

ORACLE

GRUB

Project Status Update

Daniel Kiper

Oracle, Software Developer, GRUB upstream maintainer

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What happened during last two years

- GRUB 2.12 release which contains
 - GCC 13 support
 - clang 14 support
 - binutils 2.38 support
 - Unification of EFI Linux kernel loader across architectures
 - Transition to EFI Linux kernel stub loader for x86 architecture
 - Initial support for Boot Loader Interface (bli module)
 - Support for dynamic GRUB runtime memory addition using firmware calls
 - PCI and MMIO UARTs support
 - SDL2 support
 - LoongArch support
 - TPM driver fixes
 - Many filesystems fixes
 - Many CVE and Coverity fixes
 - Debugging support improvements
 - Tests improvements
 - Documentation improvements
 - ... and tons of other fixes and cleanups...

Coverity - x86_64/EFI and ARM64/EFI runs - 0 outstanding defects

- Andrei Borzenkov started Coverity work in 2014
- Later Vladimir Serbinenko joined and together continued this work until 2017
- Coverity work was restarted in 2020, when we were fixing BootHole security vulnerability and other issues
- It took us 3 years to do analysis of all Coverity issues not solved earlier
- We did analysis of 629 issues and fixed 535 of them
- New Coverity tool revealed 4 additional issues in December 2023
- All of them are fixed right now
- Now in general we will not accept patches which contain issues reported by the Coverity
- We are also employing fuzzing and other tools to find bugs in GRUB code

Coverity - x86_64/EFI and ARM64/EFI runs - 0 outstanding defects

... continuation...

Big thank you for folks who were doing this work:

- Alec Brown (Oracle)
- Alexey Makhalov (VMware)
- Andrei Borzenkov
- Chris Coulson (Canonical)
- Daniel Axtens
- Darren Kenny (Oracle)
- Glenn Washburn
- Jagannathan Raman (Oracle)
- Jan Setje-Eilers (Oracle)
- Konrad Rzeszutek Wilk (Oracle)
- Marco A Benatto (Red Hat)
- Patrick Steinhardt
- Paulo Flabiano Smorigo (Canonical)
- Ross Philipson (Oracle)
- Vladimir Serbinenko
- WANG Xuerui

What is happening in the GRUB project now

- NX support for EFI platforms
 - *Section Alignment of the submitted PE file must be aligned with page size. This must be 4kb, or a larger power of 2 (ex 64kb) **
 - *Section Flags must not combine IMAGE_SCN_MEM_WRITE and IMAGE_SCN_MEM_EXECUTE for any given section. **
- TrenchBoot support for Intel and AMD x86 architectures
- Update embeded libs to latest versions
- Libgcrypt update or replacement - required for Argon2 KDF
- Automatic Disk Unlock with TPM2
- Forward porting downstream patches to upstream
- Fixes, cleanups and documentation updates...
- Setup CI infrastructure
- Next code freeze around October 2024
- Next GRUB release around November 2024

* <https://techcommunity.microsoft.com/t5/hardware-dev-center/new-uefi-ca-memory-mitigation-requirements-for-signing/ba-p/3608714>
<https://techcommunity.microsoft.com/t5/hardware-dev-center/updated-uefi-signing-requirements/ba-p/1062916>



Fedora downstream GRUB patches - rough estimates

Stats prepared by Alec Brown from Oracle

GRUB 2.02

- Fedora 21 has 151 patches, 87 patches were backported, 64 new patches, total 64
- Fedora 22 has 162 patches, 89 patches were backported, 9 new patches, total 73
- Fedora 23 has 77 patches, 1 patch was backported, 7 new patches, total 80
- Fedora 24 has 97 patches, 2 patches were backported, 32 new patches, total 112
- Fedora 25 has 97 patches, 2 patches were backported, 0 new patches, total 112
- Fedora 26 has 107 patches, 3 patches were backported, 10 new patches, total 122
- Fedora 27 has 135 patches, 6 patches were backported, 28 new patches, total 150
- Fedora 28 has 219 patches, 3 patches were backported, 110 new patches, total 260
- Fedora 29 has 244 patches, 3 patches were backported, 24 new patches, total 284
- Fedora 30 has 300 patches, 3 patches were backported, 58 new patches, total 342
- Fedora 31 has 237 patches, 30 patches were backported, 28 new patches, total 370

Fedora downstream GRUB patches - rough estimates

... continuation...

GRUB 2.04

- Fedora 32 has 250 patches, 28 patches were backported, 25 new patches, total 395
- Fedora 33 has 196 patches, 0 patches were backported, 42 new patches, total 437

GRUB 2.06

- Fedora 34 has 222 patches, 3 patches were backported, 23 new patches, total 460
- Fedora 35 has 283 patches, 45 patches were backported, 19 new patches, total 479
- Fedora 36 has 296 patches, 48 patches were backported, 40 new patches, total 519
- Fedora 37 has 331 patches, 79 patches were backported, 13 new patches, total 532
- Fedora 38 has 347 patches, 84 patches were backported, 11 new patches, total 543
- Fedora 39 has 348 patches, 84 patches were backported, 1 new patch, total 544
- Fedora 40 has 348 patches, 84 patches were backported, 0 new patches, total 544



Thank you

Daniel Kiper

daniel.kiper@oracle.com



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