

Liberica Native Image Kit 24.0.0+1 (22+37) Release Notes



Liberica NIK
22
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be//soft

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1. Introduction

This document provides the late-breaking information about Liberica NIK 24.0.0 release.

This particular version of Liberica NIK 24.0.0+1 is based on Liberica JDK 22+37. For more information about Liberica JDK release, see [Liberica JDK Release Notes](#).

2. Liberica NIK 24.0.0+1

[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

3. 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.

Liberica NIK 24.0.0 supports the following languages and frameworks:

- LLVM - 16.0.1 (GraalVM CE Native 24.0.0)
- Python - 3.10.13 (GraalVM CE Native 24.0.0)
- Node.js - v18.18.2
- Java - Liberica JDK 22+37
- Java Script - GraalVM JavaScript (GraalVM CE Native 24.0.0)
- TruffleRuby - 24.0.0 (Ruby 3.2.2)
- Native Image - GraalVM Version 24.0.0 (Liberica JDK 22+37, LTS)
- Wasm - WebAssembly (GraalVM CE Native 24.0.0)

4. Known Issues

This release does not contain any known issues. For the list of Liberica JDK known issues, see [Liberica JDK Release Notes](#)

5. CVEs

This release does not contain any fixed CVEs. For the list of Liberica JDK fixed CVEs, see [Liberica JDK Release Notes](#)

6. Notable Issues

This release does not contain any notable issues. For the list of Liberica JDK notable issues, see [Liberica JDK Release Notes](#)

7. Resolved Issues

Liberica NIK issues

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

Issue ID	Summary
GR-1347	Enable test that was previously ignored.
GR-13514	Support flang (fortran compiler) in LLVM toolchain.
GR-16849	Explicit entrypoints for runtime-installed code
GR-17457	[GR-19691] Enable BuildOutputProgress when -H:Log + LogFile is set
GR-17458	Remove dead code in LIRVerifier.
GR-18290	Add option to emit the data section using LLVM bitcode when using the LLVM backend
GR-18978	Reimplement ServiceLoaderFeature with ReachabilityHandlers.
GR-19397	Make more methods private in OptimizedCallTarget.
GR-20628	Implement atomic instructions for threads proposal in GraalWasm.
GR-20628	Implement JS API support for Wasm threads proposal.
GR-20753	Update white box distribution categorization
GR-20827	Indirect branch target tracking

Issue ID	Summary
GR-21361	Remove support for legacy <language-id>.home system property.
GR-21590	Update Python imports.
GR-23176	[GR-47362] Port sha1 and sha2 stubs.
GR-23997	Enabling ES6 features (arrow functions) in HeapQuery tests.
GR-23997	Periodic update of the graal import (2023-12-15).
GR-24602	[GR-47519] Adjust FrameState for deopt at explicit exception stubs to avoid assert in HotSpot
GR-26395	[GR-23507] Periodic update of the trufferuby import.
GR-26395	Periodic update of the trufferuby import.
GR-27034	Deterministic graph publishing during trivial inlining.
GR-27034	Eliminating race condition in FilterTypeFlow.
GR-27034	Making static analysis deterministic.
GR-27034	Update on NI determinism.
GR-28351	Fix typos.
GR-29688	New method handle intrinsification.
GR-29808	Update mx to shutdown the compile servers as soon as they are no longer needed
GR-30001	Shade the ANTLR4 library.

Issue ID	Summary
GR-30433	Always parse graphs with unresolvedIsError set to false.
GR-30433	Disallow the deprecated environment variable USE_NATIVE_IMAGE_JAVA_PLATFORM_MODULE_SYSTEM=false.
GR-31153	Various code generation helpers
GR-31345	Remove unused code, add tests.
GR-31578	Add profdiff tests.
GR-31578	Refactor optimization positions in profdiff.
GR-31578	Report when there are no differences and explain profiles in profdiff.
GR-31578	Separate lines with LF when writing to a string builder in profdiff.
GR-32818	CLinker backend for Truffle NFI.
GR-33033	[GR-26734] Enable SHARED context policy for Wasm language.
GR-33082	Refactor build process of cext project.
GR-33548	Improve Native Image diagnostics.
GR-33631	Add --as-tag option to JMCIVersionCheck.
GR-33834	[GR-32855] Expose no profiling info provider in unit tests.
GR-34037	[GR-46511] Performance improvements for findIsolateThreadForCurrentOSThread().
GR-34212	Populate Throwable.stackTrace lazily

Issue ID	Summary
GR-34424	Additional exception handling in BinaryGraphPrinter#nodeProperties.
GR-34424	Handle GraalErrors when dumping properties of broken nodes.
GR-34424	Unittest which triggers exceptions when dumping nodes.
GR-34675	Minor clarification in the documentation.
GR-34943	Update trufferuby import to fix transient
GR-35044	Introduce a mode to unconditionally include classes and resources from a module or package.
GR-35186	Verify that early-parsed isolate arguments don't change later on.
GR-35447	Test vm exit during pending Truffle compilation.
GR-35619	[GR-49817] [GR-49813] Enable microservice benchmarks on aarch64.
GR-35746	Decrease aligned chunk size to 512 KB.
GR-35914	Reduce module dependencies of the native image generator.
GR-36062	Resource Bundle issues
GR-36063	[GR-45332] Fixes for SVM MemoryPool and MemoryManager MX beans.
GR-36213	Allow specifying method lookup for HostAccess.
GR-36514	Add missing changelog entry.
GR-36942	Java code generation for Graal Graphs

Issue ID	Summary
GR-37461	Gracefully handle unsupported locale in Python regexps.
GR-37506	[GR-46033] Add support for reading module export attributes in the JAR manifest
GR-37533	Backports for 24.0 batch 1
GR-37533	Backports for 24.0 batch 2
GR-37533	Merge master into 24.0 release branch for feature freeze
GR-37533	Update trufferuby import for 23.1
GR-37982	Error when loading js dependency from a path with a space.
GR-37982	Fixed PolyglotToolchainTest.
GR-38086	Remove CFG based OSR in LLVM runtime.
GR-38619	Espresso List remove interop.
GR-38789	Fix handling of JavaTimeSupplementary resource bundles.
GR-38866	[GR-45327] Enable Truffle JFR support for JDK 20 and later.
GR-38938	Improve missing proxy error message.
GR-38994	Add support for -XX:HeapDumpOnOutOfMemoryError.
GR-39323	Add ability to differentiate OpaqueGuardNode from OpaqueValueNode.
GR-39406	Allow all classes to be used at image build time.

Issue ID	Summary
GR-39406	Early and late class initializer analysis must check for synchronization.
GR-39406	Explicit build time class initialization for classes used by classes already marked for build time initialization.
GR-39406	Fix DebugContext used in SerializationFeature.
GR-39406	Fixes for new class initialization strategy.
GR-39406	Fixes for the shadow heap.
GR-39406	Lazily create constant for AnnotationExceptionProxyValue.
GR-39406	Mark more packages explicitly as initialize-at-run-time.
GR-39406	Remove HostedField.readValue.
GR-39406	Scan all embedded constants in reachability analysis.
GR-39406	Simplify class initialization configuration for Lambda classes.
GR-39406	Unwrap all ImageHeapConstant before adding them to the image heap.
GR-39406	Various fixes and cleanups.
GR-39406	Various shadow heap fixes.
GR-39407	Add support for NATIVE_IMAGE_OPTIONS environment variable.
GR-39436	Improve resume and suspend logic in Espresso jdwp.
GR-39571	TruffleStrings: allow preservation of UTF-16 surrogate values via new parameter in SwitchEncodingNode

Issue ID	Summary
GR-39682	[GR-44622] Implement ProclD for AMD64
GR-39701	Ignore crashed threads.
GR-39848	Disallow getAnnotations for analysis and hosted elements.
GR-39848	Do not use method and field annotations during JIT compilation.
GR-40046	[GR-44513] [GR-44619] [GR-37844] Remove legacy code.
GR-40263	Provide JSON schemas for Native Image config files
GR-40364	Make type assignments deterministic.
GR-40476	Introduce a mechanism for dynamic method address resolution.
GR-40656	Add predicates for espresso gates.
GR-40767	ValueHostConversionTest#testExceptionFramesCallerSensitive fails on JDK 19.
GR-40798	Use LogUtils throughout SVM codebase.
GR-40801	RestrictedFileSystem Sample Code Information Leak.
GR-40831	[GR-47377] [GR-47493] Port md5, sha3 and sha5 stubs.
GR-40942	Additional support for FactoryMethod necessary for code layout optimizations
GR-41016	Espresso: ensure threads are joined in finalizeContext.
GR-41097	Add SpecJVM2008 native image benchmarks

Issue ID	Summary
GR-41209	Module-aware Resource storage
GR-41302	[GR-41615] [GR-49384] Assert parity of enter/return calls on ProbeNode.
GR-41385	Collect other components unittest test reports.
GR-41526	PosixSubstrateSigprofHandler.updateIntervals should receive intervals in us. Update Sampler-related comments.
GR-41592	Move Jipher]CE.md to security docs group; Add cross links.
GR-41592	Sandbox security guide
GR-41614	Move resource registration to beforeAnalysis phase
GR-41638	Make sure that shouldNotReachHere always has a message.
GR-41852	Introduce reset method for Safepoint Sampler.
GR-41877	[GR-42214] Fix support status.
GR-42088	Add SamplerStats to dump sampler statistics on shutdown and fix missing BCI.
GR-42113	Fixes for serialization reflection registration.
GR-42114	Fix timeout issues and minor modifications
GR-42114	Integrate missing resource metadata
GR-42126	Expose graph raw data on node map NPE.
GR-42126	Loop fragment: log more data on error.

Issue ID	Summary
GR-42126	Nodemap: dump iterator state on error.
GR-42126	Print nodemap in same method.
GR-42126	Remove node map npe analysis code.
GR-42162	Add support for tracking inlining during inlinebeforeanalysis.
GR-42342	Add an option for unconditional inclusion of original error stacktraces and PolyglotException creation stacktraces to PolyglotException stacktraces.
GR-42527	Add Builder pattern to ControlFlowGraph.
GR-42563	Improve code coverage
GR-42664	Support IsolateOption.MaxHeapSize on launchers.
GR-42702	[GR-42563] Clean up ValueNodeUtil
GR-42702	Remove unused code in compiler.nodes.
GR-42801	Update Spring microservice benchmarks
GR-42818	Use node inlining in Truffle NFI.
GR-42839	TRegex: fix Truffle warnings for truffle-inlining, truffle-neverdefault and truffle-cached.
GR-42846	[GR-42847] [GR-44577] [GR-41613] Integrate various fixes.
GR-42978	Remove IntelliJ IDEA guide from docs.
GR-42996	Clean up unknown field annotation.

Issue ID	Summary
GR-42996	Clean up use of ImageHeapConstant.
GR-42996	Clean-up use of SubstrateObjectConstant.
GR-42996	Decouple ImageHeapConstant creation from marking it as reachable.
GR-42996	Don't mark unknown value fields as written.
GR-42996	Ensure no SubstrateObjectConstant in Graal graphs.
GR-42996	Fix ImageHeapConstant strings issue.
GR-42996	Fix lazy scanned values.
GR-42996	[GR-46644] Cleanup shadow heap code.
GR-42996	Install hosted values readers in ImageHeapConstant lazily.
GR-42996	Make SnippetReflectionProvider available in CoreProviders.
GR-42996	More heap scanning refactoring.
GR-42996	Redirect constant pool lookup through the shadow heap.
GR-42996	Refactor ImageHeapConstant unwrapping.
GR-42996	Refactor shadow heap.
GR-42996	Refactor shadow heap verification and fix lazy scanned values.
GR-42996	Refactor simulated constants support.

Issue ID	Summary
GR-42996	Replace SubstrateObjectConstant direct access with SnippetReflection access.
GR-42996	Replace SubstrateObjectConstant.forObject() with SnippetReflection.forObject().
GR-42996	Unknown fields availability.
GR-43002	Alter signal handler registration.
GR-43002	Remove java synchronization within sigprof handler installation.
GR-43015	[GR-43017] Delay IncompatibleClassChangeError errors to runtime
GR-43035	Delay IllegalArgumentException and InCompatibleClassChangeError in loading constants
GR-43035	Handle IllegalArgumentException in loading constants
GR-43039	Delay NoSuchFieldError to runtime
GR-43125	Verify that recurring callbacks don't allocate Java heap memory.
GR-43132	Increase coverage around pointsto tests.
GR-43132	Provide an annotation to explicitly exclude a method from Jacoco instrumentation.
GR-43134	Add support for profiling of topmost frame.
GR-43174	Only use getDeclaredMethods/getDeclaredConstructors that do not force linking.
GR-43174	Use new JVMCI API.

