[](https://www.thegeekstuff.com/)

≡ Menu

* [Home](https://www.thegeekstuff.com/)
* [Free eBook](https://www.thegeekstuff.com/linux-101-hacks-ebook/)
* [Start Here](https://www.thegeekstuff.com/best-of-the-blog/)
* [Contact](https://www.thegeekstuff.com/contact/)
* [About](https://www.thegeekstuff.com/about/)

**6 Stages of Linux Boot Process (Startup Sequence)**

by Ramesh Natarajan on February 7, 2011

Press the power button on your system, and after few moments you see the Linux login prompt.

Have you ever wondered what happens behind the scenes from the time you press the power button until the Linux login prompt appears?

The following are the 6 high level stages of a typical Linux boot process.  
  


**1. BIOS**

* BIOS stands for Basic Input/Output System
* Performs some system integrity checks
* Searches, loads, and executes the boot loader program.
* It looks for boot loader in floppy, cd-rom, or hard drive. You can press a key (typically F12 of F2, but it depends on your system) during the BIOS startup to change the boot sequence.
* Once the boot loader program is detected and loaded into the memory, BIOS gives the control to it.
* So, in simple terms BIOS loads and executes the MBR boot loader.

**2. MBR**

* MBR stands for Master Boot Record.
* It is located in the 1st sector of the bootable disk. Typically /dev/hda, or /dev/sda
* MBR is less than 512 bytes in size. This has three components 1) primary boot loader info in 1st 446 bytes 2) partition table info in next 64 bytes 3) mbr validation check in last 2 bytes.
* It contains information about GRUB (or LILO in old systems).
* So, in simple terms MBR loads and executes the GRUB boot loader.

**3. 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 has the knowledge of the filesystem (the older Linux loader LILO didn’t understand filesystem).
* Grub configuration file is /boot/grub/grub.conf (/etc/grub.conf is a link to this). The following is sample grub.conf of CentOS.

#boot=/dev/sda

default=0

timeout=5

splashimage=(hd0,0)/boot/grub/splash.xpm.gz

hiddenmenu

title CentOS (2.6.18-194.el5PAE)

root (hd0,0)

kernel /boot/vmlinuz-2.6.18-194.el5PAE ro root=LABEL=/

initrd /boot/initrd-2.6.18-194.el5PAE.img

* As you notice from the above info, it contains kernel and initrd image.
* So, in simple terms GRUB just loads and executes Kernel and initrd images.

**4. Kernel**

* Mounts the root file system as specified in the “root=” in grub.conf
* Kernel executes the /sbin/init program
* Since init was the 1st program to be executed by Linux Kernel, it has the process id (PID) of 1. Do a ‘ps -ef | grep init’ and check the pid.
* initrd stands for Initial RAM Disk.
* initrd is used by kernel as temporary root file system until kernel is booted and the real root file system is mounted. It also contains necessary drivers compiled inside, which helps it to access the hard drive partitions, and other hardware.

**5. Init**

* Looks at the /etc/inittab file to decide the Linux run level.
* 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
* Init identifies the default initlevel from /etc/inittab and uses that to load all appropriate program.
* Execute ‘grep initdefault /etc/inittab’ on your system to identify the default run level
* If you want to get into trouble, you can set the default run level to 0 or 6. Since you know what 0 and 6 means, probably you might not do that.
* Typically you would set the default run level to either 3 or 5.

**6. Runlevel programs**

* When the Linux system is booting up, you might see various services getting started. For example, it might say “starting sendmail …. OK”. Those are the runlevel programs, executed from the run level directory as defined by your run level.
* Depending on your default init level setting, the system will execute the programs from one of the following directories.
  + Run level 0 – /etc/rc.d/rc0.d/
  + Run level 1 – /etc/rc.d/rc1.d/
  + Run level 2 – /etc/rc.d/rc2.d/
  + Run level 3 – /etc/rc.d/rc3.d/
  + Run level 4 – /etc/rc.d/rc4.d/
  + Run level 5 – /etc/rc.d/rc5.d/
  + Run level 6 – /etc/rc.d/rc6.d/
* Please note that there are also symbolic links available for these directory under /etc directly. So, /etc/rc0.d is linked to /etc/rc.d/rc0.d.
* Under the /etc/rc.d/rc\*.d/ directories, you would see programs that start with S and K.
* Programs starts with S are used during startup. S for startup.
* Programs starts with K are used during shutdown. K for kill.
* There are numbers right next to S and K in the program names. Those are the sequence number in which the programs should be started or killed.
* For example, S12syslog is to start the syslog deamon, which has the sequence number of 12. S80sendmail is to start the sendmail daemon, which has the sequence number of 80. So, syslog program will be started before sendmail.

There you have it. That is what happens during the Linux boot process.

> [Add your comment](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "commentform)

**If you enjoyed this article, you might also like..**

|  |  |
| --- | --- |
| 1. [50 Linux Sysadmin Tutorials](https://www.thegeekstuff.com/2010/12/50-unix-linux-sysadmin-tutorials/) 2. [50 Most Frequently Used Linux Commands (With Examples)](https://www.thegeekstuff.com/2010/11/50-linux-commands/) 3. [Top 25 Best Linux Performance Monitoring and Debugging Tools](https://www.thegeekstuff.com/2011/12/linux-performance-monitoring-tools/) 4. [Mommy, I found it! – 15 Practical Linux Find Command Examples](https://www.thegeekstuff.com/2009/03/15-practical-linux-find-command-examples/) 5. [Linux 101 Hacks 2nd Edition eBook](https://www.thegeekstuff.com/linux-101-hacks-ebook/) Linux 101 Hacks Book | * [Awk Introduction – 7 Awk Print Examples](https://www.thegeekstuff.com/2010/01/awk-introduction-tutorial-7-awk-print-examples/) * [Advanced Sed Substitution Examples](https://www.thegeekstuff.com/2009/10/unix-sed-tutorial-advanced-sed-substitution-examples/) * [8 Essential Vim Editor Navigation Fundamentals](https://www.thegeekstuff.com/2009/03/8-essential-vim-editor-navigation-fundamentals/) * [25 Most Frequently Used Linux IPTables Rules Examples](https://www.thegeekstuff.com/2011/06/iptables-rules-examples/) * [Turbocharge PuTTY with 12 Powerful Add-Ons](https://www.thegeekstuff.com/2008/08/turbocharge-putty-with-12-powerful-add-ons-software-for-geeks-3/) |

