GC Intelligence Report

zgc_2.log

Duration: 2 hrs 12 min 39 sec

Congratulations!

Your application's GC activity is healthy.

Recommendations

(**CAUTION:** Please do thorough testing before implementing below recommendations.)

- **0.355 ms** of GC pause time is triggered by **'Metadata GC Threshold'** event. This type of GC event is triggered under two circumstances:
  1. Configured metaspace size is too small than the actual requirement
  2. There is a classloader leak (very unlikely, but possible).

  Solution:
  You may consider setting '-XX:MaxMetaspaceSize' to a higher value. If this property is not present already please configure it. Setting these arguments to a higher value will reduce 'Metadata GC Threshold' frequency. If you still continue to see 'Metadata GC Threshold' event reported, then you need to inspect metaspace contents. Learn how to inspect metaspace contents from **this article.**

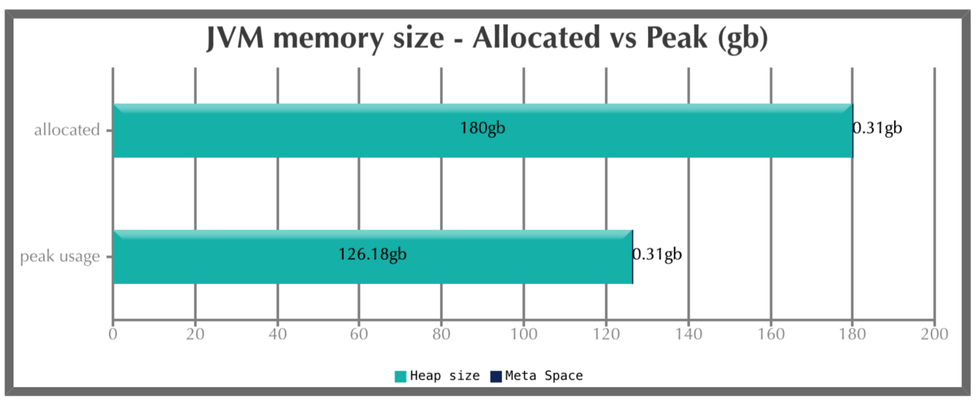
- It looks like you are using ZGC algorithm. If you are running on Java 18 and above, you may consider passing **-XX:+UseStringDeduplication** to your application. It will remove duplicate strings in your application and has potential to improve overall application's performance. You can learn more about this property in **this article.**

- This application is using the ZGC algorithm. If you are looking to tune ZGC performance even further, here are the important ZGC algorithm related JVM arguments

JVM memory size

(To learn about JVM Memory, click here)

Region	Allocated	Peak
Heap	180 gb	126.18 gb
Metaspace	319 mb	313 mb
Total	180.31 gb	126.48 gb



Key Performance Indicators

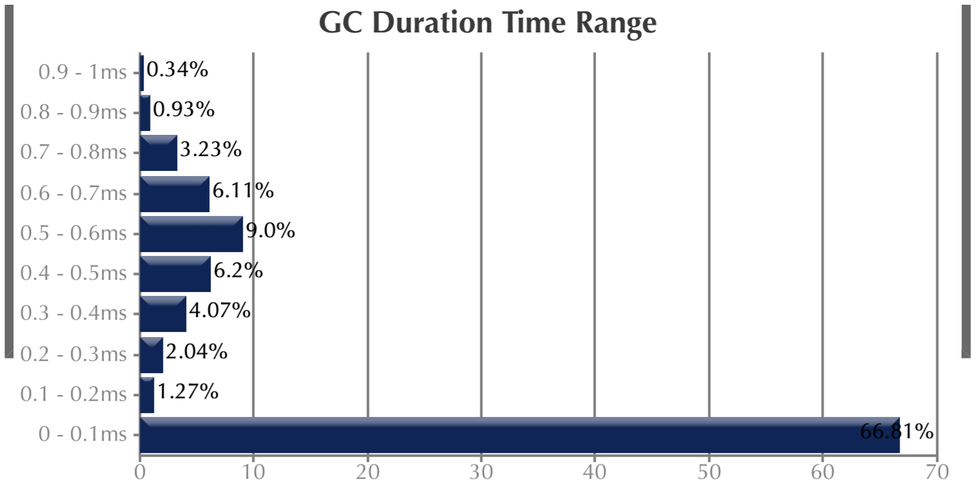
(Important section of the report. To learn more about KPIs, click here)

