

Liberica Native Image Kit 24.2.0+1 (24+37) Release Notes



Liberica NIK
24
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be//soft

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1. Introduction

This document provides information about Liberica NIK release.

This particular version of Liberica NIK 24.2.0+1 is based on Liberica JDK 24+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 24.2.0 supports the following languages and frameworks:

Component	Version
LLVM	18.1.3 (GraalVM CE Native 24.2.0)
Python	3.11.7 (GraalVM CE Native 24.2.0)
Node.js	22.13.1
Java	Liberica JDK 24+37
Java Script	GraalVM JavaScript (GraalVM CE Native 24.2.0)
TruffleRuby	24.2.0 (Ruby 3.3.5)
Native Image	GraalVM version 24.2.0 (Liberica JDK 24+37)
Wasm	WebAssembly (GraalVM CE Native 24.2.0)

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 ruby/spec
GR-17457	IGV must be run on a LTS JDK so always do that for <code>jt_igv</code>
GR-17457	Pass <code>--import-inner-classes</code> to <code>mx intellijinit</code>
GR-17457	Remove splitting and inline caching of <code>Regex#to_s</code> and <code>Regex#quote</code>
GR-17457	Revert "Use an identity profile to try to make the <code>RegexObject</code> PE constant in <code>MatchInRegionTRegexNode</code> "
GR-17457	Update copyrights
GR-17457	Update Eclipse SDK to 4.26
GR-17457	Update to <code>actions/{upload,download}-artifact@v4</code>
GR-17457	Use the new <code>Env#getLanguageInfo()</code> to get a foreign object language's name
GR-17797	Improve docs around <code>loop</code> API.
GR-18163	Add <code>rb_gc_mark_locations</code> C function
GR-18163	Add <code>rb_syserr_fail_str</code> C function

Issue ID	Summary
GR-18163	Add <code>-Wl,-z,lazy</code> to <code>RbConfig::CONFIG['dldflags']</code>
GR-18163	Change order of module creation steps and assign a module's full name before calling the <code>Module#const_added</code> callback
GR-18163	Declare <code>File::SHARE_DELETE</code> constant
GR-18163	Do not consider deprecated functions as errors for core C extensions and prefer OpenSSL 3.0, then OpenSSL 3.x, then OpenSSL 1.1
GR-18163	Fix building native with OpenSSL 3
GR-18163	Fix <code>Kernel#eval</code> with non-Ruby shebang
GR-18163	Fix <code>Marshal.dump</code> when a <code>Float</code> value is dumped repeatedly
GR-18163	Fix <code>Module#include</code> for nested modules
GR-18163	Fix <code>rb_gc_mark_locations</code> and don't mark object twice
GR-18163	Fix some issues to support <code>rb_sys</code> gem
GR-18163	Follow-up to recently merged PRs
GR-18163	Implement <code>rb_category_warn</code> C function
GR-18163	Implement <code>rb_enc_interned_str</code> (#3706)
GR-18163	Implement <code>rb_hash_bulk_insert</code> (#3715)
GR-18163	Implement <code>rb_str_format</code> C function
GR-18163	Implement <code>rb_str_strlen()</code> (#3699)

Issue ID	Summary
GR-18163	Inherit Polyglot::ForeignException from StandardError
GR-18163	Prefer OpenSSL 3.0, then OpenSSL 3.x, then OpenSSL 1.1
GR-18163	Refactor constructing a SystemCallError's message string
GR-18163	Reimplement Float#round in a way it is done in MRI
GR-18163	Repair serialising Data instances into Marshal format
GR-18163	Share a Fiber as soon as it's created and sharing is enabled
GR-18163	Untag passing Float#round spec
GR-18411	Replace a deprecated legacy Graal option <code>graal.</code> with <code>jdk.graal.</code> in <code>jt.rb</code>
GR-19220	Add version-related keys to <code>RbConfig::CONFIG</code>
GR-19220	Support <code>index/length</code> args for string passed to <code>String#bytesplice</code> (#3674)
GR-19220	Support <code>Time.new</code> with string timestamp argument and error when invalid (#3702)
GR-19220	Update MRI test exclusions
GR-19691	Add entry in Known CVEs document for ReDoS vulnerability in REXML
GR-19691	Add links to find the version of JOni and JCodings
GR-19691	Document the advantages of Oracle GraalVM in more details
GR-20446	Fix recently imported specs

Issue ID	Summary
GR-21590	Update Python imports.
GR-22782	Sulong launchers code modified to facilitate single-image launchers.
GR-23997	Periodic update of the graal import.
GR-24080	Bugfixes, refactorings, and cleanups for the Posix signal handling.
GR-24720	Refactor the GC options to use a single option.
GR-24847	Loop stamp improvements.
GR-24914	Make FMA a ternary arithmetic op
GR-24929	Add Alias for ConcurrentHashMap.NCPU and similar.
GR-26395	Periodic update of the graal import.
GR-26395	Periodic update of the trufferuby import.
GR-28037	Do not kill final field locations for volatile operations during read elimination.
GR-28239	Temporal fixes.
GR-30264	Call TruffleLanguage#{initializeThread,disposeThread} on that thread
GR-32682	Add initial version of the Bytecode DSL.
GR-32975	Increase test timeout for very slow machines.
GR-36056	Remove workaround around build assertions in a specific benchmark.
GR-39718	TruffleStrings: implement canonicalization of CalcStringAttributesNode.

Issue ID	Summary
GR-40265	Set proper class loader to a proxy class
GR-40323	Add MethodHandles.Lookup parameter to Shape.Builder.layout().
GR-40746	fix prioritization of OSR tasks in compilation queue of Truffle
GR-40931	Add experimental Truffle support for VirtualThread on HotSpot
GR-40931	VirtualThread support in Truffle on HotSpot
GR-41197	Remove SafepointSampler from the codebase.
GR-41197	Update conditional in PosixSubstrateSigprofHandler.
GR-41738	Clean up IdentityHashCodeNode lowering
GR-41919	Prepare for JUnit upgrade.
GR-41981	Use canonical resource path in resource registration
GR-42711	Expose foreign types on the polyglot module, make ForeignBoolean inherit from ForeignNumber and complete ForeignNumber
GR-42711	Fix array element types in the Ruby TCK
GR-42711	Give a composed class based on interop traits for foreign objects
GR-42711	Improve TCK error messages
GR-42711	Inherit from single-trait classes directly
GR-42711	Make foreign numbers inherit from ForeignNumberType, foreign strings from str and fix TCK

Issue ID	Summary
GR-42711	Rename GetHashingStorageNode to GetSetStorageNode and review usages
GR-42711	Use the source test python files, not the copy in test project output dir
GR-42743	Add runtime support for interpreter
GR-42796	Bump CI overlay.
GR-43361	Whole-Program Sparse Conditional Constant Propagation
GR-43505	Explicitly emit VEX or EVEX encoded instructions
GR-4353	Improve stamps for floating point arithmetic
GR-43631	Allow interop exceptions as exception state
GR-43927	Expose call tree roots from CallTreePrinter
GR-44710	Add workaround to activate the default stringio gem on require "stringio"
GR-45043	Update Prism to 1.0.0
GR-45043	Update Prism to v1.1.0
GR-45171	Basic JVMTI infrastructure.
GR-45200	Use a safe cast when retrieving the storage in array-based static objects.
GR-45238	Removing package-lock.json files of unused tools with obsolete dependencies.
GR-45299	Add documentation for using the SBOM GitHub integration for vulnerability/dependency tracking

Issue ID	Summary
GR-45416	CompilationAlarm shouldn't interfere with snippet creation
GR-45874	Add Native Image New Issue Template
GR-45910	Update developer instructions for substratevm.
GR-45919	Support generational ZGC.
GR-46292	Remove deprecated TruffleInstrument.Provider and TruffleLanguage.Provider.
GR-46386	Throw missing registration errors for JNI calls
GR-46615	Print output when ProcessBuilder#testRedirectToStream fails.
GR-46615	ProcessBuilderTest did not finish in time.
GR-47019	Make Image Heap code more extensible
GR-47672	Use generic types as targets in Espresso interop.
GR-47956	Add ExtraCallStackHeadRoom option for truffle compiled code on SVM.
GR-48338	Add options to include all classes from the class path
GR-48352	Add timer logging support to the ParseTask class
GR-48384	Layout distributions can include files from the suite.
GR-48384	Update GDB debugging support for Native Image with gdb-debughelpers.py.
GR-48439	Convert igvutil.args to common utility
GR-48910	Add Arrow Vector support

Issue ID	Summary
GR-48910	Introduce <code>enable_java_integration</code> method.
GR-49264	Make <code>NativeImageHeap#readInlinedField</code> public
GR-49291	Open <code>CompilationTask</code> for extension
GR-49347	Check if modules contain packages before attempting to open/export
GR-49349	Document why we need to <code>updateShape()</code> before <code>markShared()</code>
GR-49349	Remove unnecessary <code>updateShape()</code> calls
GR-49426	<code>GuestGaal</code> .
GR-49517	Add support for Windows x64 unwind info.
GR-49635	Update <code>ClassLoaderValue</code> maps to properly support modular service loading
GR-49661	Refactor <code>DataBuilder::createMultiDataItem</code>
GR-49845	Add system modules implicitly required by the application to the image builder module graph
GR-49857	Add option <code>ZapNativeMemory</code> .
GR-49863	Check <code>JDK_LATEST_PROFILES</code> if version specific ones can't be found.
GR-50090	Invalidate all code on compiler unit test.
GR-50334	Disable network IGV dumping in <code>libgraal</code> .
GR-50987	Use <code>self.benchSuiteName</code> instead <code>self.name</code> in <code>mx_vm_benchmark.py</code>

Issue ID	Summary
GR-51000	Always use a heap-base register.
GR-51083	Avoid reflection in <code>ForkJoinTask.getThrowableException()</code>
GR-51156	Extract resource name from url
GR-51270	Add the <code>profile-inference-debug-ee</code> jvm config.
GR-51303	Rework <code>VectorSupport</code> substitutions
GR-51409	Attempt to setup image heap using <code>mremap</code>
GR-51409	Image heap fallback to <code>mremap</code>
GR-51455	Create Gradle plugin with similar features as our Maven plugin.
GR-51479	Implement <code>cgroup</code> support in native code.
GR-51527	Only allow <code>safe</code> or <code>unsafe</code> <code>abs</code> explicitly in the code base.
GR-51588	Create <code>jmp</code> instruction whose operand is patched later
GR-51653	Expose method printing format and ability to collect transitive module readers
GR-51653	Expose method printing format from <code>CallTreePrinter</code>
GR-51653	Expose transitive module readers from <code>NativeImageGeneratorRunner</code>
GR-51805	Verify <code>init</code> memory semantics
GR-51913	Fix deoptimization into an exception handler.
GR-51925	<code>LateLoweredNode</code> for Graal.

