Liberica Native Image Kit 25.0.0-1 (25+37)
Release Notes

bellsoft

Contents

1. Introduction

This document provides information about Liberica NIK release.

This particular version of Liberica NIK 25.0.0-1 is based on Liberica JDK 25+37.

> ✎ **Note:**
>
> For more information about Liberica JDK release, see [Liberica JDK Release Notes](#).

[Liberica Native Image Kit](#) is a utility Based on [GraalVM Open Source](#) that is capable of converting your JVM-based application into a fully compiled native executable ahead-of-time under the closed-world assumption with an almost instant startup time.

Liberica NIK supports the following platforms:

- Linux x86_64 (glibc)

- Linux Alpine x86_64 (musl)

- Linux AArch64 (glibc)

- Linux Alpine AArch64 (musl)

- Mac OS x86_64

- Mac OS AArch64

- Windows x86_64

Liberica NIK distribution

Liberica NIK is distributed as `.apk`, `.deb`, `.dmg`, `.msi`, `.pkg`, `.rpm`, `.tar.gz`, and `.zip` packages. Please [select the most appropriate](#) for your purposes.

2. What's New

This release contains the following updates and new features.

Notable Issues

This release does not contain any notable issues. For the list of Liberica JDK notable issues, see Liberica JDK Release Notes

Language and framework versions

Liberica NIK 25.0.0 supports the following languages and frameworks:

Component	Version
LLVM	20.1.4 (GraalVM CE Native 25.0.0)
Python	3.12.8 (GraalVM CE Native 25.0.0)
Node.js	22.17.1
Java	Liberica JDK 25+37
Java Script	GraalVM JavaScript (GraalVM CE Native 25.0.0)
TruffleRuby	25.0.0 (Ruby 3.3.7)
Native Image	GraalVM version 25.0.0 (Liberica JDK 25+37, LTS)

Component	Version
Wasm	WebAssembly (GraalVM CE Native 25.0.0)

3. Known Issues

This release does not contain any known issues. For the list of Liberica JDK known issues, see Liberica JDK Release Notes.

4. CVEs

This release does not contain any fixed CVEs. For the list of Liberica JDK fixed CVEs, see Liberica JDK Release Notes.

5. Resolved Issues

Liberica NIK issues

This is the list of Liberica NIK issues fixed in this release.

Issue ID	Summary
GR-14806	Update specs to ruby/spec@affef93
GR-15504	Disable test_gc_count on Native as Native G1 does not support GarbageCollectorMXBean
GR-17321	Intercept memory reads.
GR-17457	Add a PNG vesion of the sticker logo for convenience
GR-18163	Add `mx ruby_from_classpath`
GR-18355	Espresso: Add JVMCI partial implementation.
GR-18411	Address Truffle warnings
GR-19220	Support timezone object argument to Time.{at,new} and Time#{getlocal,localtime} (#3740)
GR-19691	Add mise instructions on ruby-managers.md (#3817)
GR-20446	Add missing specs for Data

Issue ID	Summary
GR-21590	Update imports, implement new FileSystem methods.
GR-26395	Periodic update of the graal import.
GR-27379	Run C extensions marked as rb_ext_ractor_safe()/rb_ext_thread_safe() without the C extension lock (#2136)
GR-28239	Temporal fixes.
GR-28376	Optimize align_up() in signature.c
GR-31495	Implement language and instrument specific source option support.
GR-32941	Allocate TLABs from chunks instead of as chunks
GR-33667	Fixes for Object.clone().
GR-34010	Change calculation of image heap huge threshold
GR-34954	Make OSR tests more robust.
GR-35368	Remove obsolete --force-builder-on-cp option from native-unittest.
GR-35847	Allow setting options on per compilation basis
GR-36828	Basic support for Temporal non-iso calendars.

Issue ID	Summary
GR-37824	Avoid receiver class dispatch for uncached DynamicObjectLibrary.
GR-38039	Use stricter JVMTI thread state definitions for espresso thread states. Enforce thread transitions where needed.
GR-38674	Fix JFR-related UnsatisfiedLinkErrors.
GR-38700	Alternative (off by default) Truffle Bytecode DSL based interpreter.
GR-40015	Move ArrayHelpers.{setStoreAndSize,setStore} to RubyArray
GR-40245	Add option to disable conditional elimination in FixReads
GR-40746	Report loop counts for and in OSR targets and prioritize them with a bonus.
GR-41453	Store FACTORY.getUncached() in static final to avoid volatile read
GR-42711	Make dir(foreign_object) return both foreign methods and Python methods
GR-43440	Add nb_inplace_power slot and cleanup math ops
GR-43908	Automatically detect deopt recompile cycles
GR-44352	Mark ZoneOffset.rules with RecomputeFieldValue

Issue ID	Summary
GR-44378	Use `System.lineSeparator()` instead of `\n`.
GR-44503	Add support for a symbol encoder
GR-44690	Add GraalPy site.
GR-44710	Fix String#slice with negative offset
GR-44775	Fix `-H:-StripDebugInfo`.
GR-45043	Import Prism v1.4.0
GR-45226	Add Fuzzilli support for GraalJS.
GR-45621	Ruby 3.2.2 import follow-up
GR-45784	Reenable all checks regarding @Uninterruptible and other minor changes.
GR-46399	Move Xms into properties file.
GR-46400	Ensure resources are registered with proper names for run-time lookup
GR-46863	Fixes for windows issues in cibuildwheels.
GR-47080	Add support for side effect free LogicCompareAndSwap.
GR-47881	Drop total types/fields/methods from build output.
GR-47973	Use correct hub size in debug info.

Issue ID	Summary
GR-48393	Fix conditional configuration algorithm to avoid losing configuration data
GR-48679	Implement DualPivotQuicksort intrinsics.
GR-48910	Add Arrow Table support
GR-49525	Option '--future-defaults=<option>' to enable options that are planned to become defaults in future releases.
GR-49858	Change type of DynamicHub.hubType to byte.
GR-49858	Change type of DynamicHub.hubType to byte.
GR-50017	TruffleStrings: internal refactoring for better performance in statically compiled code.
GR-50788	Acquire CommitAllocationNode locks with fastpath only
GR-51441	Run full Truffle gate on Windows.
GR-51664	Print non-internal PolyglotException type name.
GR-51699	Upgrade ECJ to 3.41.
GR-52052	Disable problematic Renaissance benchmarks for libgraal
GR-52400	Revise heuristic for memory usage of Native Image build process.

Issue ID	Summary
GR-52567	FFM API support for windows-amd64.
GR-52573	Allow usage of foreign memory API on all platforms.
GR-52576	Introduce specialized upcalls for direct method handles.
GR-52676	Enable the Panama NFI backend by default
GR-53462	Rethrow internal errors during PythonLanguage#initializeContext
GR-53470	Add information about the object header size in Native Image and HotSpot.
GR-53530	Make static fields base support layer aware.
GR-53812	Bump mx version
GR-53923	Add native slot wrappers in a single upcall
GR-53980	Include file extension in build output.
GR-54022	Build first-object table and reset card table in compacting GC without an extra pass.
GR-54068	WebAssembly Relaxed SIMD Proposal.
GR-54568	Record activity when sorting `frameToEncode`.
GR-54673	Add MaximumCompilations option.

Issue ID	Summary
GR-54736	WASI proc_exit should respect useSystemExit(true).
GR-54786	Cross-isolate exception dispatch for isolated compilation.
GR-54853	Fix compilation bailouts when the debugger is enabled.
GR-54865	Make sure custom type converters take precedence over internal collection mappings.
GR-54953	Option -H:Preserve=all that preserves all classes, resources, and reflection metadata from a module, a package, or a classpath entry.
GR-54966	Add missing translation of expected guest unsupported operation to interop exception.
GR-54978	[GR-59135] Report unrecognized/ill-formed hosted options in NI driver
GR-55107	Enable NFI Panama by default on GraalPy on HotSpot
GR-55132	Periodic update of the language imports and Gradle as dependency for GraalPy.
GR-55152	Remove PGO context insensitive config.
GR-55196	Implement tp_hash and tp_richcompare.
GR-55204	Update language standalones download links to 24.1.2

Issue ID	Summary
GR-55222	Enable LazyDeoptimization by default
GR-55223	Make MaxStackFrames Optional Again.
GR-55288	Enable barista in PR-bench (libgraal).
GR-55290	Add 5 new hello-world Barista benchmarks.
GR-55515	Disable JDK 21 support in Graal Compiler
GR-55547	Introduce parsing stages to improve static final field folding.
GR-55581	Check layered image build option compatibility.
GR-55688	Optimize DynamicObjectLibrary.removeKey.
GR-55885	Initialize FileSystemProvider at run time (future defaults)
GR-56000	Don't allow IntegerExactOverflowNode as condition in ConditionalNode
GR-56348	Record watchdog activity in layouting and image writing.
GR-56685	Broken file path fix.
GR-56794	Update the CompilationPolicy class
GR-57063	Implement improved variadic support for the Bytecode DSL.

Issue ID	Summary
GR-57064	Skip unnecessary JFR registrations for virtual threads.
GR-57070	Do not enter wait in single threaded reference processing.
GR-57117	Make --layer-create=package=... take package name instead of cp entry.
GR-57160	Refactorings around TypeSnippets and StrengthenGraphs.
GR-57252	Improve error message around MUSL not being supported.
GR-57253	Add dynamic call usage detection
GR-57283	Use dedicated printer to pretty print embedded resources JSON
GR-57290	Add regression test for clearing globals.
GR-57290	Add regression test for clearing globals.
GR-57294	Track Class#getSigners in agent by proxying native call.
GR-57350	Make resources layer aware
GR-57386	Increase Wasm memory limits.
GR-57386	Increase Wasm memory limits.

Issue ID	Summary
GR-57395	Add support for weak symbols to avoid leaks with class unloading.
GR-57401	Update Python to 3.12.8
GR-57587	Native Bridge Support for external processes.
GR-57640	Do not allow ImageSingletons.lookup to be called on MultiLayeredImageSingletons.
GR-57645	Support registering elements for reflection in extension layers
GR-57708	Handle jsr recursion.
GR-57747	Implement tp_iter and tp_iternext
GR-57749	Migrate remaining nb unary slots to new slots
GR-57751	Implement binary inplace slots
GR-57755	Migrate nb_index, nb_int, nb_float to new slots
GR-57756	Add nb_power slot
GR-57826	Layered images binary snapshot format.
GR-57832	Load strengthened graph early
GR-57838	Include language resources in native image.
GR-57853	Update XZ version.
GR-57855	TruffleJWS version updated.