1. **Throughput : 99.997%**
2. **CPU Time : n/a**
3. **Latency:**

Avg Pause GC Time	0.187 ms
Max Pause GC Time	0.997 ms

GC Pause Duration Time Range:

Duration (ms) 0.1 ms Change	No. of GCs phases	Percentage
0 - 0.1	787	66.81%
0.1 - 0.2	15	1.27%
0.2 - 0.3	24	2.04%
0.3 - 0.4	48	4.07%
0.4 - 0.5	73	6.2%
0.5 - 0.6	106	9.0%
0.6 - 0.7	72	6.11%
0.7 - 0.8	38	3.23%
0.8 - 0.9	11	0.93%
0.9 - 1	4	0.34%

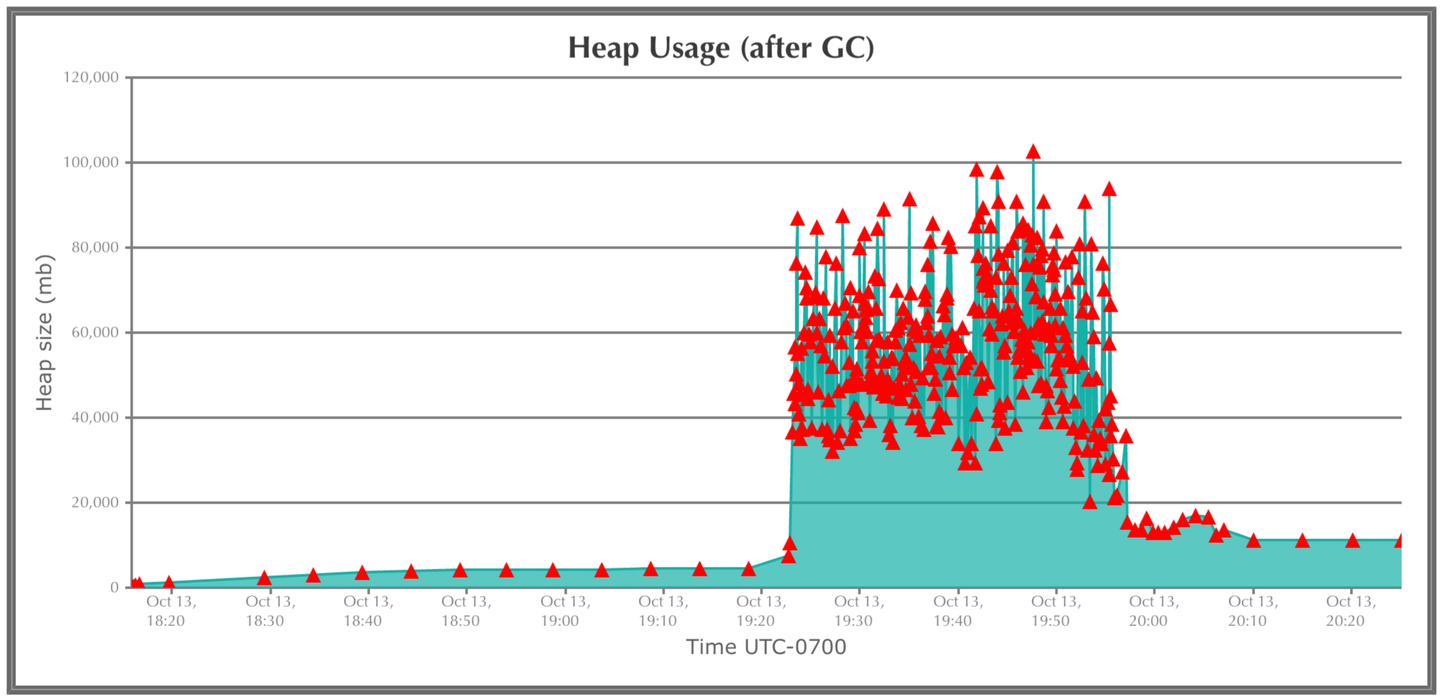


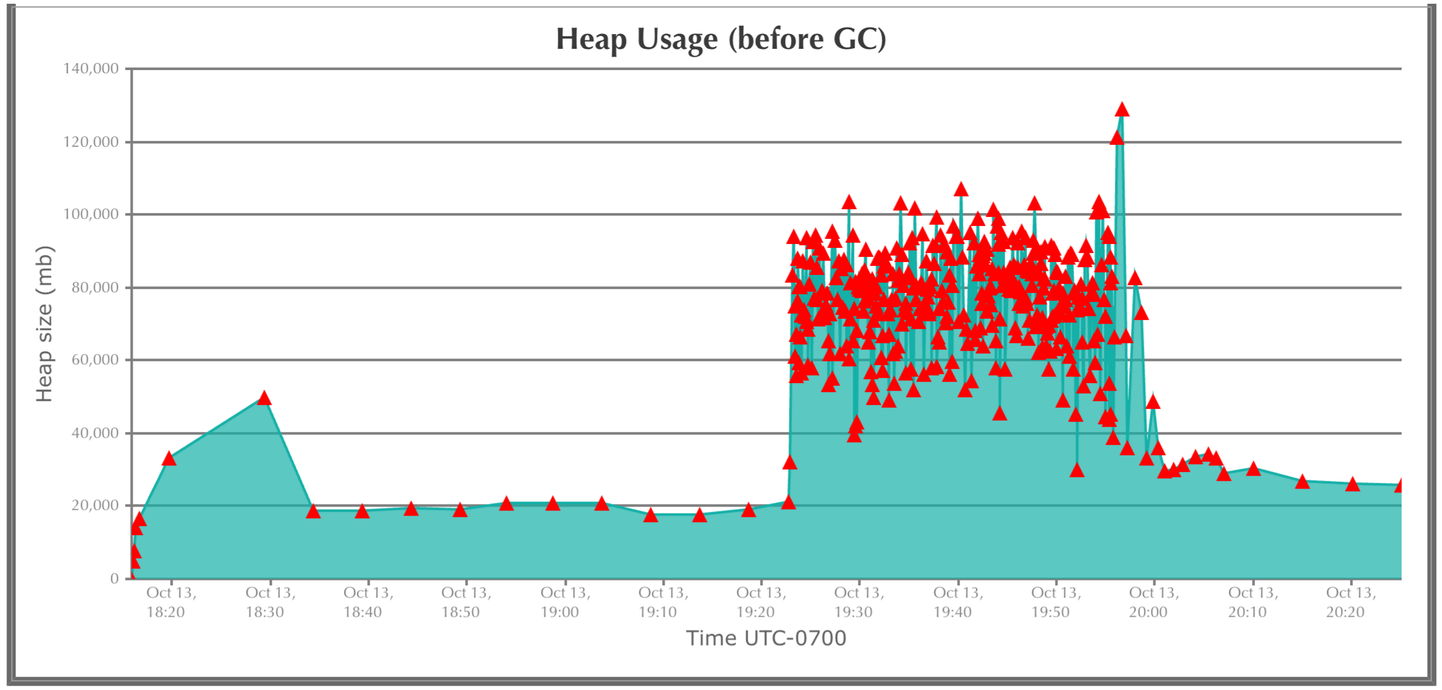
Analyze Specific Time Periods (Beta)

