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**[1] 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**[1] 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**[1]

NOTES

1. Boot Loader Specification
https://systemd.io/BOOT_LOADER_SPECIFICATION