Issue ID	Summary
GR-57942	ConvertDeoptimizeToGuard: Add new guard before killing CFG paths
GR-57984	Deprecate the GraalWasm AsyncParsing options.
GR-57985	Maven/Gradle support for freezing dependencies.
GR-58004	Add JavaMonitorQueuedSynchronizer#reacquire (adopt JDK-8325397)
GR-58061	Fix oversize shift in IV scale computation
GR-58266	Prepare strscan.rb to be upstreamed
GR-58490	Adapt PartialConfigurationWithOrigins to reachability-metadata.json
GR-58513	Gate-check GraalWasm using TCK permission checker.
GR-58521	Use Native Image G1 GC on Linux
GR-58550	Support illegal default; Support no cached tags in FrameDescriptors.
GR-58559	Upgrade org.json to version 20250517.
GR-58574	Add SVM interpreter and JDWP support for Native Image
GR-58613	Make mx native-image build output go through mx logging infrastructure.

Issue ID	Summary
GR-58659	Add FFM Support for {darwin,linux}-aarch64 on SubstrateVM
GR-58668	Enable WP SCCP by default
GR-58673	Validate reachable object before propagating it.
GR-58712	Fix ClassCastException in FloatLessThanOp.canonical
GR-58926	Enable _PyObject_AssertFailed to print some info at least when we fail.
GR-58929	Fix ConfigurationType method subtraction.
GR-58960	Convert deopt to guard: allow disabling reasoning about counted loops.
GR-59001	Safepoint changes.
GR-59009	Improve trackAcrossLayers
GR-59039	Bump to mx version supporting energy tracking
GR-59049	Espresso unchained build
GR-59050	Removed Truffle Maven downloader JDK-21 gate.
GR-59082	Grow memories faster.
GR-59084	Replace `pulls in` with `includes`.

Issue ID	Summary
GR-59148	Read JNI dictionary from all layers.
GR-59171	Use signature hash for storing @BasedOnJDKFile infos to disk
GR-59182	Begin feature freeze for the 24.2 release.
GR-59202	Include Metadata Maven demo: review and optimize pom.xml
GR-59207	Release GraalVM 24.2.0.
GR-59256	Write missing constants in the application layer
GR-59313	Set `IncludeMethodData` default to false and update InspectTool docs
GR-59403	Do not register constructors as virtual roots.
GR-59419	Implement compact constant pools.
GR-59443	Bump to new Barista version with Startup phase iterations
GR-59509	Implement changes in the csv module
GR-59510	Implement changes in the itertools module
GR-59511	Implement changes in the math module
GR-59558	Allow using LIRKindWithCast with an unknown reference LIRKind

Issue ID	Summary
GR-59590	Reduce vtable slots in application layer.
GR-59627	Aggressively hoist trusted final fields
GR-59641	Basic infrastructure to create a DynamicHub at runtime
GR-59688	Allow compiler newer than Truffle runtime in a minor version.
GR-59702	Generate markdown docs for stable, non-internal graalpy context options
GR-59720	Remove DummyNode, TruffleSafepoint.poll() now accepts null for such cases
GR-59722	Implement VectorSupport::indexPartiallyInUpperRange
GR-59749	Use a contiguous address space for the Native Image Java heap.
GR-59768	Fix expected barrier for atomic updates
GR-59770	Always include the NFI Panama jar, it loads fine on JDK 17 now
GR-59770	Always include the NFI Panama jar, it loads fine on JDK 17 now
GR-59770	Always include the NFI Panama jar, it loads fine on JDK 17 now
GR-59776	Ignore unresolvable resource bundle classes instead of crashing the build

Issue ID	Summary
GR-59780	Add ForNameRespectsClassLoader and integrate Crema in the class loading path.
GR-59783	Change MultiLayerImageSingleton array properties.
GR-59808	Build libtruffleposix and spawn-helper in their own project so they can be used by bootstrap ruby, used for building core extensions
GR-59842	Change loop invariant reassociation to use phis last.
GR-59855	Make StaticFinalFieldFoldingFeature layer aware
GR-59863	Move link resolver to shared module.
GR-59864	Improve handling of agent and host VM version mismatches
GR-59866	Fix WeakKeyMap
GR-59867	Enable more testing with Native Image Layers.
GR-59869	Add SIMD code generation and Vector API support
GR-59875	Fix graph strengthening for open world.
GR-59912	Persist all strengthened graphs from tracked methods
GR-60035	Replace old cast implementation with ToEspressoNode.

Issue ID	Summary
GR-60042	Include fields that are not backed by a reflection field
GR-60056	Bump CI overlay.
GR-60058	Make x52 hardware primary for benchmarking.
GR-60066	Added permissions feature test.
GR-60068	Crema: Inject interpreter execution via vTable stubs
GR-60088	Add org.graalvm.nativeimage.libgraal module.
GR-60093	Keep existing speciesData objects in cache at run-time
GR-60094	Test and review Native Image guides with JDK 24-EA. Part 2
GR-60100	Persist and load all possible annotation values
GR-60108	TRegex: NFA generator improvements.
GR-60112	Pull the verifier from espresso to the shared project.
GR-60116	Persist metadata of AOT types during build-time for Crema
GR-60152	Emit the jump tables in a slow path
GR-60165	Fix incorrect unit in wall clock timer output

Issue ID	Summary
GR-60180	Use the equals method to test whether to combine guards.
GR-60196	Adjust jump table threshold
GR-60207	Process did not finish in expected time in ProcessBuilderTest#testRedirectToStream.
GR-60208	Trace FFM API calls in native image agent.
GR-60209	Implement new foreign configuration file syntax.
GR-60219	Upgrade dacapo
GR-60222	TRegex: multiple fixes for look-behind merging across main expression boundary.
GR-60231	Fix quickening with boxing overloads
GR-60234	Register superclass serialization constructors by default
GR-60237	Introduce serializable flag to reflection metadata
GR-60238	Include JNI reachability metadata with reflection
GR-60239	Implementation of Intl.DurationFormat proposal.
GR-60256	Source position of LoopEndNode should be source not destination

Issue ID	Summary
GR-60266	Set compiler max unit test time to 5 mins.
GR-60280	Invalidate compiler test cache on new options.
GR-60293	Throw a ServiceConfigurationError if the service is not JCA-compliant.
GR-60297	Fix Reachability Analysis in Native Image
GR-60300	Fix -H:+PrintPointsToStatistics option and make it compatible with WP-SCCP
GR-60307	Start 25.0.0 dev cycle.
GR-60320	Use RuntimeResourceAccess to add resources in TruffleBaseFeature.
GR-60340	Change StandardGraphBuilder members access control
GR-60343	Add change tracking for AdaptiveCollectionPolicy.
GR-60345	Safepoint node: model loop link as guard.
GR-60346	Separate .class file parser symbols from Espresso symbols.
GR-60350	Correctly handle in-memory return for direct upcalls.
GR-60356	Compiler intrinsics for new Bytecode DSL APIs should be optional.

Issue ID	Summary
GR-60357	Unrecognized option: sun-misc-unsafe-memory-access=allow.
GR-60358	JUnit Vintage:LanguageSPITest:testCloseInnerContextWithParent.
GR-60363	Update SyncPort info.
GR-60369	JDWP: initialize controller only for the java language.
GR-60370	Disable assertions for code coverage ctw job
GR-60372	Update labsjdk to 24+27-jvmci-b01
GR-60374	Mark SHA3.implCompress0 intrinsic GraalOnly on JDK21.
GR-60376	Resolve launcher executable path on Windows too
GR-60379	Make InternalResourceCache#useInternalResources compilation constant.
GR-60381	Address some docs correction requests.
GR-60382	Handle Enable-Native-Access manifest attribute if present
GR-60383	Avoid recursive printing of exception causes
GR-60387	Fix `mx jvmci-version-check --as-tag` for LTS versions.

Issue ID	Summary
GR-60395	Allow combination of captureCallState and critical(true).
GR-60401	Update labsjdk to 25+1-jvmci-b01
GR-60402	Add vzeroupper upon the entrance of AMD64 sha1 and sha256 stubs.
GR-60405	Update overlay
GR-60419	No exit safepoint if end safepoints are disabled.
GR-60421	Implement package-wildcards for LayerCreate package suboption.
GR-60423	Improve FileSystems.isNormalized(Path) performance.
GR-60424	Bump CI overlay (code owners).
GR-60429	Remove library exclusion for libraries with fixed issues
GR-60437	Backport to 25.0: Update the Maven description for jargraal.
GR-60440	UnstructuredLocking: Cut off control flow at merges with incompatible lock stacks.
GR-60456	Add '--install-exit-handler' to image stages of Barista benchmarks
GR-60459	Add file existence check after 'instrument-run' stage

Issue ID	Summary
GR-60471	Failing weekly-vm-ee-truffle-maven-isolate-jdklatest-darwin-amd64 gate.
GR-60479	Improve linking process.
GR-60489	Fix export of com.oracle.truffle.regex.chardata
GR-60490	Fix initial weight calculation of compilation tasks and prioritize tasks after invalidation with weight bonus.
GR-60495	Adds utility for checking import order in espresso.
GR-60496	Parse Wasm modules directly from JS.
GR-60500	Refactor ImageLayerWriter/Loader
GR-60502	Update SyncPort info.
GR-60504	IV overflow fix fallthrough.
GR-60508	Include more information in the hash of method handle invoker substitution names
GR-60509	Update labsjdk to 25+2-jvmci-b01
GR-60516	Implement Vector API rearrange operation
GR-60528	Increase timeout in ThreadErrnoNFITest.
GR-60530	Ensure layered static field state is initialized before queried.

Issue ID	Summary
GR-60533	Fix NonSnippetLowerings ClassCastException.
GR-60534	Make sure JFR EventConfiguration is scanned.
GR-60548	Cleanly separate word box types by class loader.
GR-60550	Fix registration of VM diagnostics.
GR-60551	Mark all persisted constants as reachable
GR-60553	Bump stack size to 1500K for renaissance spark benchmarks
GR-60554	Improve causalilty reporting for unresolved elements.
GR-60563	Throw NoClassDefFound instead of ClassNotFound when necessary.
GR-60565	Move non-critical DynamicHub fields to companion object.
GR-60574	Move Module and PackageTable to shared code.
GR-60578	Upgrade ASM dependency to 9.7.1.
GR-60592	Deleted services should not be present at run time.
GR-60601	Fix persiting enum values in annotations

Issue ID	Summary
GR-60602	Remove libraries from the native-image layer building test exclude list
GR-60616	Fix br_table branch profiles.
GR-60617	Update ANTLR4 to version 4.13.2.
GR-60623	Halve branch profile counter values on overflow.
GR-60625	JVMCIVersionCheck should complain if executed with outdated JDK major version
GR-60631	Always copy over relocatable section for layered images.
GR-60633	Fix JDWP reconnect logic not resetting all state properly.
GR-60636	Implement Truffle compiler control based on HotSpot's CompileBroker compilation activity.
GR-60640	Expose CapnProtoSchemaHolder to ImageLayerSingletons.
GR-60641	Avoid resolution under bytecode node lock during quickening.
GR-60649	Various fixes for system properties and locales.
GR-60664	Update checkstyle to 10.21.0.
GR-60668	Update js imports.

