

# Tivoization

man's best friend, the most famous artist of the  
reign of Elizabeth together with Her-  
od and his wife were in the seventh  
the quick brown fox jumps over the lazy





# Tivoization

A story about following licenses to the letter.

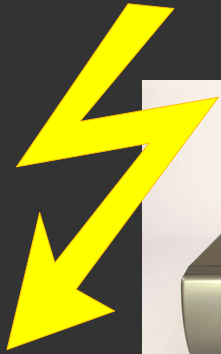
# How does a computer start?



# How does a computer start?



# How does a computer start?



Bootloader

# How does a computer start?



Bootloader

Kernel

# How does a computer start?



Bootloader

Kernel

Init

# Where is the open code?



Bootloader

Kernel

Init



# Where is the open code?



Bootloader

Kernel

Init



# What does a bootloader do?



Bootloader

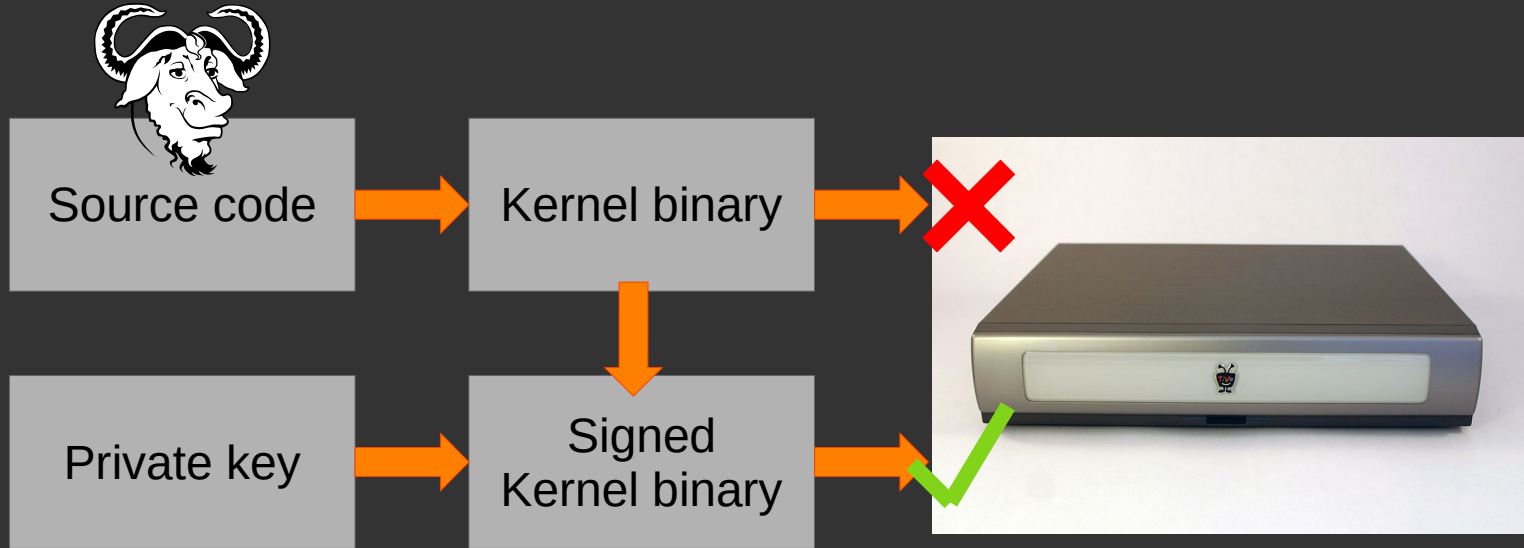
Kernel

Init

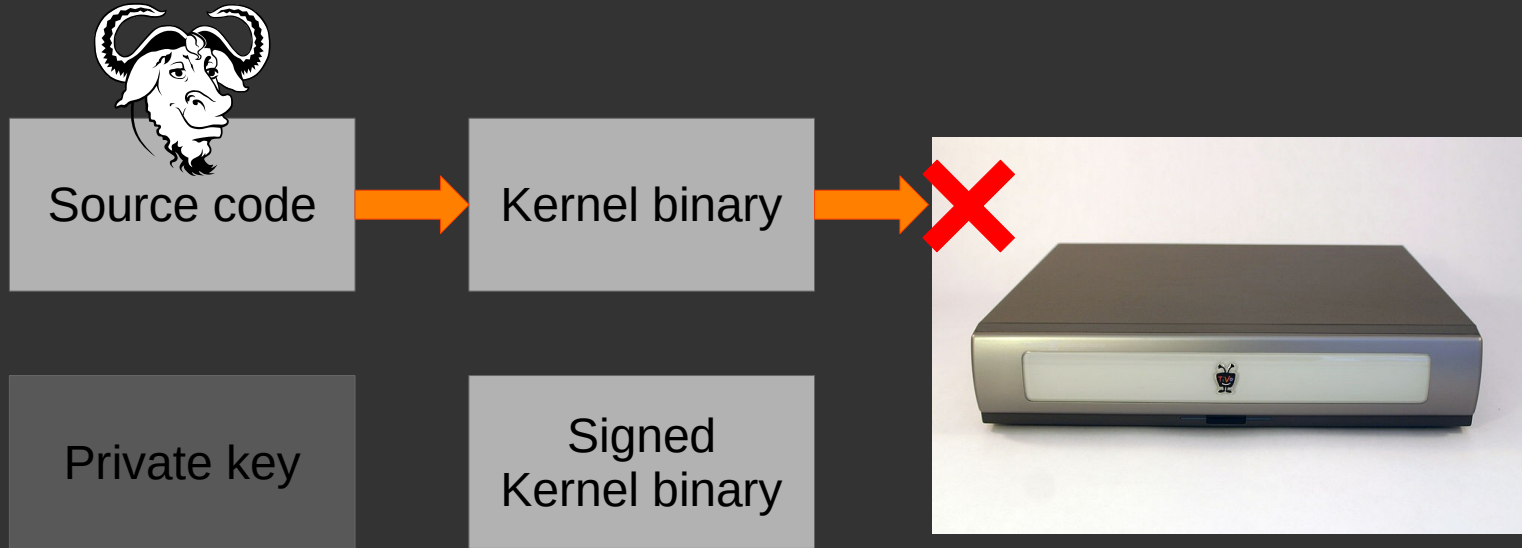


1. Initialize hardware
2. Load kernel from storage
3. Ensure integrity of kernel
4. Prepare configuration data for kernel
5. Jump to kernel

