

ORACLE

GraalVM Enterprise Starter Kit

Get started, explore, and build cloud native applications through self-paced labs – v1

Working maven and debugging tools – v2

GraaIVM Enterprise Starter Kit

Your challenge

Organizations today remain competitive by improving customer experience, operational efficiency, and systems performance. In a recent 451 Research report, 93% of surveyed customers say they plan to make changes to modernize their business applications using one of these strategies:

- Maintaining on-premises applications and boosting system performance
- Moving applications to the cloud for scale, elasticity, and cost savings
- Building new applications using new software architectural styles to support continuous innovation on-premises or in the cloud

The kit will help developers start learning about GraaIVM Enterprise, install the high-performance JDK. You can also install the Native Image utility and follow the workshop to build your Java cloud applications.

OCI, best solution to run Java workloads in the cloud

GraaIVM Enterprise infographic - architecture, terms and definition

How to install GraaIVM for Linux -

<https://docs.oracle.com/en/graalvm/enterprise/20/docs/getting-started/installation-linux/>

How to install GraaIVM Native Image for Linux -

<https://docs.oracle.com/en/graalvm/enterprise/20/docs/getting-started/installation-linux/>

Accelerate applications in Oracle Cloud with GraaIVM Enterprise -

<https://luna.oracle.com/lab/d502417b-df66-45be-9fed-a3ac8e3f09b1?oijr=lab%3blid%3dd502417b-df66-45be-9fed-a3ac8e3f09b1>

Building Java cloud applications with Micronaut lab

<https://apexapps.oracle.com/pls/apex/dbpm/r/livelabs/view-workshop?wid=667&clear=180&session=15556046771925>

Create your tenancy on Oracle Cloud Infrastructure (OCI) –

- use your US\$300 free credits to build a cloud project
<https://www.oracle.com/cloud/>

Get GraaIVM Support – on Oracle Cloud, you can click the help button to get support

Pearson VUE



Minutes to Seconds



Maintained the security of Intellectual Property

“For us, the switch to GraaIVM Enterprise Edition and Native Image was the right move in terms of both security and performance”

Source: <https://www.oracle.com/a/ocom/docs/customer-reference/pearson.pdf>

Twitter



8-11% performance improvements



5-12% fewer servers

“Being able to see 8-11 percent performance improvements on the same hardware without having to change the underlying code is a once in a lifetime event, leading to substantial cost savings and future flexibility for Twitter.”

Chris Thaling, Staff System Engineer, Twitter

Source: https://www.oracle.com/a/ocom/docs/graalvm/twitter/casestudy_constellation.pdf

Introduction

GraalVM Enterprise is ideal for microservices for modern apps

GraalVM Enterprise is a high-performance JDK with advanced compiler technology that speeds up the performance of Java and JVM-based applications using a fraction of the memory used to run the same Java application running on a JVM. The GraalVM Enterprise has an AOT (ahead-of-time) compiler that at build time creates a fast, self-contained native binary ideal for microservices. The outstanding performance has earned GraalVM Enterprise the support of microservices frameworks like Micronaut, Helidon, Spring Boot, and Quarkus. It is free for use on Oracle Cloud Infrastructure with 24x7 Oracle support.

Learn more: <https://www.oracle.com/graalvm>

Build microservices for modern apps

- Microservices start almost instantly - 94% faster than OpenJDK
- Small binaries scale faster
- Reduce attack surface area and minimize vulnerabilities

Reduce operations cost

- Lower memory footprint - up to 5x less than running the same Java app on a JVM
- Reduce operations costs - up to 67% on OCI GraalVM-ARM vs OpenJDK-x86 instances

24x7 support from Oracle

- Access security fixes and critical updates for more predictable performance
- Support from the stewards of GraalVM and maximize availability

Oracle NetSuite



4x faster SuiteScript performance



50% faster module load



70% faster code initialization

“Because GraalVM Enterprise is built cloud-native from the ground up, the technology was surprisingly easy to integrate into NetSuite’s cloud. It has been rock solid since going live.”

