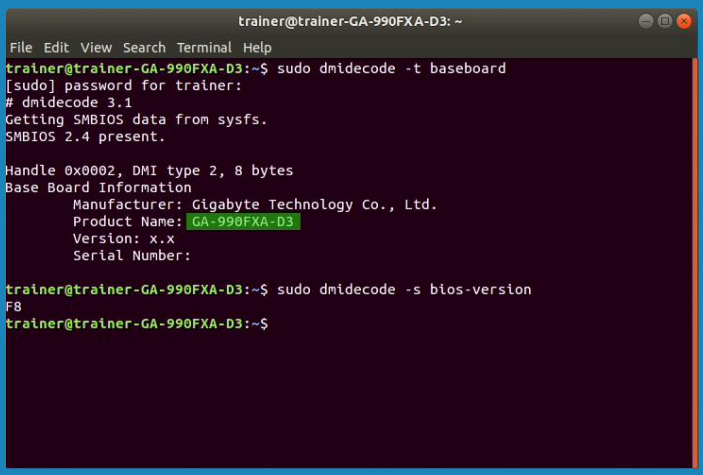


5:44 If you are using Linux, there is a tool called CPU-G. Shown here, you can see the tool looks the same as CPU-Z and has similar information. There are other tools available, but I like this one as it is so similar to CPU-Z and displays a lot of useful information.

You can also obtain the same information from a shell.

Shell

- Sudo dmidecode -t baseboard
- Sudo dmidecode -s bios-version



6:04 To obtain the information, I will run the two following commands from a shell. Like before this will give me the motherboard model and the version of the BIOS. Now that we have this information, let's look at how to upgrade the BIOS. In order to do this, I will change to my computer running Windows 10.

Demonstration

6:24 To upgrade the BIOS on a computer, the first step is to download a new BIOS. In order to do this, I will first open Internet Explorer and go to the Gigabyte home page. Since the BIOS is customized to your device you will need to download the BIOS from the manufacturer of your computer or motherboard.

Once on the site, I will select the global site option and then select support. Most web sites will have a support or download section where the BIOS update can be found. In this case, once on the support web site, I will select the motherboard section and then enter in the model number of my motherboard.

Once entered, I will be taken to the web page for the motherboard. Once on this page, I will select the support option to show all the downloadable files for this motherboard.

For the BIOS, I will scroll down to the BIOS section. In this case, my BIOS is version F8. You will notice that the newest version is F9a. This is a beta BIOS, but in this case I will still download it and save it to the desktop. Even though the BIOS is a beta version it is still a few years old, so I will take the risk that it is stable. Sometimes you will find a beta version of a BIOS and I will generally not upgrade to a beta BIOS unless I need a feature in the beta or I believe the BIOS to be stable.

There are a number of different ways you can upgrade the BIOS. If I scroll down to the bottom, you will notice a utility section which contains a BIOS update tool. I will download this utility

and save it to the desktop. I won't be using this utility to update the BIOS, but I will show you how to use it if you decide to.

On the desktop I have the two files I downloaded, however they are compressed. In order to use the files I need to decompress them, which in this case means I just need to execute them.

The first one contains the BIOS file and two other files. You will notice one of them in an executable. This is a DOS-based utility for flashing the BIOS. If you boot the computer into a DOS-based operating system, you will be able to run this in order to update the BIOS.

Above this, you will notice the actual data file containing the BIOS. This is the file that I will be using later on to upgrade the BIOS.

Above this you will notice an autoexec file. In a DOS-based operating system, this file is run when the operating system starts up. This autoexec file, when run, will automatically update the BIOS by running the flash utility. Thus, to upgrade the BIOS using a DOS-based operating system, you would create your DOS-based media and copy these three files to that media, boot the computer using that boot media and your BIOS would automatically be updated.

In the old days of computing, the only way you could update your BIOS was to use an operating system like MS-DOS. Nowadays, as we will see later in the video, motherboards will often have the flashing software included which can be easily accessed without the need for an operating system. These DOS files are therefore included for backward compatibility, but it is unlikely nowadays for a technician to use this method since there are easier ways to achieve the same result.