Issue ID	Summary
GR-51974	Track never-null instance fields in the static analysis.
GR-52034	Convert IGV to maven build and update to netbeans 22
GR-52096	Set default locale at run-time.
GR-52150	Documentation of the C API memory management, inline comments, rename UpdateRefNode.
GR-52150	Python GC.
GR-52267	Update ReflectionUtil to enable lookupClasses with custom class loaders
GR-52317	Lift restriction on deoptimization in VirtualThreadJFRTTest.
GR-52445	AMD64MultiStackMove is now aware of intermediate killed stack slots.
GR-52473	Allow custom constructors for arrays and enums.
GR-52562	Add arithmetic optimizations around integer negation.
GR-52624	TruffleStrings: avoid OOM in TruffleStringBuilder.inflate.
GR-52651	Simplify BigInteger.implMultiplyToLen intrinsic.
GR-52676	Enable the Panama NFI backend by default
GR-52729	Compress ICU4J resources.
GR-52790	Print stack trace of UserException causes.
GR-52799	Support stepping in combination with suspend/resume in Truffle debuggers.

Issue ID	Summary
GR-52843	Add jsnative option to mx_graal_js to simplify building a native executable using an unchained GraalVM.
GR-52996	Improve VS detection and related error messages.
GR-53007	Emit linker relocations for MethodPointers
GR-53025	Format stable lambda names by parsing the bytecode directly.
GR-53040	Simplify PyTraceMalloc_Track, fix tox 4
GR-53428	Libgraal compilation error: java.lang.NullPointerException: Foreign object reference created in scope is no longer valid
GR-53439	Optimisation of #== methods
GR-53443	The last splitting fixes
GR-53451	Eagerly initialize libsvm_container
GR-53454	Fix @ReportPolymorphism warnings in Espresso
GR-53454	Warn when @ReportPolymorphism is used incorrectly
GR-53462	Document each slot in SlotKind
GR-53462	Fix mx warnings about transitive requires
GR-53462	Show the Java stacktrace for internal errors by default
GR-53462	Small fixes in BuiltinConstructors
GR-53477	Implement source phase imports proposal.

Issue ID	Summary
GR-53477	Integrate WebAssembly modules with ES modules.
GR-53482	Provide musl-dynamic test setup.
GR-53484	Provide musl-dynamic test configuration.
GR-53531	Implementation of Math.sumPrecise proposal.
GR-53576	Respect compressible flag for null in HostedConstantAccess
GR-53605	Outline the check for collecting embedded resources information
GR-53621	Extend Specify Class Initialization Explicitly guide with a demo part.
GR-53634	Handle static frame slots in BytecodeOSRMetadata#restoreParentFrame.
GR-53663	Implement Native Image Layers options.
GR-53669	Add layered stack walking support
GR-5369	Periodic update of the Graal import.
GR-53716	Add utility for replacing resource data after analysis.
GR-53754	Update Academic Publications page.
GR-53936	Adopt newer lock add idiom from HotSpot
GR-53938	Error when importing one function from JS under different type signatures.
GR-53938	Reimplement linking wasm module imports from JS.

Issue ID	Summary
GR-53994	Fold GraalVM CE and Oracle GraalVM install guides into one version; Add more installation options.
GR-53994	Update file path.
GR-53994	Update path to Getting Started guide
GR-54030	Weekly benchmarking CI load reduction.
GR-54031	Various JNI-related bugfixes.
GR-54068	Backport to 24.2: WebAssembly Relaxed SIMD Proposal.
GR-54085	Add regression test for asinh, acosh, and atanh.
GR-54085	Implement asinh, acosh, and atanh using MathUtils.
GR-54085	Reimplement asinh, acosh, and atanh using MathUtils.
GR-54112	Promote IgvHacks to IgvUtil
GR-54128	Re-import libsvm_container code and add change detection annotations
GR-54137	Persist and reload analysis graph in extension layers
GR-54142	Fix a problem with SEGFault in GameOfLife.
GR-54153	Add JDKLibDirectoryProvider image singleton
GR-54164	Create unnamed module counterparts in the runtime module graph
GR-54169	Make Stackifier not modify CFG Basic Block IDs.

Issue ID	Summary
GR-54193	Documentation for the exact reachability metadata.
GR-54203	Fail at image run time instead of image build time for complicated JSR-RET structures.
GR-54219	Avoid recursion in GraphOrder and SchedulePhase
GR-54231	Update GraalWasm embedding documentation.
GR-54245	Make NativeImageGeneratorRunner extensible
GR-54266	Reduce amount of benchmarking CI usage for JS.
GR-54300	Improve GC based disposal of polyglot engine and context.
GR-54304	Use valid placeholder return value during inlining
GR-54326	Espresso: continuations cooperation with instrumentation.
GR-54331	Nightly dev builds are based on JDK24.
GR-54333	New guide: Optimize a Native Executable for File Size.
GR-54354	Add Build Report reference documentation for the GraalVM web site
GR-54359	Add a new guide for Native Image SBOM support.
GR-54383	Start 24.2.0 dev cycle.
GR-54410	Update native-image/PGO.md toc_group.
GR-54457	Refactor resources docs

Issue ID	Summary
GR-54467	Jobs matching daily-bench-vm-.e-polybench-linux-amd64 timeout.
GR-54471	JFR CPU profiler should respect the sampling period.
GR-54472	Resolve merge conflits.
GR-54474	Use non-prefixed variants of fstat/lstat on Linux.
GR-54476	Deprecate legacy Graal option prefixes.
GR-54491	Add OWNERS file for espresso.
GR-54495	Fix off-by-one-bit error in MathUtils.asinh.
GR-54495	MathUtils.asinh result is off by one bit vs fdlibm.
GR-54502	Developer info is consistent with other suites.
GR-54502	Fix organization.
GR-54502	Update mx version.
GR-54505	Validate Wasm function arguments when called through Interop.
GR-54509	Enabling ECMAScript 2024 features by default.
GR-54515	Extend graal/docs owners list.
GR-54516	Support an arbitrary amount of threads in ThreadLocalHandshake
GR-54517	Get rid of FrameInstance#getFrame(READ_WRITE) in Sulong.
GR-54518	Polish Continuations API

Issue ID	Summary
GR-54523	Remove Unreachable Globs from Trie
GR-54524	Refactor the MXBean support.
GR-54543	Derived offset iv: properly implement isConstantStride for masked negate strides.
GR-54544	Specjbb2015 upgrade to 1.04 and removal of thread limitations.
GR-54550	Pool reachability handlers for reflection registrations
GR-54555	Replace sun.misc.Unsafe with jdk.internal.misc.Unsafe in the compiler.
GR-54568	Record activity in encodeFrameDatas().
GR-54569	Simplify HotSpotFastThreadLocal and HotSpotThreadLocalHandshake
GR-54570	Add an example of using the continuation API with serialization.
GR-54571	TemporalUtil cleanup.
GR-54574	Fix slnative command to support sl arguments starting with -.
GR-54580	Update labsjdk to 23+26-jvmci-b01
GR-54584	Reduce code size should be false by default.
GR-54591	Update labsjdk to 24+1-jvmci-b01
GR-54595	Move compiler bootstrap gates to dailies.
GR-54598	Fix handling of unstructured locking in the presence of deopts.

Issue ID	Summary
GR-54600	Fix StrengthenGraphs for LoadFieldNode when analysis is context sensitive.
GR-54610	Do not let undefined symbols be redefined.
GR-54617	Convert CE style jobs back to gates.
GR-54621	gate-vm-truffle-native-tck-js-jdk23-linux-amd64 fails on JDK 23+26.
GR-54623	Getting rid of some truffle-related deprecation warnings.
GR-54626	Update the embedders guide to include instructions on how to use polyglot isolates for specific platforms.
GR-54628	Migrate Temporal rounding and related operations to latest spec.
GR-54633	Update Musl Libc dependency setup.
GR-54633	Update Native Image static linking guide.
GR-54640	Skip transiently-failing assertGc() with virtual threads in ContextAPITest#testMultithreadedEnterLeave
GR-54642	Update CI overlay.
GR-54643	Ensure # of virtual threads < # of carrier threads in TruffleSafepointTest
GR-54647	Remove concept of frozen unsafe accessed fields.
GR-54648	Require that built-in libraries must have a JNI_OnLoad_libname function.
GR-54649	Merge master to galahad
GR-54653	Resolving error message-related failures in es-module test-suite.

Issue ID	Summary
GR-54656	Update SyncPort w.r.t. JDK-8329141: Obsolete RTM flags and code.
GR-54657	Prepare for JUnit upgrade
GR-54658	Prepare for JUnit upgrade.
GR-54661	Graph traversal fix in TypeFlowGraphBuilder
GR-54663	Order reachability-metadata.json fields
GR-54664	Only emit fallback configuration files if they contain data
GR-54671	Enhance truffle compilation logs.
GR-54674	Trace Polyglot Source Cache
GR-54678	Fixed deadlock in engine close while joining system threads.
GR-54683	Merge master to galahad.
GR-54684	Update mx version
GR-54685	Condition typeReached for Unsafe.allocateInstance.
GR-54686	Intrinsify Python _struct module.
GR-54687	Support converting foreign object to a non-mapped interface.
GR-54692	Accept malformed type descriptors coming from user files with a warning
GR-54695	Fix setPendingFlagForVirtualThread() and cleanup TruffleSafepointTest
GR-54696	Add a timeout for GitHub Actions jobs

Issue ID	Summary
GR-54696	Fix LoomTest#testManyVirtualThreads and re-enable it in CI
GR-54696	Re-enable LoomTest#testManyVirtualThreads in CI
GR-54696	Skip LoomTest#testManyVirtualThreads and add a timeout for GitHub Actions jobs
GR-54696	Skip LoomTest#testManyVirtualThreads as it is too slow and can hang
GR-54703	Add reflection metadata for jfrTracing field.
GR-54706	Fix WebAssembly caching.
GR-54706	Wasm modules compiled and instantiated via the JS API should be cached.
GR-54707	Refactor BuildConfiguration checks in ControlFlowGraph.
GR-54709	Introduce ApplicationLayerOnly and MultiLayer Image Singletons.
GR-54712	Add layered string interning support.
GR-54720	Fix RootNode.isCaptureFrameForTrace.
GR-54722	Fixes of performance regressions caused by resizable ArrayBuffers.
GR-54723	Optional chaining should work with foreign functions.
GR-54724	Make LocalizationSupport.registerBundleLookup thread safe.
GR-54725	Implement Promise.try proposal.
GR-54729	AbstractPolyglotTest#threadPool(N, vthreads) should create N threads and not more

Issue ID	Summary
GR-54732	TRegex: add new MATCH_BEGIN and MATCH_END position assertions for OracleDBFlavor.
GR-54733	Warn about deprecated config files in META-INF directories
GR-54734	Avoid using ClassCastExceptions as control flow in ToEspresso/ToReference nodes.
GR-54737	Add support for layered thread locals.
GR-54740	Loop exit: all with exception nodes that are used as value nodes need begin nodes for schedule.
GR-54741	Enforce strong hashes for mx downloads.
GR-54742	Support class file format errors in method parameter encodings.
GR-54744	Espresso: Improve polyglot stack traces.
GR-54745	Update labsjdk to 24+2-jvmci-b01
GR-54751	Added inspect.SuspensionTimeout option.
GR-54752	Do not set the unchecked stamp for interface arrays to a single implementor type.
GR-54752	Reduce MethodInlineBailoutLimit significantly.
GR-54753	Fix InterpreterCallStackHeadRoom changelog.
GR-54756	Implement JVM_ArrayCopy on Darwin
GR-54768	Merge master to galahad.

