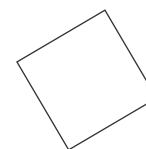


Compiler SIG双周例会(2021-08-24)  
毕昇JDK docker镜像制作 && 9.30特性预览



# 毕昇JDK docker镜像制作 && 9.30新特性预览

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日期：2021.8



Security Level:

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# 目录

1. 毕昇JDK docker镜像制作

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3. 其他

# 概览:

- 毕昇JDK8

- > 8u292->8u302
- > PS:introduce UsePSRelaxedForwarder to enable using relaxed CAS in copy\_to\_survivor\_space
- > PS: Add prefetch before copy in PSPromotionManager::copy\_to\_survivor\_space
- > Parallel Full GC for G1.
- > 支持进程id和时间戳生成jfr文件
- > 8197387: jcmd started by "root" must be allowed to access all VM processes

- 毕昇JDK11

- > 11.0.11->11.0.12
- > PS:introduce UsePSRelaxedForwarder to enable using relaxed CAS in copy\_to\_survivor\_space
- > PS: Add prefetch before copy in PSPromotionManager::copy\_to\_survivor\_space
- > 支持KAERProvider
- > 支持按进程id和时间戳生成jfr文件

## PS优化

- PS:introduce UsePSRelaxedForwarder to enable using relaxed CAS in copy\_to\_survivor\_space
  - > 在specjbb测试中, PSPromotionManager::copy\_to\_survivor\_space中的CAS指令CPU占比非常高, 主要为release barrier导致, 分析PS逻辑后, CAS没必要使用memory barrier, 使用relaxed可以提高弱内存模型架构上PS的性能。
  - > UsePSRelaxedForwarder, 实验特性, 默认为false
- PS: Add prefetch before copy in PSPromotionManager::copy\_to\_survivor\_space
- 整体性能 (基于毕昇JDK8&11在鲲鹏aarch64服务上的运行结果)
  - > SPECjbb2015 critical较OpenJDK8 & 11提升20%+

# G1 GC优化

- Full GC 优化
  - > G1 Full GC是完全的STW，在此期间应用程序线程完全没有机会运行，长时间停顿会造成用户明显的感知。因此，使用G1过程中应尽量避免的Full GC的出现，如果出现最好能缩短其时间。
  - > 当前JDK 8u中G1 Full GC完全采用串行，包括各个阶段和各个阶段(mark、prepare、adjust、compact)之间
  - > 选项：-XX:+G1ParallelFullGC
  - > 性能dacapo：受益（STW时间减少）基本在25%-30%

# KAEProvider

- 与JDK8相比

- > 模块化

JDK8

```
[hedongbo@jvmtest-59 jdk]$ find . -name "*kae*"
./jre/lib/ext/kae_openssl.jar
./jre/lib/ext/kaeprovider.conf
./jre/lib/aarch64/libj2kae.so
```

JDK11

```
[hedongbo@jvmtest-59 jdk]$ find . -name "*kae*"
./jmods/jdk.crypto.kaeprovider.jmod
./lib/libj2kae.so
./lib/libj2kae.debuginfo
./legal/jdk.crypto.kaeprovider
./conf/kaeprovider.conf
```

- > 使用

```
61 # List of providers and their preference orders (see above):
62 #
63 security.provider.1=KAEProvider
64 security.provider.2=SUN
65 security.provider.3=SunRsaSign
66 security.provider.4=SunEC
67 security.provider.5=SunJSSE
68 security.provider.6=SunJCE
69 security.provider.7=SunJGSS
70 security.provider.8=SunSASL
71 security.provider.9=XMLDSig
72 security.provider.10=SunPCSC
73 security.provider.11=JdkLDAP
74 security.provider.12=JdkSASL
75 security.provider.13=SunPKCS11
```

KAEProvider原理: [链接](#)

```
javac --add-modules jdk.crypto.kaeprovider --add-exports=jdk.crypto.kaeprovider/org.openeuler.security.openssl=ALL-UNNAMED DHTest.java
```

```
java --add-modules jdk.crypto.kaeprovider --add-exports=jdk.crypto.kaeprovider/org.openeuler.security.openssl=ALL-UNNAMED DHTest
```