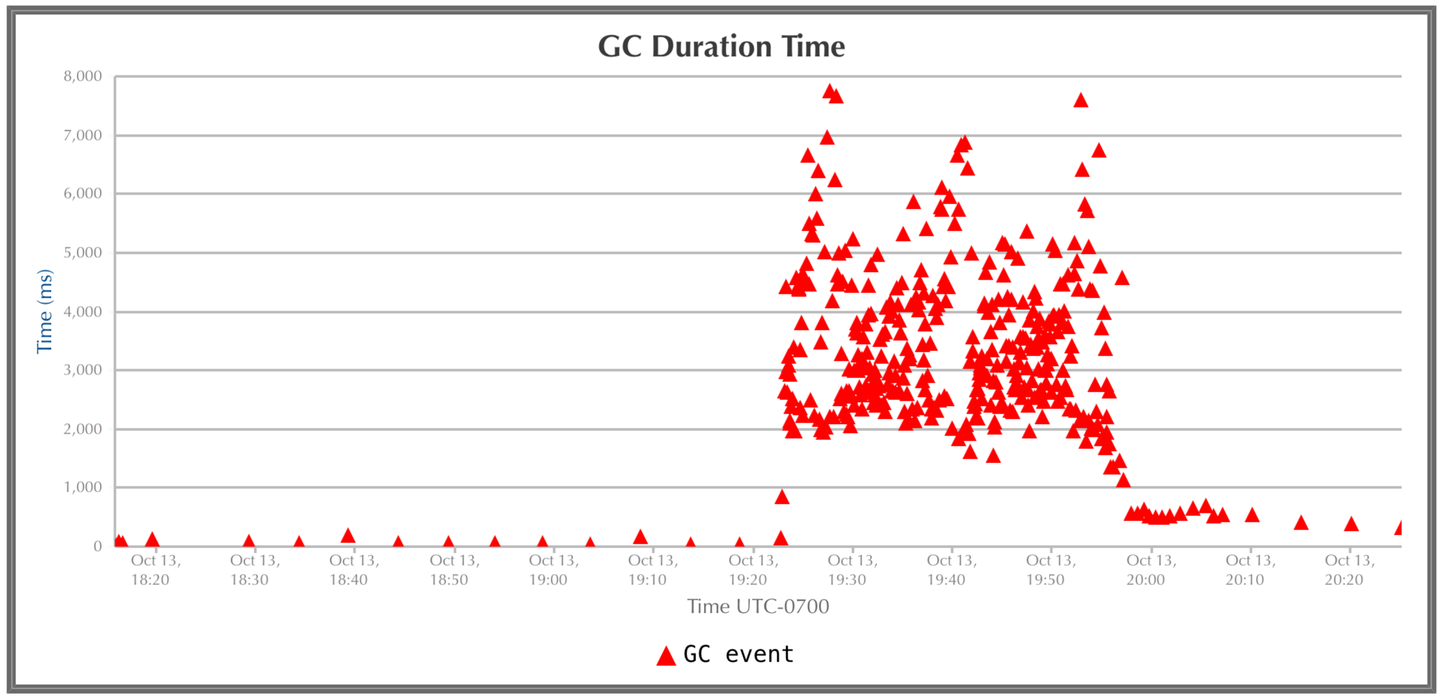
Select time range

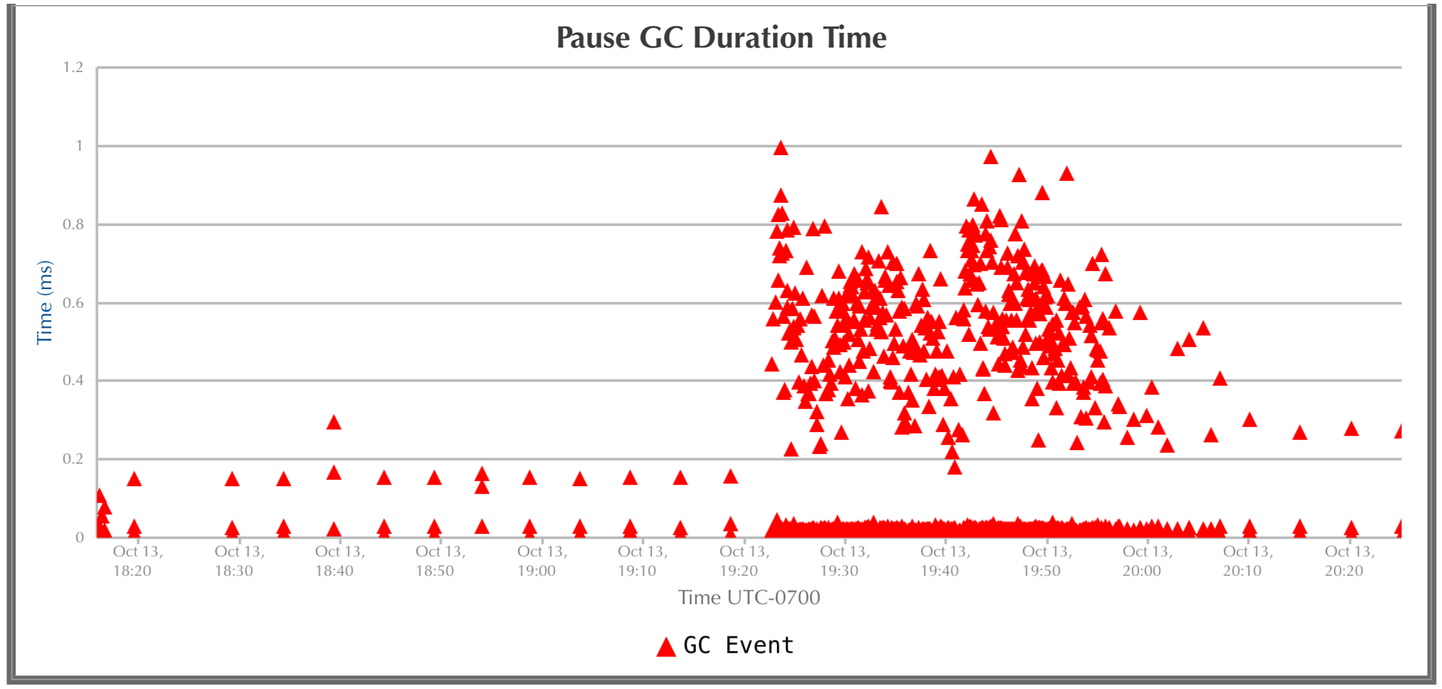
