

AlmaLinux and the Open Source Way

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Plan

1. Why AlmaLinux is not just a CentOS Linux replacement
2. How we make technical decisions and how to participate in this process
3. Security and Compliance
4. How to build your own product on top of AlmaLinux
5. Get/Migrate/Upgrade to AlmaLinux

🎉 On Mar 30, 2026 we'll celebrate **5 years** since our very first stable release of AlmaLinux, **8.3**, codenamed

Purple Manul

AlmaLinux was started as an answer to Red Hat's plans to shut down CentOS Linux after version 8.5.

Initially, we set out to replace CentOS Linux with a community-owned alternative - so this could never happen again.

But...



Why AlmaLinux is not just a CentOS Linux replacement



Bug-to-bug clone	ABI compatible
~1 month minor releases delay	1-6 days minor releases delay
~6 months major releases delay	9-14 days major releases delay
No security data	https://errata.almalinux.org dnf updateinfo OVAL for security scanners
No OpenSCAP support	Full OpenSCAP support both during and after installation with scap-security-guide

What does ABI compatible mean?

- Everything that runs on RHEL runs on AlmaLinux. Period.
- If it doesn't, then it's a bug and we will fix it
- We still include every bugfix and every security fix from RHEL, and follow every package's Version-Release

And...

- We add additional bugfixes and security fixes if necessary
- We re-enable hardware support disabled in RHEL
- We re-enable software features disabled in RHEL

What exactly have we re-enabled? (aka features available in Fedora but not in RHEL)

- 140+ “legacy” storage and network devices support
- SPICE protocol support for virtualization (dropped since RHEL9)
- KVM virtualization on IBM Power (dropped since RHEL9)
- Btrfs filesystem support for AlmaLinux 10 (never in RHEL)
- x86-64-v2 CPUs support for AlmaLinux 10 (dropped since RHEL10)
- Frame Pointers support useful for debugging (never in RHEL)

How we support additional hardware

- **aacraid** - Dell PERC2, 2/Si, 3/Si, 3/Di, Adaptec Advanced Raid Products, HP NetRAID-4M, IBM ServeRAID & ICP SCSI
- **be2iscsi** - Emulex OneConnect Open-iSCSI for BladeEngine 2 and 3 adapters
- **be2net** - Emulex BladeEngine 2 and 3 adapters
- **hpsa** - HP Smart Array Controller
- **lpfc** - Emulex LightPulse Fibre Channel SCSI
- **megaraid_sas** - Broadcom MegaRAID SAS
- **mlx4_core** - Mellanox Gen2 and ConnectX-2 adapters
- **mpt3sas** - LSI MPT Fusion SAS 3.0
- **mptsas** - Fusion MPT SAS Host
- **qla2xxx** - QLogic Fibre Channel HBA
- **qla4xxx** - QLogic iSCSI HBA



How we support additional hardware

The complete list of re-enabled hardware is available in the release notes for every release

Extended hardware support

The following devices support is added in AlmaLinux OS 9 release compared with the RHEL:

Device PCI ID	Device name	Driver name
0x0E11::: *:01:04	Compaq	hpsa
0x1000:0x0050	LSI SAS1064	mptsas
0x1000:0x0054	LSI SAS1068	mptsas
0x1000:0x0056	LSI SAS1064E	mptsas
0x1000:0x0058	LSI SAS1068E	mptsas
0x1000:0x0059	LSI SAS1068_820XELP	mptsas
0x1000:0x0060	LSI MegaRAID SAS1078R	megaraid_sas
0x1000:0x0062	LSI SAS1078	mptsas
0x1000:0x0064	LSI SAS2116_1	mpt3sas
0x1000:0x0065	LSI SAS2116_2	mpt3sas
0x1000:0x0070	LSI SAS2004	mpt3sas

How we decide where we can deviate from RHEL?

