

# Peace, Love and Unification in /boot

Kay Sievers  
Harald Hoyer

Red Hat

`/boot` belongs to the machine

/boot shared by all installations

No need to modify files or install bootloaders

```
/boot
|-- loader
|   |-- loader.conf
|   |-- entries
|       |-- custom-kernel.conf
|       |-- debian-2.6.32-5-amd64.conf
|       |-- efi-shell.conf
|       |-- fedora-3.3.4-5.fc17.x86_64.conf
|       |-- fedora-3.3.7-1.fc17.x86_64.conf
|       |-- fedora-rescue.conf
|       |-- redhat-3.3.4-5.fc17.x86_64.conf
|-- EFI
|   |-- BOOT
|   |   |-- BOOTX64.efi (fallback entry, which works without nvram setup)
|   |-- gummiboot
|   |   |-- gummiboot.efi
|   |-- redhat
|   |   |-- grub2-efi
|   |       |-- grub2.efi
|   |       |-- grub2.cfg
|   |-- shell
|   |   |-- shell.efi
|-- fedora
|   |-- initrd-3.3.4-5.fc17.x86_64
|   |-- initrd-3.3.7-1.fc17.x86_64
|   |-- vmlinuz-3.3.4-5.fc17.x86_64
|   |-- vmlinuz-3.3.7-1.fc17.x86_64
|-- debian
|   |-- initrd.img-2.6.32-5-amd64
|   |-- vmlinuz-2.6.32-5-amd64
|-- bzImage
...

```

```
/boot
|-- loader
|   |-- loader.conf
|   |-- entries
|       |-- custom-kernel.conf
|       |-- debian-2.6.32-5-amd64-f6786e375834543364393ff724ba984b.conf
|       |-- efi-shell.conf
|       |-- fedora-3.3.4-5.fc17.x86_64-6a9857a393724b7a981ebb5b8495b9ea.conf
|       |-- fedora-3.3.11-1.fc17.x86_64-6a9857a393724b7a981ebb5b8495b9ea.conf
|       |-- fedora-3.3.11-1.fc17.x86_64-e37583454357a39372674b7a984bb5b5.conf
|       |-- fedora-rescue.conf
|       |-- redhat-3.6.0-2.el7.x86_64-e37583454357a39372674b7a984bb5b5.x86_64.conf
|-- EFI
|   |-- BOOT
|   |-- BOOTX64.efi
|   |-- gummiboot
|   |-- gummiboot.efi
|   |-- shell
|   |-- shell.efi
|-- fedora
|   |-- initrd-3.3.4-5.fc17.x86_64-a9857a393724b7a981ebb5b8495b9ea
|   |-- initrd-3.3.11-1.fc17.x86_64-a9857a393724b7a981ebb5b8495b9ea
|   |-- initrd-3.3.11-1.fc17.x86_64-e37583454357a39372674b7a984bb5b5
|   |-- rescue-2.0
|   |-- vmlinuz-3.3.4-5.fc17.x86_64-a9857a393724b7a981ebb5b8495b9ea
|   |-- vmlinuz-3.3.11-1.fc17.x86_64-a9857a393724b7a981ebb5b8495b9ea
|   |-- vmlinuz-3.3.11-1.fc17.x86_64-e37583454357a39372674b7a984bb5b5
|-- redhat
|   |-- initrd-3.6.0-2.el7.x86_64-e37583454357a39372674b7a984bb5b5
|   |-- vmlinuz-3.6.0-2.el7.x86_64-e37583454357a39372674b7a984bb5b5
|-- debian
|   |-- initrd.img-2.6.32-5-amd64-f6786e375834543364393ff724ba984b
|   |-- vmlinuz-2.6.32-5-amd64-f6786e375834543364393ff724ba984b
|-- bzImage
...

```

```
# cat /boot/loader/config
timeout 3
default fedora-*
#default fedora-*fc17*
#default fedora-3.3.4-5.fc17.x86_64.conf

# cat /boot/loader/entries/fedora-3.3.7-1.fc17.x86_64.conf
title          Fedora 17
title-version  3.3.7-1.fc17.x86_64
title-machine  9e3d4b65
linux          /fedora/9e3d4b65/vmlinuz-3.3.7-1.fc17.x86_64
initrd         /fedora/9e3d4b65/initrd-3.3.7-1.fc17.x86_64
options        root=UUID=f8f83f73-df71-445c-87f7-31f70263b83b

# cat /boot/loader/entries/custom-kernel.conf
title    My test Kernel - without initramfs
options  root=PARTUUID=084917b7-8be2-4e86-838d-f771a9902e08
linux    /bzImage

# cat /boot/loader/entries/debian-2.6.32-5-amd64.conf
title    Debian XYZ (2.6.32-5-amd64)
options  root=/dev/sda5
linux    /debian/vmlinuz-2.6.32-5-amd64
initrd   /debian/initrd.img-2.6.32-5-amd64

# cat /boot/loader/entries/efi-shell.conf
title    EFI Shell
efi      /EFI/tools/shell.efi
```

# /boot/loader/entries/\*.conf

- Drop-in directory
- Configuration snippets
- Simple and reliable kernel installations
- No need to edit a config file



# /boot/loader/entries/\*.conf

```
title          Fedora 17
title-version  3.3.7-1.fc17.x86_64
title-machine  9e3d4b65
linux         /fedora/9e3d4b65/vmlinuz-3.3.7-1.fc17.x86_64
initrd        /fedora/9e3d4b65/initrd-3.3.7-1.fc17.x86_64
options       root=UUID=f8f83f73-df71-445c-87f7-31f70263b83b
```

Menu entries should be presented in reverse version-sort order to the user.

Fedora 17 3.3.7-3.fc17.x86\_64

Fedora 17 3.3.7-1.fc17.x86\_64

Fedora 16

Packages should not install to /boot

/boot should be ~1-2 GB big.

If no timeout is set for the loader, the bootloader boots the default entry.

If a key is pressed, a menu is shown.

gummiboot

# Discussion

- `/etc/loader.conf` needed?
- append machine-id to all files copied to `/boot`
- include (pretty) host name in the menu entry
- Comments?