

Oracle Linux 10

Release Notes for Oracle Linux 10.2



G53136-01
July 2026



Oracle Linux 10 Release Notes for Oracle Linux 10.2,

G53136-01

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Preface

[Oracle Linux 10: Release Notes for Oracle Linux 10.2](#) provides information about the new features and known issues in the Oracle Linux 10.2 release. The information applies to both x86_64 and 64-bit Arm (aarch64) architectures. This document might be updated after it's released.

1

About Oracle Linux 10

The current Oracle Linux 10 release contains new features and enhancements that improve performance in different areas including automation and management, security and compliance, container management, and developer tools. These enhancements are especially designed to make the OS adaptable to different types of deployment such as on-premises installations, hybrid deployments that combine on-premises and cloud installations, and full cloud deployment.

Important

Upgrading from an Oracle Linux Developer Preview release to its later official version is not supported. If you're running the Developer Preview version, you must reinstall the official Oracle Linux release upon its general availability.

System Requirements and Limitations

To check whether a specific hardware is supported on the current Oracle Linux 10 release, see the Hardware Certification List at <https://linux.oracle.com/hardware-certifications>. Note that as hardware becomes available and validated, the hardware is added to the list.

CPU, memory, disk, and file system limits for all Oracle Linux releases are described in [Oracle Linux: Limits](#).

Available Architectures

The release is available for installation on the following platforms:

- Intel® 64-bit (x86_64) (x86-64-v3)
- AMD 64-bit (x86_64) (x86-64-v3)
- 64-bit Arm (aarch64) (Arm v8.0-A)

The Arm platform runs only with Unbreakable Enterprise Kernel Release (UEK).

Shipped Kernels

For the x86_64 platform, Oracle Linux 10 ships with the following default kernel packages:

- **kernel-uek-kernel-uek-6.12.0-204.92.4.2** (Unbreakable Enterprise Kernel 8 Update 2 (UEK 8U2))

For new installations, the UEK kernel is automatically enabled and installed. It also becomes the default kernel on first boot.

- **kernel-6.12.0-211.7.3** (Red Hat Compatible Kernel (RHCK))

For the aarch64 platform, Oracle Linux ships with the UEK kernel only.

The Oracle Linux release is tested as a bundle, as shipped on the installation media image. When installed from the installation media image, the kernel's version included in the image is the minimum version that's supported. Downgrading kernel packages isn't supported, unless recommended by Oracle Support.

For more information about kernel availability on Oracle Linux 10 releases, see <https://docs.oracle.com/en-us/iaas/oracle-linux/boot/boot-oracle-linux-kernel-reference-composite.htm>.

About the Unbreakable Enterprise Kernel

The Unbreakable Enterprise Kernel (UEK) is a Linux kernel built by Oracle and supported through Oracle Linux support. UEK is tested on Arm (aarch64), Intel® x86, and AMD x86 (x86_64) platforms. Each release contains added features, bug fixes, and updated drivers to provide support for key functional requirements, improve performance, and optimize the kernel for use on Oracle products such as Oracle's Engineered Systems, Oracle Cloud Infrastructure, and large enterprise deployments for Oracle customers.

Typically, a UEK release contains changes to the kernel ABI relative to a previous UEK release. These changes require recompilation of third-party kernel modules on the system. To minimize impact on interoperability during releases, the Oracle Linux team works with third-party vendors regarding hardware and software that have dependencies on kernel modules. Thus, before installing the latest UEK release, verify its support status with the application vendor.

The kernel ABI for a UEK release remains unchanged in all later updates to the initial release.

The kernel source code for UEK is available after the initial release through a public git source code repository at <https://github.com/oracle/linux-uek>.

For more information about UEK such as tutorials, notices, and release notes of different UEK versions, go to [Unbreakable Enterprise Kernel documentation](#).

User Space Compatibility

Oracle Linux maintains user space compatibility with Red Hat Enterprise Linux (RHEL) that's independent of the kernel version that underlies the OS. Existing applications in user space continue to run unmodified on UEK R8 with no required recertifications for Oracle Linux certified applications.

Obtaining Installation Images

The following installation images for the current Oracle Linux 10 release are available:

- Full ISO of Oracle Linux for typical on-premises installations
- Boot ISO of Oracle Linux for network installations
- Boot ISO of the official UEK release for installing on hardware which is supported only on UEK
- Source DVDs

You can download these images from the following locations. Note that the images in these locations are for both the x86_64 and aarch64 platforms, unless indicated otherwise:

- Oracle Linux yum server at <https://yum.oracle.com/oracle-linux-downloads.html>

For more information managing and updating software on Oracle Linux systems, see [Oracle Linux: Managing Software on Oracle Linux](#).

- Oracle Software Delivery Cloud at <https://edelivery.oracle.com>

To prepare a downloaded image for installing Oracle Linux, see [Oracle Linux 10: Installing Oracle Linux](#).

Note

Aside from installation ISO images, you can also use Oracle Linux images to create compute instances on Oracle Cloud Infrastructure. For information about these images, see the release notes for the specific image that you're using on the [Oracle Cloud Infrastructure Documentation](#) page.

To use Oracle Linux on Oracle Cloud Infrastructure, see <https://docs.oracle.com/iaas/oracle-linux/home.htm>.

For information about the available ISO images for the three most recent updates to the Oracle Linux releases, see <https://yum.oracle.com/oracle-linux-isos.html>.

Preparing Installation Media

Before you can use an ISO image to install Oracle Linux, you must first store it on bootable installation media, such as the following:

- [USB Flash Drive](#)
- [DVD or CD](#)

USB Flash Drive

You can install Oracle Linux by using a boot image on portable devices such as a USB flash drive or an SD card, if the system's firmware can boot from those devices.

To create a bootable drive, use the `dd` or `xorriso-dd-target` command. Or, use a separate third-party utility to write the ISO image to a drive. See, for example, [Create USB Installation Media for Oracle Linux with Fedora Media Writer](#).

Caution

This procedure destroys any existing data on the drive. Ensure that you specify the correct device name for the USB drive on the system.

1. Insert a USB flash drive into an Oracle Linux system.
2. Use the `xorriso-dd-target` command to list available block devices and to identify likely candidate devices for use.

```
xorriso-dd-target -with_sudo -list_all
```

The command presents a password prompt as it uses `sudo` to access all devices on the system. Output similar to the following is displayed:

```
sda : YES : usb+ has_vfat+ : SanDisk Cruzer Switch
nvme0n1 : NO : not_usb- has_vfat+ has_xfs- has_crypto_LUKS- has_swap- :
PM9A1 NVMe Samsung 512GB
```

The command identifies removable block devices with disposable content. In the example output, the command identified a USB device at `/dev/sda`, that could be used to write an ISO image.

3. Ensure that any file systems on the device are unmounted.

For example, to unmount the first partition on `/dev/sda`:

```
sudo umount /dev/sda1
```

4. Write the contents of the ISO image file to the USB device.

Do one of the following to write the ISO image file to the USB device:

- Use the `dd` command directly:

```
sudo dd if=./full_image.iso of=/dev/sda bs=512k
```

- Use the `xorriso-dd-target` command to guide you through this process:

```
xorriso-dd-target -with_sudo -plug_test -D0_WRITE -image_file ./
full_image.iso
```

The command guides you through testing for appropriate devices and finally prompts you to select and approve writing to the device. Example output follows:

```
sudo /bin/lsblk seems ok.
```

Caused by option `-plug_test`: Attempt to find the desired device by watching it appear after being plugged in.

Step 1:

Please make sure that the desired target device is plugged `_out_` now. If it is currently plugged in, make sure to unmount all its filesystems and then unplug it.

Press the Enter key when ready.

```
Found and noted as _not_ desired: nvme0n1
```

Step 2:

Please plug in the desired target device and then press the Enter key.

```
Waiting up to 10 seconds for a new device to be listed .... found: sda
```

```
Now waiting 5 seconds to let it settle .....
```

```
Found and noted as desired device: sda
```

```
sda : YES : usb+ has_vfat+ : SanDisk Cruzer Switch
```

Step 3:

```
Last chance to abort. Enter the word 'yes' to start REAL WRITING.
yes
Looking for mount points of sda:
Performing:
  sudo /bin/dd if=/dev/zero of=/dev/'sda' bs=512 seek='30595071'
count=1 status=none
  sudo /bin/dd if='OracleLinux.iso' of=/dev/'sda' bs=1M status=progress
oflag=dsync ; sync
```

The USB flash drive is now ready to be used to boot a system and start the installation.

DVD or CD

Because of storage limits, optical media such as CDs or DVDs might not have capacity to accommodate most installation ISO images. However they can be used to store the boot ISO image.

1. Insert an empty recordable CD or DVD into the CD or DVD writer device.
2. Open a terminal and use `cdrecord` to write the ISO file to the device.

To write the downloaded ISO image file to a CD or DVD, use a command such as `cdrecord`, for example:

```
sudo cdrecord -v -eject speed=16 dev=/dev/sr0 file_name.iso
```

To display the device that corresponds to the CD or DVD writer, use the `cdrecord --devices` command.

The CD or DVD is now ready to be used to boot a system and start the installation.

Upgrading From Previous Oracle Linux Update Releases

You can upgrade an Oracle Linux 10 system from a previous update level to the current update level by running the `sudo dnf update` command.

After performing a system update where many packages are updated, we recommend that you reboot the system. System functionality might become unstable if core packages are updated and the system isn't restarted to load the most recent updates. You can check whether a system requires a restart by running:

```
dnf needs-restarting -r
```

2

New Features and Changes

Unless indicated otherwise, the following new features, major enhancements, bug fixes, and other changes that are introduced in Oracle Linux 10.2 apply to both the x86_64 and 64-bit Arm (aarch64) platforms.

Installation and Boot

The following features, enhancements, and changes related to installation and boot are introduced in Oracle Linux 10.2 release.