|  |  |  |  |
| --- | --- | --- | --- |
| [Bash 101 Hacks Book](https://www.thegeekstuff.com/bash-101-hacks-ebook/) | [Sed and Awk 101 Hacks Book](https://www.thegeekstuff.com/sed-awk-101-hacks-ebook/) | [Nagios Core 3 Book](https://www.thegeekstuff.com/nagios-core-ebook/) | [Vim 101 Hacks Book](https://www.thegeekstuff.com/vim-101-hacks-ebook/) |

Tagged as: [Debian Boot Process](https://www.thegeekstuff.com/tag/debian-boot-process/), [Fedora Boot Process](https://www.thegeekstuff.com/tag/fedora-boot-process/), [Linux Kernel Boot Process](https://www.thegeekstuff.com/tag/linux-kernel-boot-process/), [Ubuntu Boot Process](https://www.thegeekstuff.com/tag/ubuntu-boot-process/), [UNIX Boot Process](https://www.thegeekstuff.com/tag/unix-boot-process/)

{ 171 comments… [add one](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "commentform) }

* Pushpraj February 7, 2011, 1:11 am

Excellent……!!! 2011 seems to be rocking for TGS viewers….

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84534" \o "permalink to this comment)

* BalaC February 7, 2011, 2:53 am

@Ramesh: This is offtopic discussion. Could you write a article on [ack](http://betterthangrep.com/). Thanks

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84545" \o "permalink to this comment)

* shezars February 7, 2011, 4:02 am

you are rock,,, lol  
nice,

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84554" \o "permalink to this comment)

* Adam February 7, 2011, 4:20 am

Great article 🙂  
You could also write few words about grub2 – configuration files for grub doesn’t work in grub2. (Tested in ubuntu)

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84558" \o "permalink to this comment)

* Edward February 7, 2011, 4:30 am

very very nice,

tanx

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84560" \o "permalink to this comment)

* Ajeya February 7, 2011, 4:58 am

Hello Ramesh,

It would have been better if if you could have explained more on each topic. Probably each high level boot process would need a separate page.

This doc is good for begineers.

Thanks,  
Ajeya Krishna K R

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84569" \o "permalink to this comment)

* Abhijeet February 7, 2011, 5:02 am

Good Graphics  
Great Tutorial

Keep it up

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84571" \o "permalink to this comment)

* sagar February 7, 2011, 5:36 am

nice piece of information  
thanks lot

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84577" \o "permalink to this comment)

* sandeep February 7, 2011, 6:38 am

Amazingggggggg good job Guys carry on

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84584" \o "permalink to this comment)

* jameslee February 7, 2011, 6:56 am

Thank u…

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84587" \o "permalink to this comment)

* Kuldeep February 7, 2011, 8:09 am

very well explained !!!!!!!!  
Thanx alot…..

plz explain GRUB in detail…….How to use GRUB command prompt at system startup ??

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84605" \o "permalink to this comment)

* Kyle February 7, 2011, 11:02 am

These are very helpful. Keep ’em coming please!

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84633" \o "permalink to this comment)

* Yogesh Upadhyay February 7, 2011, 1:22 pm

Excellent !!! TGS Rocks…

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84656" \o "permalink to this comment)

* shanil February 7, 2011, 2:08 pm

thanks alot, just in time to futher clarify things lol..As always, TGS rocks!!!

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84663" \o "permalink to this comment)

* Júlio Hoffimann Mendes February 7, 2011, 8:15 pm

I learn to much with your blog. Thank you.

Regards,  
Júlio.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84728" \o "permalink to this comment)

* Steeven Paul Y February 7, 2011, 10:04 pm

I know the terms GRUB, KERNEL,INIT, MBR. But i do not know how they work together. Thanks to Ramesh Natarajan, for his blog and useful posts.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84747" \o "permalink to this comment)

* Lord February 8, 2011, 12:42 am

Thank you RAMESH. this was so good…

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84760" \o "permalink to this comment)

* analogtek February 8, 2011, 1:01 am

The file that most would want is. The menu.list that is in the /boot/grub/ directory on my debian system. I often edit this file for a manual kernel update,time out,boot image change.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84762" \o "permalink to this comment)

* Suresh.G February 8, 2011, 2:33 am

Short and Sweet

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84783" \o "permalink to this comment)

* Sameer Ambekar February 8, 2011, 8:03 am

Really nice document for quick reference to Linux boot process!!!

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84804" \o "permalink to this comment)

* afujita February 8, 2011, 8:09 pm

Great article, thank you 🙂

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-84898" \o "permalink to this comment)

* Renjith G February 10, 2011, 1:45 am

Good one. Thanks.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-85269" \o "permalink to this comment)

* Mohan February 11, 2011, 10:25 am

plz explain about how to configure zimbra mail server and how to migrate sendmail to zimbra

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-85507" \o "permalink to this comment)

* Roberto February 11, 2011, 6:17 pm

An excelent article, I see another great article [here](http://duartes.org/gustavo/blog/post/how-computers-boot-up).