Issue ID	Summary
GR-54771	Build libffi with -fvisibility=hidden.
GR-54772	Install TruffleTestClass both in TestRunner#createTestClass and TruffleRunner.ParameterizedRunner constructor in order for it to work both with JUnit 4.12 and 4.13.2.
GR-54775	Fix issues found running gradle daemon.
GR-54781	Use --process-hidden in apply-predicates.
GR-54787	Fix documentation of unstructured locking in BytecodeParser.
GR-54790	Add maven downloader to (node)js jvm standalone.
GR-54790	Infer default maven artifact version and output dir.
GR-54791	Add note about GraalPy Gradle availability on Embedding Build Tools page.
GR-54791	Rendering and GraalPy version corrections in user getting started.
GR-54791	Synchronize master with docs/graal-vm/24.1.
GR-54799	Review and update Truffle READMEs and Language Tutorial doc.
GR-54802	Add required release updates to docs for GraalVM JDK 23 release.
GR-54802	Addressed the docs build post-gate failure.
GR-54802	Review Security documentation.
GR-54802	Update the Existing Support document in graal/docs.
GR-54824	TRegex: fix OracleDB base case fold table.

Issue ID	Summary
GR-54826	Update mx version
GR-54827	Ensure DeoptimizationSupport is enabled before accessing the singleton.
GR-54828	Use truffleattach to avoid the need for --add-exports=java.base/jdk.internal.misc=jdk.graal.compiler.
GR-54837	Remove warning around dynamic linking of musl.
GR-54841	Allow StrengthenGraphs to query FieldTypeFlow state for context sensitive analysis.
GR-54844	Enable -H:+IgnoreMaxHeapSizeWhileInVMOperation for polyglot isolate builds by default.
GR-54849	Support emitting code when closing the assembler.
GR-54850	Respect UseSecondarySupersCache and UseSecondarySupersTable
GR-54851	Check that function/block type index is in bounds.
GR-54851	Fix handling of trailing code after terminating end marker.
GR-54852	Fix JDWP unexpected errors relating to array commands.
GR-54859	Set the CI components of truffle gates correctly
GR-54861	Type converters should apply for specific exception ToEspresso nodes.
GR-54868	Fix bugs in the Espresso frame analysis.
GR-54871	Execute bootstrap methods for Proxy at image build time.
GR-54872	Replace ObjectFileTransformer with Feature callback

Issue ID	Summary
GR-54873	Make musl optional for RISC-V
GR-54877	Update labsjdk to 24+3-jvmci-b01
GR-54881	%TypedArray%.prototype.map should use Set (not CreateDataPropertyOrThrow).
GR-54885	Remove knowledge about deoptimization from static analysis.
GR-54886	Improvement to continuation debugging experience.
GR-54889	Additional machO assert when creating a relocation record
GR-54896	Fix digest warnings for downloads.
GR-54900	Delete snippet template return node duplicate if alive.
GR-54901	Make overflow checking a mandatory phase.
GR-54903	Decomission GraalVM Tools for Java VS Code extension.
GR-54904	Fix thread initialization in Panama NFI for pre-existing threads.
GR-54905	Allow Truffle NFI Panama to use Linker#{downcallHandle,upcallStub} without warnings
GR-54905	Export Panama APIs to Truffle NFI using an Accessor.
GR-54910	GuestGraal: Add support for truffle run-time compilation - method handles for upcalls
GR-54910	Lookup truffle method handles.
GR-54914	Add some validation to methods in VirtualFileSystem.Builder

Issue ID	Summary
GR-54915	Remove deprecated "proj" folder references from embedding VFS.
GR-54916	Decouple method ordering strategy from NativeImageCodeCache.
GR-54917	Do not include array indices among the fields of the fake class.
GR-54917	Including array elements among members.
GR-54918	Rename JDK23OrLater to JDKLatest and remove obsolete predicates
GR-54920	Upgrade JUnit to 4.13.2 by bumping mx version.
GR-54923	Improve partial evaluation in espresso.
GR-54930	Adding an option that enables/disables stack-trace-related extensions.
GR-54930	Do not enable non-standard error-stack-related extensions by default.
GR-54946	Refactor prior layer method logic.
GR-54957	Don't treat yellow-zone code as VM-internal code.
GR-54960	Use L1_line_size exported by JVMCI.
GR-54967	Avoid zero modulus when calling BigInteger.modPow.
GR-54974	Escape possible future wildcards in globs
GR-54975	Add substitution for ArraysSupport for handling foreign objects.
GR-54986	Canonicalize Pi with constant from Phi.
GR-54987	Share the NFI errno between all NFI backends

Issue ID	Summary
GR-54994	Remove duplicate thread sleep events and use a constant clock for JFR chunks.
GR-55000	GraalPy Maven plugin does not work in dev releases of Maven bundles.
GR-55003	Update labsjdk to 24+4-jvmci-b01
GR-55008	Fix outdated doc in ResolvedMethodHandleCallTargetNode.
GR-55009	TruffleStrings: guard all native pointer accesses with a reachability fence on its containing object.
GR-55011	Instrumented methods shouldn't be considered trivial.
GR-55021	Replace the use of the IndirectCallTargetNode with the SubstrateIndirectCallTargetNode in the substratevm
GR-55038	Refactor and fix implementation of DwarfLocSectionImpl#dwarfRegMap creation.
GR-55038	Revert "svm: disable debuginfotest temporarily due work around JDK-8329032"
GR-55038	svm: disable debuginfotest temporarily due work around JDK-8329032
GR-55047	Only mention image-layer in error message when option is enabled.
GR-55063	Remove the erroneous assertion in Method.acquireMethodAccessor.
GR-55064	Update LIBFFI to 3.4.6
GR-55072	Fix copyright headers.
GR-55073	Fix open-type world analysis.

Issue ID	Summary
GR-55075	Output from Java wrapper launchers diverted to stderr.
GR-55077	Ensure invocation plugin has the correct return type.
GR-55080	TRegex: exclude j.l.String constant folding test when compact strings are disabled.
GR-55081	Fix condition printing and agent conditions.
GR-55085	Add support for object replacers referring to prior layer constants.
GR-55086	Don't allocate FillerObjects at run-time.
GR-55087	Treat FillerArrays like primitive arrays.
GR-55088	Ignore transiently failing test.
GR-55088	TimeoutTest made stable.
GR-55094	Remove PolyglotNativeAPI.
GR-55097	Link update in native-image/Resources.md.
GR-55104	Ignore transiently-hanging test
GR-55104	Print the main thread stacktrace in case of exception for TruffleSafepointTest
GR-55113	TRegex: fix missing recursive back-reference guard on group escapes in OracleDBFlavor.
GR-55115	Truffle-side version check for jargraal.
GR-55132	Add job automatically creating a PR every Wednesday to update language imports

Issue ID	Summary
GR-55132	Periodic update of the language imports.
GR-55132	Update overlay
GR-55133	Fix compilation failure in canonicalization of CalcStringAttributesNode.
GR-55135	Update labsjdk to 24+5-jvmci-b01
GR-55158	Support "tree" references in @BasedOnJDKFile
GR-55159	Pass reachability-metadata.json files from driver.
GR-55172	Deprecate BuildOutputBreakdowns option
GR-55175	Adapt JDK-8315884: New Object to ObjectMonitor mapping
GR-55178	svm: disable native JFR unittests for now
GR-55178	svm: re-enable native JFR unittests in guard them with Container.isContainerized()
GR-55179	Follow-up fixes for continuations.
GR-55181	Removing the problematic parts of string_dedent test.
GR-55185	Review the usage of Native Image tooling names.
GR-55192	Add support for patching prior layer heaps.
GR-55195	New guide: Build a Native Executable from a Spring Boot 3 Application.
GR-55199	Add option QueryIfNotInCAPCache.

Issue ID	Summary
GR-55200	Upgrading the underlying Node.js to version 20.15.1.
GR-55202	Refactor GraalJS documentation.
GR-55211	Update graal JIT compiler docs
GR-55215	Enforce runtime module layer ordering
GR-55216	Support jni array region methods for foreign arrays.
GR-55231	Extend base image arguments for benchmarks in gate
GR-55236	svm: libcontainer: document functional change in CachedMetric
GR-55243	Prevent that large array allocations in VM-internal code trigger OutOfMemoryErrors.
GR-55244	Add regression test.
GR-55244	PromiseRejectionTracker should not be shared between contexts.
GR-55245	Only use OutOfMemoryUtil.reportOutOfMemoryError(...) when out of java heap memory.
GR-55250	Remove top-level lowering methods for CommitAllocationNode et al
GR-55268	Report units in custom JFR NMT events.
GR-55269	Don't include GC related JFR serializers unless Serial GC is used.
GR-55278	Collect all external values for Layered Image
GR-55282	Cleanup logging code in Espresso

Issue ID	Summary
GR-55286	Make sandbox.MaxStackFrames mandatory - update documentation.
GR-55288	Add barista benchmark suite
GR-55291	Do not differentiate configuration type descriptors based on whether they come from a name or type field
GR-55291	Emit an empty reachability-metadata.json file for helloworld
GR-55293	Cleanup build artifacts.
GR-55296	Add byte[] and native constructors for embedder strings; Add Value.asStringBytes(StringEncoding).
GR-55296	Add comments for specs using strings in UTF-16 with not even bytes count
GR-55296	TruffleStrings: add support for non-native endian UTF-16 and UTF-32 without JCodings.
GR-55298	Extend the documentation of the call PrintAnalysisCallTreeType=CSV format.
GR-55300	Update labsjdk to 24+6-jvmci-b01
GR-55305	Add namespace to libcontainer.
GR-55308	Make polyglot API not swallow thread interrupts.
GR-55344	Allow TruffleContext#pause to be cancelled.
GR-55487	GuestGraal: Implement options as per GR-50104.
GR-55493	Ensure that there is a scope when parsing a formal parameter list.
GR-55498	Support JDK-8031818 in Graal

Issue ID	Summary
GR-55502	Add support for calling <code>MultiLayeredImageSingleton.getAllLayers</code> from traditional builds.
GR-55507	Improve reporting of <code>AggregateErrors</code> in the REPL.
GR-55523	Change <code>ClassLoaderFeature</code> to be layer-aware.
GR-55524	[JDK-8337337] Enable generational ZGC by default in tests
GR-55527	Disabling some unstable <code>Test262</code> and <code>TestV8</code> tests.
GR-55538	Garbage collection with multiple layers.
GR-55539	Review and synchronize GraalVM introduction documentation.
GR-55541	Use correct decode method to get path-string encoded in URL.
GR-55542	Improve serial GC heap verification and fix minor GC issues.
GR-55543	Add tags to Truffle gate jobs.
GR-55548	Improve method handle support in espresso.
GR-55550	Fix type signatures in <code>WasiModule</code> .
GR-55551	Espresso code cleanups
GR-55552	Layered Micronaut Hello World
GR-55553	Fix NPE in <code>CalcStringAttributesNode.canonical</code> when constant region is out of bounds.
GR-55554	[JDK-8334459] Emit membar when cloning primitive arrays

Issue ID	Summary
GR-55560	Make the truffle compilation log matching work both for logs with and without engine id.
GR-55575	Fix tabs include order in the Embedding guide.
GR-55575	Take out R code snippets from Embedding Languages guide.
GR-55580	Check lastIndex bounds in ES5's string.match(/re/g).
GR-55583	Update docs files owners list.
GR-55585	Update labsjdk to 24+7-jvmci-b01
GR-55586	Proguard fails when a dependency is a multi version jar with JDK-22 overlay.
GR-55593	Eagerly initialize caches in ValueConversions.
GR-55595	specify -Xmx8g for all benchmarktests
GR-55602	Memory mapping of image heap no longer works on Windows.
GR-55676	Register zip library as built-in only if used.
GR-55684	Remove narrow canon usage check.
GR-55686	GuestGaal: Add EE support.
GR-55689	Make native image independent of the host's loop data provider.
GR-55690	Misc fixes for espresso launchers.
GR-55691	Fixed a crash in InheritedChannel.inetPeerAddress0().