Default Size for the `/boot` Partition Increased

The default `/boot` partition size has been increased from 1 GiB to 2 GiB to accommodate larger `initramfs` images and firmware blobs, ensuring sufficient space for future kernel updates. Existing smaller partitions can still be reused, or the size can be reduced manually if needed.

The `greenboot-rs` Package is Available

The `greenboot` package is now built from `greenboot-rs` upstream project. The previously existing `greenboot` health check framework was enhanced as `greenboot-rs`, a reimplementation designed for improved maintainability and supportability. The new version is fully compatible with existing `greenboot` functionality and custom health checks. As a result, system rollbacks during upgrades are more robust.

Kernel and System Libraries

The following notable features, enhancements, and changes apply to the Red Hat Compatible Kernel (RHCK) that's shipped with Oracle Linux 10.2.

`bpf` is Updated to 6.17

BPF has been updated to version 6.17.

Perf tool Updated 6.18

The `perf` package has been updated to version 6.18.

`cpupower` Python Bindings Added to `kernel-tools-libs-devel`

The `cpupower` Python bindings are now included in Oracle Linux 10 as part of the `kernel-tools-libs-devel` package, making them easier to access for application development and system management tasks.

tpm2-tools updated for TPM 2.0 Improvements

The tpm2-tools package has been updated to improve compatibility with modern TPM 2.0 hardware and provide enhanced support for TPM-based security operations. The update also incorporates the latest upstream security improvements and feature enhancements.

crash Updated to 9.0.2

The crash package has been updated to version 9.0.2.

Operating System and Software Management

The following features, enhancements, and changes related to the OS and software management are introduced in Oracle Linux 10.2.

libsolv Updated to 0.7.33

The libsolv package has been updated to version 0.7.33.

librepo Updated to 1.19.0

The librepo package has been updated to version 1.19.0.

papers Updated to 48.4

The papers package has been updated to version 48.4.

fwupd Updated to 2.0.19

The fwupd package has been updated to version 2.0.19.

libinput Updated to 1.30

The libinput package has been updated to version 1.30.

Shells and Command Line Tools

The following features, enhancements, and changes related to shells and command line tools are introduced in this Oracle Linux 10 release.

Security and TLS Improvements in openwsman 2.8.1

The openwsman package has been updated to version 2.8.1.

opencryptoki Updated to 3.26.0

The opencryptoki package has been updated to version 3.26.0.

Environment Modules Updated to 5.6.1

The environment-modules package has been updated to version 5.6.1.

Compilers and Development Tools

The following features, enhancements, and changes related to compilers and development tools are introduced in Oracle Linux 10.2.

llvm toolset Updated to 21

LLVM Toolset has been updated to version 21.

Rust Toolset is Updated to 1.92.0

The Rust Toolset has been updated to version 1.92.0.

Boost is Updated to 1.83.0

The boost package has been updated to version 1.83.0-7.el10.

Performance Co-Pilot Updated to 7.0.3

Performance Co-Pilot has been updated to version 7.0.3.

OpenJDK Updated to 25

Oracle Build of OpenJDK has been updated to version 25.

File Systems and Storage

The following features, enhancements, and changes related to file systems and storage are introduced in Oracle Linux 10.2.

snpm Updated to 0.7.0

The snpm package has been updated to version 0.7.0.

Infrastructure Services

The following features, enhancements, and changes related to infrastructure services are introduced in Oracle Linux 10.2.

PHP Updated to 8.4

The PHP package has been updated to version 8.4.

chrony Updated to 4.8

The chrony package has been updated to version 4.8.

valgrind Updated to 3.26.0

The Valgrind package has been updated to version 3.26.0.

SystemTap Updated to 5.4

The SystemTap package has been updated to version 5.4.

elfutils Updated to 0.194

The elfutils package has been updated to version 0.194.

sscg Updated to 4.0.3

The sscg package has been updated to version 4.0.3.

MariaDB Updated to 11.8

The MariaDB package has been updated to version 11.8.

PostgreSQL Updated to 18

The PostgreSQL package has been updated to version 18.

ruby Updated to 4.0

The Ruby package has been updated to version 4.0.

Python Updated to 3.14

The Python package has been updated to version 3.14.

Networking

The following features, enhancements, and changes related to networking are introduced in Oracle Linux 10.2.

iproute Updated to 6.17.0

The iproute package has been updated to version 6.17.0.

FRR Updated to 10.4.1

The FRR package has been updated to version 10.4.1.

nftables Updated to 1.1.5

The nftables package has been updated to version 1.1.5.

Security

The following features, enhancements, and changes related to security are introduced in Oracle Linux 10.2.

SELinux Enhancements Prevent fapolicyd Service Interruption

The fapolicyd-selinux package now includes an SELinux module that helps protect the fapolicyd service from unauthorized interference. The module blocks attempts to stop the service by sending a SIGSTOP signal or to trace it by using the `ptrace()` function. These protections prevent the system from hanging and eliminate the need for a manual reboot when these actions are attempted.

New libreswan-minimal Subpackage Reduces Container Image Size

A new libreswan-minimal subpackage is now available for containerized environments. Unlike the full libreswan package, the minimal subpackage does not depend on systemd or other optional external tools, making it better suited for lightweight deployments. Applications that do not require systemd can use libreswan-minimal to build smaller container images, which can improve startup times and reduce resource consumption.

SELinux Policy Now Confines the `redfish-finder` Service

The redfish-finder service now runs in a dedicated SELinux domain instead of the `unconfined_service_t` domain. This change helps systems meet the CIS Server Level 2 benchmark requirement to restrict unconfined daemons while allowing the service to operate correctly in SELinux enforcing mode.

SELinux Policy Now Confines the systemd-oomd Service

The systemd-oomd service now runs in a dedicated SELinux domain instead of the `unconfined_service_t` domain. This change helps systems meet the CIS Server Level 2 benchmark requirement to restrict unconfined daemons while allowing the service to operate correctly in SELinux enforcing mode.

OpenSSH Adds Support for Hybrid ML-KEM NIST Key Exchange

OpenSSH now supports the `mlkem768nistp256-sha256` and `mlkem1024nistp384-sha384` hybrid key exchange algorithms. These algorithms combine the ML-KEM post-quantum key encapsulation mechanism with NIST-standardized elliptic curves, enabling you to strengthen SSH connections against cryptographic threats.

OpenSSH Supports Hybrid ML-KEM Key Exchange in FIPS Mode

OpenSSH now supports hybrid ML-KEM key exchange with NIST-standardized elliptic curves when the system operates in FIPS mode. This enhancement enables SSH connections to use

a combination of classical cryptography and post-quantum key exchange while maintaining compliance with FIPS requirements.

libssh Adds Support for Hybrid ML-KEM Key Exchange

The libssh library now supports hybrid post-quantum key exchange methods that combine the ML-KEM key encapsulation mechanism with traditional elliptic-curve key exchange. These methods help protect SSH connections against quantum computing threats while maintaining compatibility with existing cryptographic standards.

- mlkem768nistp256-sha256
- mlkem768x25519-sha256
- mlkem1024nistp384-sha384

The mlkem768x25519-sha256 method is the default key exchange algorithm for SSH connections unless you configure a different method.

System-Wide Cryptographic Policies Now Enable ML-KEM for libssh

The system-wide crypto-policies package now enables the mlkem768nistp256-sha256 and mlkem1024nistp384-sha384 hybrid post-quantum key exchange algorithms for libssh in all predefined cryptographic policies.

This change aligns libssh with OpenSSH support for ML-KEM, providing quantum-resistant key exchange for SSH connections without requiring additional configuration.

System-Wide Cryptographic Policies Now Enable Hybrid ML-KEM Key Exchange for OpenSSH in FIPS Mode

The system-wide crypto-policies package now enables the mlkem768nistp256-sha256 and mlkem1024nistp384-sha384 hybrid key exchange algorithms for OpenSSH when the FIPS cryptographic policy is active.

This change automatically enables quantum-resistant SSH key exchange on FIPS-enabled systems when the remote host also supports one of these algorithms.

System-Wide Cryptographic Policies Now Prioritize mlkem768x25519-sha256 for

libssh

The system-wide crypto-policies package now enables the mlkem768x25519-sha256 hybrid post-quantum key exchange algorithm for libssh in all predefined cryptographic policies and gives it the highest negotiation priority.

This change allows libssh to use the preferred hybrid key exchange algorithm by default when the remote host also supports it, strengthening SSH connections with post-quantum cryptography.

New p11-kit-client Subpackage Simplifies Client Deployments

The p11-kit package now includes a dedicated p11-kit-client subpackage that contains the p11-kit-client.so module. This change lets you install only the client components your environment requires, reducing unnecessary packages on host systems and in container images.

restorecon Adds -c Option to Report Relabeled Files

The `restorecon` command now supports the `-c` option, which reports how many files were relabeled during a relabeling operation. The command returns a successful exit status only when it relabels one or more files, making it easier to verify that SELinux labeling issues have been remediated successfully.

Additional SELinux Services Now Run in Enforcing Mode

The following SELinux domains now run in enforcing mode:

- `anaconda_generator_t`
- `ktlshd_t`
- `switcheroo_control_t`
- `systemd_pcrextend_t`
- `systemd_user_runtimedir_t`
- `tuned_ppd_t`

These domains previously operated in permissive mode while the corresponding SELinux policies were refined. With the policies now complete, SELinux actively enforces access controls for these services, helping prevent unauthorized access.

SELinux Policy Updated for the New OpenSSH Architecture

The SELinux policy now supports the new OpenSSH multi-binary architecture by defining the security contexts and transitions required processes including the `sshd`, `sshd-session`, and `sshd-auth` processes.

