Linux Boot Process:

1. BIOS
2. MBR
3. GRUB
4. KERNAL
5. INIT
6. RUN LEVELS

BIOS:

Basic Input Output System. Performs system integrity checks (POST-POWR ON SELF TEST)

Searches, Loads, and Executes the boot loader program.

Once the boot loader program is detected and loaded into memory, BIOS gives control to it.

MBR:

It is located in the first sector of the bootable disk. Typically /dev/sda or /dev/had

MBR is 512 bytes in size.

|  |  |  |
| --- | --- | --- |
| Primary Boot Loader (446 bytes) | Partition Table (64 bytes) | MBR (2 bytes) |

GRUB:

GRUB stands for Grand Unified Bootloader.

If you have multiple kernel images installed on your system, you can choose which one to be executed. GRUB displays a splash screen, waits for few seconds, if you don’t enter anything, it loads the default kernel image as specified in the grub configuration file.

Grub configuration file is /boot/grub/grub.conf

It contains kernel and initrd image

KERNEL:

Kernal mounts the root file System as specified in the grub.conf file.

Once kernel starts its operation, first thing it does is executing sbin/init process. Initrd is used by kernel as temporary root file system until kernel mounts the root file system.

INIT (initialization):

Looks at the /etc/inittab file to decide the linux run level. Run levels decide which initial programs are loaded at startup. Following are the available run levels

0 – halt

1 – single user mode

2 – multiuser, without NFS

3 – full multiuser mode

4 – unused

5 – X11

6 – reboot

RUN LEVELS:

Depending on your init level setting, the system will execute the programs from one the following directories.

Run level $

# - /etc/rc.d/rc#.d/

# = 0 -> 6

In /etc/rc.d/rc\*.d/ has programs that start with S and K. Programs with S are used during startup.  
Programs with K during shutdown. K for kill.

Then login prompt will be displayed.