# 支持进程id和时间戳生成jfr文件

免费特性，开启JFR需要开启UnlockCommercialFeatures (openjdk社区默认设置)  
后续毕昇JDK可能会移除

Before patch:

```
java -XX:+UnlockCommercialFeatures -XX:+FlightRecorder -XX:StartFlightRecording=duration=10s,filename=myrecording%.jfr While
```

```
[hedongbo@jvmtest-59 jdk8u-dev]$ ./build/linux-aarch64-normal-server-release/images/j2sdk-image/bin/java -XX:+UnlockCommercialFeatures -XX:+FlightRecorder -XX:StartFlightRecording=duration=10s,filename=myrecording%.jfr While
Error occurred during initialization of VM
Failure when starting JFR on_vm_start
[hedongbo@jvmtest-59 jdk8u-dev]$ ./build/linux-aarch64-normal-server-release/images/j2sdk-image/bin/java -XX:+UnlockCommercialFeatures -XX:+FlightRecorder -XX:StartFlightRecording=duration=10s,filename=myrecording%.jfr While
Error occurred during initialization of VM
Failure when starting JFR on_vm_start
[hedongbo@jvmtest-59 jdk8u-dev]$ ls -al myrecording%*
-rw-----. 1 hedongbo hedongbo 0 Aug 23 10:55 myrecording%.jfr
-rw-----. 1 hedongbo hedongbo 0 Aug 23 10:55 myrecording%.jfr
[hedongbo@jvmtest-59 jdk8u-dev]$
```

After patch:

```
java -XX:+UnlockCommercialFeatures -XX:+FlightRecorder -XX:StartFlightRecording=duration=10s,filename=myrecording%.jfr While
```

```
[hedongbo@jvmtest-59 jdk8u-dev]$ ./build/linux-aarch64-normal-server-release/images/j2sdk-image/bin/java -XX:+UnlockCommercialFeatures -XX:+FlightRecorder -XX:StartFlightRecording=duration=10s,filename=myrecording%.jfr While
Started recording 1. The result will be written to:
/home/hedongbo/myprojects/jdk8u-dev/myrecordingpid3548163.jfr
[hedongbo@jvmtest-59 jdk8u-dev]$ ./build/linux-aarch64-normal-server-release/images/j2sdk-image/bin/java -XX:+UnlockCommercialFeatures -XX:+FlightRecorder -XX:StartFlightRecording=duration=10s,filename=myrecording%.jfr While
Started recording 1. The result will be written to:
/home/hedongbo/myprojects/jdk8u-dev/myrecording2021-08-23_11-07-33.jfr
[hedongbo@jvmtest-59 jdk8u-dev]$ ls -al myrecording%*
-rw-----. 1 hedongbo hedongbo 318469 Aug 23 11:07 myrecording2021-08-23_11-07-33.jfr
-rw-----. 1 hedongbo hedongbo 318173 Aug 23 11:07 myrecordingpid3548163.jfr
[hedongbo@jvmtest-59 jdk8u-dev]$
```

JFR使用介绍: [链接](#)

# 8197387: jcmd started by "root" must be allowed to access all VM processes(JDK8)

Before patch:

```
[root@jvmtest-59 j2sdk-image]# ./bin/jps
3028188 While
3068273 Jps
[root@jvmtest-59 j2sdk-image]# ./bin/jcmd 3028188 help
3028188:
java.io.IOException: well-known file /tmp/.java_pid3028188 is not secure: file should be owned by the current user (which is 0) but is owned by 1008
    at sun.tools.attach.LinuxVirtualMachine.checkPermissions(Native Method)
    at sun.tools.attach.LinuxVirtualMachine.<init>(LinuxVirtualMachine.java:117)
    at sun.tools.attach.LinuxAttachProvider.attachVirtualMachine(LinuxAttachProvider.java:63)
    at com.sun.tools.attach.VirtualMachine.attach(VirtualMachine.java:208)
    at sun.tools.jcmd.JCmd.executeCommandForPid(JCmd.java:147)
    at sun.tools.jcmd.JCmd.main(JCmd.java:131)
[root@jvmtest-59 j2sdk-image]#
```

After patch:

```
[root@jvmtest-59 j2sdk-image]# ./bin/jps
3107261 While
3139879 Jps
[root@jvmtest-59 j2sdk-image]# ./bin/jcmd 3107261 help
3107261:
The following commands are available:
VM.unlock_commercial_features
```

# Bug fixes

- JDK8

- > 8183543: Aarch64: C2 compilation often fails with “failed spill-split-recycle sanity check” 该问题可能会导致性能下降
- > 8268453: sun/security/pkcs12/EmptyPassword.java fails with Sequence tag error 当用户的keystore是空密码时, 可能会出现这个错误
- > 8167014: jdeps: Missing message: warn.skipped.entry 当用户使用jdeps来解析依赖时, 可能会出现这个错误

- JDK11

- > 8268427: Improve AlgorithmConstraints:checkAlgorithm performance 可以提升tls的性能
- > 8257145: Performance regression with -XX:-ResizePLAB after JDK-8079555 可以修复JDK8到JDK11使用G1 GC, Hbase性能下降的问题, 详见: [link](#)

# Q & A

Thank you.