Reset

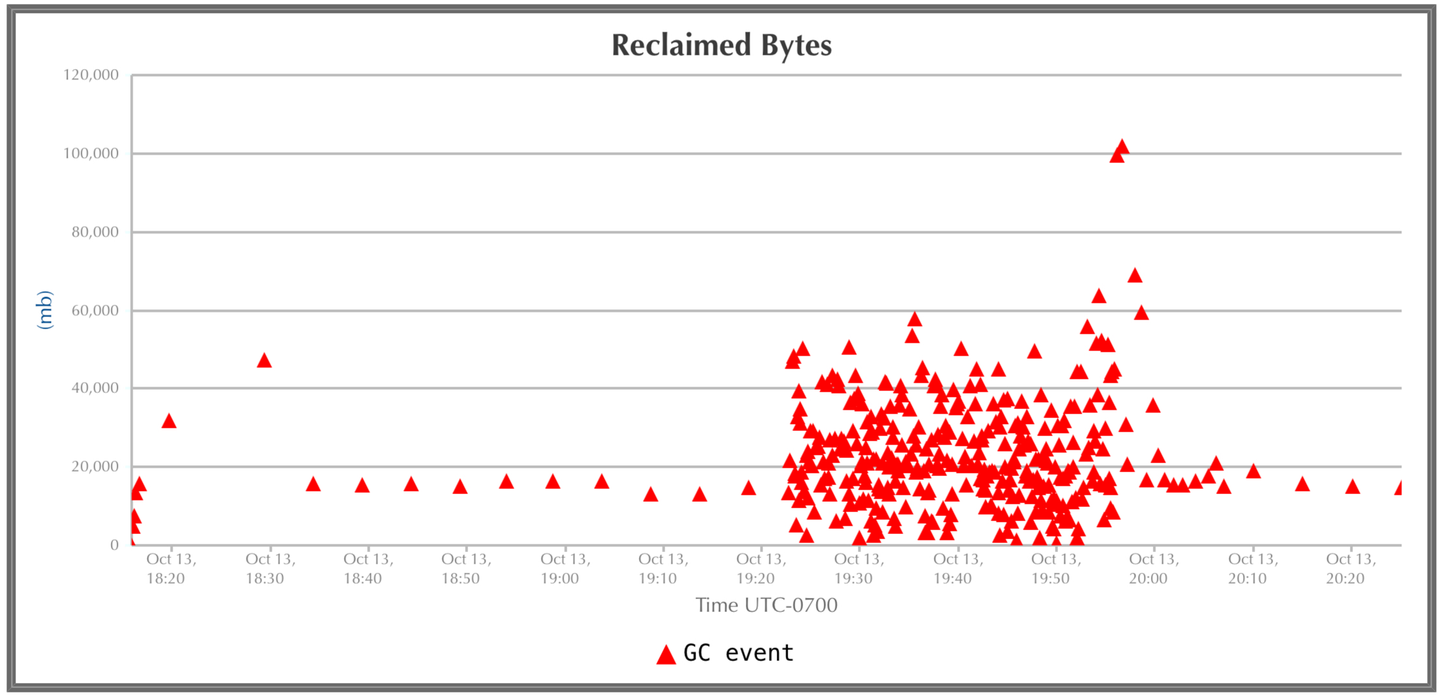
Interactive Graphs (How to zoom graphs?)