Issue ID	Summary
GR-55694	Fix total frame size of JNI trampolines.
GR-55695	Document pyenv-win support.
GR-55695	uv now supports GraalPy for venvs and packages that don't need patches
GR-55696	pyenv-win now supports installing GraalPy
GR-55708	Add premain for static agent support.
GR-55708	Fix warnings in substratevm suite.
GR-55711	Use notifyAfterInline for marking inlining in TrivialInline.
GR-55715	Update SBOM documentation to include 'classpath' and 'export' options
GR-55731	Management: implement JMM_GC_TIME_MS and JMM_GC_COUNT.
GR-55732	Better error messages for IncompatibleClassChangeError.
GR-55841	Galahad CI: do not rename non-gate jobs
GR-55881	Add <code>java.lang.Double</code> to RJMX serialization configuration.
GR-55884	Kill all finals on volatile.
GR-55955	Fixes for virtualenv
GR-55973	Ignore svm specific files in mx reimport-libcontainer-files
GR-55973	svm: mx reimport-libcontainer-files broken
GR-55991	Prepare CI for Composed LabsJDKs

Issue ID	Summary
GR-55992	Improve invokeDirect helper methods.
GR-55999	Remove duplicate throw_internal_error symbol.
GR-56006	PE read elimination: abort phi creation optimization for virtuals.
GR-56009	Use stable lambda names in native image debug info.
GR-56094	Remove constant memory buffer assumption and simplify ByteArrayWasmMemory.
GR-56095	Optimize getting ArrayBuffer byteLength.
GR-56104	Fix --bundle-create option and bundle-launcher feature on Windows.
GR-56106	Intrinsify Reference.clear (JDK-8329597)
GR-56108	Fix public gate substratevm on Windows.
GR-56109	Synchronize the use of class path and module path across website docs.
GR-56110	Improve error message for missing wasm module imports.
GR-56112	Add detection of System.getProperty("java.home") calls
GR-56166	Remove inline caching in NegotiateCompatibleEncodingNode and NegotiateCompatibleStringEncodingNode nodes
GR-56211	Categorize VectorSupport.ternaryOp as downstream implemented.
GR-56295	Fix: allow GraalVM versions with more than 3 components.
GR-56297	Update labsjdk to 24+8-jvmci-b01

Issue ID	Summary
GR-56337	Fix performance regressions due to inlining and JavaC.
GR-56339	Make spaces in NativeImageArgs not significant
GR-56343	Add a new guide: Optimize Memory Footprint of a Native Executable guide.
GR-56344	Make all annotation processors claim their annotations
GR-56349	Fix option ImplicitExceptionWithoutStacktracelsFatal.
GR-56524	Correctly handle source array transitions in %TypedArray%.prototype.set.
GR-56526	Add gdb-debughelper tests to gate checks.
GR-56527	Do not use SimpleFormatter in Intl.ListFormat.prototype.formatToParts().
GR-56529	Array length may not fit into int in SetArrayLengthOrDeleteNode.
GR-56531	Avoiding a potential ArrayIndexOutOfBoundsException in addRangeGrow().
GR-56549	Stable profile fixes.
GR-56550	Fix sorting contiguous int and double arrays.
GR-56550	Fix sorting contiguous int and double arrays with holes at the end.
GR-56599	Create type units for types during debuginfo generation for referencing across multiple debug info files.
GR-56601	Initial support for jcmd.
GR-56675	Allow module name to be null instead of an empty string

Issue ID	Summary
GR-56676	TRegex: fix out-of-bounds read on broken UTF-16 strings.
GR-56677	Fix potential AIOOBE in RegExp flags getter.
GR-56681	Stop escaping '/' in JSON strings.
GR-56685	Update ci-overlays commit.
GR-56685	Update file path.
GR-56686	Disable Stack Trace API by default (outside V8 and Nashorn compatibility modes).
GR-56689	Do not use blockwise splice when the new length exceeds Integer.MAX_VALUE.
GR-56690	Do not use BigDecimal when comparing a huge BigInt and a Number.
GR-56700	Expose Java Tokenizer in _tokenize module
GR-56701	Migrate to nb_add/sq_concat CPython like slots.
GR-56702	mx now wants a version for every suite with maven artifacts
GR-56702	Update mx import.
GR-56776	Include slowPathHubOrUnsafeInstantiationError for filtering in unsafe allocation
GR-56800	Standalone tests should use mvn wrapper from internal url.
GR-56803	Update mx in common.json
GR-56805	Include wasm in js standalone.

Issue ID	Summary
GR-56809	Implement WASI functions required by the WASI test suites.
GR-56850	Add GraalPy repository to our patched pip
GR-56853	Export WebAssembly.Module byte source using buffer interop.
GR-56918	Update labsjdk to 24+9-jvmci-b01
GR-56921	Add an option to warn when C extensions are loaded
GR-57004	Move notifyAfterCompile call out of compileAll
GR-57058	Image heap writing found an object whose type was not marked as instantiated.
GR-57066	Avoid getHostBackend when instantiating UnimplementedGraalIntrinsics.
GR-57068	Export jdk.internal.misc to unnamed module in native image Java run.
GR-57069	Update SyncPort info.
GR-57090	Add mandatory approvers for substratevm.
GR-57101	Don't assert divisor != 1 when optimizing divs
GR-57103	Update component lists for benchmark env files.
GR-57104	Use r12 as zero value register where applicable.
GR-57115	Introduce -H:± SupportRuntimeClassLoading
GR-57118	Convert deopt to guard: handle cases when removeSplitPropagate canonicalizes an enclosing loop.

Issue ID	Summary
GR-57119	Espresso: Unify resolution paths into a LinkResolver class.
GR-57122	Remove unused add-exports.
GR-57129	Mark VectorSupport.rearrangeOp as implemented downstream
GR-57132	Optimize Node.clearInputs().
GR-57136	Update SyncPort info.
GR-57146	Remove PhysicalMemory#setSize()
GR-57161	IllegalStateException: Cannot call getObjectValue without Java frame anchor.
GR-57161	temporarily disable libgraal_truffle gates
GR-57163	Collection of fixes and improvements from the Bytecode DSL branch.
GR-57167	Make add/remove namespace an mx command
GR-57170	Polyglot.engine.TraceCompilation=true triggers uncaught exception during deoptimization.
GR-57170	Resolved review comments.
GR-57179	Do not add empty space at the end when an array element is inserted at the beginning.
GR-57180	Fix move generated for ternary op on AMD64
GR-57183	Do not fail the gate for unused parameters, it is not worth it
GR-57187	Update labsjdk to 24+10-jvmci-b01

Issue ID	Summary
GR-57192	Basic suport for MLX library
GR-57192	More fixes for nanobind
GR-57193	Remove macro options from help output
GR-57194	Fix new WebAssembly spec tests.
GR-57195	Simplify LoopNode.reportLoopCount.
GR-57202	Bump CI overlays
GR-57209	Changelog entry about updated -XX:JVMCINativeLibraryThreadFraction default value.
GR-57210	Fix failed PE-constness assert in python slot dispatchers
GR-57219	Add custom class registry for foreign objects
GR-57222	Update test262.
GR-57230	Add 'assert owns GIL' to all Java refcount operations.
GR-57235	Persist types and methods flags across layers
GR-57240	Loop Infrastructure: check for overflow in byte and short range for various loop opts.
GR-57243	Adapt 8337958: Out-of-bounds array access in secondary_super_cache.
GR-57244	Counted loop detection: always check iv direction exists.
GR-57248	Change open type world dispatch table slot calculation and add validation code for layered builds.

Issue ID	Summary
GR-57248	Delay resolution of vtable slots until final layer.
GR-57248	Make HostedMethod naming layer-aware
GR-57248	Redo layered symbolname passing.
GR-57249	Follow up for "Inline RubyStringLibrary" PR
GR-57249	Inline RubyStringLibrary
GR-57251	Add GitHub action for weekly native-image layer testing
GR-57258	Adapt reflection for multiple layers
GR-57260	Implement vector shift operations
GR-57260	Refactor ShiftNode
GR-57264	Add CI component "style"
GR-57270	Refactor the IsolateArgumentParser
GR-57270	Use the refactored isolate arguments and cleanup.
GR-57271	Adapt JDK-8337987: Relocate jfr and throw_exception stubs from StubGenerator to SharedRuntime
GR-57273	Add common CI files to gate predicates for sulong and espresso.
GR-57276	Reset Provider.Service.constructorCache field.
GR-57279	Make sure namedGroups from TRegex are used.

Issue ID	Summary
GR-57282	Remove experimental label from GraalPy docs.
GR-57282	Remove experimental label from GraalWasm doc.
GR-57289	Enable Java assertions in an MSpec launcher process
GR-57289	Fix type checks need to always be performed to avoid heap corruption.
GR-57292	TruffleStackTrace.fillIn doesn't work during context pre-init.
GR-57299	Update labsjdk to 24+11-jvmci-b01
GR-57299	Update labsjdk to 24+12-jvmci-b01
GR-57300	Crema .class file parser refactor.
GR-57302	ES module loading does not work correctly with Sources created from URL.
GR-57306	Avoid NullPointerException when provider name is null.
GR-57307	x86: Improve the code generation for floating point comparison
GR-57307	X86: Improve the code generation for floating point comparison
GR-57310	Add Native Memory Tracking for the image heap and the Java heap.
GR-57317	Update and clean up patches, part #1
GR-57317	Update and clean up patches, part #2
GR-57322	Add a getter for the host LanguageInfo into TruffleLanguage.Env.
GR-57332	Merge master to galahad.

Issue ID	Summary
GR-57334	Update JavaMonitor to jdk-24+11.
GR-57335	Add getters to KnownOffsets and helper to determine itable start offsets in OpenTypeWorld
GR-57360	Refactor and document layer loader.
GR-57362	Update SyncPort info.
GR-57382	Add mock owner file with a mandatory approver for testing
GR-57384	Preserve origin why resources are included in an image.
GR-57385	Improve performance of interop invoke member.
GR-57386	Backport to 24.2: Increase Wasm memory limits.
GR-57386	Increase Wasm memory limits.
GR-57390	Enable constant folding on getAllLayers calls.
GR-57392	Add Build Report guide for the GraalVM web site
GR-57393	Prepare Native Image codebase for WP SCCP
GR-57407	In-depth docs - maven and gradle plugins.
GR-57412	Adapt JDK-8338745: Intrinsicify Continuation.pin() and Continuation.unpin()
GR-57413	Cleanup of exposed embedding APIs.
GR-57414	Truffle DSL processor: fix for incremental compilation in IDEA.