# Signing the Kernel



# For the User



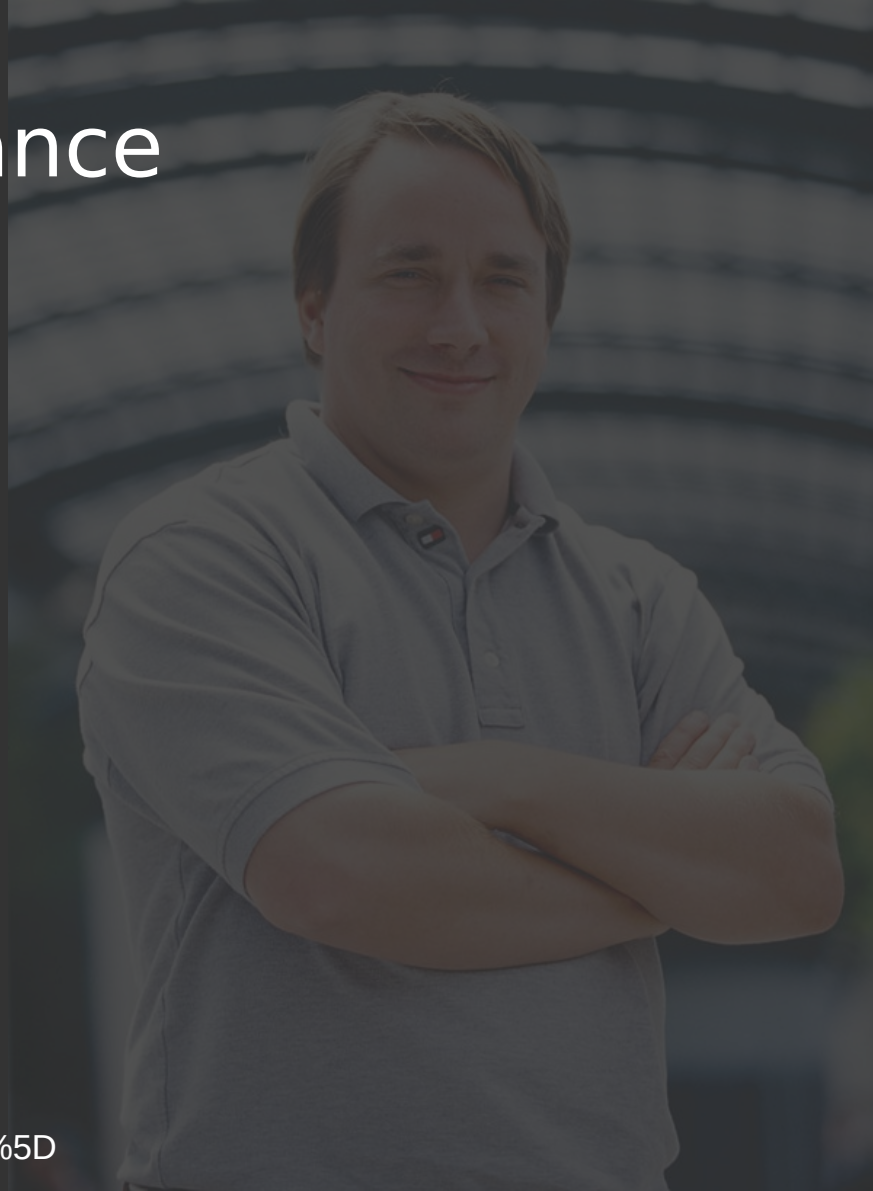
# Torvald's Stance

“  
...

I want to make it clear that DRM is perfectly ok with Linux!

...

I think there are many quite valid reasons to sign (and verify) your kernel images, and while some of the uses of signing are odious, I don't see any sane way to distinguish between "good" signers and "bad" signers.”







# FSF's Stance

## GPLv3

“6. ...

“Installation Information” for a User Product means any methods, procedures, authorization keys, or other information required to install and execute modified versions of a covered work in that User Product from a modified version of its Corresponding Source. The information must suffice to ensure that the continued functioning of the modified object code is in no case prevented or interfered with solely because modification has been made.

...

Corresponding Source conveyed, and Installation Information provided, in accord with this section must be in a format that is publicly documented (and with an implementation available to the public in source code form), and must require no special password or key for unpacking, reading or copying.”

# Copyrighted material



Willi Heidelbach,  
Attribution-ShareAlike 3.0 Unported (CC BY-SA 3.0)  
[https://commons.wikimedia.org/wiki/File:Metal\\_movable\\_type.jpg](https://commons.wikimedia.org/wiki/File:Metal_movable_type.jpg)



Jared C. Benedict,  
Creative Commons Attribution-ShareAlike 3.0 Unported  
[https://commons.wikimedia.org/wiki/File:Series\\_2\\_tivo\\_front.jpg](https://commons.wikimedia.org/wiki/File:Series_2_tivo_front.jpg)



Unknown photographer who sold rights to the picture to linuxmag.com  
Permission of Martin Streicher, Editor-in-Chief, LINUXMAG.com, GFDL  
[https://en.wikipedia.org/wiki/Linus\\_Torvalds#/media/File:Linus\\_Torvalds.jpeg](https://en.wikipedia.org/wiki/Linus_Torvalds#/media/File:Linus_Torvalds.jpeg)



Aurelio A. Heckert <aurium@gmail.com>  
Creative Commons Attribution-ShareAlike 2.0  
[https://en.wikipedia.org/wiki/GNU\\_Project#/media/File:Heckert\\_GNU\\_white.svg](https://en.wikipedia.org/wiki/GNU_Project#/media/File:Heckert_GNU_white.svg)



Chroniques de France, British Library, Cotton MS Nero E. II pt.2, f.152v  
“public domain”  
[https://commons.wikimedia.org/wiki/File:Cr%C3%A9cy\\_-\\_Grandes\\_Chroniques\\_de\\_France.jpg](https://commons.wikimedia.org/wiki/File:Cr%C3%A9cy_-_Grandes_Chroniques_de_France.jpg)