This update ensures that SELinux correctly confines each OpenSSH component while preserving normal authentication and session management. Combined with the new OpenSSH architecture, these changes improve process isolation, reduce the attack surface, and help protect sensitive resources such as host keys and authentication sockets.

setfiles Adds Option to Reduces Memory Usage

The `setfiles` utility now supports the `-A` option, which disables tracking of conflicts between hard-linked inodes during relabeling operations. On large file systems, this option can significantly reduce memory usage, making it easier to run `setfiles` on systems with limited memory.

capnproto Now Available in the CodeReady Builder Repository

The `capnproto` package is added to the CodeReady Builder (CRB) repository. `capnproto` is a high-performance data interchange and remote procedure call (RPC) library used by packages such as `rust-sequoia-sq` and `rust-sequoia-podman`.

Providing `capnproto` as a standalone package lets you install, update, and maintain the library independently of the applications that depend on it, simplifying the delivery of security updates and bug fixes.

setools Updated to 4.6.0

The setools package has been updated to version 4.6.0.

fapolicyd Updated to 1.4.5

The fapolicyd package has been updated to version 1.4.5.

capnproto Updated to 1.3

The capnproto package has been updated to version 1.3.

libssh Updated to 0.12.0

The libssh package has been updated to version 0.12.0.

p11-kit Updated to 0.26.2

The p11-kit package has been updated to version 0.26.2.

New `clevis-pin-trustee` Package Enables Remote Attestation for LUKS Volumes

The new `clevis-pin-trustee` package adds a Trustee pin to the Clevis framework, enabling LUKS-encrypted volumes to be unlocked automatically based on remote attestation through the Trustee Key Broker Service (KBS). The package also includes support for automatically unlocking encrypted root volumes during system boot.

You can use the Trustee pin to bind LUKS-encrypted volumes to one or more Trustee servers. It can also be combined with other Clevis pins, such as `tang` and `tpm2`, to support multi-factor or policy-based unlocking.

Keylime Updated to 7.14.1

The Keylime package is now updated to version 7.14.1.

keylime-agent Updated to 0.2.9

The keylime-agent package has been updated to version 0.2.9.

OpenSCAP Updated to 1.4.3

The OpenSCAP package has been updated to version 1.4.3.

SCAP Security Guide updated to 0.1.80

The SCAP Security Guide packages are updated to the upstream version 0.1.80 and provide following features:

- Oracle Linux 9 stig and stig_gui profiles are aligned with DISA STIG for Oracle Linux 9 V1R4
- Removed configure_ssh_crypto_policy from Oracle Linux 9 profiles
- Rule audit_rules_privileged_commands adds architecture filters in audit rules

Additional details about enhancements and bug fixes are available in the v0.1.80 project release notes <https://github.com/ComplianceAsCode/content/releases#release-v0.1.80>.

sudo Updated to sudo-1.9.17p2

The sudo package has been updated to version 1.9.17p2.

Cockpit Web Console

The following features, enhancements, and changes related to the Cockpit web console are introduced in Oracle Linux 10.2.

cockpit Updated to 356

The cockpit package has been updated to version 356.

Containers

The following features, enhancements, and changes related to containers are introduced in Oracle Linux 10.2.

container-selinux Updated to 2.246.0-1

The container-selinux package has been updated to version 2.246.0-1.

gvisor-tap-vsock Updated to 0.8.7-1

The gvisor-tap-vsock package has been updated to version 0.8.7-1.

buildah Updated to 1.43.1-1

The Buildah package has been updated to version 1.43.1-1.

crun Updated to 1.27-2

The crun package has been updated to version 1.27-2.

python-podman Updated to 5.7.0-1

The python-podman package has been updated to version 5.7.0-1.

Container Tools Updated

The Container Tools packages have been updated to include Podman 5.8.2-1 and Skopeo 1.22.2-1.

`fuse-overlayfs` Updated to 1.16-1

The `fuse-overlayfs` package has been updated to version 1.16-1.

3

Deprecated Features

This chapter lists features and functionalities that are deprecated in Oracle Linux 10. While these features might be included and operative in the release, support isn't guaranteed in future major releases. Thus, these features must not be used in new Oracle Linux 10 deployments.

Installation

The following installation related features and functionalities are deprecated in Oracle Linux 10.

Cockpit Composer

The `cockpit-composer` package is deprecated and will be removed in future major Oracle Linux releases. Use `cockpit-image-builder` instead.

SquashFS

The `squashfs` package is deprecated and will be removed in a future major Oracle Linux release. Consider using EROFS as an alternative solution.

Gdisk

`gdisk` is deprecated from the `boot.iso` image type. Other tools, such as `parted`, are available for handling GPT disks.

Module Kickstart Command

The `module kickstart` command is deprecated due to Anaconda's deprecated support for DNF modularity.

Inst.gpt Boot Option

The `inst.gpt` boot option is deprecated and will be removed in future releases. Use the `inst.disklabel` boot option instead.

Dynamic Programming Languages, Web and Database Servers

The following features and functionalities that are related to dynamic programming, web, and database servers are deprecated in Oracle Linux 10.

Compilers and Development Tools

Utmp and Utmpx Interfaces

The `utmp` and `utmpx` interfaces provided by the `glibc` library are deprecated and will be removed in Oracle Linux 11.

Nodejs 18 Deprecation

The `nodejs-18` and `nodejs-18-minimal` container images are deprecated and will no longer receive feature updates. Use `nodejs-22` and `nodejs-22-minimal` instead.

Networking

The following network related features and functionalities are deprecated in Oracle Linux 10.

Ipset

Ipset is unmaintained and planned to be removed in a future major release. Use `nftables` sets functionality as an alternative.

Security

The following security related features and functionalities are deprecated in Oracle Linux 10.

ENGINE API in OpenSSL

The Engine API in OpenSSL is deprecated and will be removed in a future major release. No new applications should be built using the Engine API.

Crypto Policies

The `allow-rsa-pkcs1-encrypt` option is set to `false` for GnuTLS in all system-wide cryptographic policies (DEFAULT, FUTURE, and FIPS).

HMAC-SHA-1 in FIPS Mode

The HMAC-SHA-1 cryptographic algorithm is deprecated in FIPS mode and may be removed in a future release.

File Systems and Storage

The following features and functionalities related to file systems and storage are deprecated in Oracle Linux 10.

SquashFS

The `squashfs` package is deprecated and will be removed in a future major Oracle Linux release. Consider using `EROFS` as an alternative solution.

Containers

The following features and functionalities related to container technologies are deprecated in Oracle Linux 10.

Runc Container Runtime

The runc container runtime is removed. The default container runtime is crun.

Tzdata Package

The tzdata package is no longer installed by default in the minimal container images.

Podman v5.0 Deprecations

The following features are deprecated in Podman v5.0:

- The system connections and farm information stored in the `containers.conf` file.
- The `slirp4netns` network mode.
- The `containernetworking-plugins` package.

Virtualization

The following virtualization related features and functionalities are deprecated in Oracle Linux 10.

Virt Manager

The Virtual Machine Manager application (`virt-manager`) is deprecated. The Cockpit web console is intended to become its replacement in a subsequent release.

Libvirtd

The monolithic `libvirt` daemon (`libvirtd`) is deprecated and will be removed in a future major release. Use the newly introduced modular `libvirt` daemons instead.

SecureBoot Image Verification

Performing SecureBoot image verification using SHA1-based signatures on UEFI (PE/COFF) executables is deprecated. Use signatures based on the SHA-2 algorithm or later instead.

Virtual Floppy Driver

The `isa-fdc` driver, which controls virtual floppy disk devices, is deprecated and will become unsupported in a future release.

Qcow2-v2 Image Format

The qcow2-v2 format for virtual disk images is deprecated and will become unsupported in a future major release. Use qcow2-v3 instead.

Deprecated Packages

The following packages are deprecated in Oracle Linux 10:

- daxio
- gvvisor-tap-vsock-gvforwarder
- libpmem
- libpmem2
- libpmemblk
- libpmemlog
- libpmemobj
- libpmemobj-cpp
- libpmempool
- libslirp
- nvml
- pmempool
- pmreorder
- sdl2-compat
- wget

4

Removed Features

This chapter lists features and functionalities that are removed in Oracle Linux 10 and which might have been available in previous Oracle Linux releases.

Installer and Image Creation

The following installation related features and functionalities are removed in Oracle Linux 10.

Authconfig Commands

The `auth` and `authconfig` Kickstart commands are removed. Use the `authselect` kickstart command instead.

Inst.xdriver and Inst.usefbx Options

The `inst.xdriver` and `inst.usefbx` boot options are removed.

Capturing Screenshots from the Anaconda GUI

Capturing screenshots from the Anaconda GUI with a global hot key is removed.

Removed Boot Options

The following boot options are removed: `inst.nompath`, `dmraid`, and `nodmraid`.

Automatic Bug Reporting System

The automatic bug reporting system from Anaconda is removed.

Timezone Kickstart Command Options

The following options of the `timezone` Kickstart command are removed: `--isUtc`, `--ntpservers`, and `--nntp`.

Logging Kickstart Command Parameter

The `--level` parameter of the `logging` kickstart command is removed.

Support for %anaconda Kickstart Command

The support for the `%anaconda` Kickstart command is removed.

Pwpolicy Kickstart Command

The `pwpolicy` Kickstart command is removed.

Support for Adding Additional Repositories from GUI

Support for adding additional repositories from the GUI is removed.

Support for LUKS Version Selection from Anaconda

Support for selecting the LUKS version from the Manual Installation screen is removed.

Initial-Setup Package

The `initial-setup` package is removed. Use `gnome-initial-setup` instead.

Anaconda Built-in Help

The built-in documentation from all Anaconda user interfaces is removed.

Teaming Options from the Network Kickstart Command

The `--teamslaves` and `--teamconfig` options used for configuring team devices in the network kickstart command are removed.

NVDIMM Reconfiguration Support during the Installation Process

Support for reconfiguring NVDIMM devices during the Kickstart and GUI installation is removed.

