

**NAME**

kernel-install – Add and remove kernel and initramfs images to and from /boot

**SYNOPSIS**

**kernel-install** COMMAND [OPTIONS...] *KERNEL-VERSION* *KERNEL-IMAGE* [*INITRD-FILE*...]

**DESCRIPTION**

**kernel-install** is used to install and remove kernel and initramfs images to and from the boot loader partition, referred to as *\$BOOT* here. It will usually be one of /boot, /efi, or /boot/efi, see below.

**kernel-install** will execute the files located in the directory /usr/lib/kernel/install.d/ and the local administration directory /etc/kernel/install.d/. All files are collectively sorted and executed in lexical order, regardless of the directory in which they live. However, files with identical filenames replace each other. Files in /etc/kernel/install.d/ take precedence over files with the same name in /usr/lib/kernel/install.d/. This can be used to override a system-supplied executables with a local file if needed; a symbolic link in /etc/kernel/install.d/ with the same name as an executable in /usr/lib/kernel/install.d/, pointing to /dev/null, disables the executable entirely. Executables must have the extension ".install"; other extensions are ignored.

An executable should return **0** on success. It may also return **77** to cause the whole operation to terminate (executables later in lexical order will be skipped).

**COMMANDS**

The following commands are understood:

**add** *KERNEL-VERSION* *KERNEL-IMAGE* [*INITRD-FILE* ...]

This command expects a kernel version string and a path to a kernel image file as arguments.

**kernel-install** calls the executables from /usr/lib/kernel/install.d/\*.install and /etc/kernel/install.d/\*.install with the following arguments:

add *KERNEL-VERSION* *\$BOOT/MACHINE-ID/KERNEL-VERSION/* *KERNEL-IMAGE* [*INITRD-FILE* ...]

Three default plugins execute the following operations in this case:

- 00-entry-directory.install creates the directory *\$BOOT/MACHINE-ID/KERNEL-VERSION/* if *\$BOOT/MACHINE-ID/* already exists.
- 50-depmod.install runs **depmod**(8) for the *KERNEL-VERSION*.
- 90-loaderentry.install copies *KERNEL-IMAGE* to *\$BOOT/MACHINE-ID/KERNEL-VERSION/linux*. If an *INITRD-FILE* is provided, it also copies *INITRD-FILE* to *\$BOOT/MACHINE-ID/KERNEL-VERSION/INITRD-FILE*. It also creates a boot loader entry according to the [Boot Loader Specification](#)<sup>[1]</sup> in *\$BOOT/loader/entries/MACHINE-ID-KERNEL-VERSION.conf*. The title of the entry is the *PRETTY\_NAME* parameter specified in /etc/os-release or /usr/lib/os-release (if the former is missing), or "Linux *KERNEL-VERSION*", if unset.

If the entry directory *\$BOOT/MACHINE-ID/KERNEL-VERSION/* does not exist, this plugin does nothing.

**remove** *KERNEL-VERSION*

This command expects a kernel version string as single argument. This calls executables from /usr/lib/kernel/install.d/\*.install and /etc/kernel/install.d/\*.install with the following arguments:

remove *KERNEL-VERSION* *\$BOOT/MACHINE-ID/KERNEL-VERSION/*

Afterwards, **kernel-install** removes the directory *\$BOOT/MACHINE-ID/KERNEL-VERSION/* and its contents.

Two default plugins execute the following operations in this case:

- 50-depmod.install removes the files generated by **depmod** for this kernel again.
- 90-loaderentry.install removes the file  
\$BOOT/loader/entries/*MACHINE-ID-KERNEL-VERSION.conf*.

## THE \$BOOT PARTITION

The partition where the kernels and [Boot Loader Specification](#)<sup>[1]</sup> snippets are located is called *\$BOOT*. **kernel-install** determines the location of this partition by checking */efi/*, */boot/*, and */boot/efi* in turn. The first location where *\$BOOT/loader/entries/* or *\$BOOT/\$MACHINE\_ID/* exists is used.

## OPTIONS

The following options are understood:

**-v, --verbose**

Output additional information about operations being performed.

**-h, --help**

Print a short help text and exit.

## ENVIRONMENT VARIABLES

If **--verbose** is used, *\$KERNEL\_INSTALL\_VERBOSE=1* will be set for the plugins. They may output additional logs in this case.

## EXIT STATUS

If every executable returns 0 or 77, 0 is returned, and a non-zero failure code otherwise.

## FILES

*/usr/lib/kernel/install.d/\*.install* */etc/kernel/install.d/\*.install*

Drop-in files which are executed by **kernel-install**.

*/etc/kernel/cmdline* */proc/cmdline*

Read by 90-loaderentry.install. The content of the file */etc/kernel/cmdline* specifies the kernel command line to use. If that file does not exist, */proc/cmdline* is used.

*/etc/kernel/tries*

Read by 90-loaderentry.install. If this file exists a numeric value is read from it and the naming of the generated entry file is slightly altered to include it as *\$BOOT/loader/entries/MACHINE-ID-KERNEL-VERSION+TRIES.conf*. This is useful for boot loaders such as **systemd-boot**(7) which implement boot attempt counting with a counter embedded in the entry file name.

*/etc/machine-id*

The content of the file specifies the machine identification *MACHINE-ID*.

*/etc/os-release* */usr/lib/os-release*

The content of the file specifies the operating system title *PRETTY\_NAME*.

## SEE ALSO

**machine-id**(5), **os-release**(5), **depmod**(8), **systemd-boot**(7), [Boot Loader Specification](#)<sup>[1]</sup>

## NOTES

1. Boot Loader Specification  
[https://systemd.io/BOOT\\_LOADER\\_SPECIFICATION](https://systemd.io/BOOT_LOADER_SPECIFICATION)