Issue ID	Summary
GR-57502	Update upstream Python version in docs for 24.1 release.
GR-57505	Remove usage of Pair in locatable options.
GR-57506	Fix handling non-BMP characters in literals with escapes
GR-57507	Pass some options directly and only to isolate creation.
GR-57519	IncrementalCanonicalizerPhase: java.lang.AssertionError: Empty stamp
GR-57537	Avoid recursive lock method for jdwp suspension and pin objects while in suspended state.
GR-57539	Parse Stable and DontInline vm annotations, only apply vm annotations for privileged classes.
GR-57544	Prefer getLimitCheckedIV.
GR-57548	During exit, don't log extra messages when using system exit.
GR-57550	Support long targets in bytecode OSR API
GR-57552	Allow registerOpaqueMethodReturn/ReturnsAllInstantiatedTypes for methods returning primitives
GR-57553	Delay the canonicalization of TestDeoptimizeNode
GR-57557	x86 - Use BMI2 shift instructions
GR-57557	X86 - Use BMI2 shift instructions
GR-57588	Enable tests for the JS regexp-modifiers proposal.
GR-57588	Implement the JS regexp-modifiers proposal in TRegex.

Issue ID	Summary
GR-57589	Implement RegExp.escape.
GR-57590	Implementation of Handling Time Zone Canonicalization Changes proposal.
GR-57591	Implement Uint8Array to/from base64 and hex proposal.
GR-57595	Fix Addr part alignment in Truffle compilation logs.
GR-57603	Import Ruby 3.3.5
GR-57608	Backport: Handle Enable-Native-Access manifest attribute if present
GR-57608	Support --enable-native-access hosted option in native image
GR-57608	svm: adopt "JDK-8331671: Implement JEP 472: Prepare to Restrict the Use of JNI"
GR-57609	Upgrading the underlying Node.js to version 22.11.0.
GR-57616	TextEncoder/TextDecoder Web API.
GR-57618	Use mx checkout-downstream to get enterprise in graalpython
GR-57623	Fix scipy build
GR-57624	Fix Locale NPE in JDK 24+10 and better.
GR-57627	Allow LibGaalFeature class to be loaded by HostedLibGaalClassLoader.
GR-57630	Document GraalWasm and polish README.
GR-57631	Bump mx version

Issue ID	Summary
GR-57635	Implement sq_repeat and nb_multiply CPython like slots.
GR-57636	Replace LibGaalFeature with GuestGaalFeature.
GR-57637	Build Layered Image with external libraries
GR-57641	Implement Vector API lane operations
GR-57646	Make LayerUse option path-based and classify as BundleMember input.
GR-57649	Use replaceObjectWithConstant in reflection plugin.
GR-57653	Run PolyglotExceptionTest#testHostOOMResourceLimit in a subprocess.
GR-57654	Fix racy assertion for weak keys in shape transition map.
GR-57654	Fix racy assertion for weak keys in TrieTransitionMap.
GR-57658	Add language info lookup to TruffleLanguage.Env
GR-57659	Do not include TruffleJfrFeature if PGO config is specified.
GR-57660	Port Math.tanh intrinsic.
GR-57679	Use Espresso project name instead of Java on Truffle.
GR-57681	Automatically convert byte buffers to host byte arrays.
GR-57735	Deprecate exposed truffle filesystem spi in VirtualFileSystem.
GR-57736	Report loop count in typed array constructor.
GR-57737	Improve Espresso jdwp connection logic.

Issue ID	Summary
GR-57740	Update labsjdk to 24+13-jvmci-b01
GR-57742	Adapt JDK-8339112 Move JVM Klass flags out of AccessFlags
GR-57748	Migrate remaining binary nb slots
GR-57764	New item assignment slots
GR-57800	Compare JVMCI objects with equals instead of ==.
GR-57802	Prioritize Python methods over foreign members
GR-57805	Fix layered images HelloWorld CE.
GR-57814	Prevent emission of typeReachable in reachability-metadata.json
GR-57815	GraalJSScriptEngine: NPE when setting empty engine bindings (#840)
GR-57817	Clean up of existing module support classes.
GR-57817	Eagerly initializing safepoint mechanism classes.
GR-57817	Fixed bash launchers.
GR-57817	Fixed gates.
GR-57817	Fixed review comments.
GR-57817	Fix JDK restricted access warnings
GR-57817	Fix JDK restricted access warnings and other warnings
GR-57817	Moved virtual thread support.

Issue ID	Summary
GR-57817	Possibility to disable enable-native-access delegation.
GR-57817	Prepare JNI and Unsafe usage for JDK 24.
GR-57817	Removed unneeded ForeignSupport.
GR-57817	Removed workarounds from labsjdk-24+13-jvmci-b01 update.
GR-57817	Resolved review comments.
GR-57817 sulong	set --enable-native-access for unittest [JDK-8331671:]
GR-57817	truffle: set --illegal-native-access=allow in the launcher and unittest config [JDK-8331671]
GR-57817	Unconditional delegation of enable-native-access policy.
GR-57817	vm: set --enable-native-access for agentscript graalvm-tests [JDK-8331671]
GR-57823	Add otw config.
GR-57835	Remove dead threads from PolyglotContextImpl#threads during new thread initialization.
GR-57842	Update bouncycastle dependency
GR-57844	Shared engine cannot be used with GraalPyResources.
GR-57845	Fix symbolic references to StaticObject in ClassAssembler
GR-57851	Allow non-Int Contiguous*Array to ZeroBased*Array conversions in WriteElementNode.

Issue ID	Summary
GR-57861	Support offset phis correctly in loop peeling.
GR-57900	Run wasm coverage job on JDK 21.
GR-57944	GraalPy embedding: better experience when not embedding Python home.
GR-57945	Make js.webassembly option stable.
GR-57948	Update SyncPort info.
GR-57953	Set --enable-native-access=org.graalvm.truffle[.runtime] in node launcher.
GR-57955	Ensure the persistType and persistMethod methods are thread safe
GR-57965	Improve robustness of the VMEventListeners connection handling by avoiding NPE on shutdown.
GR-57966	Make js.load option stable and allowed in sandboxed mode.
GR-57969	Update PosixPerfMemoryProvider to JDK 24+13 and annotate with @BasedOnJDKFile.
GR-57978	Remove unused classes and methods in SVM (and some in compiler).
GR-57984	Backport to 24.2.0: Deprecate the GraalWasm AsyncParsing options.
GR-57988	Update labsjdk to 24+14-jvmci-b01
GR-57989	Add patch for pendulum-3.0.0.
GR-57991	VirtualFileSystem should not try to extract real FS paths.
GR-57993	Avoid the use of HotSpot JVMCI types to detect host vm objects.

Issue ID	Summary
GR-57995	Inline the Preconditions.checkIndex check when using exception edges
GR-57996	Support host VM that don't have have FlightRecorder VM option.
GR-57997	Rename GuestGraal to LibGraal.
GR-57998	Remove ComputedValueField and ReadableJavaField.
GR-57999	Replace JVMCI API with Native Image API.
GR-58000	Native Image support for GetStringUTFLengthAsLong in JNI_VERSION_24 (JDK-8328877)
GR-58001	Enable native access for the image builder module path only
GR-58002	Adding an experimental executor that runs tasks in event loop thread.
GR-58038	Phase plan fuzzing fixes
GR-58041	Use mx 7.30.0.
GR-58042	Add subtyping to @AutomaticallyRegisteredImageSingleton-generated Features
GR-58050	Add MetaAccessExtensionProvider.getStaticFieldForAccess.
GR-58055	Ensure unique fallback methods.
GR-58055	Track fallback methods created within fallbackResolveConcreteMethod.
GR-58056	More detailed assertions when FrequencyEncoder doesn't contain an object.
GR-58056	Use deep hashcode for ArithmeticOpTable.floatConvert.

Issue ID	Summary
GR-58060	Add compilationFailureAction to ctw coverage jobs.
GR-58060	Limit the number of threads used for CTW
GR-58062	Update GraalJS Getting Started example to run on module path.
GR-58063	Bisect-benchmark job fails because of removed imported-constants.json.
GR-58070	Update VisualVM documentation and add more validation for the option '--enable-monitoring'.
GR-58076	Cache most of the CallTargets even in single context mode.
GR-58077	Avoid r12 as null during LIR optimizations.
GR-58083	x86 - Add vmovddup
GR-58083	X86 - Add vmovddup
GR-58088	Improve layer build times and memory usage.
GR-58089	Finalize and dispose embedder thread when it is removed from PolyglotContextImpl#threads map due to Thread#isAlive returning false.
GR-58090	Allow to pass a shared WebAssembly.Memory to a Worker.
GR-58092	Implement _PyLong_FromByteArray
GR-58093	Add Truffle gate using oraclejdk.
GR-58094	Add missing profiles in SuperBuiltins\$Get.
GR-58103	JBang integration templates do not work.

Issue ID	Summary
GR-58104	Implement Vector API mask operations
GR-58106	Start type IDs at 1.
GR-58116	Add native-image Barista benchmark suite
GR-58118	Adapt saturation to open world.
GR-58119	Add first CI barista bench jobs (JVM only)
GR-58124	Fix leaking nulls to python in OSError.args
GR-58129	LayerUse should only disable ClosedTypeWorldHubLayout, not ClosedTypeWorld.
GR-58130	Update labsjdk to 24+15-jvmci-b01
GR-58131	Generated launcher in embedding apps points to absolute path where originally created.
GR-58180	Correction of the broadcasting of SharedArrayBuffer in Test262.
GR-58201	Document performance investigation (and some other docs updates)
GR-58207	X86 - Refactor VEXOpAssertion
GR-58214	Respect order of arguments for explicit main class and image name.
GR-58215	Adapt JDK-8329254: optimize integral reverse operations on x86 GFNI target.
GR-58217	Fix file name for Target_jdk_internal_util_Preconditions
GR-58219	Fix some typos in the documentation on Truffle splitting.