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-85543" \o "permalink to this comment)

* [Hem Chander](http://ibm.com/) March 1, 2011, 2:57 pm

This is very helpful I was looking for similar one..thanks

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-90123" \o "permalink to this comment)

* Pablo March 7, 2011, 10:16 am

Great article Ramesh! But is not completely valid for Ubuntu, which use upstart. Nothing on /etc/inittab, for eg.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-90888" \o "permalink to this comment)

* Sameer June 7, 2011, 7:07 am

Good doc.  
Thanks

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-109292" \o "permalink to this comment)

* Verbila June 21, 2011, 5:44 pm

Love this site, your explanations are excellent, and I like how you define terms and acronyms. Sometimes a man page can make my head spin – your site is the antidote to that – thanks!!

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-113786" \o "permalink to this comment)

* ethaqer July 4, 2011, 8:50 pm

the best explanation ever …

thanks TGS

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-116112" \o "permalink to this comment)

* robin July 7, 2011, 1:30 am

How many times did i ask myself how to find out order of linuxs’ start ?  
when this time i saw your blog via TSG, i see thoroughly.

thanks a million

Best Regards  
Robin Guo

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-116479" \o "permalink to this comment)

* Senthilkumar July 29, 2011, 12:38 am

Awesome !! For beginners helped a lot..

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-119837" \o "permalink to this comment)

* D VIjay August 11, 2011, 5:48 am

Excellent, in detail and simple. Thanks very much

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-121676" \o "permalink to this comment)

* [karthick](http://www.thegeekstuff.com/2011/02/linux-boot-process/) September 4, 2011, 2:14 am

Actaully i have failed in my first interview for not answering the above question,but after reading the above answer.i ensure i will get success.its really gud explanation,especially beginners lyk me.Thanks a lot

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-125672" \o "permalink to this comment)

* dulanja September 19, 2011, 1:11 am

great article! very useful! thanks a lot.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-128026" \o "permalink to this comment)

* R.YADAV September 30, 2011, 2:52 am

really…….my total confuse remove after read this article.Thank you………….

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-129572" \o "permalink to this comment)

* Gregory October 7, 2011, 2:35 am

Are you sure that “Depending on your default init level setting, the system will execute the programs from one of the following directories.” ?  
For example my system is running on level 3 but executes VERITAS init scripts from rc2.d during the boot as well.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-130608" \o "permalink to this comment)

* Arun October 15, 2011, 8:13 am

Very Nice.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-132409" \o "permalink to this comment)

* rajesh October 20, 2011, 10:02 pm

Excellent !!!!!!!!!!!!!!!!!!!!!  
Enough detail and simple .  
Thanks very much

Best regard,  
rajesh

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-133878" \o "permalink to this comment)

* [ender](http://portal.ossel.nl/ender) October 21, 2011, 1:20 am

good work fine to know how linux boot and the basic’s of the init run level’s only by ubuntu you have init s (single user) and init u (re run init) as extra

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-133913" \o "permalink to this comment)

* evaa November 12, 2011, 9:12 pm

wow, your explaination is simple yet full with information  
very helpful ! <3

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-139638" \o "permalink to this comment)

* brijesh November 19, 2011, 2:49 pm

greate usefull

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-142494" \o "permalink to this comment)

* Ketan November 30, 2011, 1:34 pm

I am flabbergasted.. I have made automation on these parts on S and K .,.. It was too Easy to understand this.. The person who post this.. is really a cool techie.. U rock man..

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-148148" \o "permalink to this comment)

* [hossein](http://itrc.ac.ir/) January 2, 2012, 12:06 am

That was very useful information.  
Thanks.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-169795" \o "permalink to this comment)

* NARESH January 17, 2012, 9:45 pm

Excellent. keep it up..

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-179931" \o "permalink to this comment)

* Arun January 24, 2012, 9:52 pm

Nice. Very useful

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-184088" \o "permalink to this comment)

* Omkar January 27, 2012, 9:32 am

short and sweet and precise explanation

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-185634" \o "permalink to this comment)

* Anonymous February 3, 2012, 3:53 am

very good material and easy to understand …great work

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-189573" \o "permalink to this comment)

* 54nju1 February 19, 2012, 1:59 pm

Thanks dude, that was so helpful..

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-199811" \o "permalink to this comment)

* subhash March 13, 2012, 8:27 am

it’s very nice material…..i like it……..superb ………

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-208489" \o "permalink to this comment)

* sandeep samale March 21, 2012, 9:37 pm

HI this is very very useful information as interview point of view as well as for study how Linux boots. Great info Thank you very much Ramesh

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-211721" \o "permalink to this comment)

* Anuj April 12, 2012, 9:28 am

Great and brief doc for Linux boot process. I truly liked it!!!

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-221332" \o "permalink to this comment)

* Ravi May 4, 2012, 11:05 pm

Thanx

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-230226" \o "permalink to this comment)

* Deepika May 9, 2012, 11:03 pm

Superb article with detailed information.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-232122" \o "permalink to this comment)

* Deepak May 14, 2012, 11:11 am

It is very nice article 🙂

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-233829" \o "permalink to this comment)

* divya May 21, 2012, 5:19 am

how to create kickstart server in rhel 6.0

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-237031" \o "permalink to this comment)

* sasidharan May 25, 2012, 4:54 am

Excellent stuff from TGS!!!

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-239245" \o "permalink to this comment)

* Anand June 3, 2012, 1:41 pm

gr8 article , got a lot of other info while reading this awesome stuff, thx alot

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-244498" \o "permalink to this comment)

* Sumen June 22, 2012, 5:09 am

Great…very well explained…

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-257248" \o "permalink to this comment)

* VIKAS June 26, 2012, 5:15 am

Very nice, very neatly explained.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-259566" \o "permalink to this comment)

* Saravana Kumar July 12, 2012, 2:18 am

Keep on the work going

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-268206" \o "permalink to this comment)

* Kuldeep Kulkarni July 14, 2012, 1:58 pm

Nice Stuff !!