Options from %packages

The `--excludeWeakdeps` and `--instLangs` options used in the `%packages` section are removed.

Security

The following security related features and functionalities are deprecated in Oracle Linux 10.

Scap-Workbench

The `scap-workbench` package is removed.

Oscap-Anaconda-Addon

The `oscaps-anaconda-addon` is removed.

DSA and SEED Algorithms

The DSA and SEED algorithms are removed from the Network Security Services (NSS) cryptographic library.

Fips-Mode-Setup

The `fips-mode-setup` command is removed.

/etc/system-fips

Support for indicating FIPS mode through the `/etc/system-fips` file is removed.

TLS HeartBeat

Support for the HeartBeat extension in TLS is removed.

SRP Authentication

Authentication that uses Secure Remote Password protocol (SRP) in TLS is removed.

Keylime HTTP

The Keylime components no longer support the HTTP protocol for revocation notification webhooks.

DEFAULT Cryptographic Policy

TLS ciphers that use the RSA key exchange are no longer accepted in the DEFAULT system-wide cryptographic policy.

Ca-Certificates Trust Store

The `/etc/pki/tls/certs` trust store is converted to a different format.

LEGACY Cryptographic Policy

The LEGACY system-wide cryptographic policy no longer allows creating or verifying signatures that use SHA-1 in TLS contexts.

Pam_Ssh_Agent_Auth

The `pam_ssh_agent_auth` package is removed.

OpenSSL SHA-1 in TLS

OpenSSL does not accept the SHA-1 algorithm at `SECLEVEL=2` in TLS.

Stunnel OpenSSL ENGINE API

The `stunnel` TLS offloading and load-balancing proxy no longer supports the previously deprecated OpenSSL ENGINE API.

OpenSSL Engines

OpenSSL Engines are removed from upstream.

Libsss_Simpleifp Subpackage

The libsss_simpleifp subpackage is removed.

SSSD Files Provider

The SSSD files provider is removed.

Ad-Allow-Remote-Domain-Local-Groups Option

The ad_allow_remote_domain_local_groups option is removed from SSSD.

Reconnection_Retries Option

The reconnection_retries option is removed from the sssd.conf file in SSSD.

Software Management

The following software management related features and functionalities are deprecated in Oracle Linux 10.

Libreport Library

Support for the libreport library is removed from DNF.

Dnf Debug Plug-in

The DNF debug plug-in is removed from the dnf-plugins-core package.

Numberless %patch Syntax

Using the %patch directive without a number specified as a shorthand for %patch 0 is removed.

Infrastructure Services

The following infrastructure related features and functionalities are removed in Oracle Linux 10.

Removed Packages

The following packages are removed:

- sendmail
- redis
- dhcp

- `mod_security`
- `spamassassin`
- `xsane`

Rename of Gpsd

The `gpsd-minimal` package is renamed to `gpsd`.

ISC Kea DHCP Server Solution

The ISC Kea DHCP server solution is now available, replacing ISC DHCP.

Networking

The following networking related features and functionalities are removed in Oracle Linux 10.

ATM Encapsulation

Asynchronous Transfer Mode (ATM) encapsulation is removed.

Dhcp-Client Package

The `dhcp-client` package is removed.

Mlx4 Driver

The `mlx4` driver for the Mellanox ConnectX-3 network interface controller (NIC) is removed from RHCK.

Kernel

The following kernel related features and functionalities are removed in Oracle Linux 10.

Kexec_Load System Call

The `kexec_load` system call is removed.

Crash --log Dumpfile Option

The `crash --log dumpfile` option is deprecated.

File Systems and Storage

The following file systems and storage related features and functionalities are removed in Oracle Linux 10.

Support for NVMe Devices in lsscsi and sg3_utils

Support for Non-volatile Memory Express (NVMe) devices is removed from the `lsscsi` and `sg3_utils` packages.

VDO Sysfs Parameters

The Virtual Data Optimizer (VDO) sysfs parameters are removed.

Support for GFS2 File Systems

Support for GFS2 file systems is removed.

Support for Block Translation Table Driver

Support for the block translation table driver is removed.

Nvme_Core.Multipath Parameter

The `nvme_core.multipath` parameter is removed.

Md-Faulty and Md-Multipath Modules

The `md-faulty` and `md-multipath` MD RAID kernel modules are removed.

High Availability and Clusters

The following high availability and cluster related features and functionalities are removed in Oracle Linux 10.

pcsd Web UI

The pcsd Web UI is no longer available as a standalone user interface. Use the Cockpit web console instead.

Removed and Updated Pacemaker CIB Elements

The following configuration components of the Pacemaker CIB are removed or changed:

- The `validate-with` attribute of the `cib` element is set to `pacemaker-4.0`.
- The `stonith-action` cluster property is set to `off` if it was previously set to `poweroff`.
- Legacy promotable clone (master) resources are changed to standard promotable clones by changing the master xml element to the clone xml element and by setting the promotable meta attribute.
- Location constraints with more than one top-level rule are converted to separate location constraints for each top-level rule.

The following components are renamed:

- The `crmd-finalization-timeout` cluster property is renamed to `join-finalization-timeout`.
- The `crmd-integration-timeout` cluster property is renamed to `join-integration-timeout`.
- The `crmd-transition-delay` cluster property is renamed to `transition-delay`.

The following components are removed from the CIB:

- `nanos-class` and `upstart-class` resources.
- bundle resources based on an `rkt` container.
- The `restart-type` resource meta-attribute.
- The `can_fail` operation meta-attribute.
- The `role_after_failure` operation meta-attribute.
- `moon` attributes in `date_spec` elements of rules.
- The `remove-after-stop` cluster property.
- Ping nodes, which are changed to cluster member nodes with all resources banned and probes disabled.
- NVpairs without a value attribute.
- Duplicate NVpairs with a specific name within an NVset, for which only the first NVpair is kept.

Compilers and Development Tools

Linking against 32-bit Packages

Linking against 32-bit multilib packages is removed.

Perl(Mail::Sender) Module

The `perl(Mail::Sender)` module is removed.

Containers

The following container technology related features and functionalities are removed in Oracle Linux 10.

Runc Container Runtime

The `runc` container runtime is removed. The default container runtime is `crun`.

Cgroupv1

The `cgroupv1` control group mechanism is removed, use `cgroupv2` instead.

5

Known Issues

This chapter describes known issues that you may encounter when installing and using the Oracle Linux 10 software. Unless indicated otherwise, the issues apply to both x86_64 and aarch64 systems. Information that pertains only to a specific platform is also noted accordingly.

Installation Issues

The following are known installation issues for Oracle Linux 10.

RDP Install Error

When using RDP during an installation of Oracle Linux 10, the following error message might appear on the console or in the install logs:

```
*** BUG *** In pixman_region32_init_rect: Invalid rectangle passed
Set a breakpoint on '_pixman_log_error' to debug
```

The installation proceeds normally, and this error can be ignored.

(Bug 37644579)

Kernel Issues

The following kernel issues apply in Oracle Linux 10.

Console Font Loading Failure Messages During `systemd-vconsole-setup` With UEK 8

During system boot, when booting into UEK 8, the system might emit error messages while starting the `systemd-vconsole-setup` service:

```
systemd-vconsole-setup[1463]: setfont: ERROR kdfontop.c:183
put_font_kdfontop: Unable to load such font with such kernel version
systemd-vconsole-setup[1453]: /usr/bin/setfont failed with a "system error"
(EX_OSERR), ignoring.
systemd-vconsole-setup[1453]: Setting source virtual console failed, ignoring
remaining ones.
```

The issue results because the framebuffer console driver, `fbcon`, is set to use deferred takeover, which causes it to wait until a message is sent to the default boot console. The deferred takeover causes the `systemd-vconsole-setup` service to try to set the font on the default boot console which doesn't support this operation.

You can work around the issue by setting the fbcon=nodefer kernel command line option. For example, if UEK 8 is the default kernel, run:

```
sudo grubby --update-kernel=DEFAULT --args="fbcon=nodefer"
```

(Bug 37920190)

6

Package Changes From the Upstream Release

The following sections list the changes to binary and source packages from the upstream release.

Changes to Binary Packages

This section contains information about the removed, modified, and new **binary** packages in this release. For information about the **source** package changes, see [Changes to Source Packages](#).

Added Binary Packages for BaseOS by Oracle

The following binary packages have been added to BaseOS by Oracle:

- btrfs-progs
- dtrace
- iwl1000-firmware
- iwl100-firmware
- iwl105-firmware
- iwl135-firmware
- iwl2000-firmware
- iwl2030-firmware
- iwl3160-firmware
- iwl3945-firmware
- iwl4965-firmware
- iwl5000-firmware
- iwl5150-firmware
- iwl6000-firmware
- iwl6000g2a-firmware
- iwl6000g2b-firmware
- iwl6050-firmware
- iwl7260-firmware
- iwlax2xx-firmware
- kernel-uek
- kernel-uek-core

- kernel-uek-debug
- kernel-uek-debug-core
- kernel-uek-debug-devel
- kernel-uek-debug-modules
- kernel-uek-debug-modules-core
- kernel-uek-debug-modules-extra
- kernel-uek-debug-modules-extra-netfilter
- kernel-uek-debug-modules-usb
- kernel-uek-debug-modules-wireless
- kernel-uek-devel
- kernel-uek-doc
- kernel-uek-modules
- kernel-uek-modules-core
- kernel-uek-modules-desktop
- kernel-uek-modules-extra
- kernel-uek-modules-extra-netfilter
- kernel-uek-modules-usb
- kernel-uek-modules-wireless
- libertas-sd8686-firmware
- libertas-sd8787-firmware
- libertas-usb8388-firmware
- libertas-usb8388-olpc-firmware
- linux-firmware-core
- liquidio-firmware
- ocfs2-tools
- oracle-backgrounds
- oracle-indexhtml
- oraclelinux-release
- oraclelinux-release-el10
- oracle-logos
- oracle-logos-httpd
- oracle-logos-ipa
- python3-dmidecode