Issue ID	Summary
GR-58220	Use <code>callTarget.id</code> instead of <code>hashCode</code> in <code>OptimizedTruffleRuntime</code> and <code>TraceSplittingListener</code> .
GR-58221	Improve nest support.
GR-58223	Native image properties resource should use maven coordinate location.
GR-58225	JVMCI native library compiler has disabled Java calls by default.
GR-58229	Add patch for torch 2.4.1
GR-58231	Make classes in <code>LibGraalSubstitutions</code> static.
GR-58233	Adding detailed contributing information and census.
GR-58235	Several CI benchmarking fixes and improvements.
GR-58237	Improve the error message when <code>NativeImageFileSystemProvider</code> is not present.
GR-58238	Adding some missing interop boundary calls.
GR-58239	Enforce that substitution target classes are static when they are inner classes.
GR-58270	Support dynamically generated vm configs.
GR-58272	Transient NPE in jbang tests on windows.
GR-58273	Avoid issues on host VMs without continuation support.
GR-58275	Public gate <code>debuginfotest</code> broken.
GR-58278	Add documentation for the interop registry

Issue ID	Summary
GR-58280	Avoid a native-access-related warning from 'mx js' on JDK 24.
GR-58285	EntriesIterator should handle the potential removal of the current entry.
GR-58286	Fix const binding increment, decrement, and compound assignment.
GR-58286	JSConstantNumericUnitNode should never be executed.
GR-58289	Update labsjdk to 24+16-jvmci-b01
GR-58292	Add option to disable substitutions.
GR-58293	Don't allow guest language code execution on other thread during language context initialization.
GR-58304	Ensure java 17+ in jbang examples
GR-58305	Continuation capture always uses full liveness analysis.
GR-58381	Synchronize accesses to class init state
GR-58383	Make missing registration warn mode stack trace length customizable
GR-58384	Add patch for newer pybind11
GR-58385	Update SyncPort info.
GR-58419	Make UnsafeGetStableArrayElement respect -XX: -UseCompressedClassPointers.
GR-58446	Ensure options used by the native image driver work on espresso.
GR-58447	TruffleString: disable unit test transiently failing when not enough heap space is available.

Issue ID	Summary
GR-58448	Fix substitutions with non-static specialization with inlined caches.
GR-58460	Espresso: support constructors created by ReflectionFactory.
GR-58466	Fix source launcher regression.
GR-58468	Load lambda types in the application layer
GR-58469	Cut ties with Sulong managed.
GR-58473	Async GC with RSS guidance
GR-58476	Fetch-globals.js: fix test function name (#846).
GR-58478	Link base layer libraries as a dynamic library
GR-58479	LSPLibrary corrections and tests.
GR-58480	Allow control of throwDeniedThreadAccess via TruffleContext.threadAccessDeniedHandler.
GR-58483	Update bcutil dependency
GR-58485	ensure libgraal has symbols
GR-58488	Cleanups and fixes for the premain support.
GR-58492	Layered NI use open world analysis results as virtual invoke profiles.
GR-58500	Incorrect address location for compressed hub references in DWARF debuginfo.
GR-58510	Better error message in CompilationAlarmPhaseTimeTest.

Issue ID	Summary
GR-58510	Compilation alarm test: allow delta for time difference.
GR-58518	Register base layer virtual calls as roots.
GR-58522	VectorAPI implements fp division
GR-58523	Improve and refactor test_standalone - enable aarch64
GR-58523	Improve and refactor test_standalone - gradle timeouts.
GR-58523	Improve and refactor test_standalone - native build timeouts.
GR-58523	Improve and refactor test_standalone - split gates.
GR-58526	add missing PyRange_Check
GR-58528	Update labsjdk to 24+17-jvmci-b01
GR-58531	Eagerly initialize caches in method handle implementation.
GR-58535	Adopt "JDK-8314794: Improve UTF8 String supports"
GR-58535	svm: Adopt "JDK-8314794: Improve UTF8 String supports"
GR-58540	Use primary suite if no config is passed to _run_graalvm_cmd
GR-58542	Process --version, --help --help-extra like java does.
GR-58543	Add NI prerequisites to macOS and Linux install guides.
GR-58546	Allow coverage collection for espresso.
GR-58547	Provide minimal NativeLibraries implementation.

Issue ID	Summary
GR-58553	svm: work around "JDK-8340831: Simplify simple validation for class definition in MethodHandles.Lookup"
GR-58564	Remove Node.NodeIntrinsic.injectedStampsNonNull method.
GR-58567	Implementation of Worker API.
GR-58570	Fix Missing quotation marks around parameterTypes in Reachability Metadata documentation.
GR-58571	Preserve local symbols if post-link stripping follows.
GR-58575	SubstrateVM PLT/GOT Feature
GR-58578	CompilationAlarm error message improvements.
GR-58580	GraalPyResources.contextBuilder(Path resourcesDirectory) does not handle Windows.
GR-58584	Don't use context/language references with this of inlined nodes.
GR-58596	Fix duplicate class definition attempts for generated type-mapped proxies.
GR-58597	Cache and share Wasm-to-JS function adapters.
GR-58601	Update SBOM user-facing documentation
GR-58601	Update user-facing documentation for SBOM feature
GR-58622	Compact binary encoding for ObjectCopier.
GR-58627	Add documentation for native memory tracking (NMT) #9788.
GR-58634	Fix error message when prepareOSR long overload is not implemented

Issue ID	Summary
GR-58649	Add assertion message
[GR-58650] Port JDK-8341013	Optimize x86/aarch64 MD5 intrinsics by reducing data dependency.
GR-58651	Enforce correct values for Services.IS_[IN BUILDING]_NATIVE_IMAGE in image-runtime.
GR-58655	Don't use tmpfs and forced machine type for ondemand-vm-build.
GR-58665	Update labsjdk to 24+18-jvmci-b01
GR-58667	Mark VectorSupport.wrapShuffleIndexes as intrinsified downstream
GR-58670	Clear polyglot source cache more aggressively.
GR-58672	Test libgraal also on darwin and windows
GR-58687	Add regression test for Polyglot.eval returning a java.lang.String.
GR-58687	Fix missing return value conversion in Polyglot.eval[File].
GR-58689	Add a new guide: Troubleshoot Native Image Run-Time Errors.
GR-58690	Typeflow.getState() cleanup
GR-58691	Track metadata conditions only when they are used.
GR-58699	Improve documentation for the sandbox.UseLowMemoryTrigger option.
GR-58703	Preserve capsule name identity
GR-58707	avoid reading a tuple if an exception happens

Issue ID	Summary
GR-58708	Process thread local actions while waiting for CExt Load.
GR-58710	Compilation alarm test: check for scaled periods.
GR-58716	Fix issues uncovered by init memory verification
GR-58717	Do not ignore null edges in graphio BinaryReader
GR-58908	Fix interacting with non-llvm JNI libraries when using nfi-llvm
GR-58910	Move the java-register benchmark to interop suite
GR-58912	Handle mixing overloaded operators with non-numeric primitives.
GR-58914	Espresso: Add support for passing all GC options directly to the VM.
GR-58919	Fix Truffle host inlining may peek into native calls and fail.
GR-58922	Update SyncPort info.
GR-58924	Analysis Cleanup
GR-58924	Make sure onInputSaturated and onObservedSaturated are executed only once
GR-58925	Support unbuffered standard output
GR-58928	Add helper tool to generate GC graphs
GR-58930	Fix other context guest object behavior for void methods.
GR-58932	Update gate to use GDB 14.2.

Issue ID	Summary
GR-58935	List running tests when an external test-suite is terminated.
GR-58938	Correction of the buffer reset of a shared WebAssembly.Memory.
GR-58950	Use <code>JavaVersionUtil.JAVA_SPEC</code> where applicable and avoid direct reference to <code>GuardsStage</code> enums.
GR-58951	Add missing JVMCI package exports.
GR-58964	Default <code>--wasm.DirectByteBufferMemoryAccess</code> to false.
GR-58966	Update CENSUS.md.
GR-58967	Fix invoking interface methods and overridden default methods through <code>jdwp</code> .
GR-58968	Extend the registrations done by <code>TruffleFeature.beforeAnalysis</code>
GR-58969	Incorrect object header size in native image debuginfo.
GR-58970	Add ability to ship new patches for a released version
GR-58974	Use <code>CallBinaryMethodNode</code> for dispatching <code>getAttribute</code> callable.
GR-58991	Update <code>SyncPort</code> info.
GR-58992	Avoid using deprecated <code>pipes</code> module (removed in Python 3.13).
GR-58993	<code>Atomics.pause</code> : Limit the number of spin-wait loop iterations.
GR-58993	Implement <code>Atomics.pause</code> proposal.
GR-58994	Implementation of <code>Error.isError</code> proposal.

Issue ID	Summary
GR-58995	Implement iterator-sequencing proposal.
GR-58996	GraalWasm: Remove the content duplicated on GitHub.
GR-58998	Update labsjdk to 24+19-jvmci-b01
GR-58999	Support invoke non-virtual jdwp invoke option.
GR-59003	Safepoint refactorings.
GR-59005	Fix inverted order for longest compile times in CTW output
GR-59009	Introduce track across layers flag.
GR-59010	Revert broken graalpython import
GR-59021	Do not emit prefetch allocates with SerialGC
GR-59025	Fix of top-level for-await-of in a module.
GR-59029	Fix coverage after sulong managed removal.
GR-59029	GraalPy launcher main class can be final now that the enterprise launcher is gone.
GR-59029	Umbrella for smaller cleanups.
GR-59032	Fix conflicting fetch_jdk arguments in mx bisect
GR-59042	Relax encodingLogic assertion
GR-59045	Do not ignore enqueued messages when Worker is finished.

Issue ID	Summary
GR-59047	Add 'micronaut-pegasus' to the 'barista-native-image' suite
GR-59048	Remove or replace JDK21 jobs for GraalWasm.
GR-59052	Remove or replace JDK21 jobs for Sulong on master.
GR-59056	Espresso: update dacapo benchmark list.
GR-59058	Fix default tp_free etc slots for builtin classes
GR-59058	PyType_Modified should not modify native slots
GR-59062	Espresso processors: support inner classes in <code>getInternalName</code> .
GR-59063	Espresso: when continuations are enabled, ensure lambdas are always serializable.
GR-59072	Create parent constant before loading relinked constant
GR-59073	Failing gdb-debughelpers tests.
GR-59074	Promote PGO options on Optimizations and Performance entry page.
GR-59082	Backport to 24.2: Grow memories at an exponential rate.
GR-59084	Fix urls in Maven scripts.
GR-59084	Revise descriptions for Maven artifacts.
GR-59084	Revise Maven descriptions.
GR-59084	Revise Maven descriptions for Truffle and GraalWasm.

Issue ID	Summary
GR-59086	Fix spelling of Native Image IncludeMethodData option.
GR-59093	Test262 revision bump and fixes of some new tests.
GR-59095	Fix handling internal and interop exceptions on top level
GR-59098	Use default devtools for WABT and bump to 1.0.36
GR-59103	Fix indentation in option help text spanning multiple lines in util.args
GR-59115	Transient fetch test failure on darwin-amd64.
GR-59117	Fix missing state for StoreIndexedNode.
GR-59123	Update labsjdk to 24+20-jvmci-b01
GR-59124	Handle multiple ValueProxyNodes in removeIntermediateMaterialization
GR-59133	Minimum RSS threshold to do background GC
GR-59151	Add Truffle TCK ErrorTypeTest Javadoc.
GR-59180	Update third party license file.
GR-59182	Begin feature freeze for the 24.2 release.
GR-59182	Prepare the release branches.
GR-59182	Update mx version.
GR-59246	Compilation alarm time test: just verify we waited a positive amount.