Issue ID	Summary
GR-43228	Optionally enforce backward-edge control-flow integrity (CFI) with pointer authentication codes (PAC) on aarch64.
GR-43358	JS: Define Native Image Resources.
GR-43361	Fix CEntryPointCallStubMethod signature
GR-43361	Track primitive values in the points-to analysis
GR-43361	Unknown return value in points-to analysis
GR-43389	[darwin-amd64] Workaround for buggy ld64 versions
GR-43389	Workaround for buggy ld64 versions on darwin-amd64
GR-43392	Add additional hooks in safepoint and C entry point mechanisms
GR-43434	[GR-43597] Fix svmtest llvm failures
GR-43442	Add a missing comma before flag for tika benchmark.
GR-43442	Fix an initialization problem with tika benchmark.
GR-43505	Adding support for AVX512 opmask instructions
GR-43648	Document recommendation for quick build mode.
GR-43648	[GR-45820] Refactor NI Optimization Levels.
GR-43652	Creation of binary arithmetic node via BinaryOp
GR-43683	Native Image Static Analysis mx Tweaks

Issue ID	Summary
GR-43720	Add LogHandler to polyglot library.
GR-43733	Change Java source level for native image to 21.
GR-43733	Remove code for old JDK versions.
GR-43733	Remove code for old JDK versions (part 2).
GR-43819	Split Graal-SDK into new modules: polyglot, word, collections and nativeimage. (Unchained Part 7)
GR-43821	Fix embedding documentation.
GR-43821	Update embedder documentation for Truffle unchained.
GR-43844	Benchmarking: report more metrics.
GR-43849	Use devtoolset 11 on linux.
GR-43849	Using devtoolset version 10 for linux_aarch64 jobs.
GR-43906	Avoid hitting Java array length limit during UTF-8 conversion in PolyglotContextImpl#printResult.
GR-43920	Implement containerized native image building for native image bundles #6496.
GR-43930	Enable partial missing registration options
GR-43934	Only build full FrameTree when OmitInlinedMethodDebugLineInfo is false.
GR-43935	Update to LLVM 16.
GR-43937	Add a method to createGraph with given options.

Issue ID	Summary
GR-43939	Use primitive element array view rather than pinning
GR-43940	Add AArch64 support for PLT/GOT
GR-43979	Print reachability trace
GR-43981	Scale down factors for JIT daily and weekly jobs.
GR-44007	Ensure NativelImageDebugDataInfo methods are used by logging are only called if needed.
GR-44013	Coverage improvements around compiler.code, graal.pointsto, and svm.hosted.
GR-44032	Add Truffle DSL guidelines + improve truffle-interpreted-performance warning message.
GR-44078	Fix failure when no resource bundle nullary constructor is present
GR-44080	Adopt BigInteger interop support in Espresso.
GR-44081	Use Blocker in Object.wait if pinned.
GR-44098	Add lambda methods in debuginfotest.
GR-44119	Skip FullInfopointNode in SubstrateGraphBuilderPlugins analysis.
GR-44182	Open JVMCI to Truffle runtime.
GR-44211	[GR-42247] [GR-45313] Add language notifications before PolyglotThread first enters the context and after PolyglotThread last leave of the context.
GR-44211	[GR-45798] Periodic update of the truffleruby import.

Issue ID	Summary
GR-44217	Added documentation.
GR-44217	DefaultExportProvider and EagerExportProvider are loaded using TruffleLanguageProvider.
GR-44217	EagerExportProviders and DefaultExportProviders are registered using exported library reference.
GR-44217	FileTypeDetectors are loaded using TruffleLanguageProvider#loadService.
GR-44217	Fixed com.oracle.truffle.tools.profiler exports.
GR-44217	Fixed EspressoError.shouldNotReachHere from VM.getLibraryHandle on macOS.
GR-44217	Fixed INSIGHT module-info.
GR-44217	Fixed missing debugger instrument.
GR-44217	Fixed reflective service loading on SVM.
GR-44217	Fixed review comments.
GR-44217	Fixed sigtests.
GR-44217	Fixing gates.
GR-44217	Graalvm locator works together with languages on module-path.
GR-44217	Improved automatic module behaviour, fixed optional dependency.
GR-44217	Improved comments and documentation.
GR-44217	Modularization of external_repos/simplelanguage.

Issue ID	Summary
GR-44217	NFI migrated to TruffleLanguageProvider#lookupTruffleService.
GR-44217	Removed non needed add-opens.
GR-44217	Removed non needed requires concealed for truffle api packages.
GR-44217	Removed reflective access to com.oracle.truffle.nfi.backend.libffi.LibFFILibrary.handle.
GR-44217	Resolved review comments.
GR-44217	Simple language is a Java module.
GR-44217	Truffle API is by default built as an open module.
GR-44217	TruffleLanguageProvider and TruffleInstrumentProvider methods are called using an accessor.
GR-44217	Truffle open itself in runtime to languages and instruments on the module-path.
GR-44217	Truffle opens itself in runtime to languages and instruments on the module-path.
GR-44217	Truffle services are no more instantiated reflectively.
GR-44217	Various fixes to module-infos in languages and instruments.
GR-44222	[GR-47516] Handle --compiler options in LanguageLauncherBase
GR-44222	[GR-47557] Separate SVM and Truffle (Unchained Part 6).
GR-44222	Handle --compiler options in LanguageLauncherBase

Issue ID	Summary
GR-44222	Reduce dependencies to JVMCI in the Truffle runtime; Truffle runtime refactorings and AST dump improvements.
GR-44305	[GR-46607] Fix Node adoption and DSL race conditions.
GR-44310	Espresso: Allow language sharing and start sharing Parser and Linked classes.
GR-44342	Speedup method verification.
GR-44373	Add a cmd line option to avoid addition of macros and profiles.
GR-44387	Add documentation for bundle options.
GR-44387	Review and update Native Image Bundles documentation.
GR-44404	Unicode sets mode support for ECMAScript regular expressions.
GR-44410	Add support for duplicate named capturing groups in ECMAScript regular expressions.
GR-44414	Fix Nashorn test failing in shared-engine mode (24.0).
GR-44420	Add TruffleLanguage#finalizeThread hook.
GR-44424	Fix: URLClassLoader.getResourceAsStream returns null.
GR-44432	Bump MX version.
GR-44458	[GR-42162] Add infrastructure support for inlinebeforeanalysis in parseoncejit.
GR-44459	Track extra metadata about DeoptEntry/DeoptProxyAnchor nodes.

Issue ID	Summary
GR-44464	TruffleString: add ToValidStringNode.
GR-44468	Print stdout and stderr in case of errors, also when the exit code is None.
GR-44499	Increase stack size for C1 renaissance jobs.
GR-44520	Use hybrid time -v and psrecord tracker for benchmarking.
GR-44524	WebAssembly Extended Constant Expressions Proposal.
GR-44552	[GR-44553] [GR-44995] Review and update GraalVM installation steps in the VS Code guide, and components installation steps with gu.
GR-44561	Detect systemic compilation failure.
GR-44581	Added Native Image getting started steps to GraalVM Windows installation guide.
GR-44591	Add brief JMX guide.
GR-44593	[GR-44811] [GR-44595] [GR-44594] [GR-44587] Revise documentation.
GR-44617	Compiler Advantages description unclear.
GR-44634	Bump a version of the Eclipse code formatter to 4.26.
GR-44634	Bump MX version in SDK.
GR-44675	[GR-44081] Support ScopedValue and use Blocker in Object.wait if pinned.
GR-44695	Add verifier for correct use of Graph.unique.
GR-44701	Update JVMCI version check to 23.0-b10.

Issue ID	Summary
GR-44701	Update to jvmci-23.0-b10.
GR-44706	Relax invokeMember invariant assertion for side-effecting members.
GR-44722	Adjust version strings and properties.
GR-44722	Inherit <code>java.vendor.version</code> from host VM.
GR-44722	Make vendor version adjustable at build-time.
GR-44731	Fix Truffle DSL OptionProcessor: use correct argument name in generated code.
GR-44744	Report <code>UnsupportedFeatureException</code> thrown during analysis parsing via <code>bb.getUnsupportedFeatures().addMessage(...)</code> .
GR-44749	Simplify missing reflection registration options
GR-4476	Add checkstyle rule for exception and error messages.
GR-44772	InferEnv handles options for non-rebuildable images and debuginfo dists.
GR-44773	[GR-44506] Re-enable python enterprise gates.
GR-44795	Refactor <code>ToEspressoNode</code> to enable use of target types.
GR-44796	Fix frame construction in the presence of <code>nmethod</code> entry barriers
GR-44797	Add type mapping feature for common collection types passed into Espresso.
GR-44801	Fix <code>defaultBuild</code> warnings in Sulong.
GR-44810	Add an isolate data section

Issue ID	Summary
GR-44819	Refactor ProgressReporterJsonHelper.
GR-44821	Check for native frames in DestroyJavaVM.
GR-44829	TruffleStrings: introduce specialized TruffleStringBuilder types for better performance on UTF encodings.
GR-44832	Avoid static field in PhiResolveLowerer
GR-44834	Proofs for reflection queries
GR-44835	Determine the source cache roots only once.
GR-44836	Fix multiple problems in parent field updaters.
GR-44862	[GR-44252] JDK 21 adoption.
GR-44865	Recognize and compare multi-methods in profdiff.
GR-44866	Support AOT profiles in profdiff.
GR-44868	Fixed language permissions feature.
GR-44868	Fixed truffle isolates gates.
GR-44868	Native image builds with --macro:truffle cannot use hybrid class and module-path.
GR-44870	Ensure bundle temp directory gets deleted in case of SIGTERM.
GR-44871	Fix missing inline field substitution with the default runtime.
GR-44875	Passing language or instrument options using system properties does not work in Truffle isolate.

Issue ID	Summary
GR-44880	Do not crash the VM if JVMTI calls happen in the wrong phase in the diagnostics agent.
GR-44889	Next dev cycle 23.1
GR-44955	Replace notifications for GraalVM EE.
GR-44959	Improve OutOfMemoryError messages.
GR-44963	Port count positives stubs.
GR-44964	If canon: deep copy virtual state and replace all old phi inputs in state.
GR-44976	Fixes to Espresso JDWP transient.
GR-44985	Extract breakdown providers from ProgressReporter.
GR-44986	Fix LinkStrategy's filename-only links
GR-44988	[GR-45019] [GR-45008] [GR-45108] Fix <code>-march=list</code> and extend detection of CPU features on darwin/aarch64.
GR-45003	Move many remaining JDK 20 CI jobs to 21
GR-45005	[GR-45006] JDK21-related fixes.
GR-45009	Fix missing reflection registration tests
GR-45011	Introduce a node that registers metadata once it becomes reachable.
GR-45016	Fix file permissions.
GR-45018	Abort early when attempting a wrong field read.

Issue ID	Summary
GR-45020	Do not permit FixedGuardNode and ConditionAnchorNode to go away if there are PiNodes attached.
GR-45021	Retire JDK17 compiler and NI benchmarking.
GR-45023	Misc fix CI tasks for Native Image.
GR-45035	Add names to HostAccess.ISOLATED and HostAccess.UNTRUSTED.
GR-45039	Limit graph size after trivial inlining.
GR-45043	Update trufferuby and mx
GR-45044	Avoid emitting rmi library.
GR-45047	Handle 0 values in tck division verifier
GR-45048	Dominator based gvn: ensure that licm nodes are created per loop.
GR-45056	Fix absolute link in the TraversingCompilationQueue.md.
GR-45056	Replace invalid links to the Oracle Help Center.
GR-45056	Use absolute links.
GR-45057	Fix sulong libcxx rpath.
GR-45071	Add notify_emails or notify_groups to jobs.
GR-45073	The libgraal env file contains only what is necessary.
GR-45076	Update the Implement Your Language and IGV guides to add the 'mx' instructions.

Issue ID	Summary
GR-45078	Fix one deopt per thread for lazy LLVM stack allocation.
GR-45080	Enable Collections.shuffle use in hosted code
GR-45089	Control Split Profile Inference: ML Minor Update
GR-45096	Remove redundant newline.
GR-45097	Record queryCode compilation as DeadlockWatchdog activity.
GR-45112	Ensure @RawStructure fields have getters and setters.
GR-45115	Check for disabled counted loop when changing a LoopBegin's frame state
GR-45123	Truffle DSL: introduce GenerateInline#inlineByDefault.
GR-45129	Pass the speculationLog of the caller to GraalSupport.decodeGraph.
GR-45130	Replace --enable-experimental-bundle-support with a warning.
GR-45140	[GR-45098] Various arithmetic canonicalizations
GR-45143	Remove SubstrateVirtualThreads.
GR-45144	Bump some inline cache limits to prevent fallback to uncached in Ruby yjit-bench.
GR-45150	Update the common SVM CI files
GR-45153	Block Implementable for HostAccess.UNTRUSTED in Initial Release.
GR-45156	JDK_PROFILES.zip now contains a single file instead of multiple profiles.