Eric Klein Product Manager, Oracle NetSuite

Source: <https://www.oracle.com/a/ocom/docs/graalvm-netsuite-casestudy-new.pdf>

Oracle Cloud Infrastructure



25% reduction in garbage collection times and lower computing power needed



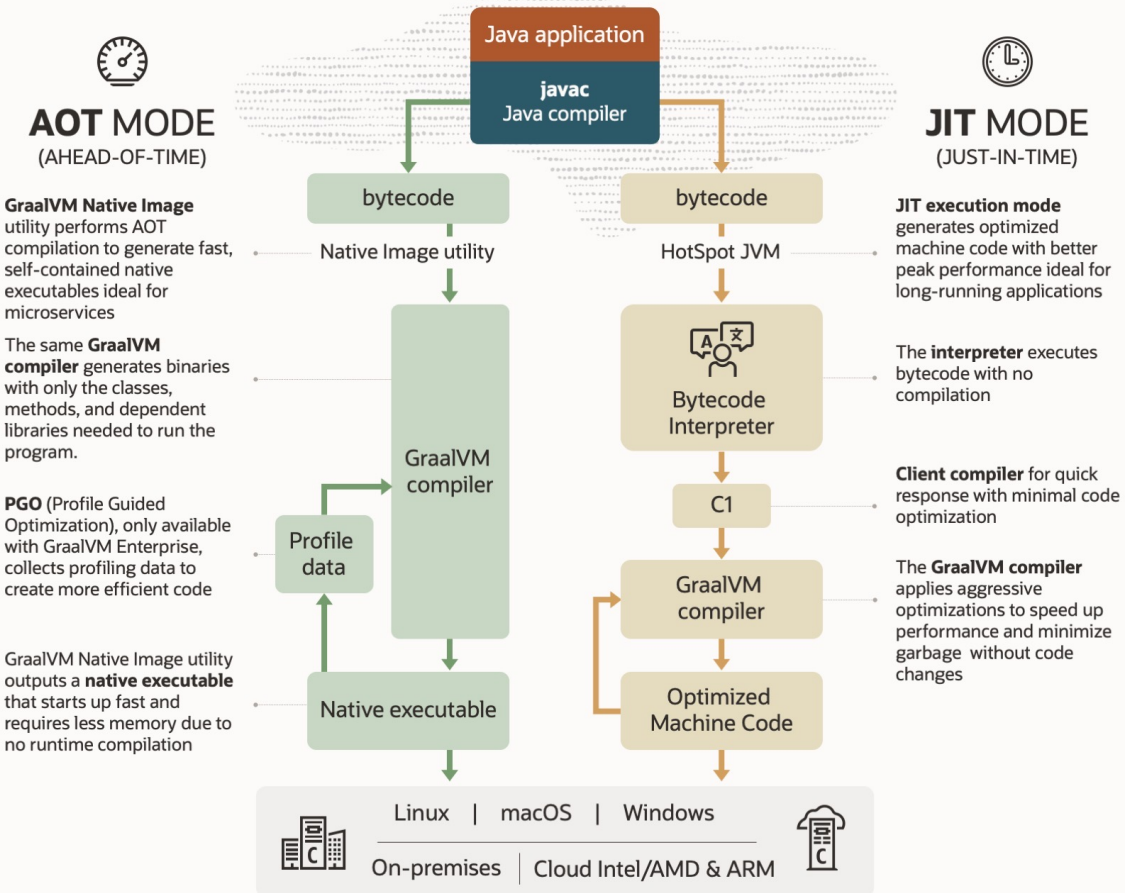
10% improvement in transactions/second

Higher throughput, lower cost, and no code changes using GraalVM Enterprise

Source: <https://blogs.oracle.com/cloud-infrastructure/graalvm-powers-oracle-cloud-infrastructure>

Anatomy of GraalVM Enterprise

GraalVM Enterprise—a high-performance JDK that speeds up the performance of Java and JVM-based applications, lowers application latency, improves peak throughput by reducing garbage collection time, and comes with 24x7 Oracle support.



BENEFITS

Up to **100x faster** helps scaling

Up to **5x smaller** memory easier to containerize

Up to **50% faster** throughput

24x7 support for reliability

Reduce cloud operations cost or free up compute resources from faster performance and lower memory usage

Learn more <https://www.oracle.com/graalvm>.



