JEP 410: Remove the Experimental AOT and JIT Compiler

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Type	Feature
Scope	JDK
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Release	17
Component	hotspot / compiler
Discussion	hotspot dash compiler dash dev at openjdk dot java dot net
Effort	S
Duration	S
Reviewed by	Mikael Vidstedt
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Summary

Remove the experimental Java-based ahead-of-time (AOT) and just-in-time (JIT) compiler. This compiler has seen little use since its introduction and the effort required to maintain it is significant. Retain the experimental Java-level JVM compiler interface (JVMCI) so that developers can continue to use externally-built versions of the compiler for JIT compilation.

Motivation

Ahead-of-time compilation (the `jaotc` tool) was incorporated into JDK 9 as an experimental feature via JEP 295. The `jaotc` tool uses the Graal compiler, which is itself written in Java, for AOT compilation.

The Graal compiler was made available as an experimental JIT compiler in JDK 10 via JEP 317.

We have seen little use of these experimental features since they were introduced, and the effort required to maintain and enhance them is significant. These features were not included in the JDK 16 builds published by Oracle, and no one complained.

Description

Remove three JDK modules:

- `jdk.aot` — the `jaotc` tool
- `jdk.internal.vm.compiler` — the Graal compiler
- `jdk.internal.vm.compiler.management` — Graal's MBean

Preserve these two Graal-related source files so that the JVMCI module (`jdk.internal.vm.ci`, JEP 243) continues to build:

- `src/jdk.internal.vm.compiler/share/classes/module-info.java`
- `src/jdk.internal.vm.compiler.management/share/classes/module-info.java`

Remove HotSpot code related to AOT compilation:

- `src/hotspot/share/aot` — dumps and loads AOT code
- Additional code guarded by `#if INCLUDE_AOT`

Finally, remove tests as well as code in makefiles related to Graal and AOT compilation.

Alternatives

Developers who wish to use the Graal compiler for either AOT or JIT compilation can use GraalVM.

Risks and Assumptions

We assume that developers actively using these features have had sufficient notice of this removal.