Issue ID	Summary
GR-45161	Add support for Invocable and AutoCloseable to the ScriptEngine
GR-45161	[GR-46399] Add support for Invocable and AutoCloseable to the ScriptEngine
GR-45163	Remove @Uninterruptible from String.hashCode().
GR-45165	Consolidated Graal module sources to jdk.internal.vm.compiler.
GR-45167	Fix points-to inspect issues.
GR-45179	Fix monthly collect_jdk_profiles jobs.
GR-45180	Print the sha1 of the profiles in benchmarks and use the API flags.
GR-45189	Avoid magic accessor as super to generated proxies.
GR-45190	Assertion failure in DynamicObjectLibraryTest with ZGC.
GR-45195	Add poly_engine_builder_allow_experimental_options.
GR-45196	Fix import library handling on Windows.
GR-45203	Bundles need to support forcing builder on classpath
GR-45207	[GR-45629] Update to jvmci-23.1-b01.
GR-45208	[GR-45232] Properly align VMMutex on Windows.
GR-45210	Fix JFR constant pool clearing.
GR-45230	Avoid linking the special invoke target when the declaring type is not instantiated.

Issue ID	Summary
GR-45241	Update Native Image Build Options page according to the preview build output.
GR-45251	Run Truffle API Tests on SVM also in DefaultTruffleRuntime mode.
GR-45252	Delete the source file for Micronaut extension from the GraalVM website.
GR-45254	Use the same string to split and to join BUNDLE_DEPENDENCY.
GR-45255	Turn assertion into a guarantee
GR-45256	Don't consider distinct reads equivalent
GR-45272	Lock mutex with an unspecified owner when a thread detaches.
GR-45280	Various fixes for setCurrentThread intrinsic.
GR-45282	Fix FrameWithoutBoxing.ASSERTIONS_ENABLED state in native-image.
GR-45284	Allow disabling Truffle unsafe casts.
GR-45287	Add root reasons
GR-45290	Rename GraalVM root dir, vendor info, and archive name.
GR-45298	Do not rely on GraalServices.getGlobalTimeStamp.
GR-45324	[GR-45325] Stability fixes of Breakpoint.
GR-45327	Remove JDK 11 support from native image code.
GR-45330	Graph decoding: only set stage flags if we are not inlining.

Issue ID	Summary
GR-45332	Fix various espresso issues.
GR-45339	Add StandardGraphBuilderPlugins for standalone analysis.
GR-45342	[GR-45392] [GR-45418] Disable System.exit logging on Native Image on JDK 21
GR-45342	Run SVM basic tests on JDK 21
GR-45342	Strict SpotBugs gate for /compiler and /substratevm
GR-45344	Handle different stamps in ZeroExtendNode#alwaysPositive.
GR-45349	Make the core part of the serial GC uninterruptible.
GR-45353	Deactivated the Wasi rename file test.
GR-45353	[GR-48876] Skip transiently failing WASI tests on Windows.
GR-45362	Fix URL parser error to 127.0.0.1:4445 in docs.
GR-45362	Replace the link in docs/tools.md: there is only GraalVM extension now.
GR-45363	Move Truffle CI JDK20 builds to JDK21.
GR-45366	Move sulong tests from jdk20 to jdk21.
GR-45371	[GR-46397] Migrate wasm to a named Java module and move gate to JDK 21.
GR-45371	Move WASM gates from JDK 20 to 21.
GR-45371	Move WASM jobs to JDK 21.

Issue ID	Summary
GR-45373	Deploy JDK21-based GraalVM artifacts.
GR-45374	[GR-45375] Move polybench and compiler style to JDK 21
GR-45386	Update oraclejdk20 build to match version of labsjdk-ce-20.
GR-45392	Implement virtual thread jvmti intrinsics.
GR-45412	[GR-45413] Corrections of the re-instantiation of a wasm module.
GR-45417	Update mx version for psrecord fixes.
GR-45420	Update the documentation to explain the PGO mode
GR-45426	Adopt lambda class name pattern introduced in the jdk21 for lambda serialization tests
GR-45434	Removed dependency from annotation processor to processed source.
GR-45436	Update GRAALVM-README.md included in installation.
GR-45444	Skip primitives when adding constants to the image heap model.
GR-45460	Strengthen pointer stamps of mutually recursivephis
GR-45474	Support also 'fastdebug' builds.
GR-45479	Fix IndexOutOfBoundsException when reading the result of RegExp match.
GR-45485	More robust JDK version info extraction.
GR-45487	Switch to int basic block index.

Issue ID	Summary
GR-45492	StrictMath: libfdm was ported to Java in JDK 21
GR-45495	[GR-45952] [GR-46176] Move benchmarks to JDK 21.
GR-45498	Fix erroneous shift in java.lang.StringCoding.implEncodeISOArray intrinsic (23.1).
GR-45615	Upgrade ANTLR to 4.12.0.
GR-45616	Update ASM dependency to version 9.5.
GR-45621	Support LLVMPointer arguments in LLVMFunnelShiftNode.FshI_I64
GR-45624	Psrecord doesn't propagate error code and fails in some corner cases
GR-45627	Remove obsolete annotation support.
GR-45631	[GR-45482] [GR-46554] Update mx version.
GR-45636	Use windows server 2019 for ZGC
GR-45637	[GR-47531] Fix the minFeaturesAMD64 in AMD64StubForeignCallsFeature for VectorizedHashCodeNode.
GR-45637	Implement intrinsic ArraysSupport.vectorizedHashCode.
GR-45639	Avoid NPE when build JDK has no source zip.
GR-45651	Throw missing registration errors for the JCK.
GR-45652	Allow null method pointer in JNI.
GR-45654	Single compile unit for Java DWARF debug info.

Issue ID	Summary
GR-45658	Add LLVM_NINJA_TOOLCHAIN for building native projects with our vendored LLVM build.
GR-45660	Update StubPort information.
GR-45662	Pass unknown arguments through to run in mx_compiler.run_java.
GR-45667	Use JVMCI API for retrieving ConstantValue attributes.
GR-45673	Improve fallback max heap behavior of builder.
GR-45673	Move changelog entry after backport.
GR-45673	Tweak GC settings of Native Image builder.
GR-45690	Do not compile a known failing target for sulong benchmarks.
GR-45702	Enable profile replay on JIT
GR-45708	Translate encoded graphs referencing assumptions in the image heap.
GR-45711	Verify the stack effect during frame state construction
GR-45714	Raise default LargeArrayThreshold to 128K.
GR-45718	Improve heap and stack verification.
GR-45720	TRegex: prototype implementation of OracleDB POSIX flavor.
GR-45727	Turn heap dump logic into utility method.
GR-45733	Reset ClassSpecializer cache

Issue ID	Summary
GR-45738	Always dump pgo profiles on exit for language libraries.
GR-45739	Adjust system compilation failure detection.
GR-45753	Smoke test for the dependencies of the LLVM_TOOLCHAIN component.
GR-45754	Remove experimental label across Java on Truffle docs pages.
GR-45760	For FieldValueTransformer, "after analysis" means "hosted universe built".
GR-45764	TruffleString: fix NPE in AbstractTruffleString.equals()
GR-45765	Enable fillInStackTrace optimization for JIT compiled code
GR-45765	Optimize Throwable#fillInStackTrace for JIT compiled code
GR-45777	Use more efficient datastructure for storing all threads in LLVM runtime.
GR-45783	Share NodeFieldData instances with superclasses.
GR-45785	Updated microservice versions for micronaut application 3.9.2
GR-45787	Ensure that DeadlockWatchdog does not prevent VM exit.
GR-45791	Fixed a heap dumping issue.
GR-45794	Add EE python component to standalone for Oracle GraalVM.
GR-45794	Introduce component dependencies for EE standalones.
GR-45799	Fix integer overflow in StringLatin1.inflate
GR-45802	Fix incorrect command for VisualVM in the JMX guide.

Issue ID	Summary
GR-45806	Execute bootstrap methods at run time
GR-45806	Update JVMCI to jymci-23.1-b26.
GR-45807	Dwarf debuginfo generation makes only sense when LIR backend is used.
GR-45808	Rebuild JavaCPP libraries for Linux AArch64 without libtinfo
GR-45812	Include all header fields in ResourceURLConnection.
GR-45814	Publish the new ANTLR4 installable.
GR-45814	Register ANTLR4 runtime as language.
GR-45825	Make leaveAndEnter throw CancelExecution exception on return, if the context is cancelled.
GR-45827	Use a custom GC cause for heap dumping and JDK21 related changes.
GR-45831	Mitigate against extraneous output from JVMCIVersionCheck.
GR-45832	Upload graal_dumps from all suites.
GR-45833	Unproxify the receiver when computing the receiver type.
GR-45834	Thread User CPU time for Linux.
GR-45841	Add JFR event ThreadCPULoad.
GR-45850	Fix metric.name in NI compile-time memory extraction.
GR-45853	Change ICU4J maven group and artifact id.

Issue ID	Summary
GR-45853	Fix source dirs of ShadedLibraryProject when MX_ALT_OUTPUT_ROOT is set.
GR-45853	Shade ICU4J to prepare for usage on module-path.
GR-45860	Ignore SIGXFSZ signal.
GR-45863	Instrumentation intercepts yield/resume and debugger fixes stepping over await.
GR-45870	Fix Virtual Thread IDs in JFR events.
GR-45872	Add compare copy of unmanaged primitive arrays
GR-45885	Fix invalid DSL warning for cached nodes with only shared inlined caches.
GR-45893	Rerun DefaultOptionsHolder class initializers.
GR-45896	Shade JLine 3.23 again.
GR-45896	Upgrade JLine to 3.23.0.
GR-45897	Tests are not using the default port.
GR-45905	Update the dist and root dir name of GraalVM Ruby artifacts.
GR-45909	Remove type checks from JNI to-Java call stubs, which can break compatibility.
GR-45916	Track node source positions during parseoncejit analysis.
GR-45921	Ensure bytecode exception nodes are not present in runtime compiled methods.
GR-45923	EventBinding.tryAttach() added.

Issue ID	Summary
GR-45938	Reactive coverage after regression.
GR-45943	Improve Strengthen Graphs and add registerOpaqueMethodReturn hook.
GR-45947	[GR-45898] Make jvmci-23.1-b02 release.
GR-45948	FileSystemsTest#testSetAttribute fails on JDK 21.
GR-45954	Restore inlined methods and assumptions in GraphDecoder
GR-45955	Fix generic array signature registration
GR-45962	Use markWord::lock_mask_in_place in identity hash code fast path after JDK 18.
GR-45963	Prevent from racy access to Breakpoint.debugger field.
GR-45972	Simplify exception handling at call boundaries; Inline exception profile in indirect calls.
GR-45974	More diagnostics for transient test failure.
GR-45975	Fix a problem with missing JDK profiles in CI.
GR-45977	[GR-46118] Reduce number of log files and improve error reporting in benchmarks
GR-45979	Avoid nulling out wrapper constants in PE test graph comparisons
GR-45984	Fix plugin frame states
GR-45985	Update mx import.
GR-45987	Document instrument PGO mode.

Issue ID	Summary
GR-45989	New polyglot api for recurring callback.
GR-45990	Update mx.
GR-45992	Let msgs of ImplicitExceptions match HotSpot again.
GR-45994	Signal-handler related simplifications.
GR-45999	More specific errors for invalid strings passed to JNI.
GR-46002	Add frequency based cutoff to host inlining; Add preliminary cache to cfg computations for relative frequency computation during inlining.
GR-46006	Update JaCoCo to support JDK 21.
GR-46007	Fix regressions in weekly compiler jobs.
GR-46013	Allow more customization of snippet expansion mid tier phases
GR-46020	TRegex: bailout adjustments and various optimizations.
GR-46022	Improve stamp computation for conditionals encoding integer min/max
GR-46025	Only verify frame states for runtime compilations
GR-46028	Properly handle stamps with only high bit set
GR-46031	Add support for @Stable annotation.
GR-46034	[GR-45372] [GR-45376] [GR-47029] [GR-45331] Espresso for JDK 21.
GR-46037	Invariant violation assert in InteropLibrary.writeHashEntry() is too strong.

Issue ID	Summary
GR-46045	Infer more precise stamps for EntryProxyNodes' inputs
GR-46055	[GR-46149] JFR and JMX fixes.
GR-46056	AArch64: Fix FP location in CalleeSavedRegister Methods.
GR-46057	Method scoping fix.
GR-46064	Mark indirect branch targets and emit endbranch
GR-46070	Port lightweight locking.
GR-46073	Injecting a field breaks automatic substitutions.
GR-46081	Update visualvm to build 1090.
GR-46086	Add native debuginfo walkthrough guide.
GR-46087	Fix out of sync CPU flags in ArrayIndexOfForeignCalls.getMinimumFeaturesAMD64.
GR-46095	Minor fixes for Native Image build output.
GR-46101	Truffle DSL Fix: compilation error when two @Cached arguments have different types with the same simple name.
GR-46111	Continuation.enter* and .yield* are supposed to be hidden.
GR-46116	Upgraded trufflejson library.
GR-46117	Disable TestVirtualThreadsChunkRotation because of frequent transient failures.
GR-46119	Support jdk-21+22.