Issue ID	Summary
GR-60675	Update labsjdk to 25+3-jvmci-b01
GR-60685	Refactor UnsupportedFeatures reporting.
GR-60694	Fix int overflow in ObjectSizeCalculator#increaseByArraySize.
GR-60702	Add 'time-to-first-response' and 'max-time' to the Barista suite
GR-60704	Add GraalWasm to ce-nodejs env file.
GR-60724	Remove jdk-21 libgraal CI jobs.
GR-60740	Refactor field inclusion policy in base layer and improve name checks mechanism.
GR-60743	More documentation in code generated by IntrinsicStubProcessor.
GR-60769	Prepare assembler supports for masked operations
GR-60801	Update labsjdk to 25+4-jvmci-b01
GR-60806	Truffle profiler CLI calltree fix.
GR-60807	Update list of CE release artifacts.
GR-60823	Do not run GraalVM gate on master branch.
GR-60861	Update checkstyle to 10.21.0 in more suites and fixup.

Issue ID	Summary
GR-60865	Mask constant shift amount for reassociation
GR-60866	Use plugin class name to filter fold plugin application
GR-60869	Adopt "JDK-8346986: Remove ASM from java.base"
GR-60873	TRegex: fix corner cases in NFATraversalRegexASTVisitor.
GR-60876	Load all instantiated types in application layer
GR-60879	Revert "Define both native and Java breakpoints to trace Class#getSigners."
GR-61067	Dump embedded resources JSON as compact JSON
GR-61076	Only set TrackNodeSourcePosition if OptimizationLevel is O0.
GR-61094	Make SubstrateSigprofHandler::beforeThreadRun interruptible.
GR-61106	Make HotSpotGraalCompilerFactory.shouldExclude public
GR-61109	Test unchained JVM standalones
GR-61116	Update labsjdk to 25+5-jvmci-b01
GR-61119	Adopt enterprise changes for truffle suites.

Issue ID	Summary
GR-61143	Implement Vector API arithmetic masked operations
GR-61151	Remove internal frames from the top of JFR event stacktraces.
GR-61156	Add optional StageFlag parameter to OpaqueValueNode
GR-61159	Use Env#isPreInitialization() instead of ImageInfo.inImageBuildtimeCode()
GR-61239	Fix BuildPhaseProvider.is*Finished() so that these methods can be used at any time during the image build.
GR-61244	Implement direct jump table fast path
GR-61247	Espresso Java agent support.
GR-61265	Fix state optimization with fallback and implicit cast type guards.
GR-61267	Run microservices workflows Monday mornings.
GR-61273	Exclude packages from coverage report.
GR-61278	Minimise the number of gates that run with tmpfs/
GR-61279	Fixes for various linkage errors.
GR-61281	Run CI job ruby-test-mri-linux-amd64 on native CE too

Issue ID	Summary
GR-61282	Support source sections when linear parsing without look-ahead.
GR-61283	API for restoring ihashcode in continuations package.
GR-61284	Fixes for host & guest NPE around `ClassLoader.getPackages()`.
GR-61285	Relink static final fields across layers
GR-61288	Make -H:Backend= a real option
GR-61295	Lock elimination: add support for cfg==null in isCompatibleLock.
GR-61334	Remove dependencies to AMD64.flags and AArch64.flags
GR-61335	Fix missing synchronization in statistics listener. Fix transient safepoint poll failure.
GR-61342	Move SVM style gate to JDK latest
GR-61346	Simplify _vm_home when no special config is used.
GR-61347	Various serial GC fixes and added option -XX:+PrintVMInfoAndExit.
GR-61363	Shade CapnProto Runtime.
GR-61366	Espresso: support for guest 25.

Issue ID	Summary
GR-61366	Espresso: support for guest 25.
GR-61383	Graal SDK: upgrade JLine to 3.28.
GR-61389	Update overlay
GR-61410	Intrinsic for AArch64 Arrays.fill(array, constant)
GR-61411	Update JCodings to 1.0.63.
GR-61421	Allow InitialLayerOnlyImageSingletons to be folded within future layers.
GR-61425	Update labsjdk to 25+6-jvmci-b01
GR-61426	Ensure that when a reachability handler callback is executed a `DuringAnalysisAccess` object is available.
GR-61427	Set implementations of methods as reachableInCurrentLayer too
GR-61438	Avoid actions/cache in main workflow
GR-61443	Fix which resolution errors are remembered in the constant pool.
GR-61446	Support class redefinition, retransformation and native prefix for Java agents.
GR-61448	Include Compilation ID in truffle compilation logs.
GR-61452	unrolling track created main loops

Issue ID	Summary
GR-61453	Simple computation of instance size.
GR-61455	Fix base layer component hub rescanning.
GR-61457	Warn about unused language allow list entries in language permissions tool.
GR-61458	Do not reset code of unreachable methods and register stub of native substitued methods.
GR-61459	Ensure objects are not modified while graphs are persisted
GR-61460	Reload PolymorphicSignature methods
GR-61469	Fixes for LLVM backend.
GR-61480	Add RuntimeCodeInfoMemory.contains(...).
GR-61481	Fix tier_count values in CPU sampler JSON output.
GR-61488	Remove `warning(String, String, boolean)`.
GR-61492	Add native-image JDWP to the standard GraalVM.
GR-61493	Add RootNode#prepareForCall and use it in Bytecode DSL interpreters.
GR-61494	Analysis Refactoring & Minor Improvements
GR-61496	Exception on LDC with primitive class name.

Issue ID	Summary
GR-61498	Filter java.lang.System$LoggerFinder when tracing resource accesses.
GR-61524	Log configuration entries filtered by the NI agent.
GR-61534	Ensure static word fields are not unsafe accessed.
GR-61548	Add documentation and codeowners for the SubstrateVM JDWP implementation
GR-61565	Move compiler style gate to JDK latest
GR-61570	Don't enable java agents which request unsupported features.
GR-61575	Avoid usage of truffle methods in classfile project.
GR-61577	Remove signatureOffset from DynamicHubOffsets.
GR-61578	Bytecode DSL fixes: uncached transitions and variadic operands to fallback specializations.
GR-61585	Update labsjdk to 25+7-jvmci-b01
GR-61590	Add support for handling unsigned comparisons in points-to analysis.
GR-61593	Use locale-specific default when ignorePunctuation is not set for Collator.

Issue ID	Summary
GR-61595	Small fixes and add more information to crash log output.
GR-61608	Add Graal compiler modules to Graal image VM options
GR-61612	Compilation failure in ImportMetaNode.
GR-61616	Initialize JdkCatalog#catalog in a loop
GR-61619	FirstDayOfWeek in Intl Locale Info API is string (again).
GR-61620	Capacity of UnsafeWasmMemory.asByteBuffer not equal to length of memory.
GR-61621	Move js benchmark jobs to jdk-latest.
GR-61664	Add support for querying ProgressReporter's JSON metric values
GR-61665	Backport for 24.2: Enable the Panama NFI backend by default
GR-61671	Lower floating divs in mid tier.
GR-61673	Refactorings loop utility APIs.
GR-61679	Adopt Source options and use them to replace mime type workarounds
GR-61684	Node-less PythonObjectFactory and inlined PRaiseNode

Issue ID	Summary
GR-61685	Fix IllegalAccessError due to missing export
GR-61687	Fix shared caches should be allowed when used for a single specialization with multiple instances.
GR-61691	Update test262 and fix YAML header parsing.
GR-61692	Add comment to TruffleToLibGraalCalls2 explaining why the class was added.
GR-61693	Host member interop benchmarks.
GR-61695	Fix and improve GHA gate.
GR-61698	Fix of SessionNotCreatedException and renamed toolbar elements.
GR-61700	Backport to 24.2: Update XZ version.
GR-61705	Language permission tool should detect reflective calls.
GR-61710	Change the log level of 'Unexpected executable for slot pointer' messages to fine.
GR-61712	Trace zip file entries loaded from classpath zips as resources.
GR-61718	Fix element-wise Array.prototype.splice.
GR-61720	Move getOptions() to Source instead of language environment; Allow unconditional experimental and sandbox source options usage from internal languages and tools.

Issue ID	Summary	41
GR-61722	Fix last dacapo warmup iteration having the wrong iteration number	
GR-61724	Improve context sensitivity of AccessController#doPriviledge in language permission tool.	
GR-61727	Add timeout detection to SharedEngineMultithreadingTestBase.	
GR-61728	Move the longest running Gradle Kotlin tests to the 'long running' batch.	
GR-61749	Prepend [Constructor] label to Constructor Call Targets (#885).	
GR-61751	Use different scratch registers in MacroAssembler for SubstrateVM	
GR-61766	IV: add intact API.	
GR-61769	Update mx to fix mx build --jdt builtin --warning-as-error	
GR-61769	Update mx to fix mx build --jdt builtin --warning-as-error	
GR-61772	Update labsjdk to 25+8-jvmci-b01	
GR-61776	Add patch for pyarrow v19.0.0	
GR-61782	Update sandboxing documentation	
GR-61783	Add exception edges to failing arraycopy calls.	

Issue ID	Summary	
GR-61789	Avoid language lookups when we already have context	42
GR-61791	Add missing changelog entires for 24.2.0.	
GR-61796	Improve espresso documentation.	
GR-61797	Reads of JavaThread::_cont_entry should use word	
GR-61834	Fix test262 failures on JDK 21.	
GR-61836	Skip transiently failing test on windows.	
GR-61846	Handle WebAssembly.Memory sizes >= 2GB when accessing buffer property.	
GR-61853	Fix perf regression in Polyglot.castWithGenerics.	
GR-61858	Various improvements to espresso substitutions.	
GR-61861	Exclude more projects from jacoco.	
GR-61863	TRegex: exclude test projects from coverage reports.	
GR-61865	Backport to 24.2: Rethrow internal errors during PythonLanguage#initializeContext.	
GR-61866	Backport to 24.2: Order traits in GetForeignObjectClassNode and move the remaining trait-specific methods from ForeignObject to the dedicated trait classes.	

Issue ID	Summary
GR-61867	Backport to 24.2: Change the log level of 'Unexpected executable for slot pointer' messages to fine.
GR-61869	Exclude SDK test projects from coverage.
GR-61877	CaptureStateBegin: adjust assertion, and CTW phase plan fuzzing fixes
GR-61880	Value of gc({ execution: 'async' }) should be a promise.
GR-61881	Backport to 24.2: Move the longest running Gradle Kotlin tests to the 'long running' batch.
GR-61888	Fix @Uninterruptible.
GR-61889	Error message implies Promise rejected in sync modules.
GR-61897	Make option js.text-encoding stable and allowed in SandboxPolicy.CONSTRAINED.
GR-61902	Transient crash in JavaCallWrapper.
GR-61909	Avoid loading datetime and polyglot on startup
GR-61928	Add BaseLayerMethod.isBridge.
GR-61930	Ensure resolved module imports are only used by the importing module.
GR-61933	Espresso: add dummy substitutions for jdk.jfr.internal.JVM.