Thanks a lot !!

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-269510" \o "permalink to this comment)

* Rakesh yadav jaipur July 19, 2012, 10:20 pm

really…….my total confuse remove after read this article.Thank you………….

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-272397" \o "permalink to this comment)

* Sudhakar July 26, 2012, 1:14 am

Good One, will be helpfull for new leaners!!!

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-275845" \o "permalink to this comment)

* rajendra July 31, 2012, 8:22 am

excellent

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-279101" \o "permalink to this comment)

* Naveen August 8, 2012, 12:17 am

Its very Good article and helpful for linux beginers

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-282439" \o "permalink to this comment)

* Ranjit Rajput September 10, 2012, 12:57 am

Excellent …

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-299607" \o "permalink to this comment)

* [Hughe](http://butterflyofdream.wordpress.com/) September 10, 2012, 5:21 am

You can bypass the first three stage using kexec program for fast boot. This saves time when you have to reboot a lot for tuning system or handling init script.

Debian provides it as kexec-tools package.

Find the kernel options:  
$ cat /proc/cmdline  
BOOT\_IMAGE=/vmlinuz-3.4.0-10.dmz.1-liquorix-amd64 root=UUID=07cf8c3a-d5a5-4b41-833f-16a9afebf70c ro quiet

Add a kernel image:  
vmlinuz is the kernel image file I uses. If the kernel image uses initrd file, add –initrd option. Without it kernel will panic next boot.

$ sudo kexec -l /vmlinuz –append=”root=UUID=07cf8c3a-d5a5-4b41-833f-16a9afebf70c  
ro quiet” –initrd=/initrd.img

Or

In my Linux box, boot partition is /dev/sda1  
$ sudo kexec -l /vmlinux –append=”root=/dev/sda1 ro quiet” –initrd=/initrd.img

Start warm boot:  
$ sudo kexec -e

Linux will boot up without going through BIOS, MBR, and Grub.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-299816" \o "permalink to this comment)

* manoj sharma September 18, 2012, 9:14 am

thanks

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-310070" \o "permalink to this comment)

* Guru Reddy September 24, 2012, 8:04 am

Excellent.., and thank you a lot..,

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-316508" \o "permalink to this comment)

* karunakar September 27, 2012, 2:22 pm

Excellent and simple explanation and a great deal for beginners !! Thank you.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-319993" \o "permalink to this comment)

* Rajeev September 28, 2012, 3:23 am

very nice

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-320579" \o "permalink to this comment)

* Mithun Shrivastav October 11, 2012, 3:01 am

Hi its excellent. Thanks.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-334370" \o "permalink to this comment)

* Amaresh Samal November 13, 2012, 12:34 pm

thanks friend…….

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-378564" \o "permalink to this comment)

* krish November 14, 2012, 2:11 pm

what is 1st stage boot loader and what is 2nd stage boot loader ? kindly clear this point also.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-380166" \o "permalink to this comment)

* Rajgopal H.G. November 19, 2012, 12:58 am

I am working on Linux since decade. Some times I am unable explain the basic stuff like this. Thanks for explaining Ramesh Natarajan. Today onwards, I am the member of your fan club.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-386836" \o "permalink to this comment)

* saurabh December 5, 2012, 2:41 am

Thanks for this excellent article…………. 🙂

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-416137" \o "permalink to this comment)

* Purna December 18, 2012, 3:26 pm

Hello,

Description is good and very easy to understand, thanks for this.  
If possible please explain in detail about each and every config file or script, how is jumping from on script/config-file to another

Anyways I am happy for this post.  
Thank you once more….

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-443043" \o "permalink to this comment)

* Rajshekhar December 28, 2012, 11:49 am

Excellent material. So simple to understand it. Doing a great job!!!!!

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-461861" \o "permalink to this comment)

* niky December 28, 2012, 1:08 pm

The Article is good And explained Simple …  
tnx 4 this

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-461986" \o "permalink to this comment)

* C subhash January 1, 2013, 6:36 am

Thanks for this excellent article……

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-469209" \o "permalink to this comment)

* Amit Bhandari January 18, 2013, 12:31 am

its a superb article……….and simple and superb explanation.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-500539" \o "permalink to this comment)

* Rajaswaminathan January 24, 2013, 8:33 am

This is really nice article. Appreciate your excellent work.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-512841" \o "permalink to this comment)

* karthi prasanth February 16, 2013, 7:12 am

sir now i am using windows7 and linux in one computer.i dont want to use linux that have 250gb harddisk then how to boot(delete) a linux and how to plaace 250gb in windows7? Pls hlp me.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-543005" \o "permalink to this comment)

* Aswathy February 25, 2013, 11:33 am

Thanks Mr.Linux natarajan

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-551653" \o "permalink to this comment)

* lakshman March 1, 2013, 4:59 am

it was simply good.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-556513" \o "permalink to this comment)

* prathamesh March 1, 2013, 11:43 am

thanks dude

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-556899" \o "permalink to this comment)

* chrly chacko March 1, 2013, 11:15 pm

good keep itup

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-557521" \o "permalink to this comment)

* Kapil March 20, 2013, 3:46 am

Very Good Explanation.

Thank you very much .

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-587996" \o "permalink to this comment)

* Lily April 4, 2013, 12:36 pm

Hey,you explained all,excellent.Thanks

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-628001" \o "permalink to this comment)

* Ranjith April 6, 2013, 1:34 am

Thanks Friend

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-631799" \o "permalink to this comment)

* shipra April 13, 2013, 11:51 pm

thnkss ..very useful fo me..;) 😉

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-661382" \o "permalink to this comment)

* Magesh April 16, 2013, 5:29 am

Great Man…..