Issue ID	Summary
GR-46119	Update to jvmci-23.1-b07.
GR-46120	Make installed code to call target reference weak on SVM.
GR-46121	Represent boolean flags are unsigned char, instead of char.
GR-46125	Fix a deprecation warning.
GR-46125	Print deprecation warnings for fallback env vars.
GR-46138	PolyglotExceptionTest#testGuestOOMResourceLimit crashes HotSpot.
GR-46140	TruffleStrings: fix Java string conversion when compact strings are disabled.
GR-46146	Avoid this-escape warnings in createContext(Thread)Local.
GR-46148	Add cstdint header to thin launcher
GR-46150	Deterministically sort proxy arrays.
GR-46151	Adapt python ci to use runspec.
GR-46156	Disable frame state verification for manually generated graphs.
GR-46157	Fixed IndexOutOfBoundsException in DebugState.
GR-46159	Update libffi to version 3.4.4.
GR-46163	Eagerly initialize the hash code of Enum in the image heap.
GR-46164	Cleanups and additional sanity checks.
GR-46165	Allow unlimited stack traces (MaxJavaStackTraceDepth=0)

Issue ID	Summary
GR-46166	[GR-49757] Various bug fixes and cleanups.
GR-46167	Allow EnsureClassInitializedNode in methods that are annotated with @Uninterruptible(calleeMustBe = false).
GR-46169	Remove SubstrateOptions.UseOldDebugInfo.
GR-46170	Remove support for old tzmappings format.
GR-46175	Fix inline field code to better compile on SVM.
GR-46177	Add missing Unsafe substitution.
GR-46178	Add link to Class HostAccess.Builder in the Polyglot Sandbox guide.
GR-46179	Update GitHub actions to use JDK 21.
GR-46180	Include empty directories in NativeImageFileSystem.
GR-46181	Refactor dependencies of GraalVM components.
GR-46184	Fix transient JFR failures.
GR-46190	Support JFR event GCHeapSummary.
GR-46203	Support jdk-21+23.
GR-46205	Duplicated com.oracle.truffle.tools.utils.json.
GR-46205	Fixing gates.
GR-46205	Shaded org.json library.

Issue ID	Summary
GR-46213	Fix frame state verification, disable for SVM runtime compilations
GR-46219	[GR-47044] [GR-48431] [GR-48456] [GR-47991] Batch of PRs.
GR-46220	Update README on LLVM Upstream Patches.
GR-46238	Github: Remove CI jobs using non existing tags
GR-46238	Remove non-existent tags from mx gate jobs
GR-46254	Bump LabsJDK version used for RISC-V gate and fix LLVM build
GR-46257	Do not store the result of readStackPointer in a local variable.
GR-46257	ProfilingSampler does not need local variable values.
GR-46264	Test Quarkus using labsjdk 21 instead of 20.
GR-46283	Print reports after standalone pointsto analysis.
GR-46287	Fix regression in intrinsics.
GR-46291	Annotate VMError#shouldNotReachHere(String, Object...) with HOSTED_ONLY
GR-46294	Reenable TestVirtualThreadsJfrStreaming.
GR-46295	Forbid URLClassLoader in libgraal.
GR-46302	Small improvements for the fatal error diagnostics.
GR-46344	Add opt-in post merge jobs.

Issue ID	Summary
GR-46345	Truffle internal resource API.
GR-46352	Update to jvmci-23.1-b05.
GR-46361	Bump verion of polybenchmarks to exclude halvak.py.
GR-46374	Do not create ReachabilityRegistrationNodes in graphs used for JIT compilation.
GR-46376	Run LanguageContextFreedTest.testLanguageContextFreedSharedEngine in a subprocess.
GR-46387	Adjust support url.
GR-46388	Truffle TCK unittest participant does not correctly select language distributions.
GR-46391	IOException: Stream closed reported by Truffle compiler logging.
GR-46391	Resolved review comments.
GR-46392	[GR-46405] Add <code>--parallelism</code> option and build resources section.
GR-46393	Migrate <code>sulong</code> to named Java modules.
GR-46395	Migrate Python language dists to modules.
GR-46397	Migrate <code>wasm</code> to a named Java module.
GR-46398	Add module name for <code>espresso</code> .
GR-46399	Bump <code>truffleruby</code> import to use <code>Xmx8g</code> for native-ee with G1 on Linux

Issue ID	Summary
GR-46399	[GR-48232] [GR-48207] [GR-48180] Various important bug fixes for Native Image.
GR-46399	Tweak polybench-ce config.
GR-46402	Allow ignoring StubPort.
GR-46402	Update stubport info.
GR-46407	Rethrow reflection linkage errors at run-time
GR-46410	Fix build with --no-native.
GR-46412	PolyglotCachingTest fails with AssertionError: Objects are not collected.
GR-46420	Use cgroup support from JDK.
GR-46431	Made the WebAssembly Debug more robust against malformed and invalid debug information.
GR-46435	Add an option that allows VM operations to exceed the max heap size.
GR-46437	Update Academic Publications page on the GraalVM website.
GR-46446	Improve printing of values for options.
GR-46448	Update to jvmci-23.1-b06.
GR-46451	[GR-46452] Update overlay to pick up graalpython gate changes.
GR-46471	Mitigating the consequences of a potential stack overflow in adoptChildren().
GR-46475	Improve JsonWriter

Issue ID	Summary
GR-46482	Force libgraal page size on AArch64 to 64K.
GR-46489	Make build output more extensible.
GR-46491	Return a message for JNI_CreateJavaVM errors.
GR-46494	EnableParseOnceJIT.
GR-46494	Fix Decoder NodeSourcePosition logic.
GR-46494	Various ParseOnceJIT fixes.
GR-46498	Do not ignore unrecognized VM options in thin launchers
GR-46500	Generate distinct cache updaters for different messages.
GR-46507	Support instance main methods (JEP 445)
GR-46509	Fix deployment paths of Truffle NFI.
GR-46515	Refactor GraalVM Intro and Getting Started guides.
GR-46518	Get rid of LLVM_ORG_FILTERED distribution.
GR-46520	Allow languages to specify default options for their launchers.
GR-46520	Allow languages to specify default options for their launchers
GR-46521	Improve distinction between isolates and heap base
GR-46524	Add isNonObjectPointerStamp
GR-46527	Allow specification of enabled installables.

Issue ID	Summary
GR-46532	Ensure -H:TempDirectory ends up in the bundle build output folder.
GR-46536	Add <code>jdk.internal.platform</code> to built-in package natives.
GR-46539	Fix incorrect buffer pool adjustment during sampler start.
GR-46548	Improve analysis receiver type filtering.
GR-46552	Fix parsing of SVM Truffle TCK excluded method signature for substituted types.
GR-46556	Add ScriptEngine example for Truffle.
GR-46567	Update deprecated Truffle engine option <code>engine.Inlining</code> .
GR-46568	Remove useless <code>AbsNodes</code>
GR-46581	Rename <code>AMD64HotSpotHelper</code> to <code>AMD64LIRHelper</code> as it is not Hotspot specific
GR-46582	Print binary size after image build
GR-46587	Only print <code>Skipping line: ... info</code> in very verbose output mode.
GR-46590	Remove Truffle dependency on the <code>jdk.vm.ci.services.Services#getSavedProperties</code> .
GR-46594	[GR-47030] [GR-47081] Fix some UX issues in Native Image.
GR-46599	Integrate foreign debuginfo types PR #6625.
GR-46605	Fix SHA3 intrinsic signature
GR-46607	Adopting the child before grandchildren are adopted (in <code>insert(child)</code>).

Issue ID	Summary
GR-46610	Limit iterations to fixed point in marker phase and merge values in ValueSet
GR-46613	[GR-48153] Update to JDK 22+11.
GR-46613	Initial JDK 22 support.
GR-46613	Update to JDK 22+8
GR-46618	Avoid hard dependency on Sulong in Python native extensions
GR-46622	Counted loop overflow API refactorings.
GR-46629	Better support for vector builtins in LLVM runtime.
GR-46631	Do not force HPy LLVM backend if native access is not allowed.
GR-46636	Improve performance of <code>java.lang.reflect.Proxy.isProxyClass()</code> .
GR-46641	Update to <code>jvmci-23.1-b08</code> .
GR-46648	Fix <code>InteropLibrary#asBigInteger</code> JavaDoc.
GR-46651	Update Oracle GraalVM OCI Guides to Use New RPMs.
GR-46659	Do not treat AST paths with different <code>insideEmptyGuardGroups</code> as duplicate.
GR-46662	Fail properly when module options are invalid
GR-46663	Fix JFR constant pool IDs.
GR-46665	Don't use relative path as it may be excessively long.

Issue ID	Summary
GR-46669	The truffle-api JAR contains JDK 19 specific files which are compiled with JDK 20.
GR-46677	Bci block mapping: abort on end of code fall through.
GR-46680	Bailout on bootstrap method resolution errors.
GR-46681	Use fallback invoke for intrinsic range checks
GR-46685	Specify minimumCPUFeaturesAMD64 for Generated stubs in VectorizedHashCodeNode.
GR-46685	Unconditionally register snippet stubs.
GR-46687	Make names consistent in lambda substitutions.
GR-46690	Prevent OOM thrown in the compiler thread.
GR-46694	Environment var PATH might be null. Fix potential NPE.
GR-46695	Add verifier for correct use of Graph.unique.
GR-46695	Extend Javadoc for Graph.unique-related methods.
GR-46706	Revert links to language docs.
GR-46707	Rename subtitles to avoid duplication in the website sidebar navigation.
GR-46710	Open Truffle also to modules providing a service consumed by the language module.
GR-46711	Fix propagation of trackNodeSourcePosition property to encoded graphs for SubstrateReplacements

Issue ID	Summary
GR-46712	Update GraalVM CE Container Images guide.
GR-46717	Reset <code>jdk.vm.ci.hotspot.Cleaner.queue</code> to a new instance in <code>libgraal</code> .
GR-46719	Add <code>jdk21</code> to <code>common.jsonnet</code>
GR-46720	Fix transient failure in JFR test case.
GR-46729	Implement multi-memory proposal in <code>GraalWasm</code> .
GR-46730	Make <code>StackifierIRWalker</code> extensible.
GR-46732	Adapt to <code>jdk-22+2</code> .
GR-46732	Revive <code>UnsafeFieldAccessorFactory</code> for Native Image
GR-46740	Fix native downcalls on JDK 22
GR-46740	Support JEP 424 ("Panama") foreign down calls in Native Image.
GR-46742	Migrate <code>polybenchmarks</code> to pipeline build.
GR-46748	<code>Polyglot</code> context creation is trying to access temporary directory property causing fatal test failure in MLE integration.
GR-46749	[GR-46850] Remove non-shaded <code>ICU4J</code> jars and use qualified exports.
GR-46750	Remove <code>PythonBuiltinBaseNode#factory()</code>
GR-46752	Execute the future when scanning an <code>ImageHeapObjectArray</code> .
GR-46756	Further reduce image builder module dependencies.

Issue ID	Summary
GR-46757	Fix ClassLoader.packages transformation.
GR-46759	Turn CompilationExpirationPeriod into a "double" instead of "int" option
GR-46761	Use absolute links to sieve.js and agent-fib.js in GraalVM Insight manual.
GR-46763	Fix return all instantiated for context sensitive analysis.
GR-46765	The graal-nodejs import should not differ from graal-js import.
GR-46765	Upgrading the underlying Node.js to version 18.17.1.
GR-46772	Include flags in invalid regular expression error messages.
GR-46775	Update to jvmci-23.1-b09.
GR-46778	Canonicalization of $(x^y) == (x^z)$ to $y == z$.
GR-46778	[GR-46779] [GR-46914] IntegerEquals canonicalization for xor operations.
GR-46778	Whitebox canonicalization tests.
GR-46779	Canonicalization of $(x \wedge y) == x$ to $y == 0$.
GR-46784	The TruffleRuby CE standalone should include community in the archive filename
GR-46785	Skip StringCompressInflateTest with -XX:-UseCompactString.
GR-46788	OptimizedLoomTest fails on JDK-20.
GR-46794	Drop compiler JDK 17 CI jobs.

