

NuttX RTOS

Inviolables



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Inviolable - Definition

in·vi·o·la·ble

/in'vīələbəl/

adjective

adjective: inviolable

never to be broken, infringed, or dishonored.

"an inviolable rule of chastity"

synonyms: inalienable, absolute, untouchable, unalterable, unchallengeable, unbreakable, impregnable; sacrosanct, sacred, holy, hallowed;
rare intemperate

"the inviolable right to life"

Oxford Dictionary of the English Language

**These are properties of NuttX that can be certain of
*for all time***



The Inviolables

Strict POSIX compliance

- Strict conformance to the portable standard OS interface as defined at OpenGroup.org.
- A deeply embedded system requires some special support.
- Special support must be minimized and the portable interface must never be compromised only for the sake of *expediency*.
- *Expediency* or even improved performance are not justifications for violation of the strict POSIX interface

Modular Architecture

- The internal modular architecture of the OS must maintained.
- This means formalizing and documenting all internal interfaces (in the porting guide), minimal use of global variables at the interface, and only well defined functional interfaces.

Clear, Consistent, Standardized Coding Style

- Strict conformance to the NuttX coding style. No "revolutionary" changes to the coding standard (but perhaps some "evolutionary" changes).
- Personal or organizational *preference* is not a justification for a coding style change.
- Nothing can come into NuttX that does not follow the coding standard.
- *Expediency* is not a justification for violating the coding standard.



The Inviolables (Continued)

Open and Unencumbered License

- Currently BSD 3-clause or compatible: BSD 3-clause with constraints, BSD 3 and 4 clause, MIT, public domain
- Other unencumbered licenses such as Apache may be considered
- NuttX will never be licensed under a restrictive, "Copyleft" license.

All Users Matter

- All support must apply *equally* to all supported platforms. At present this includes Linux, Windows MSYS, Windows Cygwin, Windows Unbuntu, Windows native, macOS, Solaris, and FreeBSD. No tool/environment solutions will be considered that limit the usage of NuttX on any of the supported platforms.
- Hobbyists are valued users of the OS including retro computing hobbyists and DIY "Maker" hobbyists.
- Supported toolchains: GCC, Clang, SDCC, ZiLOG ZDS-II (c89), IAR. Others?
- No changes to build system should limit use of NuttX by any user.
- Simplifying things for one user does not justify excluding another user.
- We should seek to expand the the NuttX user base, not to limit it for reasons of preference or priority.
- We must resist the pull to make NuttX into a Linux-only, GCC-only, and ARM-o solution.



The Inviolables (Continued)

NuttX Branding

- The official name of authentic Nuttx will always be "*NuttX*"
- This name is trademarked and may not be used by other OSs or forks of NuttX



The Enemies

No Short Cuts

- Doing things the easy way instead of the correct way.
- Reducing effort at the expense of Quality, Portability, or Consistency
- Focus on the values of the organization, not the values of the Open Source project. Need to support both.
- It takes work to support the Inviolables. There are no shortcuts.

Sometimes Code Duplication is OK

- Sometimes is better to duplicate some logic than to introduce coupling

Keep the Big Picture

- Too much focus on solving the problem in hand, loss of the Big Picture
- Insufficient understanding of the architectural principles.

Conform to Standards

- Changing things only to suite a personal or organizational preference
- Inflexibility, Inability to adapt
- Not Invented Here (NIH) syndrome