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-669668" \o "permalink to this comment)

* laks April 19, 2013, 3:13 am

its really useful.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-680710" \o "permalink to this comment)

* googler April 22, 2013, 2:25 pm

Oh yes .. this is what i am seeking for .. something simple and effective ..  
i don’t know why most people who talk about boot process and FHS love to make it  
very difficult…  
but you my friend .. u r brilliant .. this really easy and useful explanation ..  
thanks as enormous as the sky

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-698396" \o "permalink to this comment)

* shruti April 27, 2013, 1:18 am

good explanation & easy to understand!!!

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-717340" \o "permalink to this comment)

* Anonymous May 4, 2013, 12:36 pm

excellent, very well explained

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-734143" \o "permalink to this comment)

* sudhakar May 21, 2013, 11:24 pm

Good article ….

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-756077" \o "permalink to this comment)

* sreejith ks May 26, 2013, 6:01 pm

awesome man, what a simply way to explain such a difficult process.,, thanks a lot,,keep going,,

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-762910" \o "permalink to this comment)

* Mitesh May 30, 2013, 3:22 am

Really Nice Article…. learn much from this…  
Thanks

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-767975" \o "permalink to this comment)

* Ashokraj R May 30, 2013, 5:45 am

Thank you

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-768149" \o "permalink to this comment)

* Akshay June 23, 2013, 12:05 pm

Perfect article on Great topic.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-820092" \o "permalink to this comment)

* Shams July 20, 2013, 1:19 pm

Ramesh,

Thanks a ton for your efforts to provide such a excellent information by keeping it simple.

You rock man …… Keep it up…

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-850444" \o "permalink to this comment)

* karthik July 25, 2013, 1:32 am

nice job.any one can understand this . good explantion

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-856035" \o "permalink to this comment)

* Suraj August 2, 2013, 1:12 am

Superb Article !!! Excellent explanation.

Keep it on.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-867123" \o "permalink to this comment)

* Kaali Dasu August 9, 2013, 1:50 am

I got confused by studying the process in another sites however this one is very easy to understand and remember.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-876988" \o "permalink to this comment)

* hariharasudhans August 28, 2013, 10:01 am

i have littile bit confusion in bootprocessor .nw i clrd & esay to understand…  
good article of boot processor

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-906385" \o "permalink to this comment)

* Arun September 6, 2013, 12:26 am

Thank you for simple, compact and clear explanation . . . 🙂

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-919029" \o "permalink to this comment)

* Pradeep September 14, 2013, 7:47 am

Good,Easy to understand and very useful for starters……..:)

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-932854" \o "permalink to this comment)

* yang September 23, 2013, 7:33 pm

good! the article is easy to understand,

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-946813" \o "permalink to this comment)

* Ramesh October 22, 2013, 10:42 am

very nice , thanks

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-994583" \o "permalink to this comment)

* Akshay Kalra October 24, 2013, 11:37 pm

Thanks for such a nice explanation…..  
This article has cleared my all doubts.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-998519" \o "permalink to this comment)

* montana November 13, 2013, 12:01 am

Simple and Powerful.  
Thanks.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1032994" \o "permalink to this comment)

* Mehbub November 19, 2013, 5:16 am

Thanx a lot for ur great explanations buddy……………………..suprm performance  
nw i hv nt any confusn

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1045924" \o "permalink to this comment)

* Pradeep December 13, 2013, 5:14 am

Good work, Thanks

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1110421" \o "permalink to this comment)

* mohammed tousif December 13, 2013, 7:40 am

excellent

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1110673" \o "permalink to this comment)

* Ravi singh December 14, 2013, 2:17 pm

Thanks bro … It is realy excellent and easy to understand

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1113620" \o "permalink to this comment)

* nisha December 27, 2013, 11:34 pm

Thanks for sharing …good article to understand linux boot up process…………………

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1151105" \o "permalink to this comment)

* Narender January 14, 2014, 11:43 pm

that is why lappy takes so much time for startup, actually this guy is busy in doing this or that, offcourse useful.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1198794" \o "permalink to this comment)

* Srikanth January 30, 2014, 4:49 am

Thanks a lot. very nice….

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1240922" \o "permalink to this comment)

* viji February 3, 2014, 4:32 am

Thanks much

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1248027" \o "permalink to this comment)

* Satheesh Kumar G February 17, 2014, 12:17 am

Hi Ramesh,

This is the best explanation i’ve seen so far.

ThnQ very much,…

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1279593" \o "permalink to this comment)

* [Choperro](http://hwww.linuxmint.com/) February 28, 2014, 12:11 am

The role of initrd is not clear at all.  
What does it contain?  
Where does it come from?  
When and how is it used?

Also the possibilities and methods to configure each step and its pieces are not  
clear at all. We can change boot device (interactively or not), we can change the kernel (interactively or not), we can change the boot menu and give orders to grub….. can we change initrd? how? what for? and the init proces? inittab seems to be deprecated in Debian…..

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1301881" \o "permalink to this comment)

* [Choperro](http://hwww.linuxmint.com/) February 28, 2014, 1:43 am

“Programs starts with S are used during startup. S for startup.  
Programs starts with K are used during shutdown. K for kill.”

or

The S set are the programs that are started when we enter in that runlevel and K is the set of programs that are killed when we enter in that runlevel?