Issue ID	Summary
GR-46795	[GR-46798] Ensure no endless loops by data and control flow.
GR-46802	Use 64 bits computation for getObjectSize0 intrinsic.
GR-46804	Immediately report UnsupportedFeature during shadow heap scanning.
GR-46808	Add js license components.
GR-46816	Add ubuntu java integration tests
GR-46823	Bugfixes for missing registration errors
GR-46830	Enhance AES performance.
GR-46833	Refactor VMThreadLocalInfo scanning.
GR-46834	Allow sync port processor to compare against local repo.
GR-46837	Ensure libjvmticompile.so does not contain fully qualified build-path.
GR-46837	Ensure shared library name in binary does not use fully qualified build-path.
GR-46838	Build libgraal with 'Full RELRO' to prevent GOT overwriting exploits.
GR-46843	Python standalones should have the right file and root dir name.
GR-46846	Fix mx native-image when there are dynamic imports.
GR-46871	Fix a link in BuildOutput.md
GR-46872	Create a guide for configuring Reachability Metadata with Maven.
GR-46874	Add alternative text to images across docs, where missing.

Issue ID	Summary
GR-46878	Scan SubstrateMethod implementations concurrently during analysis.
GR-46885	Emit place holders for not supported stubs when building libgraal.
GR-46890	Add GC variants for benchmarks.
GR-46896	Add sandbox support to polyglot c-api.
GR-46904	Update link to Oracle Contributor Agreement (OCA).
GR-46906	Do not check for samples in console-helloworld benchmark.
GR-46907	Improve AWT hint to check for JNI accessed classes.
GR-46912	Capture method handle information in MacroNodes.
GR-46913	Allow setting more JS options in SandboxPolicy.CONSTRAINED.
GR-46913	Allow TRegex to be used in SandboxPolicy.UNTRUSTED.
GR-46914	Canonicalization of $(x^y) == 0$ to $x==y$.
GR-46915	Remove erroneous canonicalization during creation of IntegerEqualsNode.
GR-46986	Make disconnected BigInteger host value a number.
GR-47000	Update to jvmci-23.1-b10.
GR-47001	Truffle TCKs PermissionsFeature relies on out-dated <code>jdk.internal.reflect.UnsafeFieldAccessorFactory</code> .
GR-47007	Support Async Sampling-based Profiler on Darwin.

Issue ID	Summary
GR-47027	Use SDKMAN instead of JDK download scripts in guides.
GR-47029	[GR-45331] Espresso: misc fixes.
GR-47035	Introduce GraalVM JVM Standalones.
GR-47038	JVM standalone for Node.js.
GR-47044	Implement internal resource bundling for polyglot isolate.
GR-47046	Fix native-image @args-file processing.
GR-47053	[GR-47609] Update to Micronaut 4
GR-47055	Port JDK-8309545: Thread.interrupted from virtual thread needlessly resets interrupt status.
GR-47056	Do not print reflection warnings in JSON files.
GR-47068	Maven-deploy shadowed ICU4J under ICU license.
GR-47079	MonitorEnterNode is no longer Virtualizable on HotSpot
GR-47082	Remove r-installables from ce-release-artifacts.json.
GR-47083	Fix shutdown hook registration may fail if already in shutdown.
GR-47084	Change the compliance of com.oracle.svm.core.annotate and org.graalvm.home to JDK11.
GR-47086	[GR-47088] Move visualizer integration test and truffle benchmarks to JDK 21
GR-47087	Move Remaining Native Image CI Jobs from JDK 17 to 21

Issue ID	Summary
GR-47106	Return to separate CUs per class to improve gdb startup time.
GR-47122	Injecting JVM arguments via <code>-Dnative-image.benchmark.extra-jvm-arg</code> .
GR-47123	Switch main testing target in Sulong to JDK21.
GR-47124	Split GRAAL_TEST into a non-preview feature part
GR-47125	Copy libgraal to oraclejdk/bin on Windows.
GR-47130	Update required GraalVM support version in Native Image JFR doc.
GR-47134	Fix unbounded growth of guestToHostCodeCache when iterating polyglot maps.
GR-47146	JIT shouldn't resolve types in signature
GR-47147	Mark Jipher as a fully supported feature in Oracle GraalVM.
GR-47150	Update to 22+13-jvmci-b01.
GR-47163	Enabled ParseOnceJIT for Truffle TCK
GR-47165	Add ParseOnceJIT support for Deopt Testing.
GR-47166	Add workaround for loading resources from shadowed ICU4J on module path
GR-47183	Remove superfluous state split proxy.
GR-47184	Ignore accessors of RecordComponents when null.
GR-47186	Fix native-image --add-modules.

Issue ID	Summary
GR-47186	Unified native-image classloader for module- and class-path.
GR-47187	Fix spelling.
GR-47188	Isolate object scanning by classloader.
GR-47189	Fail fast when class initialization fails at build time.
GR-47361	Properly handle negative instance sizes on HotSpot
GR-47365	Throw missing registration errors for proxy classes
GR-47370	Do not deploy GraalVM artifacts based on JDK17.
GR-47373	Removed deprecated TruffleJSON library.
GR-47376	Add unittest for exception entries reachable from normal control flow.
GR-47376	Duplicate exception handler entries when reached by normal control flow.
GR-47376	Support exception handler entries reachable from normal control flow.
GR-47381	Fix failing resolveDynamicConstant tests.
GR-47382	Update Certified Platforms table for Oracle GraalVM.
GR-47386	Update GraalVM CE README and introduction.
GR-47392	Exclude MLIR and FIR tools and static libraries from LLVM toolchain distribution.
GR-47406	Correctly handle printing certain JSON values in agent trace files.

Issue ID	Summary
GR-47409	JavaScript ScriptEngine support should not be included by default in a GraalVM.
GR-47411	Make the GenerateDebugInfo modifier public.
GR-47411	Make unique stub names stable.
GR-47418	Spawning Polyglot Isolates no longer requires allowExperimentalOptions(true).
GR-47419	Do not include jmod files of components that are not included in the build.
GR-47420	Remove agent resource bundle handling for older JDK versions
GR-47429	JLine should be its own jar and not included in launcher-common.jar and other launcher jars
GR-47429	Proper exports now that truffleruby launcher and language are on module path
GR-47429	Use the module path instead of classpath for thin library launchers
GR-47432	Add graalpy-polyglot-get to native images when graalpython is built.
GR-47432	Add maven downloader distribution for languages to use.
GR-47432	Make sdk:MAVEN_DOWNLOADER a module
GR-47432	Move maven downloader from vm to sdk suite
GR-47443	Update version of the eclipse formatter.
GR-47444	ShouldNotReachHere exceptions in Ruby regexps with subexpression calls.

Issue ID	Summary
GR-47447	Improve error messages for class initialization errors and remove -H:ReportExceptionStackTraces note.
GR-47449	Verify return types of substituted methods
GR-47454	[GR-47470] Remove '\$version'; Add redirects where missing
GR-47458	[GR-44959] Added HeapDumpOnOutOfMemoryError option.
GR-47460	Allow null method names in inlining trees.
GR-47463	Re-throw feature exceptions as user errors.
GR-47467	Optimize inlined field implementation for interpreter performance.
GR-47470	Add redirects on master for docs that no longer exist or were moved.
GR-47473	Fix interfaces under which FlightRecorderMXBean is registered.
GR-47474	Add TRUFFLE_JLINE3: shaded JLine3 usable as a module.
GR-47479	[GR-47477] Add GraphUtil.unproxifyExceptLoopProxies helper
GR-47481	Truffle patch pre-intialized contexts of non-permitted languages.
GR-47486	Fix native-image linker command when using ld.lld from LLVM.
GR-47491	Properly set exceptionTemp for foreign calls
GR-47501	Use Async Sampling-based Profiler by default.
GR-47507	[GR-48180] Reduce logging overhead in debug info generator.

Issue ID	Summary
GR-47514	[GR-47647] Revise and fix some Native Image options.
GR-47516	[GR-48876] [GR-50191] Update ICU4J to version 74.1.
GR-47516	Re-enable gate-regex-downstream-js-jdk21
GR-47516	Temporarily disable gate-regex-downstream-js-jdk21 to merge 3-repos cyclic change
GR-47518	Respect VMIntrinsicMethod.isAvailable
GR-47525	Phase plan fuzzing fixes
GR-47548	Various improvements to ParseOnceJIT
GR-47563	Hoist instanceof guards based on relative frequency.
GR-47563	Reduce aggressiveness of SpeculativeGuardMovement.
GR-47563	Unittests for guard hoisting based on relative frequency.
GR-47568	Implement new Maven dependency structure for Truffle Unchained.
GR-47570	Check threshold for native JFR events.
GR-47571	Fix windows deployment with Python.
GR-47580	Initialize the physical memory size eagerly.
GR-47581	Allow moving a long to a ZMM register
GR-47596	Zap registers must not kill stack passed return values

Issue ID	Summary
GR-47597	Fix aarch64 uncompress.
GR-47598	Use correct thread ID in Java-level JFR events.
GR-47607	Refactor debuginfo provider.
GR-47611	[GR-47029] Espresso: Fixes for jdk 21 Thread and windows panama varargs.
GR-47625	Add runtime option for reserved address space size
GR-47630	Disallow alternatingphis as IVs.
GR-47631	Using XDG_CACHE_HOME on Linux.
GR-47636	Update to jvmci-23.1-b11.
GR-47637	Implement Thread.onSpinWait intrinsic on AArch64.
GR-47644	Ignore missing service loader provider classes.
GR-47647	[GR-47928] [GR-47692] Fix and improve experimental option handling.
GR-47647	Introduce <code>-H:±UnlockExperimentalVMOptions</code> .
GR-47650	Fix ce-release-artifacts.json.
GR-47651	Fix ConstPermuteBytesUsingTableOp.
GR-47656	Reduce test time for expected version of counted loop test.
GR-47659	NativeClosure: ensure isolate setup/teardown does not mix with "regular" code.

Issue ID	Summary
GR-47662	[GR-47506] Fix race on getAllCallees and typeflow creation.
GR-47665	Adopt internal resources API in Sulong.
GR-47668	Fix transient JFR test case issue.
GR-47671	Add ol9 integration tests
GR-47673	Shorten special Windows launcher template replacement strings.
GR-47675	Add assertion messages.
GR-47675	Enforce assertion messages for non trivial assertions.
GR-47688	[GR-43588] [GR-48505] [GR-48228] [GR-47687] [GR-47689] Export builder to extraimage librarysupport
GR-47694	Accept empty java.vendor.version property in fallback version printer
GR-47696	Update security guide
GR-47699	Automatically exit on failure when assertions are enabled in libgraal
GR-47714	[GR-47815] Set polybenchmark-vm for polybenchmarks.
GR-47752	Fix --exclude-config processing for bundle-builds.
GR-47753	Infer more precise stamps for phis, don't update ObjectClone stamps in place
GR-47755	Refactor dwarf constants.
GR-47762	Fix null object case in PrintImageHeapConnectedComponents

Issue ID	Summary
GR-47764	Return a CEntryPointError if the stack boundaries cannot be determined.
GR-47765	Support JNI_VERSION_21.
GR-47774	Avoid bigsur on failing builds with -lSystem
GR-47775	Show reachability report path in console output
GR-47777	Support @AddModules annotations in unit tests
GR-47778	Truffle attach rewritten to C 11.
GR-47779	Use CRuby 3.2.2 in CI and for benchmarking
GR-47780	Try to use resource API when espresso is not in a graalvm.
GR-47784	Bugfix in AArch64EncodeArrayOp.
GR-47785	IGV license and changelog updates.
GR-47789	Added some owners files for compiler.
GR-47795	CI overlay bump.
GR-47799	Resolved review comments.
GR-47799	Support InternalResource.Env#unpackResourceFiles in unnamed module.
GR-47800	Mask registers shouldn't appear in callee save oop maps
GR-47801	Support JEP 424 ("Panama") symbol lookups in Native Image.
GR-47808	Fix mx wasm command.

Issue ID	Summary
GR-47821	Mark Node.js and LLVM Runtime as deprecated in features table.
GR-47823	Add missing license headers.
GR-47827	Don't use @Uninterruptible for overridable JDK methods.
GR-47830	Conditional elimination: do not evacuate anchored nodes from outside a loop to inside.
GR-47831	Preparations for JEP 424 ("Panama") foreign upcalls in Native Image.
GR-47839	Use fixed OS version for GraalVM builds on darwin-aarch64
GR-47841	Separate buildRuntimeMetadata from layoutMethods
GR-47849	[GR-48000] TRegex: casefolding infrastructure rework and completion of OracleDB flavor.
GR-47849	TRegex: exclude unit tests from libgraal gate.
GR-47852	Embedded Java example doesn't render on the website (Embedding Languages guide).
GR-47854	Create ProgressReporter additional artifacts only when no error
GR-47863	Disable Lost connection detection of the Java-WebSocket library.
GR-47864	The foreign module is not systematically built when it should
GR-47883	Update to jvmci-23.1-b12.
GR-47884	Update to jvmci-23.1-b13.
GR-47885	[GR-47951] Fix initialization policy for <code>jdk.httpserver</code> .