Added Binary Packages for AppStream by Oracle

The following binary packages have been added to AppStream by Oracle:

- dnf-plugin-spacewalk

- `dtrace-devel`
- `dtrace-testsuite`
- `libblockdev-btrfs`
- `NetworkManager-config-connectivity-oracle`
- `python3-dnf-plugin-spacewalk`
- `python3-dnf-plugin-ulninfo`
- `python3-hwdata`
- `python3-netifaces`
- `python3-pyOpenSSL`
- `python3-rhn-check`
- `python3-rhn-client-tools`
- `python3-rhnlib`
- `python3-rhn-setup`
- `python3-rhn-setup-gnome`
- `rhn-check`
- `rhn-client-tools`
- `rhnlib`
- `rhnsd`
- `rhn-setup`
- `rhn-setup-gnome`

Added Binary Packages for CodeReady Linux Builder by Oracle

The following binary packages have been added to CodeReady Linux Builder by Oracle:

- `oraclelinux-sb-certs`

Modified BaseOS Binary Packages

The following binary packages from the BaseOS upstream release have been modified:

- `adcli`
- `adcli-selinux`
- `alternatives`
- `audispd-plugins`
- `audispd-plugins-zos`
- `audit`
- `audit-libs`
- `audit-rules`
- `autofs`
- `basesystem`

- binutils
- binutils-gold
- biosdevname
- chkconfig
- chrony
- cockpit
- cockpit-bridge
- cockpit-doc
- cockpit-system
- cockpit-ws
- cockpit-ws-selinux
- coreutils
- coreutils-common
- coreutils-single
- dnf
- dnf-automatic
- dnf-data
- dnf-plugins-core
- dracut
- dracut-config-generic
- dracut-config-rescue
- dracut-network
- dracut-squash
- dracut-tools
- efibootmgr
- efi-filesystem
- firewallld
- firewallld-filesystem
- fwupd-efi
- glibc
- glibc-all-langpacks
- glibc-common
- glibc-gconv-extra
- glibc-langpack-aa
- glibc-langpack-af
- glibc-langpack-agr
- glibc-langpack-ak

- glibc-langpack-am
- glibc-langpack-an
- glibc-langpack-anp
- glibc-langpack-ar
- glibc-langpack-as
- glibc-langpack-ast
- glibc-langpack-ayc
- glibc-langpack-az
- glibc-langpack-be
- glibc-langpack-bem
- glibc-langpack-ber
- glibc-langpack-bg
- glibc-langpack-bhb
- glibc-langpack-bho
- glibc-langpack-bi
- glibc-langpack-bn
- glibc-langpack-bo
- glibc-langpack-br
- glibc-langpack-brx
- glibc-langpack-bs
- glibc-langpack-byn
- glibc-langpack-ca
- glibc-langpack-ce
- glibc-langpack-chr
- glibc-langpack-ckb
- glibc-langpack-cmn
- glibc-langpack-crh
- glibc-langpack-cs
- glibc-langpack-csb
- glibc-langpack-cv
- glibc-langpack-cy
- glibc-langpack-da
- glibc-langpack-de
- glibc-langpack-doi
- glibc-langpack-dsb
- glibc-langpack-dv
- glibc-langpack-dz

- glibc-langpack-el
- glibc-langpack-en
- glibc-langpack-eo
- glibc-langpack-es
- glibc-langpack-et
- glibc-langpack-eu
- glibc-langpack-fa
- glibc-langpack-ff
- glibc-langpack-fi
- glibc-langpack-fil
- glibc-langpack-fo
- glibc-langpack-fr
- glibc-langpack-fur
- glibc-langpack-fy
- glibc-langpack-ga
- glibc-langpack-gbm
- glibc-langpack-gd
- glibc-langpack-gez
- glibc-langpack-gl
- glibc-langpack-gu
- glibc-langpack-gv
- glibc-langpack-ha
- glibc-langpack-hak
- glibc-langpack-he
- glibc-langpack-hi
- glibc-langpack-hif
- glibc-langpack-hne
- glibc-langpack-hr
- glibc-langpack-hsb
- glibc-langpack-ht
- glibc-langpack-hu
- glibc-langpack-hy
- glibc-langpack-ia
- glibc-langpack-id
- glibc-langpack-ig
- glibc-langpack-ik
- glibc-langpack-is

- glibc-langpack-it
- glibc-langpack-iu
- glibc-langpack-ja
- glibc-langpack-ka
- glibc-langpack-kab
- glibc-langpack-kk
- glibc-langpack-kl
- glibc-langpack-km
- glibc-langpack-kn
- glibc-langpack-ko
- glibc-langpack-kok
- glibc-langpack-ks
- glibc-langpack-ku
- glibc-langpack-kv
- glibc-langpack-kw
- glibc-langpack-ky
- glibc-langpack-lb
- glibc-langpack-lg
- glibc-langpack-li
- glibc-langpack-lij
- glibc-langpack-ln
- glibc-langpack-lo
- glibc-langpack-lt
- glibc-langpack-lv
- glibc-langpack-lzh
- glibc-langpack-mag
- glibc-langpack-mai
- glibc-langpack-mfe
- glibc-langpack-mg
- glibc-langpack-mhr
- glibc-langpack-mi
- glibc-langpack-miq
- glibc-langpack-mjw
- glibc-langpack-mk
- glibc-langpack-ml
- glibc-langpack-mn
- glibc-langpack-mni

- glibc-langpack-mnw
- glibc-langpack-mr
- glibc-langpack-ms
- glibc-langpack-mt
- glibc-langpack-my
- glibc-langpack-nan
- glibc-langpack-nb
- glibc-langpack-nds
- glibc-langpack-ne
- glibc-langpack-nhn
- glibc-langpack-niu
- glibc-langpack-nl
- glibc-langpack-nn
- glibc-langpack-nr
- glibc-langpack-nso
- glibc-langpack-oc
- glibc-langpack-om
- glibc-langpack-or
- glibc-langpack-os
- glibc-langpack-pa
- glibc-langpack-pap
- glibc-langpack-pl
- glibc-langpack-ps
- glibc-langpack-pt
- glibc-langpack-quz
- glibc-langpack-raj
- glibc-langpack-rif
- glibc-langpack-ro
- glibc-langpack-ru
- glibc-langpack-rw
- glibc-langpack-sa
- glibc-langpack-sah
- glibc-langpack-sat
- glibc-langpack-sc
- glibc-langpack-sd
- glibc-langpack-se
- glibc-langpack-sgs

- glibc-langpack-shn
- glibc-langpack-shs
- glibc-langpack-si
- glibc-langpack-sid
- glibc-langpack-sk
- glibc-langpack-sl
- glibc-langpack-sm
- glibc-langpack-so
- glibc-langpack-sq
- glibc-langpack-sr
- glibc-langpack-ss
- glibc-langpack-ssy
- glibc-langpack-st
- glibc-langpack-su
- glibc-langpack-sv
- glibc-langpack-sw
- glibc-langpack-syr
- glibc-langpack-szl
- glibc-langpack-ta
- glibc-langpack-tcy
- glibc-langpack-te
- glibc-langpack-tg
- glibc-langpack-th
- glibc-langpack-the
- glibc-langpack-ti
- glibc-langpack-tig
- glibc-langpack-tk
- glibc-langpack-tl
- glibc-langpack-tn
- glibc-langpack-to
- glibc-langpack-tok
- glibc-langpack-tpi
- glibc-langpack-tr
- glibc-langpack-ts
- glibc-langpack-tt
- glibc-langpack-ug
- glibc-langpack-uk

- glibc-langpack-unm
- glibc-langpack-ur
- glibc-langpack-uz
- glibc-langpack-ve
- glibc-langpack-vi
- glibc-langpack-wa
- glibc-langpack-wae
- glibc-langpack-wal
- glibc-langpack-wo
- glibc-langpack-xh
- glibc-langpack-yi
- glibc-langpack-yo
- glibc-langpack-yue
- glibc-langpack-yuw
- glibc-langpack-zgh
- glibc-langpack-zh
- glibc-langpack-zu
- glibc-minimal-langpack
- grub2-common
- grub2-efi-aa64-modules
- grub2-efi-x64
- grub2-efi-x64-cdboot
- grub2-efi-x64-modules
- grub2-pc
- grub2-pc-modules
- grub2-tools
- grub2-tools-efi
- grub2-tools-extra
- grub2-tools-minimal
- grubby
- initscripts
- initscripts-rename-device
- initscripts-service
- ipset
- ipset-libs
- iptables-libs
- iscsi-initiator-utils

- `iscsi-initiator-utils-iscsiuio`
- `iwl1000-firmware`
- `iwl100-firmware`
- `iwl105-firmware`
- `iwl135-firmware`
- `iwl2000-firmware`
- `iwl2030-firmware`
- `iwl3160-firmware`
- `iwl3945-firmware`
- `iwl4965-firmware`
- `iwl5000-firmware`
- `iwl5150-firmware`
- `iwl6000-firmware`
- `iwl6000g2a-firmware`
- `iwl6000g2b-firmware`
- `iwl6050-firmware`
- `iwl7260-firmware`
- `iwlax2xx-firmware`
- `kdump-utils`
- `kexec-tools`
- `kmod`
- `kmod-libs`
- `krb5-libs`
- `krb5-pkinit`
- `krb5-server`
- `krb5-server-ldap`
- `krb5-workstation`
- `krb5-xrealmauthz`
- `libatomic`
- `libblkid`
- `libdnf`
- `libertas-sd8686-firmware`
- `libertas-sd8787-firmware`
- `libertas-usb8388-firmware`
- `libertas-usb8388-olpc-firmware`
- `libfdisk`
- `libgcc`