Issue ID	Summary
GR-61943	Uninline some lib nodes used in the bytecode interpreter.
GR-61946	Nullify PolyglotContextImpl#contextLocals for pre-initialized context.
GR-61947	Do not store OperatorSet references in the AST.
GR-61959	SVM: Add shared arena support.
GR-61966	Dump nodeIdCount in bgv
GR-61967	TypedArray.prototype.slice() should preserve encoding of source data.
GR-61979	Espresso: harmonize style regarding empty line after license header.
GR-61993	Update labsjdk to 25+9-jvmci-b01
GR-61996	adjust basicsize implementation
GR-61997	calculate metaclass during native type initialization
GR-61998	Prevent walking image heap continuations with unpatched references and carrier threads unexpectedly leaking into frames.
GR-62014	Avoid symbol versioning issues in shim libraries.
GR-62027	Fixes of the setting/testing of the integrity level.

Issue ID	Summary
GR-62031	Fix the logging demo configuration example.
GR-62036	Add missing HOSTED_ONLY annotations to CGlobalData.
GR-62038	Do not use field offsets to order fields.
GR-62041	Move JS coverage jobs to jdk-latest and remove jdk-21 nodejs jobs.
GR-62046	Support -H:+MetadataTracing with an empty configuration file.
GR-62047	Trace all dynamic accesses from native image.
GR-62055	Increase timeout for shared engine tests since they are slow under jacoco.
GR-62058	Make coverage gates more robust.
GR-62067	Enable detailed asserts for CI compiler test jobs
GR-62075	Update SyncPort info.
GR-62080	Prevent out-of-memory errors during deoptimization
GR-62081	Fix TypeFlowGraph linearization
GR-62082	Remove obsolete BreakpointInterceptor.rectifyCurrentThread.
GR-62089	Fix boolean boxing elimination in combination with short-circuits could lead to deopt loops.

Issue ID	Summary
GR-62099	Update documentation for SBOMs generated with Maven
GR-62109	Add directives to defer initialization to App Layer.
GR-62114	Update of the revision of TestV8 test-suite.
GR-62119	Remove AccessAdvisor assertions with data races.
GR-62121	Update JFR docs with NMT events and JCMD #10601.
GR-62122	Remove javac lint overrides
GR-62124	Remove jdk.graal.compiler dependency on org.graalvm.nativeimage.
GR-62126	Reverse dependency between svm core and svm configure projects.
GR-62128	Move resetting rethrowExceptions to creating jump targets.
GR-62133	Implement VTable builder in the shared project.
GR-62136	Fix a few integer math corner cases
GR-62143	Preserve all fields in the preserve mode.
GR-62146	Using an explicit locale in locale-sensitive tests and when formatting numbers.

Issue ID	Summary
GR-62151	Reduce footprint of unexecuted bytecode roots
GR-62156	Fix master-to-galahad merge conflict 13.02.2025
GR-62163	Remove redundant references to syserr/out/in and message transport.
GR-62167	Update labsjdk to 25+10-jvmci-b01
GR-62168	Adding a heuristics that identifies wasm-related tests in TestV8 test-suite.
GR-62198	Bytecode DSL: disable the assert in findBytecodeIndex until GR-62198 is fixed.
GR-62216	Miscellaneous cleanups.
GR-62246	Timezones in Intl.DateTimeFormat should not be canonicalized.
GR-62285	Moved compiler coverage jobs to JDK latest.
GR-62290	Fix concurrency issue with base layer graphs
GR-62314	Register libraries from base layer in extension layers
GR-62315	Fix compilation bailout in WasmFunctionInstance.execute.
GR-62316	Reduce system property access in ImageInfo.
GR-62318	Fix PyObject_Bytes specialization consistency

Issue ID	Summary
GR-62325	Exclude private elements from the list of exported messages.
GR-62331	Reducing the amount of transient failures in graal-nodejs gate.
GR-62332	TruffleStrings: add some context to internal error messages.
GR-62333	Add an absolute link to /python/docs.
GR-62335	Removed all JDK 21 compiler suite CI jobs.
GR-62340	Use correct acquisition count in acquireOnOOME.
GR-62345	Avoid crash if InternalResourceRoots cannot determine executable path
GR-62348	Add regression test calling replace with a host replacer function.
GR-62351	Fixes for LLVM 20.
GR-62372	Use the canonicalized name when retrieving TimeZone object.
GR-62374	Add nativeimage-libgraal to module path for non-jlinked JDKs
GR-62375	Refactor printing of help and usage text in jdk.compiler.util.args
GR-62382	Support different user name than openjdk in SyncPort

Issue ID	Summary
GR-62388	Add missing NSPs in UseTrappingOperationPhase.
GR-62389	Move javadoc jobs to jdk latest
GR-62390	Set.prototype.forEach should work with foreign callback.
GR-62391	Add ToPrimitive regression test.
GR-62397	Some inputs in gradle AbstractPackagesTask are set in task config, other in task implementation.
GR-62398	Unify error handling in gradle.
GR-62401	Recompute CFG in peeling during mid tier peeling with floating guards.
GR-62405	Fix: Maven plugin incorrectly prints warning about default resources directory.
GR-62411	Make it easier to debug probe parity issue in the exception/unwind case.
GR-62431	Set.prototype.difference should iterate over the copied .
GR-62433	Fix ClassCastException in super property access.
GR-62435	Expand fixed guards during GuardLowering
GR-62449	Ensure that class initialization status is stable between layers.

Issue ID	Summary
GR-62456	Backport to 24.2: GraalPy Maven plugin incorrectly prints warning about default resources directory.
GR-62457	Update labsjdk to 25+11-jvmci-b01
GR-62459	Make AnnotationParser layer aware
GR-62460	Fix JDWP frames command when thread has no frames.
GR-62461	Check the runtime Java version in thin launchers
GR-62465	Add sq_contains slot
GR-62466	Do not use field offsets to order fields.
GR-62473	It should be possible to seal detached typed arrays.
GR-62474	Add live heap benchmarks
GR-62484	Add support for exception cause into JNIExceptionWrapper.
GR-62498	Encode ClassInfos as a replacement for class fingerprints.
GR-62501	Revert refactor of Method vs. MethodVersion to fix isObsolete().
GR-62503	Remove excess allocations during chunked image-heap laying-out

Issue ID	Summary
GR-62509	JS objects should not be converted to property key/array index using InteropLibrary.asLong().
GR-62518	Add weekly benchmark jobs collecting phase times and memory usage metrics
GR-62522	Fix Deoptimization Issues
GR-62523	Fix jck instrumentation test failures.
GR-62526	Stop processing on malformed input in IntrinsicStubProcessor.
GR-62527	Update the labsjdk URL.
GR-62532	CompactingOldGen: walk only card-marked part of image heap during fixup.
GR-62533	Use Arrays.equals in ByteArraySequence.equals.
GR-62540	Fix return type compatibility check can lead to void specializations being filtered.
GR-62542	Strip mining: properly differentiate between counted and non counted.
GR-62543	Initialize the locking datastructures for the reference handler thread during early startup.
GR-62544	Reinstate size-based full collection decision in adaptive policy.
GR-62547	Allow differences in error messages when running TestV8 test-suite.

Issue ID	Summary
GR-62548	Better langchain interop.
GR-62552	Upgrade Ruby from 3.3.5 to 3.3.7
GR-62554	Backport to 24.2: Update to Ruby 3.3.7
GR-62555	Early check for options which native image ignores.
GR-62557	Add patch for jq to recythonize the C code.
GR-62558	Avoid calling PyObject_Dump on freed objects
GR-62562	Skip methods not reachable in current layer from compilation.
GR-62567	Preserve and upload dacapo output files when a job fails.
GR-62569	Libgraal needs jdk.graal.compiler.management.
GR-62575	Eagerly initialize JdkCatalog#catalog before analysis
GR-62580	Correction of the parsing of milliseconds in legacy dates.
GR-62584	Kill dead locals before calls
GR-62585	Create troubleshooting document in user docs.
GR-62586	Fix transient Time.new specs

Issue ID	Summary
GR-62597	Fall back to non-containerized bundle build for --static.
GR-62598	Use Arrays.hashCode in ByteArraySequence.hashCode.
GR-62599	Sort fields by kind and name to ensure stable order.
GR-62602	Throw consistent error type for unsafe accesses of static word fields
GR-62603	Remove Sulong support.
GR-62604	Suggest to use the next-to-be-released musl version.
GR-62607	Fix JavaMainSupport.mainArgs.
GR-62608	Use fixed version of curl package.
GR-62611	Number.prototype.toFixed accepts up to 100 fraction digits.
GR-62614	Layered ImageHeapMap
GR-62616	Update mx for jacoco fixes and improvements.
GR-62629	Report user errors for huge relocatable objects in heap.
GR-62632	Truffle gates fail transiently during TruffleCompilerRuntime.resolveType.

Issue ID	Summary
GR-62633	Backport to 25: Include all locales, charsets, monitoring, security services, exit handlers with the `-H:Preserve=all` mode.
GR-62635	Share TruffleString.EqualNode used in specialization guard.
GR-62636	Add some documentation for ML-Powered Profile Inference in Native Image.
GR-62642	Remove redundant callee saved register spilling.
GR-62646	Update labsjdk to 25+12-jvmci-b01
GR-62647	Update remote JMX docs with new proxy instructions.
GR-62648	Correction of the CallTarget called by Reflect.construct().
GR-62660	VirtualFileSystem should warn if native extension resources created on different os than executed.
GR-62667	Implement Deferred Import Evaluation proposal.
GR-62670	Avoid deopt loop when stackwalking for exception state.
GR-62672	Refactorings for the identity hashcode support.
GR-62673	Enabling ECMAScript 2025 mode/features by default.

Issue ID	Summary
GR-62674	Build tools: pass --sun-misc-unsafe-memory-access=allow on JDK24+.
GR-62677	Update compiler OWNERS files.
GR-62679	Introduce synthetic module record.
GR-62689	Fix Truffle coverage run.
GR-62729	lambda vs <lambda> repr/str fix
GR-62732	String.prototype.replaceAll('', replacement) should consider substitutions.
GR-62733	Avoid rereading code entries of already instantiated wasm modules.
GR-62734	Fix for transient issue where stack frames were null.
GR-62769	Disable libgraal-specific API if it isn't needed.
GR-62791	Simplify CallDispatchNode
GR-62794	Special case empty storages in CreateEmptyForTypesNode
GR-62799	Fix layers linker errors.
GR-62802	Stop using -UseJVMCICompiler in jt test compiler clone-uninitialized-checks
GR-62804	Avoid resolving java.* classes where possible.