Simplifying GraalVM development

CI/CD

- Build native images directly from maven without having to run the native-image tool – Link <https://medium.com/graalvm/simplifying-native-image-generation-with-maven-plugin-and-embeddable-configuration-d5b283b92f57>

Debugging

- Debug Native Image with VS Code - Link <https://www.youtube.com/watch?v=eK2gBKn4ay4>

Other tools

- Installing GraalVM Enterprise from the command line & docker – Link https://www.youtube.com/watch?v=kDpBfflnt_Y
- Speeding up Eclipse IDE with GraalVM – Link <https://www.youtube.com/watch?v=lpkYDRuixZQ>
- GraalVM tools for Java on Truffle – Link <https://www.youtube.com/watch?v=QHajwx7BPyo>
- Build Cloud Native applications with GraalVM – Link https://www.youtube.com/watch?v=db_nyBy5OLc

Multi-language support

- Debugging Polyglot or multi-language applications on GraalVM – Link <https://www.youtube.com/watch?v=bBLdpaJuBIE>
- Java on Truffle; a JVM implementation written in Java – Link <https://medium.com/graalvm/java-on-truffle-going-fully-metacircular-215531e3f840>
- Running Java apps and Python – Link <https://medium.com/graalvm/supercharge-your-java-apps-with-python-ec5d30634d18>

eCommerce company review

Rating 9 out of 10
“This is very well suited for products where high performance and efficiency [are] needed preferably in Real-Time and consistent process requirements.”

Source: <https://www.trustradius.com/reviews/graalvm-2021-10-23-11-48-30>

Manufacturing company review

Rating 9 out of 10
“Specifically on mission-critical applications, as the startup time is an order of magnitude less than traditional Java JVM-based applications, GraalVM is a great choice. Also, for a polyglot team, who need a JVM solution to support engineers skilled and comfortable in multiple programming languages.”

Varian Medical Systems

Source: <https://www.trustradius.com/reviews/graalvm-2021-04-14-09-50-57>



Microservices Frameworks



- <https://micronaut.io/>
- Development framework for creating microservices and serverless functions
- Application framework for Java, CLI
- Pre-computes Java project infrastructure in a reflection free manner
- Integrates with GraalVM Native Image with built-in support for popular cloud features



- <https://spring.io/>
- Open-source application framework and inversion of control container for developing Java applications
- Spring Native project supports Native Image for building serverless applications with Spring Cloud Function simplifies deployment to Oracle Functions, AWS Lambda or Knative



- <https://helidon.io/#/>
- Open source, lightweight, container-friendly, cloud native framework for developing Java microservices
- Does not use dependency injections or annotations
- Includes WebServer, Config, Security, Metrics, and Health Checks compatible with GraalVM ahead-of-time compilation
- Collection of Java libraries designed for creating microservices-based applications running on a fast web core powered by the Netty framework



- <https://quarkus.io/>
- Open-source, full-stack, Kubernetes-native Java framework, tailored for OpenJDK HotSpot and GraalVM
- Supports ahead-of-time compilation out-of-the-box with GraalVM Native Image, making it a cloud friendly Java framework

Software company review

Rating 8 out of 10

“GraalVM is very well suited for containerizing and running Java applications, thanks to its JIT compilation mechanisms and native Java support.”

Source: <https://www.trustradius.com/reviews/graalvm-2021-04-02-10-51-00>

Banking company review

Rating 10 out of 10

“GraalVM being the most efficient Java Virtual Machine is currently being used in the banking department of our esteemed organization. It has reduced the start-up time of our banking applications by maximizing the performance and execution speed to a great extent.”

Source: <https://www.trustradius.com/reviews/graalvm-2020-08-14-10-39-16>

Resources



Learn more about the solution

- [Java SE Subscription](#)
- [GraalVM Enterprise](#)
- [Watch webcasts on-demand](#)



Demos and Workshops

- [Try our Free Tier](#)
- [Building Java Cloud Applications with Micronaut and OCI Workshop](#)
- [Accelerate applications in Oracle Cloud with GraalVM Enterprise](#)
- [Build Cloud Native Java applications with Micronaut](#)



Blogs, reviews and reports

- [GraalVM Enterprise blogs](#)
- [GraalVM developer blogs](#)
- [GraalVM peer reviews](#)



Technical Assets

- [GraalVM Enterprise technical brief](#)
- [Micronaut guides](#)
- [Micronaut framework documentation](#)
- [Youtube GraalVM playlist](#)

Ready to get started?



[Connect with us](#)



[Oracle Java](#)



[Try Oracle Cloud Free Tier](#)