Issue ID	Summary
GR-59257	Make it easy to use EXTRA_IMAGE_BUILDER_ARGUMENTS in env files and fix incremental build issues.
GR-59260	TRegex: add weekly coverage build.
GR-59275	Use nanoTime derived milliseconds for various timeouts and watchdogs
GR-59279	Update the status of test suites.
GR-59282	svm: Always use SubstrateConstructorAccessor for serialization (adopt removal of SerializationConstructorAccessorGenerator in JDK-8327624)
GR-59284	Implement Vector API masked load
GR-59296	Remove --strict-image-heap option from documentation (enabled by default).
GR-59298	Incorrect compressed oop calculation for hubs in gdb-debughelpers.
GR-59302	Fix downstream issues in tests
GR-59302	New test runner
GR-59304	Refactor WrappedVarRef.
GR-59307	Adapt to the future removal of the ZGenerational flag
GR-59309	Graalpy gradle plugin does not build if project does not contain any resource files.
GR-59316	Add missing cache write in GetForeignObjectClassNode
GR-59324	Workarounds for layered image reloading quirks.

Issue ID	Summary
GR-59326	Ensure ForkJoin commonPool parallelism always respects NativeImageOptions.NumberOfThreads.
GR-59329	Add option to outline SerialGC post-write barrier snippets
GR-59330	Update ICU4J to 76.1 (Unicode 16, CLDR 46).
GR-59338	Make js.locale option stable and allowed in sandboxed mode.
GR-59340	Saturate all reachable methods in open world.
GR-59341	Upgrade XZ for Java to 1.10.
GR-59347	Espresso: Implement Field resolution in LinkResolver.
GR-59352	Handle bigint when finding primitive constructor names for error msgs.
GR-59353	FFM API: Allow upcalls in configuration files.
GR-59373	Add ondemand builder for windows and macos graalpy wheels.
GR-59373	Merge GraalPy public and internal wheelbuilder.
GR-59373	Update error message on windows when failing to import C extensions.
GR-59375	Update labsjdk to 24+21-jvmci-b01
GR-59402	Adjustments for graph builder plugins
GR-59404	PUnpicler.loadInst should throw exception if a class can't be found.
GR-59415	Add assertions to native-image layer build command

Issue ID	Summary
GR-59422	Avoid sun_nio_ch_NativeThread pthread_kill on sulong
GR-59427	Look for AnalysisReportJsonFileRule file correctly when diagnostics are on for a bundle based benchmark
GR-59428	Use NULL for unused reserved JNIEnv fields
GR-59436	Do not use Graal as JIT when running NativeImage driver.
GR-59438	Add a missing permalink.
GR-59438	Anchor links in text not responding.
GR-59439	Adapt JDK-8340796: Use a consistent order when loading cxq and EntryList
GR-59440	Fix getScopeSlowPath
GR-59444	Increase max heap size of Native Image builder to match Quarkus' CI
GR-59445	Ensure Word fields are saturated when unavailable.
GR-59446	Add test for nested locks
GR-59448	Omit LLVM execution from coverage gate
GR-59463	Immortalize native Py_True and Py_False
GR-59465	Fix disabling debugger stepping too aggressively.
GR-59466	Measure and upload libgraal image size when building libgraal for benchmarks
GR-59474	Refactor timers to account for layer archiving.

Issue ID	Summary
GR-59479	adopt JDK-8338383: Implement JEP 491: Synchronize Virtual Threads without Pinning.
GR-59480	Github PR #449: fix pymongo.patch for more pymongo versions
GR-59482	Align image heap end when using mremap
GR-59485	Cleanup NativeImageBuilder.
GR-59492	System.out/err usage in PolyglotLoggers.
GR-59497	TRegex: fix OracleDB flavor incorrectly parsing escaped surrogate pairs.
GR-59499	Fix System.getProperties() when called from virtual thread.
GR-59503	Stricter checks for CFG and schedule validity
GR-59515	Invokes with 0 callees are not unreachable in open analysis.
GR-59526	Update labsjdk to 24+22-jvmci-b01
GR-59531	Call fiber.finishedLatch.countDown() in afterLeave()
GR-59531	Use Thread#join() to wait for Fibers instead of a CountdownLatch
GR-59532	Unify SnippetTemplate.Arguments.add() and SnippetTemplate.Arguments.addConst()
GR-59533	Test and refresh Include Reachability Metadata Native Image guides.
GR-59535	Fix infinite recursion in InteropLibrary.Asserts#assertMetaObject
GR-59538	Fix JDWP valid class loader check.

Issue ID	Summary
GR-59539	Ensure arrays have sufficient sizes.
GR-59544	Remove unreachable specializations on JSIdenticalNode
GR-59545	Fix unreachable specializations.
GR-59554	Fix race in disposing JDWP debugger connection.
GR-59559	Fix master-to-galahad merge conflict 2024-11-04
GR-59563	Remove python-tagged-unittest-sandboxed
GR-59565	Add RootNode.prepareForCompilation(...) to delay compilation and offload expensive work to the compiler thread.
GR-59566	Avoid requiring sun/nio/ch/NativeThread.current0.
GR-59582	Better messages for OutOfMemoryErrors and small cleanups/bugfixes.
GR-59591	Generate javadoc in a single directory.
GR-59629	Implement Vector API masked write operation
GR-59630	Adapt JDK-8341903: Implementation of Scoped Values (Fourth Preview)
GR-59638	Only run file-size benchmark when building libgraal
GR-59640	Add IOException checked exception to InternalResource.versionHash(Env).
GR-59645	Remove invalid assert
GR-59651	Link the troubleshooting guide in the GitHub issue template.

Issue ID	Summary
GR-59659	Fix and improve retagger
GR-59661	Further refine CustomGaalClassLoader support for libgraal building.
GR-59669	Remove System.exit call from TruffleFromLibGaalEntryPoints.
GR-59677	Implement setCurrentWorkingDirectory in VirtualFileSystem.
GR-59678	Update SyncPort info.
GR-59680	Fix master-to-galahad merge conflict 2024-11-07
GR-59685	Update labsjdk to 24+23-jvmci-b01
GR-59688	Allow compiler newer than Truffle runtime in a minor version.
GR-59699	Make PosixPlatformTimeUtils.javaTimeSystemUTC uninterruptible
GR-59714	Remove calls to System.currentTimeMillis().
GR-59717	Added hook for object reachability notifications to Native Image API.
GR-59766	Add iprof docs and schema to the reference manual.
GR-59766	Update link to iprof-v1.0.0.schema.json.
GR-59782	Ensure vtables are calculated for all types when using open world analysis.
GR-59787	Update SyncPort info.
GR-59795	Random failures in JS Test262.
GR-59797	Use JSRuntime.isNegativeZero() to check for -0.0 (#868).

Issue ID	Summary
GR-59798	Fix JDK21 compatibility issue after JDK-8341645.
GR-59804	Ensure full watchdog interval is available per method in LIRNativeImageCodeCache.patchMethods.
GR-59807	Restore support for ACCESS_VM_ANNOTATION.
GR-59809	Filter StringConcatFactory.CACHE to only include reachable types in the image
GR-59829	Fix wheelbuilder github actions.
GR-59830	Verify that the image heap is mapped correctly.
GR-59836	Update labsjdk to 24+24-jvmci-b01
GR-59840	Fix virtual thread migration for synchronized native calls.
GR-59841	GradlePluginProject use Gradle plugin portal through mx url rewrites.
GR-59841	Polish GraalPy Gradle plugin.
GR-59845	Improve loading of base layer elements
GR-59858	Mark type of hidden field reachable.
GR-59861	Handle intrinsics called from non-snippet root methods with a bailout
GR-59866	Add Dir.from_fd, Dir.fchdir and Dir#chdir methods
GR-59866	Add IO#pread and IO#pwrite methods
GR-59866	Add missing io-related functions

Issue ID	Summary
GR-59866	Add <code>Module#set_temporary_name</code> method
GR-59866	Add <code>ObjectSpace::WeakMap#delete</code>
GR-59866	Add <code>Range#overlap?</code>
GR-59866	Add <code>Range#reverse_each</code> method
GR-59866	Add <code>rb_data_define()</code> C function
GR-59866	Add <code>Refinement#target</code>
GR-59866	Emit a warning when <code>it</code> call without arguments is used in a block without parameters
GR-59866	Follow up for PR "Add missing io-related functions"
GR-59866	Improve validation of a <code>Time.new</code> single <code>String</code> argument
GR-59866	<code>Kernel#lambda</code> raises when given non-lambda, non-literal block (#3753)
GR-59866	Make <code>Thread::{Queue,SizedQueue}#freeze</code> raise <code>TypeError</code> (#3730)
GR-59866	raise <code>ArgumentError</code> on unknown directive <code>Array pack/ String unpack</code> (#3727)
GR-59866	Remove deprecated <code>Encoding#replicate</code> method
GR-59866	<code>Socket #recv*</code> methods return <code>nil</code> instead of an empty <code>String</code> on closed connections
GR-59866	Support <code>Proc#initialize_{dup,copy}</code> for subclasses
GR-59866	Support <code>symbolize_names</code> argument to <code>MatchData#named_captures</code>

Issue ID	Summary
GR-59866	Update NoMethodError message to not use object#inspect (#3749)
GR-59871	Expose overflow API.
GR-59877	Update SyncPort info.
GR-59878	Adopt mx fix for CompilerDaemon hang.
GR-59879	Correct the name of Profile-Guided Optimization to singular.
GR-59893	Tagged tests for windows
GR-59897	Fix documentation for the sandbox.MaxHeapMemory resource limit.
GR-59898	Failure of SourceInternalizationTest#testSourceInterning.
GR-59898	Run SourceInternalizationTest#testSourceInterning in a subprocess.
GR-59902	Fix clinic-generated arg indices for builtins with var args
GR-59911	Persist ImageHeapConstant id across layers
GR-59921	Improve jdwp connection logic.
GR-59922	Update SyncPort info.
GR-59924	Fix JFR-specific substitution on JDK21.
GR-59926	Drop windows gate from galahad gates
GR-59927	Populate missing VM dimensions in file-size benchmarks.
GR-59931	Renaissance 0.16.0

Issue ID	Summary
GR-59932	Port JDK-8341527: AVX-512 intrinsic for SHA3
GR-59934	Disable problematic Spark benchmarks in Renaissance for latest jdk
GR-59936	Support pydantic-core 2.26
GR-59952	Add some owner files for Native Image.
GR-59957	ArrayLengthNode: ensure non alive inputs are also added to the graph.
GR-59959	Change package name computation for hybrid objects.
GR-59963	Fix stamps in ReadExceptionObjectNode
GR-59964	Fix checkcopyright in sulong style gate.
GR-59966	Fix duplication of BciBlocks.
GR-59969	Enable ES 2025 proposals with ecma-script-version option.
GR-59976	Update labsjdk to 24+25-jvmci-b01
GR-60011	Delete CompositeValueClass.
GR-60012	Fix usages of System.out/err in CFGPrinterObserver
GR-60018	Revert recent ContextPauseTest#testPauseManyThreads change in order to prevent hangs.
GR-60020	Fix layouted to laid out.
GR-60022	Consider newDelegatingFileSystem API.