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1302031" \o "permalink to this comment)

* Harshit Shrivastava March 12, 2014, 3:56 am

Awesome Tutorial. Linux Boot Process Cleared Very Well.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1339394" \o "permalink to this comment)

* Gurpreet Singh March 14, 2014, 6:15 am

Excellent Tutorial

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1348268" \o "permalink to this comment)

* Spatik March 26, 2014, 10:18 pm

Nice and well explained, thank you so much.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1394807" \o "permalink to this comment)

* Syam April 11, 2014, 12:16 am

good one 🙂 great

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1453668" \o "permalink to this comment)

* Damodhar Taklakar April 18, 2014, 6:34 am

Very well explained….! 🙂

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1500195" \o "permalink to this comment)

* venkateswara reddy June 23, 2014, 1:58 am

i’m learning linux admin so any sugences pls give me and any learning text books and any meteriles

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1896505" \o "permalink to this comment)

* priya July 2, 2014, 1:59 am

excellent… very well explained

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1921802" \o "permalink to this comment)

* Rod Nussbaumer July 3, 2014, 9:41 am

The information here all seems correct, however I think you do a disservice to the reader not to mention that this is just one of many different ways to load Linux on a PC architecture. Other architectures use other methods, and there are other methods available on a PC architecture, and the version and configuration of the Linux kernel itself affects the boot process.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-1925596" \o "permalink to this comment)

* Hal August 5, 2014, 3:08 pm

Thank you for a very clear presentation. I have one small comment, I went looking for the meaning of “MBR” and “initrd” before reading on to find you gave them later. May I suggest an expansion of the acronym in brackets immediately after the acronym. Thank you again very well done.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-2036397" \o "permalink to this comment)

* Ancklesh August 30, 2014, 9:16 pm

thanks soo much 🙂

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-2157489" \o "permalink to this comment)

* Joyneel September 9, 2014, 11:21 am

The best consize and apt explanation i have read so far

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-2214834" \o "permalink to this comment)

* Suresh October 7, 2014, 12:29 pm

Very well explained. But latest Ubuntu version 14.04 has some changes with respect to above explanation.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-2400991" \o "permalink to this comment)

* ashish yadav October 16, 2014, 5:48 am

very nice …… so helpful.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-2478323" \o "permalink to this comment)

* Ashutosh October 31, 2014, 4:11 pm

you are awesome!

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-2686737" \o "permalink to this comment)

* dxman November 7, 2014, 2:51 am

Excellent Article Admin – you simplify the words  
TFS

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-2774329" \o "permalink to this comment)

* Alexlee joana December 8, 2014, 12:42 am

Thanks your good article.  
But linux Os (like Cent Os 7) dosen’t have grub.conf.  
Please explaing the reason.  
Sorry. I am beginner of Linux!  
Thanks your favor!  
Help me!

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-3179953" \o "permalink to this comment)

* jitendra khasdev January 29, 2015, 12:52 pm

MBR is a bootloader ?

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-3689638" \o "permalink to this comment)

* nidhi sardeshpande February 4, 2015, 5:33 am

wow!i got too much information which was actually new for me. thank you sooo much.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-3734376" \o "permalink to this comment)

* rohini rathod February 4, 2015, 5:35 am

nice experience, nice information, thank you so much.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-3734389" \o "permalink to this comment)

* Raj Somwanshi May 24, 2015, 1:03 am

Good one ……Thanks

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4151809" \o "permalink to this comment)

* Harsha Hulikere July 14, 2015, 6:53 pm

Nice and well explained, thanks a lot ..:)

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4333005" \o "permalink to this comment)

* fayaz July 17, 2015, 3:15 am

great one. it has given a simple procedure and best among all..

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4338101" \o "permalink to this comment)

* mike r July 30, 2015, 8:03 am

good explanation, also some newer linux kernels dont use init, only systemd

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4367975" \o "permalink to this comment)

* Prashanth August 4, 2015, 10:09 am

Thankyou Ramesh. That was so simply explained !

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4377452" \o "permalink to this comment)

* Vinay September 13, 2015, 11:24 pm

How to change the runlevel if it is set to 0 or 6.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4475798" \o "permalink to this comment)

* [Anusha](http://www.thegeekstuff.com/2011/02/linux-boot-process/" \l "commentform) November 20, 2015, 12:23 am

Good one… Thanks

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4615987" \o "permalink to this comment)

* Rajasekhat December 9, 2015, 2:17 am

Really good article on Linux boot process.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4635392" \o "permalink to this comment)

* Sunil January 11, 2016, 2:38 pm

Excellent explaination……

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4669306" \o "permalink to this comment)

* Parvathy January 27, 2016, 7:29 am

Nice,Thanks !

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4683646" \o "permalink to this comment)

* ankit February 19, 2016, 2:24 pm

Ultimate…thanks for sharing the transparency, simplicity and purity of Linux with such a simple Techincal Laguage

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4706645" \o "permalink to this comment)

* nagamani March 15, 2016, 2:54 am

Good One Usefull…. Thank you

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4741317" \o "permalink to this comment)

* Nisha March 29, 2016, 4:32 am

Hai It was awesome to read this. Thanks for your article.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4766801" \o "permalink to this comment)

* Anonymous April 12, 2016, 12:16 am

It is really very useful  
Thank you  
Mahesh

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4777315" \o "permalink to this comment)

* nithya May 9, 2016, 4:22 am

Superb article.. its very useful to me…. thank u so much

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4801020" \o "permalink to this comment)

* Ravi May 15, 2016, 6:47 am

Great article

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4806125" \o "permalink to this comment)

* Malcolm Daniel May 30, 2016, 2:37 pm

doing great bro keep it up

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4819102" \o "permalink to this comment)

* Suraj May 31, 2016, 11:36 pm

Great article with vast information in short

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4820564" \o "permalink to this comment)

* sachin December 22, 2016, 3:14 am

Thanx

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4897519" \o "permalink to this comment)

* [vilas Bhumare](http://na/) December 23, 2016, 1:06 am

Nice piece of information

Thanks a lot

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4898152" \o "permalink to this comment)

* Saurabh Aditya December 28, 2016, 3:12 pm

Thanks Bro,  
Easy to understand amazingly explained.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4900962" \o "permalink to this comment)

* Jide January 8, 2017, 5:57 am

Thanks for sharing  
Appreciate it ✌.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4904611" \o "permalink to this comment)

* Pal January 11, 2017, 9:28 pm

Micro article.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4905974" \o "permalink to this comment)

* gopi krishna January 17, 2017, 6:16 am

its good Excellent explaination .