I will next execute the utility software and decompress it to the desktop. Once completed, you will notice that a folder appeared on the desktop. Inside the folder, I will run the setup software which will install the Windows BIOS update utility. For the install, I will accept all the defaults.

Once installed, I will launch the update software. Once running, a message will appear saying that certain applications if running will be switched off. If you plan to update your BIOS this way, I would recommend closing any other programs that are running. While updating the BIOS, if the computer were to crash while the BIOS update was occurring, this may prevent the computer from starting up.

Once the BIOS utility is running, you will notice the top button will contact the internet to see if there is a newer version of the BIOS available. If there is, the BIOS

will automatically be downloaded for you.

In the next option down you will notice you can upload the BIOS from a file. If I select it, I can select the BIOS file that I downloaded to the desktop earlier. Once selected, I will get an option to update the BIOS.

In this case, I will not update the BIOS this way. The reason that I will not update the BIOS this way is that I have had previous bad experiences with updating the BIOS using Windows. If the software were to crash while the BIOS was being updated, there is a good chance the computer will not start up. Some motherboards have dual BIOS or a backup BIOS, which means if there is a problem during the update you may be able to boot from the backup or second BIOS to get the computer working.

In this case, I will cancel out of this software and right click on the BIOS I downloaded earlier and send it to a USB thumb drive. The BIOS update software will be able to access the flash drive in order to update the BIOS.

Once the file is copied, I will reboot the computer. Different computers will have different key commands to access the flash software. On this computer I could press the end key to access the flash software during start up. In this case, I will press the delete key to access the BIOS. On some motherboards, the flash software can be accessed at start up and there is no need to enter the BIOS in order to access the flash software.

In the BIOS, I will press the F8 key to start the flash software. The BIOS will ask if this is what I wanted to do, and once I press Y the flash software will start.

From the flash software menu, I will select the option to “Update the BIOS from Drive”. This will show any available locations the flash software can access. Depending on the flash software used will determine what devices it can access. Newer motherboards should not have any problems accessing a thumb drive. If you have an old motherboard, you may have to put the update on a floppy drive in order to access the update.

In this case, if I open the USB drive, I can access the BIOS file. Once selected, the file will be read and checked to ensure it is not corrupt. Here, the BIOS file is fine, so I will press enter to start the update process.

The flash memory containing the old BIOS code will be erased and replaced with the code from the update file. This process takes about a minute or so to complete. It is extremely important that you do not turn off the power while this process is being completed. If you do, the BIOS process will be incomplete and the computer may not

start. If you are updating a laptop, make sure the power cabled is plugged in and the battery is charged.

Once the BIOS has been upgraded you will get a message saying the process is complete. Once complete, you will need to restart the computer for the new BIOS to take effect.

Once the computer has restarted, I will log back into Windows and run the CPU-Z software again. You will notice that when I select the motherboard tab, the BIOS version is reported as being the new BIOS version, so the process has been a success.

In the Real Word

- Upgrade BIOS before deployment/at purchase
- Upgrade BIOS only when needed
- Chance upgrade may fail
- Chance may effect operating system

13:43 In the real world, I generally will update a BIOS when I first purchase a computer or before deploying a new computer or installing an operating system. It is not uncommon, that when you purchase a brand-new motherboard or computer, particularly one that has not been on the market for too long, that there will be an update for the BIOS. Often a BIOS update will fix problems with hardware and also support new hardware on the market. I like to do a BIOS update after I purchase a new computer to hopefully prevent problems later on if new hardware is installed in the computer.

After I start using the computer, I will generally only upgrade the BIOS when needed. There is an argument that BIOS will contain some security fixes, but there is always a chance that when upgrading the BIOS the process may fail leaving the computer unusable. Also, generally unlikely, but a BIOS update may affect the operating system. I have, although rare, had to re-install an operating system after a BIOS update. This is rare, but I would rather not risk it on a production system unless I really needed to.

I hope you have enjoyed this video from ITFreeTraining and found it informative. I look forward to seeing you in other videos from us and I would like to thank you for watching.

References

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