Issue ID	Summary
GR-60022	Map files in shared objects to relative paths for debugging on other systems.
GR-60022	Use newDelegatingFileSystem API.
GR-60044	Use runtime ClassLoader for unique name support.
GR-60053	Update overlay
GR-60056	Replicate bench jobs on x52
GR-60059	Avoid duplicated code in SecuritySubstitutions (JDK-8344787)
GR-60061	Handle VFS extracted files like symlinks.
GR-60074	Fix wheelbuilder shell scripts and windows dll bundling.
GR-60075	Allow using different LocationIdentities with ObjectHeader.initializeObjectHeader
GR-60079	JFR leak profiler fixes.
GR-60081	Update aarch64 to use the 8.1-a instruction set by default.
GR-60091	Add a new doc native-image/JCmd.md to TOC for dev and jdk24 versions.
GR-60092	Implement PyThreadState_SetAsyncExc.
GR-60093	svm: workaround for missing BoundMethodHandle.Species_L registration
GR-60096	Support passing positional (args) and keyword arguments (*kwargs) from Java to Python
GR-60098	Add GRAALPY_VERSION, generate pyconfig.h

Issue ID	Summary
GR-60106	Update compiler docs.
GR-60120	Support scipy 1.13.1
GR-60134	Add warning when parsing args with spaces in <code>mx_sdk_benchmark.parse_prefixed_args</code>
GR-60143	<code>ReadOnlyFileSystem.newByteChannel</code> fails for regular file if <code>openOptions</code> contains <code>NOFOLLOW_LINKS</code> .
GR-60159	Fix <code>java-register.py</code> benchmark
GR-60163	Minor fixes to <code>(Invoke)Dynamic</code> constant pool entries.
GR-60173	Register custom module-info compilation participant for JDK builds without JMODs #10161.
GR-60176	JFR Old Object Sampler fixes.
GR-60184	Correction of the reading from foreign objects in <code>JSON.stringify()</code> .
GR-60185	Make <code>ExitOnOutOfMemoryError</code> a simple <code>RuntimeOptionKey</code> .
GR-60186	Update <code>labsjdk</code> to 24+26-jvmci-b01
GR-60187	Update <code>SyncPort</code> info.
GR-60190	Improve suitable JDK version lookup for Gradle build.
GR-60191	Refactor coverage gates, run on multiple platforms
GR-60207	Process did not finish in expected time in <code>ProcessBuilderTest#testRedirectToStream</code> .

Issue ID	Summary
GR-60213	Bytecode DSL: disallow uncached compilation & fix docs
GR-60217	Enable sun.misc.Unsafe access in launchers.
GR-60229	Use gradle wrapper to build org.graalvm.python.gradle.plugin.
GR-60230	Ensure only safepoint usages left.
GR-60242	Some methods must not be executed before feature registration has finished.
GR-60243	JMH based benchmarks.
GR-60268	Test context cancellation with multithreading.
GR-60283	Update more patches
GR-60301	Fix Truffle DSL warnings.
GR-60307	Start 25.0.0 dev cycle.
GR-60309	Disable downstream-graal-jdklatest jobs.
GR-60314	Fix: use gradlew.bat on Windows.
GR-60347	Backport to 24.2: Include language resources in native image.
GR-60357	Unrecognized option: sun-misc-unsafe-memory-access=allow.
GR-60365	Backport GR-58550.
GR-60366	Backport to 24.2: Bytecode DSL annotation processor NPE with boxing variant fallback instruction.

Issue ID	Summary
GR-60367	Backport to 24.2: Bytecode DSL compiler intrinsics are not compatible with older Truffle versions.
GR-60379	Make InternalResourceCache#useInternalResources compilation constant.
GR-60380	Support for Object.assign(target, foreignArray).
GR-60392	Update pydantic-core, make it work on windows
GR-60399	Fix GIL hold count assertion in PythonContext.releaseGil.
GR-60402	Add vzeroupper upon the entrance of AMD64 sha1 and sha256 stubs.
GR-60402	Backport to 24.2: [JDK-8346653] Add vzeroupper upon the entrance of AMD64 sha1 and sha256 stubs.
GR-60428	Backport to 24.2: Allow combination of captureCallState and critical(true)
GR-60445	Fix failing benchmark jobs.
GR-60446	Use a built python home for running benchmarks
GR-60471	Failing weekly-vm-ee-truffle-maven-isolate-jdklatest-darwin-amd64 gate.
GR-60496	Parse Wasm modules directly from JS.
GR-60510	Update labsjdk to 24+29-jvmci-b01
GR-60540	Backport to 24.2.0: Miscompilation found by fuzzing (InjectLoopCounterStamps).
GR-60541	Normative: updating the order of plural categories.
GR-60541	Recent Intl-related normative changes.

Issue ID	Summary
GR-60542	Normative: limiting some steps of NumberFormat constructor to standard notation.
GR-60568	Rename graalpy_virtualenv
GR-60570	Backport to 24.2: Fix registration of VM diagnostics.
GR-60581	Backport to 24.2: Update labsjdk to 24+27-jvmci-b01.
GR-60604	Improve causality reporting for unresolved elements.
GR-60609	Inject graalpy-virtualenv dependency into virtualenv
GR-60612	Reenable neon on aarch64.
GR-60615	Backport to 24.2: Upgrade ASM dependency to 9.7.1.
GR-60617	Update to a newer version of ANTLR4.
GR-60660	Multi context C extensions with copying
GR-60665	Backport to 24.2: Process did not finish in expected time in ProcessBuilderTest#testRedirectToStream.
GR-60667	Backport to 24.2: Failing weekly-vm-ee-truffle-maven-isolate-jdklatest-darwin-amd64 gate.
GR-60668	Work around incomplete C++20 support on macOS 11.7.
GR-60681	Backport to 24.2: Fix weekly gates failing on JDK-21.
GR-60683	Backport to 24.2: Add Gradle as dependency for GraalPy.
GR-60688	Backport to 24.2: TRegex: NFA generator overhaul.

Issue ID	Summary
GR-60735	Add ignored tests for ctypes return struct by value - unsupported feature for now.
GR-60775	Removing an obsolete problematic hack in <code>ExecuteNativePropertyHandlerNode</code> .
GR-60798	Backport to 24.2: Fix int overflow in <code>ObjectSizeCalculator#increaseByArraySize</code> .
GR-60802	Execution result of some modules was not stored.
GR-60816	Add <code>sys.exception()</code>
GR-60827	Update <code>labsjdk</code> to 24+30-jvmci-b01
GR-60868	Backport to 24.2: Cut off control flow at merges with incompatible lock stacks.
GR-60871	Backport to 24.2: Adapt <code>PartialConfigurationWithOrigins</code> to <code>reachability-metadata.json</code>
GR-60878	Gradle project: use <code>mx.get_tools_jdk</code> instead of <code>mx.get_jdk</code> .
GR-60881	Update bundled <code>sqlite3</code> and bundled <code>PyPy</code> files
GR-61071	TRegex: fix corner cases in <code>NFATraversalRegexASTVisitor</code> .
GR-61088	Make sure we run the TCK tests through the Truffle suite command.
GR-61196	Skip <code>test-process-get-builtin.mjs</code> when <code>tools</code> is imported.
GR-61197	Retry transiently failing <code>waitAsync</code> tests.
GR-61245	Skip transients in <code>pandas</code> benchmarks.

Issue ID	Summary
GR-61261	Mask constant shift amount for reassociation
GR-61268	Backport to 24.2: Ignore unresolvable resource bundle classes instead of crashing the build
GR-61281	Switch ruby-test-mri-linux-amd64 CI job to native-ee to workaround fatal OOM issue
GR-61340	Backport to 24.2: Parse Wasm modules directly from JS.
GR-61341	Backport to 24.2: Fix br_table branch profiles.
GR-61364	Backport to 24.2: Fix state optimization with fallback implicit casts.
GR-61383	Adapt to JLine 3.28.
GR-61388	Update labsjdk to 24+31-jvmci-b01
GR-61390	Fix BuildPhaseProvider.is*Finished() so that these methods can be used at any time during the image build.
GR-61398	Update checkstyle to 10.21.0 and assign CI components.
GR-61417	Fixes for deepeval
GR-61424	Update labsjdk to 24+32-jvmci-b01
GR-61430	Espresso 24.2 backports.
GR-61462	Build pyexpat module on Windows too
GR-61464	Minor docs updates.
GR-61466	Backport to 24.2: Upgrade JLine to 3.28.

Issue ID	Summary
GR-61474	Upgrading the underlying Node.js to version 22.13.1.
GR-61475	Backport to 24.2.1:CE Unrolling must track which loops are created already.
GR-61481	Fix tier_count values in CPU sampler JSON output.
GR-61499	Build bz2 module for windows
GR-61500	Avoid sending dead stubs to PyTruffleObject_ReplicateNativeReferences
GR-61520	Backport to 24.2: Upgrade ANTLR to 4.13.2.
GR-61522	VirtualFileSystem: support multiple VFS conflicting sources in one app, support namespacing and isolating the VFS.
GR-61527	Backport to 24.2: Add MaximumCompilations option.
GR-61531	Fix native storage refcounting
GR-61539	Backport to 24.2: Fix tier_count values in CPU sampler JSON output.
GR-61623	Backport to 24.2: Keep existing speciesData objects in cache at run-time
GR-61648	Update labsjdk to 24+33-jvmci-b01
GR-61665	Backport for 24.2: Enable the Panama NFI backend by default
GR-61685	Fix IllegalAccessError due to missing export
GR-61686	Fix IllegalAccessError due to missing export
GR-61697	Backport to 24.2: Fix and improve GHA gate.

Issue ID	Summary
GR-61700	Backport to 24.2: Update XZ version.
GR-61846	Backport to 24.2: Handle WebAssembly.Memory sizes $\geq$ 2GB when accessing buffer property.
GR-61862	Update labsjdk to 24+34-jvmci-b01
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.
GR-61867	Backport to 24.2: Change the log level of 'Unexpected executable for slot pointer' messages to fine.
GR-61881	Backport to 24.2: Move the longest running Gradle Kotlin tests to the 'long running' batch.
GR-61902	Transient crash in JavaCallWrapper.
GR-61994	Update labsjdk to 24+36-jvmci-b01
GR-62011	Backport to 24.2: Transient crash in JavaCallWrapper.
GR-62016	Backport to 24.2: Avoid symbol versioning issues in shim libraries.
GR-62039	Backport to 24.2: Ensure resolved module imports are only used by the importing module.
GR-62040	Backport to 24.2: Fix element-wise Array.prototype.splice.
GR-62052	Optimize DynamicObjectLibrary.removeKey.

Issue ID	Summary
GR-62079	Backport to 24.2: Error message implies Promise rejected in sync modules.
GR-62408	Backport to 24.2: WASM allows SandboxPolicy.CONSTRAINED.
GR-62456	Backport to 24.2: GraalPy Maven plugin incorrectly prints warning about default resources directory.
GR-62515	Backport to 24.2: Sort properties by name during encode/decode.
GR-62597	Backport to 24.2: Fall back to non-containerized bundle build for --static.
GR-62624	Fix StaticProperty.javaHome to reflect user input.
GR-62649	Backport to 24.2: TruffleJWS version updated.
GR-8351	Re-enable MarkUnsafeAccessTest on aarch64.

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
24.2.0+1 (24+37)

Release Notes

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