Before May 8th of 2024



AlmaLinux
Lead Architect



After May 8th of 2024



ALESCo

ALESCo = AlmaLinux Engineering Steering Committee

ALESCo holds five key responsibilities:

- Technical oversight for the operating system
- Transparency in engineering decisions
- Ensuring Long-Term Stability Focus
- Release Management
- SIG support

Decisions made by ALESCo so far

1. Build Fedora EPEL for AlmaLinux and AlmaLinux Kitten x86_64_v2
2. Enable KVM on AlmaLinux 9 on ppc64le
3. Use dynamic workspace indicator on GNOME
4. Build NVIDIA Open Source Drivers and ship repo config for AlmaLinux
5. Enable Btrfs as a tech preview
6. Enable CRB repo by default for AlmaLinux 10+

Currently under discussion:

7. Add alternative signed newer kernels

Enable Btrfs as a tech preview

Btrfs is the next-gen Linux file system with the following features:

- Copy-on-Write (CoW) Design
- Snapshots & Subvolumes
- Self-Healing
- Transparent Compression
- Built-in RAID

Requested by  Meta

Enable Btrfs as a tech preview

Timeline:

May 8, 2025 - RFC submitted by Meta

June 2, 2025 - Accepted by ALESCo

June 10, 2025 - First released in AlmaLinux Kitten 10

September 11, 2025 - Support is improved in AlmaLinux Kitten 10

October 21, 2025 - Released in AlmaLinux 10.1 Beta

November 24, 2025 - Released in AlmaLinux 10.1 Stable

How to propose feature or change for AlmaLinux?

1. Fork <https://github.com/AlmaLinux/alesco> git repo
2. Create a new branch
3. Copy the *0000-template.md* to *rfcs/XXXX-title-of-your-proposal.md*
4. Fill out the template with your proposal
5. Submit a Pull Request
6. Engage in discussion

i686 support in AlmaLinux

- The last RHEL release for i686 was RHEL6 (EOL 2020)
- Red Hat still releases **some** i686 packages for RHEL8 and RHEL9
- AlmaLinux team releases them **all** to <https://vault.almalinux.org>

Arista Networks has used AlmaLinux 9 i686 for its EOS (Extensible Operating System) since 2024. Reasons:

- Limited RAM amount on network devices
- Compatibility with old i686 software extensions

i686 support in AlmaLinux - Next steps

The AltArch SIG was established to support alternative architectures in AlmaLinux

i686 specific plans:

- Release AlmaLinux 10.2 for i686 on May 2026
- Provide i686 updates for AlmaLinux 9 until May 2032
- Provide i686 updates for AlmaLinux 10 until May 2035



AlmaLinux has provided NVIDIA Open GPU drivers since Aug 6, 2025

AlmaLinux has been officially supported by NVIDIA CUDA since version 13.2

Security and Compliance

- OVAL vulnerability data streams for automated scanning
- OpenSCAP security profiles and hardening guides
- SBOM (Software Bill of Materials) for every package
- CIS Benchmarks
- FIPS 140-3 (thanks TuxCare!)
- DISA STIG (thanks CloudLinux!)

Developing products on top of AlmaLinux

There are several AlmaLinux downstreams we are aware of:

- CloudLinux - operating system for hosting industry
- HeliumOS - desktop OS based on AlmaLinux bootc images
- stillOS - desktop OS based on AlmaLinux bootc images
- Oreon OS - desktop and gaming OS

Examples of commercial software built on top of AlmaLinux:

- Alert Logic
- Arista Networks EOS
- Cisco Unified Communications Manager

Developing products on top of AlmaLinux

Reasons to choose AlmaLinux as a base:

- Non-profit ownership (protects from future CentOS-style pivots)
- 10-year lifecycle
- ABI compatibility with RHEL
- Predictable releases twice a year
- Frame Pointers
- Risk-free approach for getting RHEL sources

How CloudLinux develops on top of AlmaLinux

Before 2021, CloudLinux was an independent OS built from RHEL sources. Since CloudLinux 8.5 it was rebased on top of AlmaLinux which allowed the CloudLinux team to focus on its own added value and stop spending time on RHEL rebuilding.