- libgfortran
- libgomp
- libipa_hbac
- libkadm5
- libkcapi
- libkcapi-hasher
- libkcapi-hmaccalc
- libmount
- libnfsidmap
- libnsl
- libquadmath
- libsmartcols
- libsss_autofs
- libsss_certmap
- libsss_idmap
- libsss_nss_idmap
- libsss_sudo
- libstdc++
- libuuid
- linux-firmware
- linux-firmware-core
- linux-firmware-whence
- liquidio-firmware
- makedumpfile
- mcelog
- mdadm
- microcode_ctl
- netconsole-service
- net-naming-sysattrs
- netronome-firmware
- NetworkManager
- NetworkManager-adsl
- NetworkManager-bluetooth
- NetworkManager-config-server
- NetworkManager-libnm
- NetworkManager-tui
- NetworkManager-wifi

- NetworkManager-wwan
- nfs-utils
- nvme-cli
- nvmetcli
- openssh
- openssh-clients
- openssh-keycat
- openssh-server
- openssl
- openssl-fips-provider
- openssl-fips-provider-so
- openssl-lib
- os-prober
- parted
- pcre2
- pcre2-syntax
- polkit
- polkit-lib
- python3
- python3-configshell
- python3-dnf
- python3-dnf-plugin-post-transaction-actions
- python3-dnf-plugin-pre-transaction-actions
- python3-dnf-plugins-core
- python3-dnf-plugin-versionlock
- python3-firewall
- python3-hawkey
- python3-libdnf
- python3-libipa_hbac
- python3-lib
- python3-libsss_nss_idmap
- python3-sss
- python3-sssdconfig
- python3-sss-murmur
- readonly-root
- redhat-release
- selinux-policy

- selinux-policy-doc
- selinux-policy-mls
- selinux-policy-sandbox
- selinux-policy-targeted
- shim-x64
- sos
- sssd
- sssd-ad
- sssd-client
- sssd-common
- sssd-common-pac
- sssd-dbus
- sssd-ipa
- sssd-kcm
- sssd-krb5
- sssd-krb5-common
- sssd-ldap
- sssd-nfs-idmap
- sssd-passkey
- sssd-proxy
- sssd-tools
- sssd-winbind-idmap
- systemd
- systemd-container
- systemd-libs
- systemd-oomd
- systemd-pam
- systemd-resolved
- systemd-rpm-macros
- systemd-udev
- tuned
- tuned-profiles-cpu-partitioning
- util-linux
- util-linux-core
- vim-data
- vim-filesystem
- vim-minimal

- yum
- yum-utils

Modified Binary Packages for CodeReady Linux Builder by Oracle

The following binary packages to CodeReady Linux Builder by Oracle have been modified:

- anaconda-widgets-devel
- bind-devel
- bind-doc
- crash-devel
- dotnet-sdk-10.0-source-built-artifacts
- dotnet-sdk-8.0-source-built-artifacts
- dotnet-sdk-9.0-source-built-artifacts
- edk2-aarch64
- edk2-tools
- edk2-tools-doc
- glibc-benchtests
- glibc-nss-devel
- glibc-static
- hivex-devel
- ipset-devel
- java-21-openjdk-demo-fastdebug
- java-21-openjdk-demo-slowdebug
- java-21-openjdk-devel-fastdebug
- java-21-openjdk-devel-slowdebug
- java-21-openjdk-fastdebug
- java-21-openjdk-headless-fastdebug
- java-21-openjdk-headless-slowdebug
- java-21-openjdk-jmods-fastdebug
- java-21-openjdk-jmods-slowdebug
- java-21-openjdk-slowdebug
- java-21-openjdk-src-fastdebug
- java-21-openjdk-src-slowdebug
- java-21-openjdk-static-libs-fastdebug
- java-21-openjdk-static-libs-slowdebug
- java-25-openjdk-crypto-adapter-fastdebug
- java-25-openjdk-crypto-adapter-slowdebug
- java-25-openjdk-demo-fastdebug

- java-25-openjdk-demo-slowdebug
- java-25-openjdk-devel-fastdebug
- java-25-openjdk-devel-slowdebug
- java-25-openjdk-fastdebug
- java-25-openjdk-headless-fastdebug
- java-25-openjdk-headless-slowdebug
- java-25-openjdk-jmods-fastdebug
- java-25-openjdk-jmods-slowdebug
- java-25-openjdk-slowdebug
- java-25-openjdk-src-fastdebug
- java-25-openjdk-src-slowdebug
- java-25-openjdk-static-libs-fastdebug
- java-25-openjdk-static-libs-slowdebug
- kmod-devel
- libdnf-devel
- libfdisk-devel
- libgfortran-static
- libguestfs-devel
- libguestfs-man-pages-ja
- libguestfs-man-pages-uk
- libnfsidmap-devel
- libquadmath-static
- librados-devel
- libradospp-devel
- librbld-devel
- libsmartcols-devel
- libsss_nss_idmap-devel
- libstdc++-static
- libudisks2-devel
- libvirt-daemon-plugin-sanlock
- libvirt-devel
- libvirt-docs
- NetworkManager-libnm-devel
- nginx-mod-devel
- nss_db
- nss_hesiod
- ocaml-hivex

- `ocaml-hivex-devel`
- `ocaml-libguestfs`
- `ocaml-libguestfs-devel`
- `OpenIPMI-devel`
- `PackageKit-glib-devel`
- `parted-devel`
- `pcp-testsuite`
- `pcre2-static`
- `pcre2-tools`
- `podman-tests`
- `postgresql18-test-rpm-macros`
- `postgresql-test-rpm-macros`
- `python3-debug`
- `python3-hivex`
- `python3-idle`
- `python3-ipatests`
- `python3-mpich`
- `python3-test`
- `ruby-hivex`
- `sanlock-devel`
- `selinux-policy-extra`
- `selinux-policy-mls-extra`
- `selinux-policy-targeted-extra`
- `tog-pegasus-devel`
- `virt-v2v-man-pages-ja`
- `virt-v2v-man-pages-uk`
- `wireshark-devel`

Modified AppStream Binary Packages

The following binary packages from the AppStream upstream release have been modified:

- `anaconda`
- `anaconda-core`
- `anaconda-dracut`
- `anaconda-gui`
- `anaconda-install-env-deps`
- `anaconda-install-img-deps`
- `anaconda-tui`

- anaconda-widgets
- ansible-core
- ansible-test
- aspnetcore-runtime-10.0
- aspnetcore-runtime-8.0
- aspnetcore-runtime-9.0
- aspnetcore-runtime-dbg-10.0
- aspnetcore-runtime-dbg-8.0
- aspnetcore-runtime-dbg-9.0
- aspnetcore-targeting-pack-10.0
- aspnetcore-targeting-pack-8.0
- aspnetcore-targeting-pack-9.0
- audit-libs-devel
- bind
- bind-chroot
- bind-dnssec-utils
- bind-libs
- bind-license
- bind-utils
- binutils-devel
- binutils-gprofng
- blivet-data
- boom-boot
- boom-boot-conf
- buildah
- buildah-tests
- cloud-init
- cockpit-image-builder
- cockpit-machines
- cockpit-packagekit
- cockpit-session-recording
- cockpit-storaged
- containers-common
- containers-common-extra
- container-tools
- coreos-installer
- coreos-installer-bootinfra

- coreos-installer-dracut
- cpp
- crash
- ddiskit
- delve
- dnf-bootc
- dotnet-apphost-pack-10.0
- dotnet-apphost-pack-8.0
- dotnet-apphost-pack-9.0
- dotnet-host
- dotnet-hostfxr-10.0
- dotnet-hostfxr-8.0
- dotnet-hostfxr-9.0
- dotnet-runtime-10.0
- dotnet-runtime-8.0
- dotnet-runtime-9.0
- dotnet-runtime-dbg-10.0
- dotnet-runtime-dbg-8.0
- dotnet-runtime-dbg-9.0
- dotnet-sdk-10.0
- dotnet-sdk-8.0
- dotnet-sdk-9.0
- dotnet-sdk-aot-10.0
- dotnet-sdk-aot-9.0
- dotnet-sdk-dbg-10.0
- dotnet-sdk-dbg-8.0
- dotnet-sdk-dbg-9.0
- dotnet-targeting-pack-10.0
- dotnet-targeting-pack-8.0
- dotnet-targeting-pack-9.0
- dotnet-templates-10.0
- dotnet-templates-8.0
- dotnet-templates-9.0
- dracut-caps
- dracut-live
- edk2-ovmf
- efi-srpm-macros

- fdo-admin-cli
- fdo-client
- fdo-init
- fdo-manufacturing-server
- fdo-owner-cli
- fdo-owner-onboarding-server
- fdo-rendezvous-server
- fips-provider-next
- firefox
- firewall-applet
- firewall-config
- gcc
- gcc-c++
- gcc-gfortran
- gcc-offload-amdgcn
- gcc-offload-nvptx
- gcc-plugin-annobin
- gcc-plugin-devel
- gdb
- gdb-doc
- gdb-gdbserver
- gdb-headless
- gdb-minimal
- glibc-devel
- glibc-doc
- glibc-locale-source
- glibc-utils
- gnome-initial-setup
- gnome-shell-extension-background-logo
- gnome-tour
- gnome-user-docs
- golang
- golang-bin
- golang-docs
- golang-misc
- golang-race
- golang-src

- golang-tests
- go-toolset
- gpsd
- gpsd-clients
- hivex
- hivex-libs
- httpd
- httpd-core
- httpd-devel
- httpd-filesystem
- httpd-manual
- httpd-tools
- idm-pki-acme
- idm-pki-base
- idm-pki-ca
- idm-pki-java
- idm-pki-kra
- idm-pki-server
- idm-pki-tools
- ignition
- ignition-edge
- ignition-grub
- ignition-validate
- image-builder
- ipa-client
- ipa-client-common
- ipa-client-encrypted-dns
- ipa-client-eqn
- ipa-client-samba
- ipa-common
- ipa-selinux
- ipa-selinux-luna
- ipa-selinux-nfast
- ipa-server
- ipa-server-common
- ipa-server-dns
- ipa-server-encrypted-dns