Issue ID	Summary
GR-62810	Use CGlobalData base address from the heap in runtime-compiled code.
GR-62813	On OL9, use a different version of `curl`.
GR-62815	Adapt JDK-8348561: Add aarch64 intrinsics for ML-DSA
GR-62818	ToArrayLengthNode.typeNotNumber() should not accept long values.
GR-62822	Loop peeling: peeling with floating guard fixes.
GR-62824	Treat not only InvokeWithExceptionNode as WithExceptionNodes
GR-62828	Fix the points-to analysis model for reflective/unsafe reads/writes in layered builds.
GR-62834	Native image should respect @jdk.internal.vm.annotation.DontInline
GR-62835	Assertion error when loading native image debug info in GDB 16.
GR-62838	Verify that DynamicHubs are addressable.
GR-62845	Fix inner context memory leaks.
GR-62847	Update labsjdk to 25+13-jvmci-b01
GR-62870	Fixes of the handling of foreign executables in Promise.prototype.finally.

Issue ID	Summary
GR-62872	WebAssembly debugger fixes and extensions.
GR-62881	LLVM_NINJA_TOOLCHAIN: pass -fuse-ld=lld on Darwin too
GR-62882	Exclude Truffle test packages from our coverage gates.
GR-62927	Fix optimized runtime stack trace printing does not handle non-file URLs correctly.
GR-62929	Update docs: embed SBOM by default
GR-62931	Fixes of some corner cases in parser.
GR-62935	Introduce a common timing interface
GR-62939	Specify correct compiler in MUSL_NINJA_TOOLCHAIN and MUSL_CMAKE_TOOLCHAIN.
GR-62960	Skip `compiler_gate_benchmark_runner()` on GHA.
GR-62961	Exclude projects from coverage.
GR-62963	Exclude LSP and DAP protocol implementation pacakes, which are generated, from jacoco coverage.
GR-62966	Prevent absent hashcode computation split across safepoint checks.
GR-62967	Make PythonBuiltinClassType.slots final

Issue ID	Summary
GR-62981	Update GraalPy website to 24.2
GR-62989	Remove NEGATIVE_QUERY from registeredResources in Build Report data when it was replaced with an actual resource
GR-62990	Fields containing classes are not properly supported by the debug info.
GR-63008	Github Truffle workflow times out.
GR-63018	Increase code alignment on AMD64 to 32 bytes.
GR-63022	Make source phase imports stable.
GR-63023	Improve JS exception message.
GR-63025	NullPointerException in InternalResourceImageHeapPath.resolve with -H:-IncludeLanguageResources -H:+CopyLanguageResources.
GR-63028	Prevent rematerialization of SVM's LoadCompressedObjectConstantOp
GR-63031	Enable -H:Preserve=all for macOS.
GR-63032	Enable using the 'energy' tracker on Barista
GR-63033	Add specialized filter primitive flow for constant y operand
GR-63036	Change the Native Image serial GC so that it can support ReduceInitialCardMarks.

Issue ID	Summary
GR-63037	Cleanups and refactorings for STATUS_IN_VM.
GR-63039	Iterator helpers close receiver on argument validation failure.
GR-63041	Don't call well-known Symbol methods for RegExp on primitive values.
GR-63042	Exclude fuzzilli launcher from coverage.
GR-63044	Implement tp_repr and tp_str slots
GR-63047	Inject conditional probabilities for br_table bytecodes.
GR-63054	Fix wrapper node parity on enter/exit in BytecodeNode.
GR-63055	Add info how to Extract SBOM Contents from a native image to SBOM reference documentation.
GR-63056	Fix jdwp crash when writing a class object array.
GR-63061	Update labsjdk to 25+14-jvmci-b01
GR-63069	Fix libffi warnings on Darwin
GR-63074	Support FFM API on macOS/x64.
GR-63075	Restore public access from inherited classes when public access is enabled.

Issue ID	Summary
GR-63089	Value of 'new Intl.Locale("und").language' should be "und".
GR-63092	use dword comparisons in AMD64ArrayIndexOfOp because search values are definitely int
GR-63097	Disable PartialEscapeAnalysis in ObjectCloneTest
GR-63098	Warn when image name starts with dash.
GR-63099	Unrolling: consider guard proxy usages.
GR-63100	Move NativeImageVM and its dependencies to mx_sdk_benchmark.
GR-63115	Disable ObjdumpDisassemblerProvider in native image.
GR-63180	Don't assume that image heap partitions with offset 0 are filler partitions.
GR-63182	Enable FFM API by default.
GR-63200	Use a control flow exception to communicate iterator exhaustion
GR-63201	Optional internal resources can't be used without the jar even when specifying polyglot.engine.resourcePath.*
GR-63203	Add intrinsics for ML-DSA

Issue ID	Summary	61
GR-63204	Multiple OR patterns support, same variable name usage in "case", mapping patma support, class patma support.	
GR-63220	Make ModuleLayerFeature layer aware	
GR-63227	Update SBOM BuildOutput.md, describe unassociated types	
GR-63229	Set CONSTRAINED sandbox policy for js.webassembly option.	
GR-63231	FFM review feedback and fix SVM_FOREIGN dependency	
GR-63234	Make mapping between OptionDescriptors and OptionContainers canonical	
GR-63242	Added feature to dump runtime compiled methods on SVM.	
GR-63249	Defaults dacapo gate to older smaller release.	
GR-63253	Add tools on module path, like Truffle and language distributions	
GR-63262	SVM Serial: Emit imprecise write barriers for arrays in aligned heap chunks	
GR-63268	Do not require negative queries for impossible class names	
GR-63270	Add scripts to build many packages for AI workloads	

Issue ID	Summary
GR-63279	Remaining occurrences of --polyglot.
GR-63280	In the native-image output, format bytes plainly without fractions.
GR-63282	Clarify that native-image -D sets the system property only at image build-time
GR-63323	A couple of fixes for PyMuPDF
GR-63328	Emit additional reinterpret when generating float CAS from node matching rules
GR-63337	Remove pointless parallel stream processing for classpath entries.
GR-63346	Basic graal-js internal access API.
GR-63347	Update labsjdk to 25+15-jvmci-b01.
GR-63348	Truffle docs: update maven configuration example.
GR-63350	Use Oracle GraalVM for 24 ver in OCI and Container Images guides.
GR-63358	AMD64ArrayIndexOfOp: Fix short jump across unknown alignment.
GR-63360	Generate BoundMethodHandle species unconditionally.
GR-63362	Fix numpy regression

Issue ID	Summary
GR-63366	Refactor and cleanup the safepoint handling in Native Image.
GR-63367	Implement tp_init
GR-63375	Support boxing overloads with generic replaces.
GR-63405	Updates to build scripts and patches for torch, numpy, pymupdf
GR-63407	Flush instruction cache after trampoline preparation.
GR-63450	Backport to 24.2: A couple of fixes for PyMuPDF
GR-63451	Move LibGraalLoader to org.graalvm.nativeimage.hosted
GR-63457	Document system properties always included in a native image.
GR-63458	VM crashes when using -Djdk.graal.PrintCompilation=true for runtime compilation.
GR-63459	Update Academic Publications list and UPL license text file (not in java files).
GR-63471	Fix various bugs on lock virtualization
GR-63474	Backport to 24.2: Update to latest graal to test JCodings update

Issue ID	Summary
GR-63487	Mark the new dir layout distributions as no need to merge platforms
GR-63493	Only measure libgraal size with pgo enabled
GR-63494	Simplify the safepoint code and only enable recurring callback support on demand.
GR-63495	Add support for general heap dumping to the compiler.
GR-63504	Cleanup benchmark definitions.
GR-63507	Update SyncPort info.
GR-63510	Move polybench jdk21 jobs to jdk-latest.
GR-63512	Correction of the formatting (to parts) of ranges with infinity on one side.
GR-63524	Fix class names in heap dumps.
GR-63545	Adopt the new unchained standalones for GraalJS.
GR-63547	Adopt the new unchained standalones for Sulong
GR-63549	Fix data race between swapOut and addPredicated in the TypeFlow class
GR-63550	Fix bug in JFR type repository.

Issue ID	Summary
GR-63551	Improve build-time validation of Native Image options.
GR-63556	Implement tp_new slot
GR-63557	Inline multi-line help text for options.
GR-63576	Update CI overlays
GR-63579	Add unimplemented Graal intriniscs for SHA3Parallel.doubleKeccak on AMD64.
GR-63589	Adopt the new unchained standalones for GraalWasm.
GR-63590	Fix trying to invalidate a leaf method assumption for a final method.
GR-63596	Treat "name" entries in legacy configuration files like "type" in reachability-metadata.json
GR-63600	Fix missing optimization configs in benchmarks.
GR-63603	Update labsjdk to 25+16-jvmci-b01
GR-63609	SVM: Optimize Serial GC write barriers of stores on newly created objects
GR-63621	ProfilerCLI incorrectly handles Source#getPath.
GR-63623	Missing Truffle Safepoint poll in bytecode interpreter loop.

Issue ID	Summary
GR-63688	Add sys.graalpy_version_info
GR-63692	X86: Strength reduce test instruction to save code size
GR-63698	Add web-image suite
GR-63723	Remove optimized hub access until compiler bug is fixed.
GR-63729	SVM: Constant fold the object header when initializing an object
GR-63732	Added deliverable parameter to NativeImageProject.
GR-63733	Make Class.forName work with null caller class
GR-63744	Update GraalWasm standalone download urls.
GR-63745	IGV: Use offsets from .bgv file to select appropriate text
GR-63772	Fix serial GC write barrier verification.
GR-63773	Disable tests that exercise the engine.InterpreterCallStackHeadRoomOption on platforms where the option is not supported.
GR-63778	A language with id regex is not installed. Did you mean regex? Installed languages are: regex.

Issue ID	Summary
GR-63785	Avoid passing host null as method receiver and method arguments.
GR-63787	Add GraalWasm microsite.
GR-63789	Fix Joni 2.2.6 checksums
GR-63790	Backport to 24.2: Upgrade Joni version
GR-63797	Add 'layered' VM config modifier and necessary support
GR-63802	WasmCallStubNode cannot be cast to WasmDirectCallNode.
GR-63815	Inspector and DAP instruments accept "false" option value.
GR-63826	TRegex: fix GenerateDFAImmediately option not freeing nfa matcher.
GR-63988	Prepare code for ECJ 3.41.
GR-63991	Native image build with Truffle enterprise fails on GraalVM CE.
GR-63992	Update labsjdk to 25+17-jvmci-b01
GR-63998	Enable -H:Preserve=all on Windows.
GR-64002	Internal ignore lists for -H:Preserve.
GR-64008	Improve saving of the callee save registers

Issue ID	Summary
GR-64010	Storing NO_VALUE in attribute removes the Key Value pair
GR-64011	Layered serialization support
GR-64014	Improve Maven/Gradle plugin docs, update GraalPy version in README.md.
GR-64029	SVM: Must explicitly set optimization level to the default value
GR-64030	Added support for compressing option help text in libgraal image.
GR-64032	Allow non-file URLs in `uriToURL` on SVM.
GR-64047	Fix bytecode updates must preserve cached tags in order to avoid illegal reads.
GR-64051	Debuginfotest fails due to updated debug info for the object header.
GR-64060	MonitorEnterNode frame state verification should consider non-eliminated MonitorIdNode with a virtual state as eliminated.
GR-64061	Footprint improvements in Native Image Builder.
GR-64066	Update libffi to version 3.4.8.
GR-64069	Graal memory usage improvements.
GR-64076	Fix heap dumping issues.