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4907797" \o "permalink to this comment)

* Anonymous January 18, 2017, 12:20 am

Good Article…

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4908088" \o "permalink to this comment)

* Anonymous April 20, 2017, 12:04 am

well explained . nice article. 🙂

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4949740" \o "permalink to this comment)

* Anonymous April 24, 2017, 6:19 am

great

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4951038" \o "permalink to this comment)

* Dang Tan Hoa May 4, 2017, 4:03 am

Great article.  
Thank you!

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4954273" \o "permalink to this comment)

* Jay June 27, 2017, 7:44 am

Awesome article with easy to understand explanation.’

A bit outdated though; would be good if you would keep the article updated.

Great historical reference, nevertheless.

[Link](https://www.thegeekstuff.com/2011/02/linux-boot-process" \l "comment-4971588" \o "permalink to this comment)

Top of Form

[Cancel reply](https://www.thegeekstuff.com/2011/02/linux-boot-process/" \l "respond)

Leave a Comment

Name

Email

Website

Comment





Notify me of followup comments via e-mail



Bottom of Form

Next post: [UNIX / Linux: 3 Ways to Send Signal to Processes](https://www.thegeekstuff.com/2011/02/send-signal-to-process/)

Previous post: [UNIX / Linux: How to Use Sticky Bit on Directory and File](https://www.thegeekstuff.com/2011/02/sticky-bit-on-directory-file/)

[RSS](https://www.thegeekstuff.com/feed" \o "Subscribe via RSS)  |  [Email](https://feedburner.google.com/fb/a/mailverify?uri=TheGeekStuff&loc=en_US" \o "Subscribe via Email)  |  [Twitter](https://twitter.com/thegeekstuff" \o "Follow us on Twitter)  |  [Facebook](https://www.facebook.com/thegeekstuff" \o "Become a fan)  |  [Google+](https://plus.google.com/112493711428194838421/posts" \o "Follow us on Google+)

Top of Form





Bottom of Form

EBOOKS

* Linux 101 Hacks Book [Linux 101 Hacks 2nd Edition eBook](https://www.thegeekstuff.com/linux-101-hacks-ebook/) - Practical Examples to Build a Strong Foundation in Linux
* [Bash 101 Hacks eBook](https://www.thegeekstuff.com/bash-101-hacks-ebook/) - Take Control of Your Bash Command Line and Shell Scripting
* [Sed and Awk 101 Hacks eBook](https://www.thegeekstuff.com/sed-awk-101-hacks-ebook/) - Enhance Your UNIX / Linux Life with Sed and Awk
* [Vim 101 Hacks eBook](https://www.thegeekstuff.com/vim-101-hacks-ebook/) - Practical Examples for Becoming Fast and Productive in Vim Editor
* [Nagios Core 3 eBook](https://www.thegeekstuff.com/nagios-core-ebook/) - Monitor Everything, Be Proactive, and Sleep Well

POPULAR POSTS

* [15 Essential Accessories for Your Nikon or Canon DSLR Camera](https://www.thegeekstuff.com/dslr-accessories/)
* [12 Amazing and Essential Linux Books To Enrich Your Brain and Library](https://www.thegeekstuff.com/2009/01/12-amazing-and-essential-linux-books-to-enrich-your-brain-and-library/)
* [50 UNIX / Linux Sysadmin Tutorials](https://www.thegeekstuff.com/2010/12/50-unix-linux-sysadmin-tutorials/)
* [50 Most Frequently Used UNIX / Linux Commands (With Examples)](https://www.thegeekstuff.com/2010/11/50-linux-commands/)
* [How To Be Productive and Get Things Done Using GTD](https://www.thegeekstuff.com/2010/08/gtd-getting-things-done/)
* [30 Things To Do When you are Bored and have a Computer](https://www.thegeekstuff.com/2010/03/30-things-to-do-when-you-are-bored-and-have-a-computer/)
* [Linux Directory Structure (File System Structure) Explained with Examples](https://www.thegeekstuff.com/2010/09/linux-file-system-structure/)
* [Linux Crontab: 15 Awesome Cron Job Examples](https://www.thegeekstuff.com/2009/06/15-practical-crontab-examples/)
* [Get a Grip on the Grep! – 15 Practical Grep Command Examples](https://www.thegeekstuff.com/2009/03/15-practical-unix-grep-command-examples/)
* [Unix LS Command: 15 Practical Examples](https://www.thegeekstuff.com/2009/07/linux-ls-command-examples/)
* [15 Examples To Master Linux Command Line History](https://www.thegeekstuff.com/2008/08/15-examples-to-master-linux-command-line-history/)
* [Top 10 Open Source Bug Tracking System](https://www.thegeekstuff.com/2010/08/bug-tracking-system/)
* [Vi and Vim Macro Tutorial: How To Record and Play](https://www.thegeekstuff.com/2009/01/vi-and-vim-macro-tutorial-how-to-record-and-play/)
* [Mommy, I found it! -- 15 Practical Linux Find Command Examples](https://www.thegeekstuff.com/2009/03/15-practical-linux-find-command-examples/)
* [15 Awesome Gmail Tips and Tricks](https://www.thegeekstuff.com/2009/07/best-gmail-tips-and-tricks/)
* [15 Awesome Google Search Tips and Tricks](https://www.thegeekstuff.com/2009/06/expertise-in-google-search/)
* [RAID 0, RAID 1, RAID 5, RAID 10 Explained with Diagrams](https://www.thegeekstuff.com/2010/08/raid-levels-tutorial/)
* [Can You Top This? 15 Practical Linux Top Command Examples](https://www.thegeekstuff.com/2010/01/15-practical-unix-linux-top-command-examples/)
* [Top 5 Best System Monitoring Tools](https://www.thegeekstuff.com/2009/09/top-5-best-network-monitoring-tools/)
* [Top 5 Best Linux OS Distributions](https://www.thegeekstuff.com/2009/06/top-5-best-linux-os-distributions/)
* [How To Monitor Remote Linux Host using Nagios 3.0](https://www.thegeekstuff.com/2008/06/how-to-monitor-remote-linux-host-using-nagios-30/)
* [Awk Introduction Tutorial – 7 Awk Print Examples](https://www.thegeekstuff.com/2010/01/awk-introduction-tutorial-7-awk-print-examples/)
* [How to Backup Linux? 15 rsync Command Examples](https://www.thegeekstuff.com/2010/09/rsync-command-examples/)
* [The Ultimate Wget Download Guide With 15 Awesome Examples](https://www.thegeekstuff.com/2009/09/the-ultimate-wget-download-guide-with-15-awesome-examples/)
* [Top 5 Best Linux Text Editors](https://www.thegeekstuff.com/2009/07/top-5-best-linux-text-editors/)
* [Packet Analyzer: 15 TCPDUMP Command Examples](https://www.thegeekstuff.com/2010/08/tcpdump-command-examples/)
* [The Ultimate Bash Array Tutorial with 15 Examples](https://www.thegeekstuff.com/2010/06/bash-array-tutorial/)
* [3 Steps to Perform SSH Login Without Password Using ssh-keygen & ssh-copy-id](https://www.thegeekstuff.com/2008/11/3-steps-to-perform-ssh-login-without-password-using-ssh-keygen-ssh-copy-id/)
* [Unix Sed Tutorial: Advanced Sed Substitution Examples](https://www.thegeekstuff.com/2009/10/unix-sed-tutorial-advanced-sed-substitution-examples/)
* [UNIX / Linux: 10 Netstat Command Examples](https://www.thegeekstuff.com/2010/03/netstat-command-examples/)
* [The Ultimate Guide for Creating Strong Passwords](https://www.thegeekstuff.com/2008/06/the-ultimate-guide-for-creating-strong-passwords/)
* [6 Steps to Secure Your Home Wireless Network](https://www.thegeekstuff.com/2008/08/6-steps-to-secure-your-home-wireless-network/)
* [Turbocharge PuTTY with 12 Powerful Add-Ons](https://www.thegeekstuff.com/2008/08/turbocharge-putty-with-12-powerful-add-ons-software-for-geeks-3/)