- ipa-server-trust-ad
- ipset-service
- iptables-devel
- iptables-nft
- iptables-nft-services
- iptables-utils
- java-21-openjdk
- java-21-openjdk-demo
- java-21-openjdk-devel
- java-21-openjdk-headless
- java-21-openjdk-javadoc
- java-21-openjdk-javadoc-zip
- java-21-openjdk-jmods
- java-21-openjdk-src
- java-21-openjdk-static-libs
- java-25-openjdk
- java-25-openjdk-crypto-adapter
- java-25-openjdk-demo
- java-25-openjdk-devel
- java-25-openjdk-headless
- java-25-openjdk-javadoc
- java-25-openjdk-javadoc-zip
- java-25-openjdk-jmods
- java-25-openjdk-src
- java-25-openjdk-static-libs
- kernel-rpm-macros
- kernel-srpm-macros
- krb5-devel
- ksh
- libasan
- libblkid-devel
- libblockdev
- libblockdev-btrfs
- libblockdev-crypto
- libblockdev-dm
- libblockdev-fs
- libblockdev-loop

- libblockdev-lvm
- libblockdev-lvm-dbus
- libblockdev-mdraid
- libblockdev-mpath
- libblockdev-nvdim
- libblockdev-nvme
- libblockdev-part
- libblockdev-plugins-all
- libblockdev-smart
- libblockdev-smartmontools
- libblockdev-swap
- libblockdev-tools
- libblockdev-utils
- libgccjit
- libgccjit-devel
- libgomp-offload-amdgcn
- libgomp-offload-nvptx
- libguestfs
- libguestfs-appliance
- libguestfs-bash-completion
- libguestfs-inspect-icons
- libguestfs-rescue
- libguestfs-rsync
- libguestfs-xfs
- libhwasan
- libitm
- libitm-devel
- liblsan
- libmount-devel
- libquadmath-devel
- librados2
- librbid1
- libreswan
- libreswan-minimal
- libstdc++-devel
- libstdc++-docs
- libtsan

- libubsan
- libudisks2
- libuuid-devel
- libvirt
- libvirt-client
- libvirt-client-qemu
- libvirt-daemon
- libvirt-daemon-common
- libvirt-daemon-config-network
- libvirt-daemon-config-nwfilter
- libvirt-daemon-driver-interface
- libvirt-daemon-driver-network
- libvirt-daemon-driver-nodedev
- libvirt-daemon-driver-nwfilter
- libvirt-daemon-driver-qemu
- libvirt-daemon-driver-secret
- libvirt-daemon-driver-storage
- libvirt-daemon-driver-storage-core
- libvirt-daemon-driver-storage-disk
- libvirt-daemon-driver-storage-iscsi
- libvirt-daemon-driver-storage-logical
- libvirt-daemon-driver-storage-mpath
- libvirt-daemon-driver-storage-rbd
- libvirt-daemon-driver-storage-scsi
- libvirt-daemon-kvm
- libvirt-daemon-lock
- libvirt-daemon-log
- libvirt-daemon-plugin-lockd
- libvirt-daemon-proxy
- libvirt-libs
- libvirt-nss
- libvirt-ssh-proxy
- lorax
- lorax-docs
- lorax-lmc-novirt
- lorax-lmc-virt
- lorax-templates-generic

- `lorax-templates-rhel`
- `mecab-ipadic`
- `mecab-ipadic-EUCJP`
- `mod_ldap`
- `mod_lua`
- `mod_proxy_html`
- `mod_session`
- `mod_ssl`
- `mpich`
- `mpich-autoload`
- `mpich-devel`
- `mpich-doc`
- `mptcpd`
- `net-snmp`
- `net-snmp-agent-libs`
- `net-snmp-devel`
- `net-snmp-libs`
- `net-snmp-perl`
- `net-snmp-perl-module`
- `net-snmp-utils`
- `netstandard-targeting-pack-2.1`
- `NetworkManager-cloud-setup`
- `NetworkManager-config-connectivity-oracle`
- `NetworkManager-ovs`
- `NetworkManager-ppp`
- `nfs-utils-coreos`
- `nfsv4-client-utils`
- `nginx`
- `nginx-all-modules`
- `nginx-core`
- `nginx-filesystem`
- `nginx-mod-http-image-filter`
- `nginx-mod-http-perl`
- `nginx-mod-http-xslt-filter`
- `nginx-mod-mail`
- `nginx-mod-stream`
- `ntsysv`

- OpenIPMI
- OpenIPMI-lanserv
- OpenIPMI-libs
- openssh-askpass
- openssh-keysign
- openssl-devel
- openssl-perl
- open-vm-tools
- open-vm-tools-desktop
- open-vm-tools-salt-minion
- open-vm-tools-sdmp
- open-vm-tools-test
- osbuild
- osbuild-container-selinux
- osbuild-depsolve-dnf
- osbuild-initrd
- osbuild-luks2
- osbuild-lvm2
- osbuild-ostree
- osbuild-selinux
- osinfo-db
- pacemaker-cluster-libs
- pacemaker-libs
- pacemaker-schemas
- PackageKit
- PackageKit-command-not-found
- PackageKit-glib
- PackageKit-gstreamer-plugin
- PackageKit-gtk3-module
- pcp
- pcp-conf
- pcp-devel
- pcp-doc
- pcp-export-pcp2elasticsearch
- pcp-export-pcp2graphite
- pcp-export-pcp2influxdb
- pcp-export-pcp2json

- pcp-export-pcp2openmetrics
- pcp-export-pcp2opentelemetry
- pcp-export-pcp2spark
- pcp-export-pcp2xml
- pcp-export-pcp2zabbix
- pcp-export-zabbix-agent
- pcp-geolocate
- pcp-gui
- pcp-import-benchmarks
- pcp-import-collectl2pcp
- pcp-import-ganglia2pcp
- pcp-import-iostat2pcp
- pcp-import-mrtg2pcp
- pcp-import-pmseries
- pcp-import-sar2pcp
- pcp-libs
- pcp-libs-devel
- pcp-pmda-activemq
- pcp-pmda-amdgpu
- pcp-pmda-apache
- pcp-pmda-bash
- pcp-pmda-bcc
- pcp-pmda-bind2
- pcp-pmda-bonding
- pcp-pmda-bpf
- pcp-pmda-bpftrace
- pcp-pmda-cifs
- pcp-pmda-cisco
- pcp-pmda-dbping
- pcp-pmda-denki
- pcp-pmda-dm
- pcp-pmda-docker
- pcp-pmda-ds389
- pcp-pmda-ds389log
- pcp-pmda-elasticsearch
- pcp-pmda-farm
- pcp-pmda-gluster

- pcp-pmda-gpfs
- pcp-pmda-gpsd
- pcp-pmda-hacluster
- pcp-pmda-haproxy
- pcp-pmda-hdb
- pcp-pmda-infiniband
- pcp-pmda-libvirt
- pcp-pmda-lio
- pcp-pmda-lmsensors
- pcp-pmda-logger
- pcp-pmda-lustre
- pcp-pmda-lustrecomm
- pcp-pmda-mailq
- pcp-pmda-memcache
- pcp-pmda-mic
- pcp-pmda-mongodb
- pcp-pmda-mounts
- pcp-pmda-mssql
- pcp-pmda-mysql
- pcp-pmda-named
- pcp-pmda-netcheck
- pcp-pmda-netfilter
- pcp-pmda-news
- pcp-pmda-nfsclient
- pcp-pmda-nginx
- pcp-pmda-nvidia-gpu
- pcp-pmda-openmetrics
- pcp-pmda-opentelemetry
- pcp-pmda-openvswitch
- pcp-pmda-oracle
- pcp-pmda-pdns
- pcp-pmda-perfevent
- pcp-pmda-podman
- pcp-pmda-postfix
- pcp-pmda-postgresql
- pcp-pmda-rabbitmq
- pcp-pmda-redis

- pcp-pmda-resctrl
- pcp-pmda-rocestat
- pcp-pmda-roomtemp
- pcp-pmda-rsyslog
- pcp-pmda-samba
- pcp-pmda-sendmail
- pcp-pmda-shping
- pcp-pmda-slurm
- pcp-pmda-smart
- pcp-pmda-snmp
- pcp-pmda-sockets
- pcp-pmda-statsd
- pcp-pmda-summary
- pcp-pmda-systemd
- pcp-pmda-trace
- pcp-pmda-unbound
- pcp-pmda-uwsgi
- pcp-pmda-weblog
- pcp-pmda-zimbra
- pcp-pmda-zswap
- pcp-selinux
- pcp-system-tools
- pcp-zeroconf
- pcre2-devel
- pcre2-utf16
- pcre2-utf32
- perl-hivex
- perl-PCP-LogImport
- perl-PCP-LogSummary
- perl-PCP-MMV
- perl-PCP-PMDA
- perl-Sys-Guestfs
- perl-XML-Parser
- pesign
- plymouth
- plymouth-core-libs
- plymouth-devel

- plymouth-graphics-libs
- plymouth-plugin-fade-throbber
- plymouth-plugin-label
- plymouth-plugin-script
- plymouth-plugin-space-flares
- plymouth-plugin-two-step
- plymouth-scripts
- plymouth-system-theme
- plymouth-theme-fade-in
- plymouth-theme-script
- plymouth-theme-solar
- plymouth-theme-spinfinity
- plymouth-theme-spinner
- podman
- podman-docker
- podman-remote
- polkit-devel
- polkit-docs
- postgresql
- postgresql18
- postgresql18-contrib
- postgresql18-docs
- postgresql18-plperl
- postgresql18-plpython3
- postgresql18-private-devel
- postgresql18-private-libs
- postgresql18-server
- postgresql18-server-devel
- postgresql18-static
- postgresql18-test
- postgresql18-upgrade
- postgresql18-upgrade-devel
- postgresql-contrib
- postgresql-docs
- postgresql-plperl
- postgresql-plpython3
- postgresql-pltcl