Issue ID	Summary
GR-47886	Directly patch LoadMethod Constants.
GR-47887	Remove usages of distutils module.
GR-47890	Force split struct pack/unpack
GR-47897	Fixed AIOOB Exception when using UnsafeWasmMemory with passive data segments.
GR-47908	Use arg file when invoking native-image via mx.
GR-47910	Fix mx_sdk_vm.graalvm_components() being called too early
GR-47917	Support using an optimized Truffle runtime from the class-path with module-isolation.
GR-47922	Enforce <code>-H:±UnlockExperimentalVMOptions</code> in CI.
GR-47922	Improve list of experimental options.
GR-47931	Remove workarounds for ECJ bug.
GR-47932	Unproxify DeoptProxies in analysis.
GR-47937	Make lambda class names format consistent with the JDK name format
GR-47942	[GR-48011] Required Updates for the 23.1.0 version.
GR-47943	Remove GU Doc and All Its References.
GR-47944	Update Native Image Code Style, IDE Integration section.
GR-47945	Move modules from the included JVM to the modules directory.

Issue ID	Summary
GR-47947	Analyze runtime compilation snippets.
GR-47948	Define LLVM Standalones.
GR-47949	Deploy GraalVM artifacts with Espresso.
GR-47949	[GR-48132] [GR-48161] Batch PR.
GR-47950	Add wasm standalone.
GR-47952	Espresso relies on <code>graal_isolate_</code> prefix in headers
GR-47958	Add regression test.
GR-47958	Fix assertions in PolyglotWrapper host code cache lookup.
GR-47958	Fix assertions in PolyglotWrapper host code cache lookups.
GR-47959	Define distributions that build all GraalVM artifacts and their dependencies.
GR-47960	Duplicating a null <code>NodeInputList</code> shouldn't create an empty <code>NodeInputList</code>
GR-47962	Create dummy <code>LIRFrameStates</code> for <code>RegisterSaveOps</code> without one
GR-47966	Remove VS Code repository reference.
GR-47974	Turn assertions into guarantees.
GR-48001	[GR-48148] [GR-48332] Remove legacy code.
GR-48018	Fix interop message that return <code>Object</code> to not attempt a <code>ToEspresso</code> conversion.

Issue ID	Summary
GR-48041	Next dev cycle 24.0.0
GR-48091	Add GDS links for espresso, wasm, and llvm standalones.
GR-48105	Update overlay revision
GR-48108	Fix libnfi in unchained configuration does not work.
GR-48109	Update to jvmci-23.1-b14.
GR-48110	Register a negative query for bundles with candidate locales
GR-48112	Allow copying a graph with additional assumptions
GR-48113	Run Sulong tests in Truffle unchained config.
GR-48123	Fix SVM tests
GR-48124	Override jvm.cfg only when necessary.
GR-48127	Fix NI directory resources with modules.
GR-48127	Fix NI directory resources with modules
GR-48129	[GR-48285] Method handle and foreign function fixes and documentation.
GR-48130	Properly handle jboolean return
GR-48133	Implement ForceOnModulePath and use it for sdk and truffle modules.
GR-48134	[GR-45933] Disable polybench nfi jobs and fix whitebox tests for graal.
GR-48142	Deploy 'unchained' GraalVMs.

Issue ID	Summary
GR-48144	Fix native-image build with --no-jlinking #7205.
GR-48147	Fix temp engine should never print any output.
GR-48152	Remove DisableSubstitutionReturnTypeCheck option
GR-48158	Remove all Sulong jdk17 jobs.
GR-48160	Avoid reusing registers for srcValue and rtmpValue in AMD64BitSwapOp.
GR-48161	Deploy archives of local maven repositories with language resource bundles.
GR-48161	Use CI pipelines to build multi-platform resource bundles.
GR-48173	Remove verifyObject call from AbstractForeignCallStub
GR-48175	Bump mx version import.
GR-48181	Decouple PolyglotNativeAPIFeature.
GR-48185	Implementation of fully optional resources.
GR-48205	Improved Maven Testing; Migrate native-image configuration for tools, espresso and sulong
GR-48206	Use Truffle's optional resources.
GR-48209	The newmultiarray snippet should be non-null
GR-48211	Revert the unsupported feature error without the TMRE flag.
GR-48218	Update Container Images Guides for GraalVM JDK 17/JDK 20.

Issue ID	Summary
GR-48226	Refactor NativeImageCodeCache's code area size setter
GR-48230	Refactor ImageHeapScanner.
GR-48230	Use common pool for class loading, analysis, and compilation.
GR-48231	Use per isolate metric files
GR-48239	Avoid std::filesystem since it is not available on macOS 10.14
GR-48239	Link libc++ dynamically on macOS using the system toolchain
GR-48240	Fix memory leak in PolyglotNativeAPI#poly_register_recurring_callback.
GR-48247	Don't clobber individual bytes in virtualized byte arrays
GR-48248	[GR-38949] Don't try to incorrectly move virtual state inputs out of loops
GR-48252	An IsolateThread should invalidate a thread-local area after being detached.
GR-48253	Fix initialization of OutOfMemoryError heap dumping.
GR-48254	Extract method createIndirectCall
GR-48256	Increase build resources for libgraal.
GR-48258	Add missing null receiver checks to Base64 intrinsics.
GR-48260	Fix native image build of Sulong in Unchained config.
GR-48261	Avoid empty directories in ld64.lld standalone
GR-48261	Ship ld64.lld binary with svm on darwin-aarch64

Issue ID	Summary
GR-48267	Make points-to inspect tool compatible with parseoncejit.
GR-48279	JFR refactoring and cleanups.
GR-48280	Add isolate ID to filenames created by the optimization log.
GR-48281	Fixed review comments.
GR-48281	InternalResource lookup fails on platform where ProcessProperties#getExecutableName is not available.
GR-48282	Support image heap constants when looking up method handle.
GR-48285	More stable renaming for method handle invokers.
GR-48291	Fix ld commandline in toolchain tests for newer versions of Darwin.
GR-48293	[GR-48294] Fix JFR periodic events and ThreadCPULoad event.
GR-48297	Loop unroll: handle stride overflow in int range.
GR-48304	Add support for JFR event ThreadAllocationStatistics.
GR-48309	Remove PRaiseNode from non-builtin nodes
GR-48309	Remove PRaiseNode from some builtins
GR-48316	Transient symbolMissing.
GR-48318	Move compiler packages and module to jdk.compiler.graal namespace.
GR-48318	Update to 22+18-jvmci-b02 and jvmci-23.1-b21.

Issue ID	Summary
GR-48325	Update Containerise a Native Executable and Run in a Docker Container guide to the latest GraalVM.
GR-48325	Update Docker run command for native-image OCR container.
GR-48336	Update Native Image build options documentation.
GR-48342	Replaced <code>Heap.getLoadedClasses()</code> with <code>Heap.visitLoadedClasses()</code> .
GR-48343	[GR-48359] Add support for JFR events <code>AllocationRequiringGC</code> and <code>SystemGC</code> .
GR-48346	Relocate invocation to <code>notifyLowMemoryPoint</code> .
GR-48354	Consolidate application module name detection.
GR-48365	Be more conservative when merging <code>PiNodes</code> and <code>ValueAnchorNodes</code>
GR-48369	Only disable the heap dump feature on Windows.
GR-48372	Remove no longer needed JDK-specific JFR code.
GR-48376	Update <code>truffleruby</code> to fix transient timeouts
GR-48377	Fix thin launcher for <code>jvm</code> standalones on Windows.
GR-48378	[GR-48406] Batch of PRs.
GR-48379	Fix behavior when <code>JVMCI</code> is disabled; Add tests for when <code>JVMCI</code> is disabled.
GR-48381	Fix handling of indexed load/store of byte/boolean during bytecode parsing
GR-48407	Cleanup now that classpath is no longer used by thin launchers

Issue ID	Summary
GR-48407	Remove leading : in classpath when using --vm.cp/--vm.classpath
GR-48410	Do not add build predicates (guards) to non-gate jobs with dep <code>l</code> oy target.
GR-48412	Use VM interpreter oop map for OSR entry point.
GR-48415	Partial unroll: Div test case.
GR-48418	Incorrect assert in GraalCapability.resolve
GR-48419	Improve computation for linkActualReturn.
GR-48430	Do not let NotCompiledExceptionHandler deopts float.
GR-48430	Enable ConvertDeoptimizeToGuard for non-floating deopts.
GR-48430	Fix affected unittests.
GR-48430	Fix unittests.
GR-48430	Fix unittests affected by allowing non-floatable deopts to be converted to fixed guards.
GR-48430	Make UnreachedCode deopts non-floatable.
GR-48430	Restrict movement of control flow dependent guards.
GR-48436	Env file ce-python: add graalpy-polyglot-get to native images.
GR-48443	Update LLVM backend installation instructions
GR-48444	Fix getting the executable path for mu

Issue ID	Summary
GR-48449	Update to jvmci-23.1-b15.
GR-48489	Virtual Threads should not be considered preview in JDK 21.
GR-48496	Hide usages of stable/internal multi-options.
GR-48497	Always use HotSpotGraphBuilderPhase in the graph builder suite
GR-48497	Use HotSpotBytecodeParser instead of BytecodeParser
GR-48498	Do not reuse guard whose anchor is updated during lowering.
GR-48503	Remove NATIVE_ONLY from the loom support check
GR-48504	[GR-48899] [GR-47055] Clean up virtual threads code.
GR-48515	Enforce .exports files gets safely created for a cmd-launcher.
GR-48525	Fix occasional crash using ProcessBuilder on Darwin from native-image.
GR-48525	Work around fork bug on Darwin.
GR-48529	Add '--strict-image-heap' option and use old class initialization by default to allow easier adoption.
GR-48529	Fix the command argument in the clinit error msg.
GR-48529	Use the API flag in the init hint.
GR-48538	Do not expose canonicalized names for mapped relative directories in fd_prestat_dir_name.
GR-48540	Resources lookup uses shared library location when the language is built as a shared library.

Issue ID	Summary
GR-48553	Split deployment of installables and standalones.
GR-48560	Move substratevm gate to JDK latest
GR-48562	Update linux-jdk-latest devkit.
GR-48571	Remove TCK participant.
GR-48571	Updated graalpython import.
GR-48571	Update mx to compose unittest configs from dependencies.
GR-48574	Use system property instead of env var for JVMCI config check.
GR-48578	Fixed incorrect ApiAccess instance when an enterprise truffle runtime is used from the classpath.
GR-48579	Always use ParseOnce and InlineBeforeAnalysis.
GR-48579	Remove parseOnce checks.
GR-48579	Remove StaticAnalysisResults.
GR-48586	Handle pruned initial loopback transition in NFA executor.
GR-48594	Ensure guards are attached to CaptureStateBeginNode.
GR-48595	Reduced the amount of artifacts published by vm/vm-enterprise jobs.
GR-48600	Capture graph of failing compile in diagnostics zip
GR-48600	Support CompilationWrapper.dumpOnError with truffle

Issue ID	Summary
GR-48605	[GR-48698] Update to 22+15-jvmci-b01.
GR-48611	Add module system support docs
GR-48612	Enable <code>--strict-image-heap</code> by default.
GR-48631	Remove mention of <code>SpawnIsolates</code> in LLVM backend docs
GR-48632	Fix <code>LambdaUtils#findStableLambdaName</code> on JDK 22
GR-48634	Class initialization of <code>com.oracle.truffle.polyglot.enterprise.HSPathGen\$EndPoint</code> failed <code>gate-svm-enterprise-truffle-unittests-jdk-latest-linux-amd64</code> fails on JDK 22.
GR-48635	Fix: <code>JfrExecutionSampler</code> has a buffer leak.
GR-48643	Improve pointer equals canonicalization
GR-48645	Add compiler and <code>libgraal</code> JDK 22 jobs.
GR-48647	Add <code>oraclejdk-latest</code> to the CI
GR-48647	Add <code>truffle gate</code> builds on <code>labsjdk-latest</code> .
GR-48651	Ensure that <code>DefaultStackTraceElementObject</code> satisfies the contract of <code>InteropLibrary</code>
GR-48652	[GR-48664] Read elimination: only kill mutable locations when encountering ANY.
GR-48659	Remove the <code>SpawnIsolate</code> option from the documentation.
GR-48660	Fix "New <code>VarHandle</code> found after static analysis" in Netty 5.

