BOOT BLOCK IN OPERATING SYSTEM

BOOT BLOCK

1. Basically, for a computer to start running to get an instance when it is powered up or rebooted it need to have an initial program to run. And this initial program which is known as bootstrap needs to be simple.
2. It must initialize all aspects of the system, from CPU registers to device controllers and the contents of the main memory, and then starts the operating system.
3. To do this job the bootstrap program basically finds the operating system kernel on disk and then loads the kernel into memory and after this, it jumps to the initial address to begin the operating-system execution.

Why ROM

1. For most of today's computer bootstrap is stored in Read Only Memory (ROM).
2. This location is good for storage because this place doesn't require initialization and moreover location here is fixed so that processor can start executing when powered up or reset.
3. ROM is basically read-only memory and hence it cannot be affected by the computer virus.

Problem

1. The problem is that changing the bootstrap code basically requires changes in the ROM hardware chips.
2. Because of this reason, most system nowadays has the tiny bootstrap loader program in the boot whose only job is to bring the full bootstrap program from the disk.
3. Through this now we are able to change the full bootstrap program easily and the new version can be easily written onto the disk.

Example:

Let us try to understand this using an example of the boot process in Windows 2000.

The Windows 2000 basically stores its boot code in the first sector on the hard disk. Moreover, Windows 2000 allows the hard disk to be divided into one or more partitions. This one partition is basically identified as the boot partition which basically contains the operating system and the device drivers.

Booting in Windows 2000 starts by running the code that is placed in the system's ROM memory. This code directs the system to read code directly from MBR. In addition to this, boot code also contains the table which lists the partition for the hard disk and also a flag that indicates which partition is to be boot from the system. Once the system identifies the boot partition it reads the first sector from the memory which is known as a boot sector and continues the process with the remainder of the boot process which includes loading of various system services.