ORACLE

Taking off with JDK Flight Recorder!

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Important Notes

- Ask questions
- Reach out:
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- Link to slides 👉 https://github.com/wkorando/taking-off-with-jfr

[DESIRE TO KNOW MORE INTENSIFIES]

- https://dev.java
- https://inside.java
- https://youtube.com/java
- Inside Java Podcast
- Inside Java Newscast
- #SipOfJava
- #JEPCafé

Agenda

- What is JDK Flight Recorder?
- Demo!
  - Running JDK Flight Recorder
  - Analyzing Results
  - Customizing JDK Flight Recorder

What is JDK Flight Recorder?

What is JDK Flight Recorder? (JFR)

- Initially added in JDK 7
  - Then called Java Flight Recorder
  - Goes back to JRockit

- Open source in JDK 11, renamed JDK Flight Recorder

- Built into the Java runtime

What is JFR?

- Event based diagnostic and profiling tool
- Extremely low overhead of <1%*
- Meant to be used **continuously in production**
- Covers both events happening in JVM and Java applications

* When using default settings, YMMV when choosing different settings

JFR Under the hood

Performance:

- Events produced by Java Runtime and Application
- Stored in Memory in Thread Local Buffers
- Can then be dumped to a .jfr file

JFR Events

Over 150 different events

jdk.SystemProcess

jdk.ActiveSetting

jdk.GarbageCollection

jdk.GCPhasePause

jdk.EvacuationFailed

jdk.ThreadStart

jdk.ThreadDump

jdk.GCConfiguration

jdk.FileRead

jdk.FileWrite

jdk.SocketRead

jdk.SocketWrite

Demo!

Links and Code Examples

Slide deck: https://github.com/wkorando/taking-off-with-jfr

Java Command (-XX:StartFlightRecording):

https://docs.oracle.com/en/java/javase/18/docs/specs/man/java.html#advanced-runtime-options-for-java

JFR Programmers Guide:

https://docs.oracle.com/en/java/javase/18/jfapi/preface.html

JFR Health Report:
https://github.com/flight-recorder/health-report

JVM Profiling in Kubernetes with Java Flight Recorder:

https://tech.olx.com/jvm-profiling-in-kubernetes-with-java-flight-recorder-b39a6181a99c

Continuous Performance Regression Testing with JFRUnit:

https://www.youtube.com/watch?v=iHOtYCcc0Lw

Thank you

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