Later major versions of CloudLinux were developed with AlmaLinux in mind to further reduce the effort involved in developing the product.

How CloudLinux develops on top of AlmaLinux

Package groups in the CloudLinux distribution and the strategy for each:

- Packages taken from AlmaLinux as-is 
- Modified packages from AlmaLinux 
- Unique packages not present in AlmaLinux 

	CloudLinux 8	CloudLinux 9	CloudLinux 10
Kernel	Own	AlmaLinux	AlmaLinux
Secure Boot	Own	AlmaLinux	AlmaLinux
Minor releases	Yes	Yes	No
ISO images	Yes	Yes	No

How CloudLinux develops on top of AlmaLinux

Reducing the number of modified packages from AlmaLinux:

- Commit CloudLinux support to AlmaLinux packages (example: cloud-init) (only if this doesn't break ABI compatibility!)
- Commit CloudLinux support upstream (example: sos)

Making unique packages compatible with AlmaLinux Secure Boot stack:

- We have a policy to sign vendor's kernel modules with AlmaLinux key.
- We sign CloudLinux's LVE kernel module with AlmaLinux key so they don't need to rebuild and maintain the whole Secure Boot stack (kernel and bootloaders)

How to get AlmaLinux?

Cloud platforms: 

 Microsoft Azure

 Google Cloud



Hosting providers:



Open Source platforms:



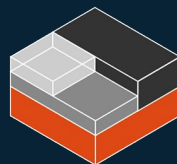
openstack™



Containers:



podman



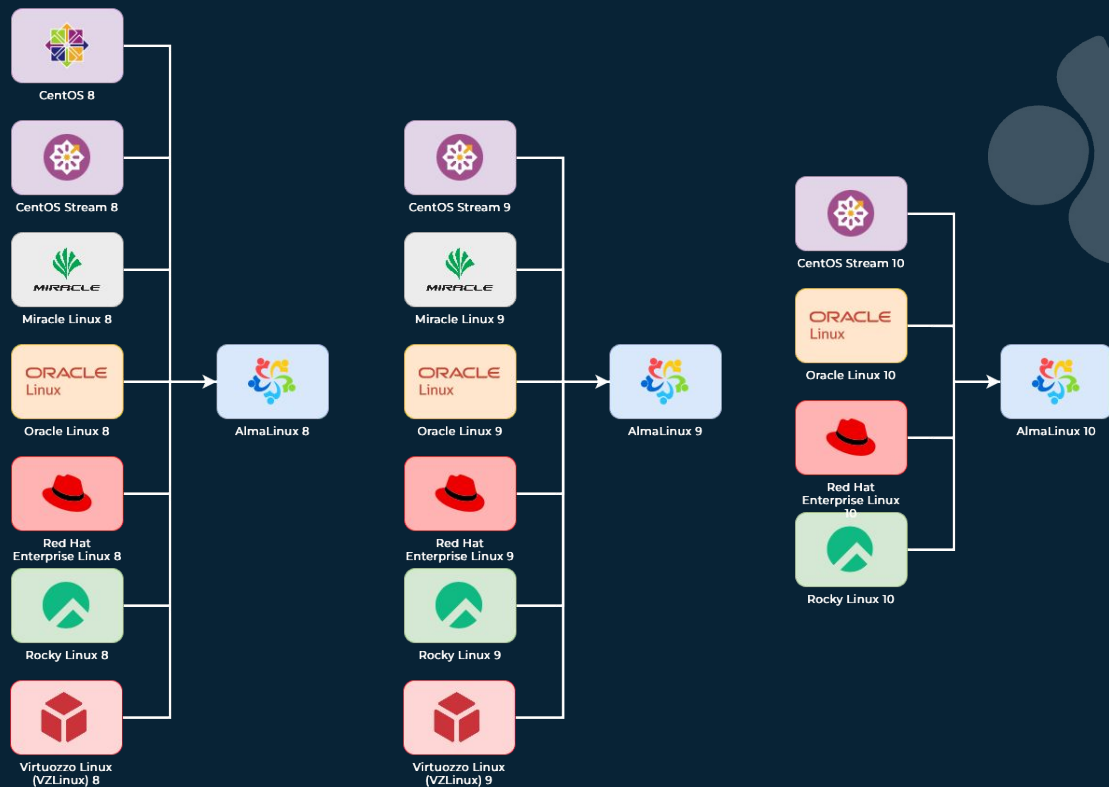
LXC



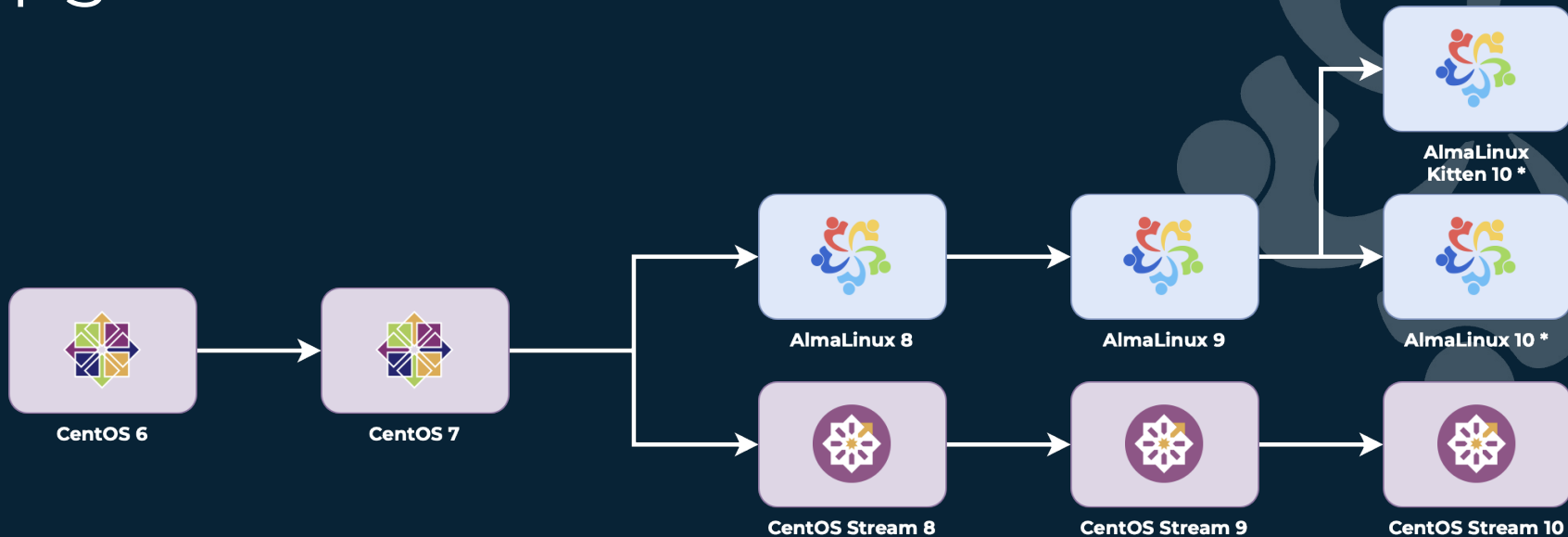
bootc



Migrate to AlmaLinux



Upgrade to AlmaLinux



In 2021 we started the ELevate project: <https://almalinux.org/elevate/>
It unlocks upgrades to the next major versions, which are unsupported across RHEL derivatives, and has become especially popular after CentOS Linux 7 EOL.

Thank you!

Time for your questions



www.almalinux.org

wiki.almalinux.org

github.com/AlmaLinux