

# Modifying kernel boot parameters

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# 1 Environment

This document applies to the following products and product versions:

- SUSE Linux Enterprise Server 15 SP5, 15 SP4, 15 SP3, 15 SP2, 12 SP5
- SUSE Linux Enterprise Server for SAP Applications 15 SP5, 15 SP4, 15 SP3, 15 SP2, 12 SP5
- SUSE Linux Enterprise High Availability 15 SP5, 15 SP4, 15 SP3, 15 SP2, 12 SP5
- SUSE Linux Enterprise High Performance Computing 15 SP5, 15 SP4, 15 SP3, 15 SP2
- SUSE Linux Enterprise Desktop 15 SP5
- SUSE Linux Enterprise Real Time 15 SP5

## 2 Introduction

The SUSE Linux kernel provides everything to ensure stable operation on your computer. However, in some cases it is necessary to provide boot parameters to influence the boot process for GRUB 2 or modify the behaviour of the kernel itself.

For example, you can control the *Advanced Configuration and Power Interface* (ACPI) settings, define the output console, enable debugging, and many more.

There are two methods to modify your kernel boot parameters:

- **Temporarily.** After you have changed the kernel boot parameters, the change will be applied for the upcoming boot process. However, it does not survive subsequent boot processes.
- **Permanently.** Your change is applied for each boot process.

As an example, we will disable the splash screen that you can see during the boot.

## 3 Requirements

- To only temporarily modify the kernel boot parameters, no prerequisites required.
- To permanently modify the kernel boot parameters, you need write access to your root partition and the /etc directory.

## 4 Temporarily modifying kernel boot parameters

Test a kernel boot parameter, a temporary change is helpful. Such a change is only applied for the current boot process, not for any subsequent boot processes.

To temporarily disable the splash screen, proceed as follows:

1. Switch on your computer. The boot process will start.
2. In the GRUB 2 boot screen, highlight the entry you want to modify using the arrow keys `↑` and `↓`.
3. Press the `E` key. You will be presented with an editor and the content of the selected boot entry. It will look similar to the following:

```
setparams 'SUSE Linux Enterprise Server 16.0'
# ... some lines pruned ...
echo 'Loading kernel ...'
linuxefi /boot/vmlinuz-5.3.18-lp152.87-default
root=UUID=0dfcff43-7a61-4ecd-8df5-8dc56ee3d9f2 splash=silent resume=/dev/disk/by-
uuid/0399f92e-5ed4-48c8-9db0-11e52c5cb0cd quiet mitigations=auto
```

4. Search for the string `splash=silent` and remove it.
5. To boot the entry, press `F10` or `Ctrl + X`.  
To discard the changes and start anew, press the `Esc` key.

During reboot, the splash screen is not shown.

## 5 Permanently modifying kernel boot parameters

If a change needs to be applied for every boot process, use this procedure.

To permanently disable the splash screen, proceed as follows:

1. In your running system, open a shell and view the current command line used by the Linux kernel:

```
# cat /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-5.3.18-59.19-default root=UUID=7e957c2e-fd30-4160-a771-
dbc1bc679cf2 splash=silent quiet mitigations=auto
```

As you can see, the string `splash=line` is printed. We will remove it for the next boot.

2. Open the file `/etc/default/grub`.
3. Look for the line `GRUB_CMDLINE_LINUX_DEFAULT=`. Remove the string `splash=line` from this line and save the file.
4. Run:

```
# update-bootloader --refresh
```

5. Reboot. You should see that the splash screen does not appear.

After your computer has successfully booted, log in and check your boot commandline:

```
# cat /proc/cmdline
BOOT_IMAGE=/boot/vmlinuz-5.3.18-59.19-default root=UUID=7e957c2e-fd30-4160-a771-
dbc1bc679cf2 mitigations=auto
```

There is no splash string anymore.

## 6 Related topics

- <https://github.com/torvalds/linux/blob/master/Documentation/admin-guide/kernel-parameters.txt> ↗