Issue ID	Summary
GR-48662	Store PolyglotThreadInfo#contextThreadLocals directly in the fast thread locals array.
GR-48663	Rename labsjdk--22 to labsjdk--latest
GR-48693	Add "-p" and "-modulepath" to accepted benchmark params.
GR-48697	Support for additional interop messages in inspector-related objects.
GR-48704	Introduce @BasedOnJDKClass Annotation
GR-48705	Fix stamp inversion for ZeroExtend and SignExtend operations.
GR-48705	Incorporate the bounds of stampToInvert when calculating the bounds of the inverted stamp.
GR-48705	Infer input msb during stamp inversion for integer SignExtend.
GR-48705	Unittests for stamp inversion during conditional elimination.
GR-48708	AArch64: Add FarBranch support for BranchOp.
GR-48722	Ask linker to create separate code program header on linux-aarch64
GR-48722	[GR-50093] Revert "Ask linker to create separate code program header on linux-aarch64"
GR-48726	Support HotSpotGraalVMEEventListener being created before HotSpotGraalRuntime.
GR-48728	Use latest JDK for non-style gates.
GR-48740	Espresso doesn't support Value.asValue(IOException).newInstance(...).

Issue ID	Summary
GR-48742	[GR-48754] Improve deployment of artifacts.
GR-48744	Embedding Languages guide rendering is broken.
GR-48746	[GR-48965] JFR-related fixes.
GR-48747	[GR-48732] Use standalones for tests.
GR-48749	[GR-48836] Job: gate-compiler-test_zgc-labsjdk-21 takes too long
GR-48763	Duplicated native method symbols generated by the nativebridge.
GR-48763	Fixed duplicated method symbols.
GR-48764	CI: Introduce jdk_name to deal with jdk-latest
GR-48794	Updated Insight documentation after Truffle unchained changes.
GR-48795	Swap the order of GraalVM installation commands for MacOS
GR-48806	Support for atomic groups and possessive quantifiers in Python regexps.
GR-48811	Change lifecycle of JIT-compiled code.
GR-48814	Bump javaCompliance version and cleanup code related to unsupported Java version.
GR-48816	Truffle DSL: introduce new warning 'truffle-interpreted-performance'.
GR-48817	Update installation steps of Native Image in OCI OL8/9.
GR-48838	Provide XZ as shaded library in Truffle, exported only to GraalPy and FastR.

Issue ID	Summary
GR-48839	Add xz to ce-fastr.
GR-48841	Ensure deopt targets exist for methods requiring frame information.
GR-48848	Use shaded XZ in Python.
GR-48852	Add missing DEVKIT_VERSION on Windows.
GR-48852	[GR-49249] [GR-49344] Test JS on jdk-latest.
GR-48854	Move Sulong testing to jdk-latest.
GR-48855	Cleanup
GR-48856	Test Wasm on jdk-latest.
GR-48860	Backport: Port jobs to JDK-latest.
GR-48860	Deploy language artifacts on JDK-latest.
GR-48864	Update Espresso getting started steps in JDK21 version.
GR-48869	[GR-48569] Improve crash log output.
GR-48870	Make AArch64 HotSpot null constant code generation more generic.
GR-48876	Fix Wasm OSR compilation.
GR-48881	Update to 22+16-jvmci-b01.
GR-48897	Record inlined methods within buildtime Truffle RuntimeCallTrees.
GR-48899	Support TIMED_WAITING for virtual threads.

Issue ID	Summary
GR-48909	LibraryFactory can no longer use sun.misc.Unsafe.ensureClassInitialized as it got removed in JDK 22+16
GR-48916	Implement bit reverse intrinsic for LLVM
GR-48922	Clarify that Native Image does support reflection (but requires configuration).
GR-48922	Improve docs on reflection.
GR-48930	Do not disable GC hinting for libgraal in -Xcomp mode.
GR-48936	[GR-48933] Misc fixes.
GR-48937	Fix reasons for triggered CompilationAlarms due to no progress.
GR-48937	Reset CompilationAlarm progress detection for each phase, to avoid false alarms due to carryovers from other phases.
GR-48937	Reset progress-dependet CompilationAlarm for jmh-whitebox microbenchmarks due to false alarms.
GR-48942	Add TruffleEnv.exceptionCheck() in NFI to check for pending exceptions
GR-48942	Sulong va_list aarch64 fixes
GR-48945	Use maven downloader from jar in graalpy.
GR-48949	For instance objects, move the identity hashcode from the object header into the object.
GR-48954	Verify that non-optional node input lists are not null
GR-48955	Move javadoc deploy job to JDK21.

Issue ID	Summary
GR-48963	Update to 22+17-jvmci-b01.
GR-48964	[GR-48968] Fix broken SVM tests.
GR-48974	Handle unlinked types in runtime compilation.
GR-48976	Workaround in actualShiftingDistance until numeric promotion is fixed in LLVM backend
GR-49207	[GR-49348] Phase plan fuzzing fixes
GR-49211	Update links to OCR GraalVM Images.
GR-49214	Refactor simple language and simple tool for Truffle Unchained.
GR-49215	DeoptProxyNode is not an ArrayLengthProvider.
GR-49221	Add support for <code>--enable-monitoring=threaddump</code> .
GR-49254	Repaired DAP tests on Windows and updated weekly jobs.
GR-49257	Add renaissance v0.15.0 artefact declaration
GR-49260	Remove usages of <code>fcmpZero</code> in AArch64 intrinsics.
GR-49272	Implement <code>JVM_GetExtendedNPEMessage</code> .
GR-49283	Add CAL Actor Language Implementation as an experimental language for Truffle.
GR-49286	Lookup appropriate function to get <code>errno</code> 's location.
GR-49290	Specially handle library language projects of the main component even when overridden.

Issue ID	Summary
GR-49300	Break the initialization cycle in NIO/cgroups code.
GR-49301	Workaround CPU features Xcode 15 miscomp issue.
GR-49305	Allow sampling in method prologue and epilogue.
GR-49309	Add option to ensure no direct relocations are emitted in the text section.
GR-49315	Fix TCK: ignore pure bigints in arithmetic ops, update imports.
GR-49318	Improved LABEL_U8 encoding.
GR-49320	Support lowering of WithException variants
GR-49320	Support lowering of WithInvoke variants
GR-49334	Regression in spawning Espresso context on platforms where it runs on Sulong.
GR-49336	Ensure keep-alive file is made accessible in container that runs builder.
GR-49353	Fix crash during isolate teardown.
GR-49355	System.console().readPassword broke in Oracle GraalVM 21.
GR-49356	Add CPUTypeRISCV64 and cleanup RISC-V reflection code
GR-49359	Correctly check for isatty() on JDK 22+
GR-49363	Add renaissance benchmark test
GR-49364	Update to 22+18-jvmci-b01.

Issue ID	Summary
GR-49372	Add getter for FloatingWordCastNode input
GR-49379	[GR-49786] PEA should not emit unstructured locking code when using lightweight locking.
GR-49386	[GR-38404] Convert guest byte buffers to host byte array or ByteSequence.
GR-49402	Correct mangling of primitive types in BFD name mangler #7423.
GR-49408	Update GraalVM VS Code extension README.
GR-49410	Do not mark AnalysisType reachable when creating AnalysisField.
GR-49412	Fixes for sulong library loading with restricted IO access.
GR-49413	Calling getStackTrace on recently started platform thread can crash.
GR-49427	Add hosted assertions to Truffle SL SVM gate.
GR-49428	[GR-49401] Misc fixes.
GR-49437	Install DeadlockWatchdog as image singleton.
GR-49449	Use TOOLS_JAVA_HOME instead of EXTRA_JAVA_HOMES for SpotBugs
GR-49450	Omit internal monitor wait events.
GR-49452	Factor out adding 'defined_in' field to CI jobs
GR-49453	Temporarily disable cpp tests on mac os.
GR-49457	Docs update requests and other improvements.

Issue ID	Summary
GR-49474	Use <code>ld.lld</code> from our own shipped LLVM on Mac.
GR-49481	Document explicit NPE for <code>GraphBuilderContext#nullCheckedValue</code> .
GR-49481	Regression test for check cast optimizations with allowed null values.
GR-49481	Remove explicit null check exceptions from <code>genCheckCast</code> and <code>genInstanceOf</code> .
GR-49483	[GR-46491] Print the error message from SVM when <code>JNI_CreateJavaVM()</code> fails
GR-49488	Stop printing codebuffer on failure
GR-49503	Increase time limit for truffle unchained CE native build.
GR-49505	Add support for exclusion in run-spec variant declarations
GR-49506	Upgrading the underlying Node.js to version 18.18.2.
GR-49531	Better IR Walker verification messages
GR-49541	Fix passing multi-value result between different <code>WasmLanguage</code> instances.
GR-49542	Introduce <code>JSONParser.getSourceLength()</code> .
GR-49542	Refactor JDK adopted profiles extraction.
GR-49542	Transient failure with malformed adopted profiles.
GR-49543	AMD64 float convert: only use special value in stamp if needed.
GR-49552	Fast path monitor enter/exit snippets for slow path.
GR-49556	Deploy a reduced Maven bundle.

Issue ID	Summary
GR-49559	Don't run read elimination in WriteBarrierAdditionTest
GR-49564	Support different java.vm.vendor entries for JVMCIVersionCheck
GR-49568	Add microbenchmarks for GraphUtil#killWithUnusedFloatingInputs methods.
GR-49568	Efficient implementation for bulk killWithUnusedFloatingInputs.
GR-49568	Improve performance of GraphUtil#killWithFloatingInputs
GR-49568	Use optimized killAllWithUnusedFloatingInputs during FrameStateAssignment.
GR-49568	Utility methods in Node for fast bulk usage removal.
GR-49577	[GR-49651] [GR-49532] [GR-49521] [GR-45933] Add E4 VMs benchmarking.
GR-49580	json-23.1.0.jar native-image.properties is in the wrong location.
GR-49580	Json native-image properties is in the wrong location.
GR-49583	Add native methods to PlatformNativeLibrarySupport blacklist
GR-49590	Native to Hotspot bridge generates wrong signatures for out references arrays.
GR-49592	Native to hotspot generates local variable to wrong scope.
GR-49598	Prevent automatic leave of an explicitly entered context during close called from a host call.
GR-49600	Fix workaround for SpeculativeGuardMovement without speculation log.
GR-49600	Make SpeculativeGuardMovementPhase implement Speculative interface.

Issue ID	Summary
GR-49602	Don't zap pre-zeroed unaligned chunks.
GR-49604	Clarify semantics of binary arithmetic reassociation
GR-49605	Include syntax requires two parameters.
GR-49605	Website build job fails with unresolved path to HostInliningPhase.java.
GR-49607	Fix insertion of less specific PiNodes during GraphEffects#replaceAtUsages.
GR-49609	Update the download links for Java-on-Truffle, WASM, and LLVM.
GR-49610	Rename jdk.compiler.graal to jdk.graal.compiler.
GR-49626	Assert ProbeNode parity calls on thread finalization rather than thread context leave.
GR-49628	Remove Heap.allowPageSizeMismatch().
GR-49632	Disable black formatter in repository
GR-49636	Correct the thrown exceptions in Javadoc of getTruffleFile.
GR-49653	Separate RuntimeCompilationSupport from Generic CompilationSupport.
GR-49655	Option for experimental Foreign Function and Memory API support.
GR-49664	Add the mandatory experimental property 'debuggerId' and handle GET of /json/list path.
GR-49669	Use correct labsJDK version for RISC-V svmtest
GR-49684	Improve canonicalization of InstanceOfNode

Issue ID	Summary
GR-49684	Make ConditionalEliminationPhase a PostRunCanonicalizationPhase
GR-49689	Add a "Pause" prefix to the serial GC log entries.
GR-49691	Maximum size of serial GC memory pools is undefined.
GR-49697	Improve crash log so that the instructions of the caller are printed if a null function pointer is called.
GR-49718	Update JVMCI to 22+20-jvmci-b02.
GR-49721	Integration tests with CDT UI via GitHub Actions.
GR-49723	Introduce <code>--disable-debuginfo-stripping mx</code> argument.
GR-49727	Use calling convention to derive incoming param register and stack slot locations.
GR-49732	Do not force bytecode generation for MethodHandles.
GR-49742	Built-in type converters for host primitive array types.
GR-49749	Vm jobs set disk space requirements.
GR-49750	Native Truffle tests try to persist a started thread in the image heap.
GR-49751	Fix max inlining depth check.
GR-49755	Check stamp before casting in IntegerLessThanNode
GR-49772	Ensure 8-byte alignment of long and double values.
GR-49787	Remove IndirectCallNode

Issue ID	Summary
GR-49800	Add tools gates on jdkLatest.
GR-49807	Modify substitutions for the SecurityManager to behave the same as the JDK when 'java.security.manager' is not set.
GR-49810	Deploy base GraalVM artifacts on JDK-latest.
GR-49812	Upgrade org.json to version 20231013.
GR-49816	Throw exception for null in RuntimeJNIAccess/RuntimeReflection reg.
GR-49842	Suspend the deployment of FastR on darwin/amd64.
GR-49852	[GR-49613] Update JVMCI to 22+22-jvmci-b01.
GR-49869	Add an option to artificially increase the header size.
GR-49872	Remove JMeter related code
GR-49874	Support for espresso exception interop type converters for common host JDK exceptions.
GR-49877	Simplify the specification of partial GraalVM artifacts.
GR-49878	Graal compiler source code bundle.
GR-49885	Unignoring DAP tests.
GR-49893	Fix LIR generation for opaque constants.
GR-49893	Fix LIR generation for opaque values.
GR-49893	More unittests for opaque constants.

