

- description :
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- lastupdate : 2022-07-10

Intro

Case Study

Tools

jps

JVM

```
$> jps -v
32128 Jps -Dapplication.home=/PROJECT/dge.repia.com/SearchApp/jdk1.8.0_202 -
Xms8m
5287 Server
24487 Bootstrap -Djava.util.logging.config.file=/WAS_APPS/tomcat-
instance/kigam.repia.com/conf/logging.properties -
Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager -
Djava.awt.headless=true -Xms512m -Xmx1024m -XX:NewSize=256m -
XX:MaxNewSize=256m -XX:PermSize=256m -XX:MaxPermSize=512m -
XX:+DisableExplicitGC -Djdk.tls.ephemeralDHKeySize=2048 -
Djava.protocol.handler.pkgs=org.apache.catalina.webresources -
Dorg.apache.catalina.security.SecurityListener.UMASK=0027 -Denv=product -
Denv.servername=kigam.repia.com -Dignore.endorsed.dirs= -
Dcatalina.base=/WAS_APPS/tomcat-instance/kigam.repia.com -
Dcatalina.home=/WAS_APPS/apache-tomcat-8.5.76 -
Djava.io.tmpdir=/WAS_APPS/tomcat-instance/kigam.repia.com/temp
22156 Bootstrap -Djava.util.logging.config.file=/WAS_APPS/tomcat-
instance/dge.repia.com/conf/logging.properties -
Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager -
Djava.awt.headless=true -Xms512m -Xmx1024m -XX:NewSize=256m -
XX:MaxNewSize=256m -XX:PermSize=256m -XX:MaxPermSize=512m -
XX:+DisableExplicitGC -Djdk.tls.ephemeralDHKeySize=2048 -
Djava.protocol.handler.pkgs=org.apache.catalina.webresources -
Dorg.apache.catalina.security.SecurityListener.UMASK=0027 -Denv=product -
Denv.servername=dge.repia.com -Dignore.endorsed.dirs= -
Dcatalina.base=/WAS_APPS/tomcat-instance/dge.repia.com -
```

```
Dcatalina.home=/WAS_APPS/apache-tomcat-8.5.76 -
Djava.io.tmpdir=/WAS_APPS/tomcat-instance/dge.repia.com/temp
26732 Server
27185 jar
14770 Server
26132 jar
18037 Server
20021 jar
25242 Bootstrap -
Djava.util.logging.config.file=/usr/local/tomcat8/conf/logging.properties -
Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager -
Djdk.tls.ephemeralDHKeySize=2048 -
Djava.protocol.handler.pkgs=org.apache.catalina.webresources -
Dorg.apache.catalina.security.SecurityListener.UMASK=0027 -
Dignore.endorsed.dirs= -Dcatalina.base=/usr/local/tomcat8 -
Dcatalina.home=/usr/local/tomcat8 -Djava.io.tmpdir=/usr/local/tomcat8/temp
32412 jar
11933 jar
26878 Bootstrap -Djava.util.logging.config.file=/WAS_APPS/tomcat-
instance/centos79.repia.com/conf/logging.properties -
Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager -
Djava.awt.headless=true -Xms512m -Xmx1024m -XX:NewSize=256m -
XX:MaxNewSize=256m -XX:PermSize=256m -XX:MaxPermSize=512m -
XX:+DisableExplicitGC -Djdk.tls.ephemeralDHKeySize=2048 -
Djava.protocol.handler.pkgs=org.apache.catalina.webresources -
Dorg.apache.catalina.security.SecurityListener.UMASK=0027 -Denv=product -
Denv.servername=centos79.repia.com -Dignore.endorsed.dirs= -
Dcatalina.base=/WAS_APPS/tomcat-instance/centos79.repia.com -
Dcatalina.home=/WAS_APPS/apache-tomcat-8.5.76 -
Djava.io.tmpdir=/WAS_APPS/tomcat-instance/centos79.repia.com/temp
```

jmap

JVM (map)
JVM

```
$> jmap -heap 200021
[root@sofo dump]# /PROJECT/dge.repia.com/SearchApp/java8/bin/jmap -heap
20021
Attaching to process ID 20021, please wait...
Debugger attached successfully.
Server compiler detected.
JVM version is 25.202-b08

using thread-local object allocation.
Parallel GC with 8 thread(s)

Heap Configuration:
  MinHeapFreeRatio      = 0
  MaxHeapFreeRatio      = 100
```

```

MaxHeapSize           = 2009071616 (1916.0MB)
NewSize               = 41943040 (40.0MB)
MaxNewSize            = 669515776 (638.5MB)
OldSize               = 83886080 (80.0MB)
NewRatio              = 2
SurvivorRatio         = 8
MetaspaceSize         = 21807104 (20.796875MB)
CompressedClassSpaceSize = 1073741824 (1024.0MB)
MaxMetaspaceSize      = 17592186044415 MB
G1HeapRegionSize      = 0 (0.0MB)

```

Heap Usage:

PS Young Generation

Eden Space:

```

capacity = 125829120 (120.0MB)
used      = 41686504 (39.755348205566406MB)
free    = 84142616 (80.2446517944336MB)
33.12945683797201% used

```

From Space:

```

capacity = 5242880 (5.0MB)
used      = 5231912 (4.989540100097656MB)
free    = 10968 (0.01045989990234375MB)
99.79080200195312% used

```

To Space:

```

capacity = 5242880 (5.0MB)
used      = 0 (0.0MB)
free    = 5242880 (5.0MB)
0.0% used

```

PS Old Generation

```

capacity = 83886080 (80.0MB)
used      = 6313904 (6.0214080810546875MB)
free    = 77572176 (73.97859191894531MB)
7.526760101318359% used

```

1711 interned Strings occupying 144344 bytes.

```
// JVM
```

```
$> jmap -F -histo 20021
```

```
//
```

```
$> jmap -F -dump:format=b,file=heap.hprof 20021
```

```
==== jhat ====
```

```
<code bash>
```

```
$> jhat heap.hprof -port 7000
```

Term

Tip

Troubleshooting

Ref

- [\[Java\] `java -Xmx` - jps, jmap, jhat](#)
- [\[Java\] Heap `java -Xmx` & Heap Dump](#)
- [Thread Dump](#)
- [HOW TO CAPTURE JAVA HEAP DUMPS? - 7 OPTIONS](#)

[heapdump](#), [tda](#), [visualvm](#), [TDA](#)

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Last update: **2022/07/10 14:43**