- postgresql-private-devel
- postgresql-private-libs
- postgresql-server
- postgresql-server-devel
- postgresql-static
- postgresql-test
- postgresql-upgrade
- postgresql-upgrade-devel
- pykickstart
- python3-audit
- python3-blivet
- python3-blockdev
- python3-boom
- python3-devel
- python3-dnf-plugin-leaves
- python3-dnf-plugin-modulesync
- python3-dnf-plugin-show-leaves
- python3-gpsd
- python3-idm-pki
- python3-ipaclient
- python3-ipalib
- python3-ipaserver
- python3-iscsi-initiator-utils
- python3-kickstart
- python3-libguestfs
- python3-libmount
- python3-net-snmp
- python3-osbuild
- python3-pcp
- python3-rtslib
- python3-tkinter
- python3-virt-firmware
- python-unversioned-command
- rear
- redhat-rpm-config
- rhel-system-roles
- rpmdevtools

- sanlock
- sanlock-lib
- scap-security-guide
- scap-security-guide-doc
- selinux-policy-devel
- sequoia-sq
- setroubleshoot
- setroubleshoot-plugins
- setroubleshoot-server
- slapi-nis
- sssd-idp
- system-config-printer-libs
- system-config-printer-udev
- systemd-boot-unsigned
- systemd-devel
- systemd-journal-remote
- systemd-ukify
- systemtap
- systemtap-client
- systemtap-devel
- systemtap-exporter
- systemtap-initscript
- systemtap-runtime
- systemtap-runtime-java
- systemtap-runtime-python3
- systemtap-runtime-virtquest
- systemtap-runtime-virthost
- systemtap-sdt-devel
- systemtap-sdt-dtrace
- systemtap-server
- target-restore
- thunderbird
- tog-pegasus
- tog-pegasus-libs
- tuned-gtk
- tuned-ppd
- tuned-profiles-atomic

- tuned-profiles-mssql
- tuned-profiles-oracle
- tuned-profiles-postgresql
- tuned-profiles-spectrumscale
- tuned-utils
- udisks2
- udisks2-iscsi
- udisks2-lsm
- udisks2-lvm2
- uki-direct
- uuid
- vim-common
- vim-enhanced
- vim-X11
- virt-p2v
- virt-sb-certs
- virt-top
- virt-v2v
- virt-v2v-bash-completion
- WALinuxAgent
- WALinuxAgent-udev
- wireshark
- wireshark-cli
- xxd

Removed BaseOS Binary Packages

The following binary packages from the BaseOS upstream release have been removed:

- amd-ucode-firmware
- atheros-firmware
- boost-system
- brcmfmac-firmware
- cirrus-audio-firmware
- dvb-firmware
- intel-audio-firmware
- intel-vsc-firmware
- iwlegacy-firmware
- iwlwifi-dvm-firmware

- iwlwifi-mvm-firmware
- kpatch
- kpatch-dnf
- libdnf-plugin-subscription-manager
- libertas-firmware
- mlxsw_spectrum-firmware
- mrvlprestera-firmware
- mt7xxx-firmware
- nxpwireless-firmware
- python3-cloud-what
- python3-subscription-manager-rhsm
- qcom-firmware
- realtek-firmware
- redhat-release-eula
- rhsm-icons
- subscription-manager
- subscription-manager-cockpit
- subscription-manager-plugin-ostree
- subscription-manager-rhsm-certificates
- tiwilink-firmware

Removed AppStream Binary Packages

The following binary packages from the AppStream upstream release have been removed:

- amd-gpu-firmware
- ansible-collection-microsoft-sql
- ansible-collection-redhat-leapp
- command-line-assistant
- command-line-assistant-selinux
- crypto-policies-pq-preview
- emacs-filesystem
- insights-client
- insights-client-ros
- insights-core
- insights-core-selinux
- intel-gpu-firmware
- libcamera-doc
- libdrm

- mesa-libglapi
- mesa-libxatracker
- NetworkManager-config-connectivity-redhat
- nvidia-gpu-firmware
- opentelemetry-collector
- pcp-pmda-json
- realtime-tests
- redhat-backgrounds
- redhat-cloud-client-configuration
- redhat-cloud-client-configuration-cdn
- redhat-indexhtml
- redhat-logos
- redhat-logos-httpd
- redhat-logos-ipa
- rhc
- rhc-playbook-verifier
- rhc-worker-playbook
- rhel-drivers
- s390utils
- s390utils-se-data
- SDL2
- SDL2-devel
- toolbox
- virtio-win
- virt-who

Removed CodeReady Linux Builder Binary Packages

The following binary packages from the CodeReady Linux Builder upstream release have been removed:

- dyninst-testsuite
- gcc-plugin-devel
- mesa-libOSMesa
- mesa-libOSMesa-devel
- redhat-sb-certs
- SDL2-static
- toolbox-tests

Changes to Source Packages

This section contains information about the removed, modified, and new **source** packages in this release. For information about the **binary** package changes, see [Changes to Binary Packages](#).

Added Source Packages for BaseOS by Oracle

The following source packages have been added to the BaseOS by Oracle:

- btrfs-progs
- dtrace
- kernel-uek
- ocfs2-tools
- oracle-indexhtml
- oraclelinux-release
- oraclelinux-release-el10
- oracle-logos
- python-dmidecode

Added Source Packages for AppStream by Oracle

The following source packages have been added to AppStream by Oracle:

- dnf-plugin-spacewalk
- dtrace
- pyOpenSSL
- python3-dnf-plugin-ulninfo
- python-hwdata
- python-netifaces
- python-zstd
- rhn-client-tools
- rhnlib
- rhnsd

Modified BaseOS Source Packages

The following source packages from the BaseOS upstream release have been modified:

- adcli
- audit
- autofs
- basesystem

- binutils
- biosdevname
- chkconfig
- chrony
- cockpit
- coreutils
- dnf
- dnf-plugins-core
- dracut
- efibootmgr
- efi-rpm-macros
- firewallld
- fwupd-efi
- gcc
- glibc
- grub2
- grubby
- initscripts
- ipset
- iptables
- iscsi-initiator-utils
- kdump-utils
- kexec-tools
- kmod
- krb5
- libdnf
- libkcapi
- linux-firmware
- makedumpfile
- mcelog
- mdadm
- microcode_ctl
- net-naming-sysattrs
- NetworkManager
- nfs-utils
- nvme-cli
- nvmetcli

- openssh
- openssl
- openssl-fips-provider
- os-prober
- parted
- pcre2
- polkit
- python3.12
- python-configshell
- redhat-release
- selinux-policy
- shim
- sos
- sssd
- systemd
- tuned
- util-linux
- vim

Modified AppStream Source Packages

The following source packages from the AppStream upstream release have been modified:

- anaconda
- ansible-core
- audit
- bind
- binutils
- boom-boot
- buildah
- ceph
- chkconfig
- cloud-init
- cockpit
- cockpit-image-builder
- cockpit-machines
- cockpit-session-recording
- containers-common
- container-tools

- crash
- ddiskit
- delve
- dnf
- dnf-plugins-core
- dogtag-pki
- dotnet10.0
- dotnet8.0
- dotnet9.0
- dracut
- edk2
- efi-rpm-macros
- fido-device-onboard
- fips-provider-next
- firefox
- firewalld
- gcc
- gdb
- glibc
- gnome-initial-setup
- gnome-shell-extension-background-logo
- gnome-tour
- gnome-user-docs
- golang
- gpsd
- hivex
- httpd
- ignition
- image-builder
- ipa
- ipset
- iptables
- iscsi-initiator-utils
- java-21-openjdk
- java-25-openjdk
- kernel-srpm-macros
- krb5

- ksh
- libblockdev
- libguestfs
- libreswan
- libvirt
- lorax
- lorax-templates-rhel
- mecab-ipadic
- mpich
- mptcpd
- net-snmp
- NetworkManager
- nfs-utils
- nginx
- OpenIPMI
- openssh
- openssl
- open-vm-tools
- osbuild
- osinfo-db
- pacemaker
- PackageKit
- pcp
- pcre2
- perl-XML-Parser
- pesign
- plymouth
- podman
- polkit
- postgresql16
- postgresql18
- pykickstart
- python3.12
- python-blivet
- python-rtslib
- python-virt-firmware
- rear

- redhat-rpm-config
- rhel-system-roles
- rpmdevtools
- rust-coreos-installer
- rust-sequoia-sq
- sanlock
- scap-security-guide
- selinux-policy
- setroubleshoot
- setroubleshoot-plugins
- slapi-nis
- sssd
- system-config-printer
- systemd
- systemtap
- thunderbird
- tog-pegasus
- tuned
- udisks2
- util-linux
- vim
- virt-p2v
- virt-top
- virt-v2v
- WALinuxAgent
- wireshark

Removed BaseOS Source Packages

The following source packages from the BaseOS upstream release have been removed:

- kpatch
- subscription-manager
- subscription-manager-cockpit
- subscription-manager-rhsm-certificates

Removed AppStream Source Packages

The following source packages from the AppStream upstream release have been removed:

- ansible-collection-microsoft-sql

- `ansible-collection-redhat-leapp`
- `command-line-assistant`
- `insights-client`
- `insights-core`
- `opentelemetry-collector`
- `realtime-tests`
- `redhat-cloud-client-configuration`
- `redhat-indexhtml`
- `redhat-logos`
- `rhc`
- `rhc-playbook-verifier`
- `rhc-worker-playbook`
- `rhel-drivers`
- `s390utils`
- `toolbox`
- `virtio-win`
- `virt-who`