Issue ID	Summary
GR-49893	Narrow constants explicitly during LIR generation.
GR-49894	PhantomReference.refersTo0 shouldn't have a barrier
GR-49904	[GR-50008] Add test to verify JFR mirror events.
GR-49912	Switch Sulong coverage jobs back to JDK21.
GR-49919	Introduce Pi nodes for parameter replacements in inlining
GR-49925	HeapImpl.dirtyAllReferencesOf must be no-op for epsilon GC.
GR-49950	Fixed a problem with -XX:+PrintGCSummary if assertions are enabled.
GR-49955	Runtime assertions should not be enabled during PGO instrumented benchmarks.
GR-49956	[GR-49958] Fix wasm coverage on jdk-latest and a transient test failure.
GR-49960	Put Graal options under jdk.graal prefix.
GR-49964	Use the vendor version for __svm_version_info.
GR-49976	Security Guide update
GR-49977	Use unsigned monitor and identity hash offsets and guarantee they are valid.
GR-49982	CI: Only check labsjdk vs oraclejdk versions when actually using a labsjdk
GR-49990	Galahad CI Gate
GR-49995	Constant fold reflection lookups in sun.nio.ch.Reflect.

Issue ID	Summary
GR-50001	Update JVMCI to 22+23-jvmci-b01.
GR-50004	Remove the need for a foreign field in EspressoForeignList.
GR-50016	Intrinsify TruffleString.hashCode() on AMD64.
GR-50021	Add a CLI option to print sampling statistics.
GR-50026	Fix condition for singleton cached generation in Truffle DSL.
GR-50028	Prevent multiple registrations of same resource discovered by different classLoaders
GR-50029	Refactor RecomputeFieldValue TranslateFieldOffset.
GR-50052	Fix list of deployed artifacts.
GR-50053	Always include the devtoolset on Oracle Linux to use the same system toolchain for all builds
GR-50053	CI: Add bare platform objects in common.jsonnet
GR-50065	Fix failing assertion for AVX3Threshold=0
GR-50071	CFI follow-up work.
GR-50086	Add missing WASI functions as unimplemented nodes.
GR-50096	Fix wrong helloWorld command in Native Image README.
GR-50104	Only report useful options with JVMCIPrintProperties.
GR-50113	Use synchronized data structures for reachability handlers registration.

Issue ID	Summary
GR-50118	Preserve the cause for <code>UserException</code> .
GR-50129	[GR-49893] Fix narrowing of opaque constants.
GR-50129	Revert storing opaque constants as variables.
GR-50135	Use <code>ThreadLocal</code> for <code>AccessControlContext</code> stack.
GR-50153	Update OS detection code to recognize Windows 11 and Windows Server 2022.
GR-50171	Update JVMCI to 22+24-jvmci-b01.
GR-50172	PEA: insert begin node for materialization if necessary.
GR-50178	<code>UnsafeArrayTypeReader</code> must be allocation free.
GR-50180	Do not register inner classes for <code>Class.forName</code>
GR-50183	Fix typo of ticket ref in comment
GR-50185	Disable Sampler statistics temporarily.
GR-50187	Port vectorized hash code intrinsic to AArch64.
GR-50192	The native image generator no longer has <code>ProfilingInfo</code> objects.
GR-50194	Avoid using record for <code>Resources.includePatterns</code> .
GR-50194	Disable <code>MethodHandle</code> inlining blocking.
GR-50198	Truffle: ignore JFR tracing in exception handlers allocated during PE

Issue ID	Summary
GR-50201	Various float stamp folding improvements.
GR-502029	Update common.json to mx 7.3.2
GR-50216	Wasm: Remove unused save_binary_file from testutil module.
GR-50218	Documentation changes.
GR-50220	Allow resources inclusion from jar files in paths containing spaces #7815.
GR-50223	Disable class-path isolation by default.
GR-50236	Seal shadow heap before heap layout.
GR-50242	Fix IncludeAll options for LabsJDK latest
GR-50243	Truffle DSL: support RECORD in ElementUtils.elementEquals.
GR-50246	Fix Sulong coverage jobs.
GR-50247	Add an async-signal-safe way to dump crash logs.
GR-50252	Respect --link-at-build-time in OptionClassFilter for class/package
GR-50253	Handle unspecified module name in nameToResourceInputStream
GR-50255	Include signers in the image only if registered
GR-50260	Fix broken SVM tests
GR-50262	Fixed review comments.
GR-50262	Fixing gates.

Issue ID	Summary
GR-50262	Polyglot version checks for unchained.
GR-50262	Resolved review comments.
GR-50267	Deprecate options that we plan to remove in a future GraalVM release.
GR-50280	Make segfault handler more robust.
GR-50286	Update JVMCI to 22+25-jvmci-b01.
GR-50308	Update access advisor for sun.reflect.misc.
GR-50315	[GR-50318] Fix broken SVM tests.
GR-50335	Fix joinThreadUnmanaged on Windows.
GR-50337	Add tags to build jobs
GR-50340	SubprocessTestUtils dumps threads on subprocess timeout.
GR-50340	TruffleHostCallTargetInliningTest.testWithRuntime can get stuck.
GR-50349	Skipped libraries do not have deps nor build deps.
GR-50365	Fix test wrt to concurrent modifications in speculation log.
GR-50367	MX_ env vars influence the GraalVM build process.
GR-50375	Move test resource with space into a jar
GR-50398	--bundle-apply also ignores NATIVE_IMAGE_OPTIONS.
GR-50399	Capture precise frame state for previously failed Deopt Unresolved

Issue ID	Summary
GR-50417	Added Wasm OWNERS file.
GR-50419	Fix ToEspresso collection type nodes not handling espresso objects.
GR-50425	Fix DeoptNodes being moved before OSRMonitorEnterNodes
GR-50426	Store signature of AnalysisMethod as resolved types.
GR-50430	Update JVMCI to 22+26-jvmci-b01.
GR-50446	Avoid sharing bytecode between "no substitutions" call targets.
GR-50453	Update Jipher docs
GR-50461	[GR-50462] Minor JNI and libhelper fixes.
GR-50476	Avoid use of addConst in AssertionSnippets
GR-50675	Fix class-path order when Manifests include "Class-Path" attributes.
GR-50682	Fixed classloader isolation.
GR-50682	Fixed espresso-meta-hello-world gate.
GR-50682	Quarkus fails even if class loader disabled.
GR-50682	Resolved review comments.
GR-50685	Various stamp improvements.
GR-50709	Prepare 24.0
GR-50770	Simplify non-static frame slot type/tag checks.

Issue ID	Summary
GR-50773	Improve typing of GraphProvider and signatures.
GR-50778	Clean up providers mechanism.
GR-50785	Redundant condition in nativebridge.
GR-50786	Minor fixes and cleanups.
GR-50807	TRegex: Run the PureNFATransitionGenerator in reverse for lookbehinds.
GR-50811	Adjust to JDK-8315458
GR-50814	Add option to log internal resource operations.
GR-50840	Cleanup Truffle Runtime Compilation and Improve Error Messages.
GR-50840	Try to use calltree for call traces
GR-50841	Revert "Avoid using record for Resources.includePatterns."
GR-50849	Update JVMCI to 22+27-jvmci-b01
GR-50854	Fix clinit simulation for arraycopy with null values.
GR-50867	Fixed mvn-simplelanguage, mvn-simpletool gates to use the unchained build.
GR-50875	Inherit SVM dependencies for libgraal benchmarks.
GR-50885	[GR-44714] [GR-49836] Backports to GraalVM 24.0.
GR-50897	Don't add stats to statsList unless flag is set.

Issue ID	Summary
GR-50921	Do not depend on browser-actions/setup-chrome@v1 action and lines corrected.
GR-50955	Backport 24.0: The gate-compiler-test_zgc-labsjdk-latest-linux-aarch64 takes too long.
GR-50955	The gate-compiler-test_zgc-labsjdk-latest-linux-aarch64 takes too long.
GR-50961	Print crash log when exception handling fails.
GR-50962	Add object reachability hooks.
GR-50975	Execute LogManager shutdown hook after all other shutdown hooks.
GR-51002	Improve intrinsification of method handles.
GR-51005	Backport various bug fixes.
GR-51007	JFR cleanups.
GR-51016	Fix possible language context initialization cycle in Insight instrument.
GR-51027	Aarch: Add means for post-processing code after emitting from LIR.
GR-51105	Fix method override reachability handler notification.
GR-51116	Update JVMCI to 22+32-jvmci-b01.
GR-51160	[GR-51161] [GR-51198] [GR-51204] [GR-51213] Avoid deadlocks when the VM is out-of-memory and other threading-related fixes.
GR-51179	Provide a method to set the physical memory size.
GR-51238	[GR-47177] Fixes for espresso 21 guest on 22 host.

Issue ID	Summary
GR-51266	Backport to 24.0: Remove explicit null check exceptions from <code>genCheckCast</code> and <code>genInstanceOf</code> .
GR-51267	Invocation profiles are not needed for JIT compilation.
GR-51271	Backport: Fix bounds computation for floating point conversion
GR-51292	Backport to 24.0: Implement <code>VirtualThread.notifyJvmTidDisableSuspend</code> intrinsic.
GR-51304	Backport to 24.0: Performance regression on GraalWasm SIMD operations.
GR-51384	Break class initialization cycle in XML classes.
GR-51396	Backport to 24.0: Generalize product JDKs.
GR-51407	Fix class initialization error message.
GR-51416	Registering a class as initialize-at-build-time should immediately trigger initialization.
GR-51440	Fix a Windows-specific thread handle leak.
GR-51469	Fix a bug in the <code>IsolateArgumentParser</code> .
GR-51470	Backport to 24.0: Fix and improve Truffle option lists.
GR-51515	Backport: Fold <code>HostedvsRuntimeOptions.md</code> into <code>BuildOption.md</code> ; Add info about Build Output and Reports.
GR-51524	[GR-51564] [GR-50844] [GR-50853] Backport bug fixes to 24.0.
GR-51536	Backport changes from <code>nds/foreign-upcall</code> to include in the next release

Issue ID	Summary
GR-51581	Backport to 24.0.0: Compilation fails with java.lang.ArithmeticException: / by zero in LoopSafepointEliminationPhase::loopIsIn32BitRange.
GR-51609	Backport: Execute bootstrap methods for switch statements at build time.
GR-51627	Backport to 24.0.0: AssertSchedulableGraph: java.lang.AssertionError: 52 == not available at 63 !FixedGuard in block B7.
GR-51628	[GR-51630] Float stamp related backports to 24.0.0.
GR-51639	Backport. Documentation: Fix typo in toc_group.
GR-51657	Update JVMCI to 22+33-jvmci-b01.
GR-51747	Fix possible infinite recursion in AbstractJSObjectArray.setElementImpl (24.0).
GR-51781	Documentation: Update GraalVM SDK README.md.
GR-51786	Documentation: Update Build a Native Shared Library guide.
GR-51800	Backport to 24.0: Don't optimize away Narrow in comparisons with mixed signedness
GR-51802	24.0 Backport: Prevent macronodes in deoptimization targets.
GR-51807	Update JVMCI to 22+34-jvmci-b01.
GR-51816	Backport Espresso interop nodes processor fix.
GR-51831	Properly catch exceptions during shutdown.
GR-51848	24.0 Backport: Ensure CompilationResult.methods does not contain duplicates.

Issue ID	Summary
GR-51868	Backport to 24.0.0:SIGSEGV crashes in GraalVM 21.0.2+13-LTS-jvmci-23.1-b30.
GR-51948	Update JVMCI to 22+35-jvmci-b01
GR-51964	Backport to 24.0: Fix FrameStates for unresolved deopts with incorrect stack size
GR-51968	Fix MacOS-specific perf data issue.
GR-52018	Improve uncaught exception handler and error handling in CEntryPointSnippets.initializelolate().
GR-52036	Backport to 24.0: Switch statement expression should not be parsed in switch block scope.
GR-52062	Workaround for a build-time crash.
GR-52134	Update JVMCI to 22+36-jvmci-b01.
GR-52361	Update JVMCI to 22+36-jvmci-b02.
GR-52607	release GraalVM 24.0.0
GR-5369	[GR-49835] Ensure __text section exists
GR-5369	Periodic update of the Graal import.



Liberica Native Image Kit
24.0.0+1 (22+37)

[Release Notes](#)

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