Issue ID	Summary
GR-64077	Implement tp_call slot
GR-64081	Implement new 'graalos' bench suite
GR-64083	Add graalos vm config
GR-64085	Do not append Contents/Home if the Java Home already points to a GraalVM Home.
GR-64086	Add extended dynamic object layout.
GR-64087	Moved polyglot isolate registration to graalpython.
GR-64108	Correction of Array.prototype.flat() producing a foreign array.
GR-64109	SVM: Redundant computation in JavaThreads::getCurrentThreadId when assertion is off
GR-64124	Implement Bytecode OSR batch polling; Fixes and improvements to the bytecode loop in bc DSL; Improvements to SL.
GR-64145	Various Layer{Create,Use} option fixes.
GR-64150	Update stubport info.
GR-64153	Add downstream gates for pybind11 and virtualenv
GR-64154	Prevent pointless stack walking during LogRecord marshalling.

Issue ID	Summary
GR-64157	Don't rely on SIGILL to detect AVX2 support in Sulong test.
GR-64158	Clear primitive stack slots in compiled code when popping
GR-64159	Update labsjdk to 25+18-jvmci-b01
GR-64162	Implement async slots
GR-64171	Add support for ormsgpack and prepare upstreaming some changes
GR-64175	Fix master-to-galahad merge conflict 11.04.2025
GR-64176	Backport to 24.2: Fixes for windows issues in cibuildwheels.
GR-64178	Fix Truffle inInterpreter methods must be marked as opaque to avoid analysis strengthening which modifies the dominator tree needed during host inlining.
GR-64192	Native Image Builder Memory Footprint Optimizations
GR-64193	Vector API runtime compilation support
GR-64194	Invoke teardown hooks in Shutdown#exit substitution.
GR-64208	Reduce virtual calls to Object and reference visitors.

Issue ID	Summary
GR-64209	Adopt attach API changes and fix @BasedOnJDKFile annotations.
GR-64210	Backport to 24.2: Storing NO_VALUE in attribute removes the Key Value pair
GR-64222	Adopt "JDK-8349988: Change cgroup version detection logic to not depend on /proc/cgroups" in libsvm_container
GR-64232	Add Web Image options to ProvidedHostedOptions
GR-64244	Remove Debug.dumpCounters().
GR-64246	Limit Truffle installed code name length and avoid metadata reference in InvokeJavaMethodStub.
GR-64249	Review ExplodeLoop usages in Bytecode DSL interpreter.
[GR-64271]	Add default excludes for generating filelists.txt
GR-64272	Backport to 24.2:: Add default excludes for generating filelists.txt
GR-64314	Print warning when glob is too general
GR-64325	Migrate more layered image metadata to schema.
GR-64327	Backport to 24.2: Add support for ormsgpack and prepare upstreaming some changes

Issue ID	Summary
GR-64329	Run SourceCacheTest#testTraceSourceCacheEviction in a subprocess.
GR-64332	Remove UnimplementedGraalIntrinsics workaround for SHA3Parallel.doubleKeccak
GR-64339	Add implementation of shutil.disk_usage() based on TruffleFile API
GR-64350	Refactor frame immutable field read intrinsics and fix them for native-image hosts.
GR-64420	Use initial system properties for jvmstat performance counters.
GR-64422	Update labsjdk to 25+19-jvmci-b01
GR-64438	Add ops-per-GB-second metric to Barista
GR-64446	Materializing virtual input with lock now causes materialization of virtual objects with lower-depth locks.
GR-64454	Handle deleted IfNode in OutlineRuntimeChecksPhase.
GR-64465	Removed org.graalvm.nativebridge dependency.
GR-64476	Update GitHub Actions workflows.
GR-64478	Update SyncPort info.

Issue ID	Summary
GR-64488	TruffleFile API does not allow discovery of free and used space on filesystem.
GR-64489	Refactor call dispatch
GR-64492	Move TruffleFromLibGraal annotation processor to compiler suite.
GR-64496	Disallow FFM API objects with associated native resources in image heap.
GR-64498	Implement ML-KEM intrinsics.
GR-64531	Escape stars in matching text when fetching hosted only content
GR-64533	Fix uncached should include all specializations that do not have multiple instances, to avoid bad stack values produced by uncached interpreters.
GR-64535	Permit GVN of class initialization checks
GR-64536	Fix rendering on Embedding Insight into Applications page.
GR-64551	Remove SpecialMethodSlot
GR-64554	Introduce DuplicableImageSingletons.
GR-64555	Update labsjdk to 25+20-jvmci-b01
GR-64566	Parse system properties before options.

Issue ID	Summary
GR-64567	Make sys.windowsversion not instantiable
GR-64570	Intrinsify pbkdf2_hmac
GR-64574	Bytecode DSL: add guest VM config for mx benchmark.
GR-64575	Documentation updates.
GR-64575	Documentation updates.
GR-64582	TruffleStrings: add intrinsic for CodePointIndexToByteIndexNode.
GR-64583	Fix no unwrapping in interop read array element.
GR-64584	Base-relative code pointers in vtables for non-layered images.
GR-64587	Fix NPE in --version
GR-64588	Enable RemoveUnusedSymbols on darwin.
GR-64592	Implement AttributeError builtins
GR-64594	Bytecode DSL: Improve Builder Performance.
GR-64606	Track graph size in compilation alarm timeouts.
GR-64619	Make missing registration errors subclass LinkageError
GR-64620	Fix isIdentical invariant contract violation.

Issue ID	Summary
GR-64626	Implement boot libraries in Java for Espresso.
GR-64644	Use eager probes for instrumenting statement nodes.
GR-64647	Fix UnixFileSystemAccessors.reinitialize(…).
GR-64654	Frame immutable field reads float above constructor call
GR-64664	Fix JFR epoch id.
GR-64670	Treat special register writes as memory kills
GR-64675	Remove unused concurrent hashmap PointsToAnalysisMethod.invokedBy
GR-64676	Update SyncPort info
GR-64682	Fix handling of macros in SVM runtime compilations
GR-64687	Create a new java main thread if the stack is not large enough for -Xss.
GR-64695	ExportValueNode.doTruffleObject() should exclude SafeIntegers.
GR-64699	Optimizing iso8601 version of CalendarDateUntil().
GR-64700	Update labsjdk to 25+21-jvmci-b01
GR-64701	Re-parse graphs in OptimizeLongJumpsTest.

Issue ID	Summary
GR-64703	Clear caches after analysis phase.
GR-64716	Fix extreme slowdown in debugger after resuming from a breakpoint.
GR-64723	Fix unicode identifiers
GR-64732	Provide fallback VectorAPIFeature for user-friendly error message.
GR-64734	Use thread states to ensure waited-on TLAs are submitted to threads that are responsive.
GR-64735	Backport to 25: Various preserve-all jobs fail transiently.
GR-64742	Adding (back) casts to TypedArray.lengthInt().
GR-64745	Adapt JDK-8348638: Performance regression in Math.tanh
GR-64747	Do not include Python library pdb by default in gdb-debughelpers.
GR-64752	Remove non-macro-fused patterns.
GR-64753	Consolidate svm-enterprise-truffle-unittests and truffle-native gate.
GR-64754	Docs: Fix `--exclude-config` documentation.
GR-64759	Adopt the new unchained standalones for GraalPy benchmarking.

Issue ID	Summary
GR-64774	EnsureClassInitializedNode.hub should try harder to resolve to a constant
GR-64779	Fix Bytecode DSL check for heap benchmarks.
GR-64781	Pass correct node to inlined branch profiles in various nodes across Espresso.
GR-64783	Fix scipy 1.15 build
GR-64784	Enable serialization for the preserve mode.
GR-64785	Distinguish Examples and Tutorials from other Graal public repos.
GR-64787	Enable --install-exit-handlers by default and deprecate the option.
GR-64817	Small fixes.
GR-64820	Record watchdog activity inside NativeImageCodeCache.layoutConstants.
GR-64824	Only compute heap dumping metadata if needed.
GR-64829	Remove JDK21 specific code in compiler.
GR-64834	Specify the optimization level in all Makefiles
GR-64839	Consolidate JfrJdkCompatibility
GR-64840	Optimized nodes for the common pattern of memory access to GEP.

Issue ID	Summary
GR-64843	Remove JDK 21 Substitutions from Native Image
GR-64844	Fix adapting of loop exit probabilities.
GR-64845	Implementation of Upsert proposal.
GR-64855	Remove JDK 21 code guarded by JavaVersionUtil.JAVA_SPEC from Native Image
GR-64860	Update labsjdk to 25+22-jvmci-b01
GR-64880	Update guava and jimfs dependencies and shade them
GR-64886	Reinforce assertions during thread registration.
GR-64888	Minor access fixes
GR-64899	Fix binary Regexp compilation to TRegex
GR-64914	Fix passing of vm_dims out of python benchmark suites
GR-64919	Fix master-to-galahad merge conflict 12.05.2025
GR-64940	Shared arena: support vector api signatures.
GR-64941	Consolidate Native Image JNI classes after JDK 21 drop
GR-64960	Remove JDK 21 specific code from Web Image

Issue ID	Summary
GR-64965	Do not try to validate type state propagation into disabled flows
GR-64967	Remove "forceJavac" where it was added due to insufficient support from ECJ.
GR-64969	Fix maven tests with longer version string.
GR-64970	Add patch for pygobject that makes it work on 24.2.1
GR-64981	Reliably detect pending deoptimization and correctly handle speculations and invalidation.
GR-64985	Make sure capnproto is hosted only.
GR-64988	Categorize Math.max/min intrinsics as ignored
GR-64995	Update few patches
GR-64999	Fix master-to-galahad merge conflict 14.05.2025
GR-65003	Fix reflection parser when JNI is disabled
GR-65008	Remove sequential reachability handler.
GR-65015	Prepare bouncycastle for initialization at runtime
GR-65020	Fixes for java.specification.maintenance.version and reference constants in large images.

Issue ID	Summary
GR-65021	Unify error object decoration.
GR-65024	Upgrading the underlying Node.js to version 22.15.1.
GR-65026	Move JS interop API into sdk
GR-65033	Don't collect usages of Vector API sink nodes during expansion
GR-65034	Adapt BouncyCastleFeature to changes in JDK 25+23.
GR-65035	Implement JSObject field accesses using JSStubMethods
GR-65037	Prevent new substitutions for bundle apply without create.
GR-65043	Bump to mx version in which 'codeowners' is context free
GR-65045	Fix shared arena support for layers.
GR-65058	Avoid direct intrinsification of Array#newInstance.
GR-65060	Fix monitor wait: a signaled thread did not consume the signal, which led to another thread entering wait to consume its own signal.
GR-65079	Fix weekly jdk21 jobs.
GR-65088	Drop on:push from weekly gates.