CATEGORIES

* [Linux Tutorials](https://www.thegeekstuff.com/category/linux/)
* [Vim Editor](https://www.thegeekstuff.com/category/vim-2/)
* [Sed Scripting](https://www.thegeekstuff.com/category/sed/)
* [Awk Scripting](https://www.thegeekstuff.com/category/awk/)
* [Bash Shell Scripting](https://www.thegeekstuff.com/category/bash-2/)
* [Nagios Monitoring](https://www.thegeekstuff.com/category/nagios-2/)
* [OpenSSH](https://www.thegeekstuff.com/category/openssh-2/)
* [IPTables Firewall](https://www.thegeekstuff.com/category/iptables/)
* [Apache Web Server](https://www.thegeekstuff.com/category/apache/)
* [MySQL Database](https://www.thegeekstuff.com/category/mysql/)
* [Perl Programming](https://www.thegeekstuff.com/category/perl/)
* [Google Tutorials](https://www.thegeekstuff.com/category/google/)
* [Ubuntu Tutorials](https://www.thegeekstuff.com/category/ubuntu/)
* [PostgreSQL DB](https://www.thegeekstuff.com/category/postgresql/)
* [Hello World Examples](https://www.thegeekstuff.com/category/hello-world/)
* [C Programming](https://www.thegeekstuff.com/category/c-programming/)
* [C++ Programming](https://www.thegeekstuff.com/category/c-plus-plus/)
* [DELL Server Tutorials](https://www.thegeekstuff.com/category/dell-2/)
* [Oracle Database](https://www.thegeekstuff.com/category/oracle/)
* [VMware Tutorials](https://www.thegeekstuff.com/category/vmware/)

**About The Geek Stuff**

My name is **Ramesh Natarajan**. I will be posting instruction guides, how-to, troubleshooting tips and tricks on Linux, database, hardware, security and web. My focus is to write articles that will either teach you or help you resolve a problem. Read more about [Ramesh Natarajan](https://www.thegeekstuff.com/about/) and the blog.

**Contact Us**

**Email Me :** Use this [Contact Form](https://www.thegeekstuff.com/contact) to get in touch me with your comments, questions or suggestions about this site. You can also simply drop me a line to say hello!.   
  
[Follow us on Google+](https://plus.google.com/112493711428194838421/posts" \o "Follow us on Google+)   
  
[Follow us on Twitter](https://twitter.com/thegeekstuff" \o "Follow us on Twitter)   
  
[Become a fan on Facebook](https://www.facebook.com/thegeekstuff)

**Support Us**

Support this blog by purchasing one of my ebooks.   
  
[Bash 101 Hacks eBook](https://www.thegeekstuff.com/bash-101-hacks-ebook/)   
  
[Sed and Awk 101 Hacks eBook](https://www.thegeekstuff.com/sed-awk-101-hacks-ebook/)   
  
[Vim 101 Hacks eBook](https://www.thegeekstuff.com/vim-101-hacks-ebook/)   
  
[Nagios Core 3 eBook](https://www.thegeekstuff.com/nagios-core-ebook/)

Copyright © 2008–2018 Ramesh Natarajan. All rights reserved | [Terms of Service](https://www.thegeekstuff.com/copyright)

<style type="text/css" scoped>.menu { display: block; }</style>