Issue ID	Summary
GR-65089	Set the current bench stage for fallback mode benchmarks
GR-65090	Fix possible VMError when dumping runtime compiled code
GR-65107	Set ESPRESSO_HOME in build_espresso
GR-65132	Implement _PyWeakref_ClearRef.
GR-65148	Deploy the new unchained standalones
GR-65176	Fix errors observed in Macaron.
GR-65181	Add shapely build script.
GR-65186	Add patch for torch 2.7.0 etc.
[GR-65190]	Fix raw unicode escape decoder
GR-65209	Use RuntimeJNIAccessSupport only when JNI is set.
GR-65223	Enable WebAssembly in graal-nodejs tests.
GR-65227	Ensure writing same value for all keys in a HashingStorage handles storage generalization
GR-65232	Refactor layer loader.
GR-65237	Backport to 24.2: Implement AttributeError builtins

Issue ID	Summary
GR-65242	Add support for catching missing arrays in hubs in layered images.
GR-65243	Fix transient error in tee builtins.
GR-65248	Don't use more than availableProcessors threads for parallel tests in ContextLocalTest using vthreads.
GR-65267	Update labsjdk to 25+24-jvmci-b01
GR-65269	Dates with missing UTC offset should be interpreted (in nashorn-compat mode) as UTC time when they are "strict" only.
GR-65271	Negative branch probability injected for br_table bytecode.
GR-65272	Fixes for some benchmark and coverage jobs after espresso unchained build migration.
GR-65280	Make sure truffle context is entered.
GR-65291	Make non-concurrent, error causing data structures concurrent
GR-65294	Fix `Class.forName` folding when respecting class loaders.
GR-65296	Use implemented interface as differentiator when generating stable lambda name.
GR-65312	Support for 'notation' option in Intl.PluralRules.

Issue ID	Summary
GR-65319	Fix arguments validation in FileSizeBenchmarkSuite
GR-65325	Backport to 24.2: We have `null` keys in our hashingstorage.
GR-65326	Backport to 24.2: Fix transient error in tee builtins.
GR-65330	Revert breaking ABI in graalpy242 wheels
GR-65335	Backport to 24.2: Revert breaking ABI in graalpy242 wheels.
GR-65349	Fix recursion in PE in object.*dir* and type.*dir*
GR-65374	Unchained standalone cleanups
GR-65385	Populate MatchRuleRegistry with both vector and normal node match rules
GR-65391	Add reflection metadata for HKDF.
GR-65392	TruffleString from long value optimizations.
GR-65403	Fixed semantic for vex reversed operand instructions
GR-65416	Disable signal handling for compilation isolates
GR-65430	Library not loaded: @rpath/libjsig.dylib
GR-65433	Correction of BitSets.equals().

Issue ID	Summary
GR-65447	Update labsjdk to 25+25-jvmci-b01
GR-65462	Implement faulthandler.dump_traceback_later
GR-65488	Use a non-cryptographic hash algorithm implementation for GraphSignature.
GR-65490	Add sqlite3 compile time options similar to CPython.
GR-65512	Add owners for sdk/mx.sdk/mx_sdk_vm*.py
GR-65520	Allow Long128Mask/Double128Mask in frame states
GR-65538	Fix bisect-benchmark
GR-65539	Ignore flaky test on darwin.
GR-65570	add hypothesis patch
GR-65573	Graal error: be pessimistic about exceptions.
GR-65587	Create helper to access os.environ from builtins and use it.
GR-65594	Do not wrap AbstractTruffleException in UserScriptException.
GR-65634	Start 26.0.0 dev cycle.
GR-65639	Multiple smaller fixes for release.
GR-65639	Multiple smaller fixes for release.

Issue ID	Summary
GR-65667	Backport to 25.0: Various bugfixes.
GR-65667	Backport to 25.0: Various bugfixes.
GR-65683	Compile C extensions with setuptools in a venv for our cpyext tests and micro-benchmarks.
GR-65687	Extract libraries based on wheel records
GR-65688	Backport to 25.0: Include resource bundles in resource configuration
GR-65689	Backport to 25.0: Add change log for entry for JDK specific optimizations.
GR-65693	Array iteration using for-of slower than classical for loop.
GR-65694	Normative: Add Intl.Locale.prototype.variants.
GR-65697	Fix ordering of arguments from cmdline and env variables
GR-65704	Update java implementation of zlib module
GR-65705	Backport to 25.0: Make TrackDynamicAccess experimental and make Dynamic Access data structures public
GR-65716	Normative: Require strict matching with a precise ZonedDateTime offset.
GR-65718	Fix torch on 3.12

Issue ID	Summary
GR-65728	Backport to 25.0: Make foreign API support optional in parser.
GR-65737	Backport to 25.0: Support the profile-inference-call-count-ee JVM config.
GR-65750	Remove unnecessary dependency on sulong-managed
GR-65762	Backport to 25.0: Remove vm_common.{sulong,truffleruby,graalpy,wasm, svm_common}
GR-65765	Remove the ObjectHashMap side effecting keys flag.
GR-65774	Backport to 25.0: Integrate foreign configuration into reachability-metadata.json
GR-65779	Backport to 25.0: Remove deprecated OSR frame transfer.
GR-65785	Remove *dict* from typing.Generic
GR-65787	Prepare the 25.0 release branches to receive PRs.
GR-65793	Backport to 25.0: Include loaded array classes in JDWP commands.
GR-65797	Backport to 25.0: Update labsjdk to 25+26-jvmci-b01.
GR-65798	Backport to 25.0: Unclosed half associations for closed socket channels.

Issue ID	Summary
GR-65813	Backport to 25.0: Move FileSystemProviderBuildTimeInitFeature into separate package
GR-65816	Backport to 25.0: Register NativeImageResourceFileSystemProvider for reflective instantiation.
GR-65819	Backport to 25.0: Fix NPE in graph dumping if profiling info is absent
GR-65824	Espresso 25 backports.
GR-65828	Backport to 25.0: JEP 512 should not require --enable-preview
GR-65832	Move native exception state fully to native thread state
GR-65834	Fix possible deopt cycle in property cache.
GR-65839	Use poll() not select() on posix systems to wait for socket connections.
GR-65855	Backport to 25.0: Invariant contract violation for receiver.
GR-65857	Backport to 25.0: NATIVE_IMAGE_OPTIONS does not handle whitespace separators correctly.
GR-65869	Backport to 25.0: Remove unnecessary dependency on sulong-managed
GR-65896	Dynamic Heap Size Manager for Serial GC

Issue ID	Summary
GR-65923	Backport to 25.0: Insight only dumps block variables in GraalJS.
GR-65931	Correction of the resolved locale in Intl-related built-ins.
GR-65932	Backport to 25.0: JFR substitutions for JDK 25+26.
GR-65938	Backport to 25.0: Move the initialization of security providers from build time to run time and place it behind the `--future-defaults` flag.
GR-65940	Backport to 25.0: Deopt cycle detection automatically includes node source positions.
GR-65957	Backport to 25.0: Turn truffle-enterprise into an optional dependency.
GR-65959	Update labsjdk to 25+27-jvmci-b01.
GR-65999	Adding expose-wasm, no-allow-natives-syntax and no-compilation-cache among ignored V8 options.
GR-66016	Launcher: enable JLine FFM provider.
GR-66019	Backport to 25.0: Symbol encoder fixes
[GR-66021]	Add pyarrow 20.0.0 patch
GR-66023	add initial support for initconfig functions

Issue ID	Summary
GR-66026	Reimplement long_to_decimal_string_internal without _PyLong_New
GR-66033	Improve torch GPU memory management
GR-66050	Update patch for orjson 3.10.5.
GR-66053	Backport to 25.0: [native-image] Native image generation fails on infinite loop with array length >10.
GR-66098	Fix test_platform and test_mailbox on Windows
GR-66100	Copy and upload all wheels.
GR-66101	Backport to 25.0: Replace streams with indexed for-loops in layer loader.
GR-66124	Backport to 25.0: Avoid tracing during VM operations.
GR-66127	Backport to 25.0: Small cleanups regarding JDK latest.
GR-66152	Run tests for GraalPy in polyglot isolates.
GR-66189	Backport to 25.0: Fixes for the extended dynamic object layout.
GR-66193	Backport to 25.0: Don't use a base pointer for JIT compiled code and deopt targets.

Issue ID	Summary
GR-66206	Backport to 25.0: Allow classes with failed initialization to be registered again in the app layer.
GR-66210	Backport to 25.0: Memory protection does not work in polyglot isolates.
GR-66212	Use the wrapper at the right place where the Java→native call occurs
GR-66222	Backport to 25.0: Support libffi build with musl-swcfi toolchain
GR-66228	Backport to 25.0: Register Object methods for reflective queries
GR-66235	Remove front matter from user docs.
GR-66253	Backport to 25.0: Enable lambda reflection queries
GR-66256	Backport to 25.0: Add JLine FFM based terminal provider.
GR-66271	Backport to 25.0: Polyglot version check fails during checking when using Version.getComponent.
GR-66288	Backport to 25.0: Don't use TruffleConstantFieldProvider for caching in CachingPEGraphDecoder.
GR-66301	Backport to 25.0: De-duplicate resources in extension layers

Issue ID	Summary
GR-66304	Backport to 25: Clean up after language repositories changes are merged.
GR-66305	Backport to 25.0: Simplify step out logic and cleanup step handling.
GR-66315	Backport to 25.0: Dynamic Heap Size Manager for Serial GC
GR-66339	Check if Multi-Release classes are correctly loaded and error otherwise
GR-66402	GraalPy compatibility page update.
GR-66417	Backport to 25: Print class initialization config once right before analysis.
GR-66427	Avoid stashing native exception upon reference poll when not necessary
GR-66430	Fix performance regression by splitting the bytecode loop
GR-66451	Refactor ReadElementNode.
GR-66462	Implement warnings.warn skip_file_prefixes argument
GR-66497	Add itk patch
GR-66516	Backport to 25.0: Check if Multi-Release classes are correctly loaded and error otherwise

Issue ID	Summary
GR-66558	Make eval/exec work on top-level in embedding
GR-66565	Backport to 25.0: Polyglot isolate do not propagate correct file operation exceptions.
GR-66571	Backport to 25.0: Fix two off-by-one errors in the dynamic varargs implementation.
GR-66576	Add pre-commit configuration
GR-66582	Backport to 25: Fix varargs handling in HostExecuteNode.
GR-66618	Backport to 25.0: Implement source cache statistics for Truffle.
[GR-66705]	Backport to 25.0: Move graalpython-enterprise ci config from ci-overlays
[GR-66705]	Backport to 25.0: Move graalpython-enterprise ci config from ci-overlays
GR-66710	Backport to 25.0: Add basic FFM API tests.
GR-66739	Publish launcher as a Maven artifact.
GR-66769	Assign tiers to CI jobs.
GR-66778	Backport to 25.0: Ignore serialization constructors for reflection
GR-66789	Move downstream tests to GitHub actions

Issue ID	Summary
GR-66796	Backport to 25.0: In AArch64FarReturnOp, write lr late in case it initially holds sp.
GR-66799	Backport to 25.0: API for composable Context configuration.
GR-66827	Backport to 25.0: Refactor `--parallelism` and `java.util.concurrent.ForkJoinPool.common.parallelism` system property handling.
GR-66845	Backport to 25.0: Update versions in Truffle version check.
GR-66906	Backport to 25.0: Use proper SIMD encoding in AMD64ConvertFloatToIntegerOp
GR-66916	Backport to 25.0: Allow cancellation of image-heap laying out
GR-66919	Fix pre-commit for git worktrees.
GR-66930	Merge GraalPy master into 25 release branch.
GR-66930	Merge GraalPy master into 25 release branch.
GR-66930	Merge GraalPy master into 25 release branch.
GR-66932	Avoid sending empty kwargs dicts to native
GR-66933	Backport to 25.0: Context inherits Engine log handler even when not explicitly configured.
GR-67172	Fixes for Cython, part 1

Issue ID	Summary
GR-67184	Ensure bci is constant for infrequentBytecodes
GR-67191	Add graalpy-config utility
GR-67193	Backport to 25.0: Functional Interfaces passed to @JS methods are not callable
GR-67220	Backport to 25.0: Make Dynamic access detection platform independent
GR-67221	Backport to 25.0: Avoid dereferencing possibly dead weakref in thread disposal
GR-67222	Backport to 25.0: PolyglotIsolate fails to attach on some linux system with high load.
GR-67224	Backport to 25.0: Lift findUniqueConcreteMethod to HostedType.
GR-67227	Backport to 25.0: Optimize returned parameter only when all possible callees are visible.
GR-67232	Backport to 25: Also deploy maven artefacts from espresso-shared.
GR-67239	Backport to 25: Introduce WINDOWS_BASE platform without JNI or registering providers.
GR-67254	Update labsjdk to 25+30-jvmci-b01
GR-67255	implement _sha2 builtin module
GR-67263	Backport to 25.0: Fix JFR GC events.

Issue ID	Summary
GR-67269	Backport to 25.0: VectorAPIFeature: register field value transformers for cached vector instances
GR-67297	Backport to 25.0: Provide a concrete action in dynamic access error messages.
GR-67301	Use PyTuple nodes during string formatting as CPython does.
GR-67317	Backport to 25: Adapt JDK-8358179: Performance regression in Math.cbrt
GR-67320	Launcher: Enable JLine FFM provider.
GR-67327	Add missing check for negative value to int.*lshift*
GR-67339	Backport to 25: Resource bundles must be included with -H:Preserve
GR-67414	Backport to 25.0: Wrongly merged polyglot isolate stack traces.
GR-67431	Add support for PyUnicode_FSDecoder
GR-67440	Backport to 25.0: Support jvmstat on Windows if no memory-mapped file is needed.
GR-67449	Fix TruffleString.EqualNode to avoid nested node and extra field
GR-67456	Fix: add use_modules=image for the legacy GraalVM launcher.

Issue ID	Summary
GR-67458	Smoke-test SandboxPolicy.UNTRUSTED.
GR-67469	Backport to 25: Future defaults should be recorded in system properties.
GR-67475	Backport to 25.0: Fix native tracing when metadata is missing.
GR-67495	Backport to 25: DynamicNewArrayInstance and Class#arrayType need to be supported in Preserve
GR-67498	Backport to 25: Improve documentation for isolate tear down from the C API.
GR-67505	Backport to 25.0: Handle linkage errors in SerializationBuilder#superHasAccessibleConstructor.
GR-67515	Backport to 25.0: Github: Add JNI registration Attach API #11199
GR-67522	Backport to 25.0: Intrinsify unsigned float to integer conversion.
GR-67524	GraalWasm 25 backports.
GR-67534	Backport to 25.0: Canonicalize F2D→RoundD→D2F chain to RoundF.
GR-67539	Backport to 25.0: Conversions between floats and unsigned integers, SSE/AVX/AVX512
GR-67570	Backport to 25.0: Rework expansion of inputs to Vector API components

Issue ID	Summary
GR-67584	Backport to 25.0: Symbol encoder fixes and refactor preserve module selector
GR-67598	Backport to 25.0: Fix TruffleString.EqualNode to avoid nested node and extra field
GR-67607	Backport to 25.0: Refactor UnregisteredForeignStubException into a missing registration error
GR-67630	Backport to 25.0: SubstrateDiagnostics and OutOfMemoryError bugfixes.
GR-67631	Backport to 25.0: Fix options ReservedAddressSpaceSize and MaxReservedAddressSpaceSize.
GR-67647	Upgrading the underlying Node.js to version 22.17.1.
GR-67650	Update labsjdk to 25+32-jvmci-b01
GR-67690	Correction of PersistentBase<T>::AnnotateStrongRetainer().
GR-67741	Backport to 25.0: JMX bug fixes
GR-67759	Backport to 25.0: Add FFM method detection to the dynamic access analysis
GR-67780	invokeinterface ICCE is fixed on JDK 25+
GR-67841	Backport to 25: Fix `detach_all_threads_and_tear_down_isolate`.

Issue ID	Summary
GR-67852	Backport to 25.0: Merge master into release branch.
GR-67853	Remove VirtualFrame parameter from CreateObjectNode.
GR-67856	Update 3rd party license file.
GR-67880	Backport to 25.0: Mark k0 register as not allocatable
GR-67892	Prepare for the 25.0 feature freeze.
GR-67917	Backport to 25.0: Prepare for the 25.0 feature freeze of TRegex.
GR-67933	Espresso 25 backports part 2.
GR-67943	Backport to 25.0: Report more information if the heap verification finds a broken reference on the stack.
GR-67955	Backport to 25.0: Upgrade toolchain to musl `1.2.5.1`.
GR-67964	Backport to 25: Remove unnecessary SerialGC image heap partition alignment and filler object support.
GR-67974	Backport to 25: Include metadata tracing with -H:Preserve=all
GR-67986	Backport to 25.0: Better frame anchor verification and fully uninterruptible exception handling.

Issue ID	Summary
GR-67992	Backport to 25: Fix espresso standalone deployment.
GR-68027	Backport to 25: Add a EnableAdvancedRedefinition option that controls both JDWP and agents.
GR-68031	Backport to 25.0: JFR: No tag set matches tag combination [system] for FlightRecorderLogging
GR-68048	Backport to 25: Make `--future-defaults` as fine grained as possible so they can be easily adopted by the community.
GR-68054	Update labsjdk to 25+33-jvmci-b01
GR-68064	Prepare for the 25.0 feature freeze.
GR-68067	Backport to 25: Add EXTRA_IMAGE_BUILDER_ARGUMENTS after regular build arguments.
GR-68075	Backport to 25: fold LoadImageSingletonNodes, Resources in base layer are missed, Persist unsafe accessed across layers, Ensure SVMImageLayerLoader looks up information via the base layer type id.
GR-68081	Backport to 25.0: Snapshot builds seem to trigger Truffle SVM compatibility check.
GR-68098	Backport to 25.0: Fix `memory.grow` out-of-memory case.

Issue ID	Summary
GR-68100	Backport to 25: Build Graal.js and GraalNode.js native standalones without Vector API.
GR-68110	Backport to 25.0: Remove HostedOptionCustomizer.
GR-68113	Backport to 25.0: Fix memory leak in SourceManager.verifiedPaths.
GR-68117	Backport to 25.0: Fix transient failure in TestObjectAllocationOutsideTLABEvent.
GR-68153	Backport to 25.0: Register class metadata on feature API registration behind --future -defaults
GR-68195	Backport to 25.0: Correctly update vector architecture for SVM runtime compilations, delay Vector API stamp computation
GR-68238	Backport to 25.0: Fix GraalWasm SIMD performance issues found in vector-trunc-sat, vector-narrow and vector-q15mulr.
GR-68248	Backport to 25.0: Fix MonitorEnter virtualization issues
GR-68273	Backport to 25.0: Fix two emulated posix shortcomings reported on Github.
GR-68288	Backport to 25: Tracing & registration fixes: fix tracing bugs, rename runtime tracing option, support debug-log, add missing MissingRegistrationError checks.

Issue ID	Summary
GR-68327	TRegex: bugfix backports for 25.0.
GR-68351	Backport to 25.0: Don't share the speculation log between splits of the same call target, it produces false positives in the deopt cycle detection.
GR-68355	Backport to 25.0: Make EventBinding a context heap boundary.
GR-68370	Backport to 25: Fix of 4 issues.
GR-68373	Backport to 25: In deoptimization stub, save registers again and restore return address.
GR-68374	Backport to 25.0: Base reflection TCK tests
GR-68381	Update labsjdk to 25+34-jvmci-b01
GR-68396	Backport to 25.0: Fix -H:TrackDynamicAccess=all collecting unwanted class and module path entries
GR-68400	Backport to 25: Support java.management in with -H:Preserve=all.
GR-68411	Backport to 25: Fix non-determinism in the interaction between inlining before analysis and simulation of class initializers
GR-68434	Backport to 25.0: The truffle-jvm gate fails on oracle-jdk24.
GR-68486	Backport to 25.0: Downgrade GraalWasm Java compliance to 17+ again.

Issue ID	Summary
GR-68516	Backport to 25.0: Fix post-merge benchmarks
GR-68568	Backport to 25.0: Fix autopatch_capi overruning into preprocessor directives
GR-68570	Backport to 25.0: Only calculate resource stats if reachable.
GR-68592	Fix loader issue that occurs with -H: -StripDebugInfo.
GR-68614	Backport to 25.0: Create polyglot-isolate library for wasm language.
GR-68628	Fix signature and return type in generated header files.
GR-68634	Backport to 25.0: Significantly reduce inlined field allocations for transitive node object inlining.
GR-68639	Backport to 25: Misc Espresso fixes.
GR-68674	Update labsjdk to 25+35-jvmci-b01
GR-68825	Backport to 25.0: Fix truncated decompression in java zlib backend
GR-68869	Update labsjdk to 25+36-jvmci-b01
GR-68876	Backport to 25.0.0: Comment out lock assertion that doesn't always hold.

Issue ID	Summary
GR-68894	Backport to 25.0: GraalWasm performance regressions due to unsupported Vector API expansions.
GR-69039	Remove Jipher from the base GraalVM EE artifact.
GR-69263	Update labsjdk to 25+37-jvmci-b01

6. Upgrading to the New Version

To keep your Liberica NIK up-to-date and secure, always upgrade to the newest available version once it is released. To upgrade, install the new version over the previous one. For the installation instructions, see Liberica NIK Installation Guide.

Liberica Native Image Kit
25.0.0-1 (25+37)
Release Notes

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