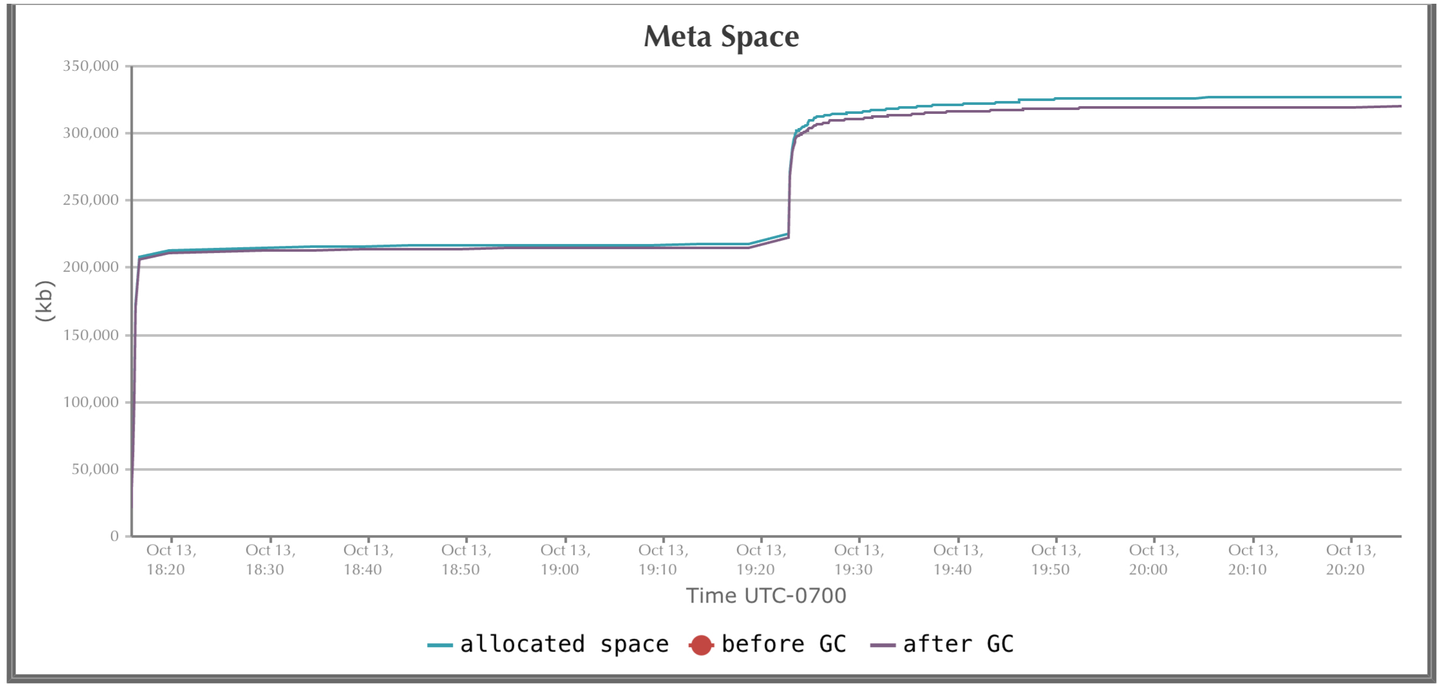


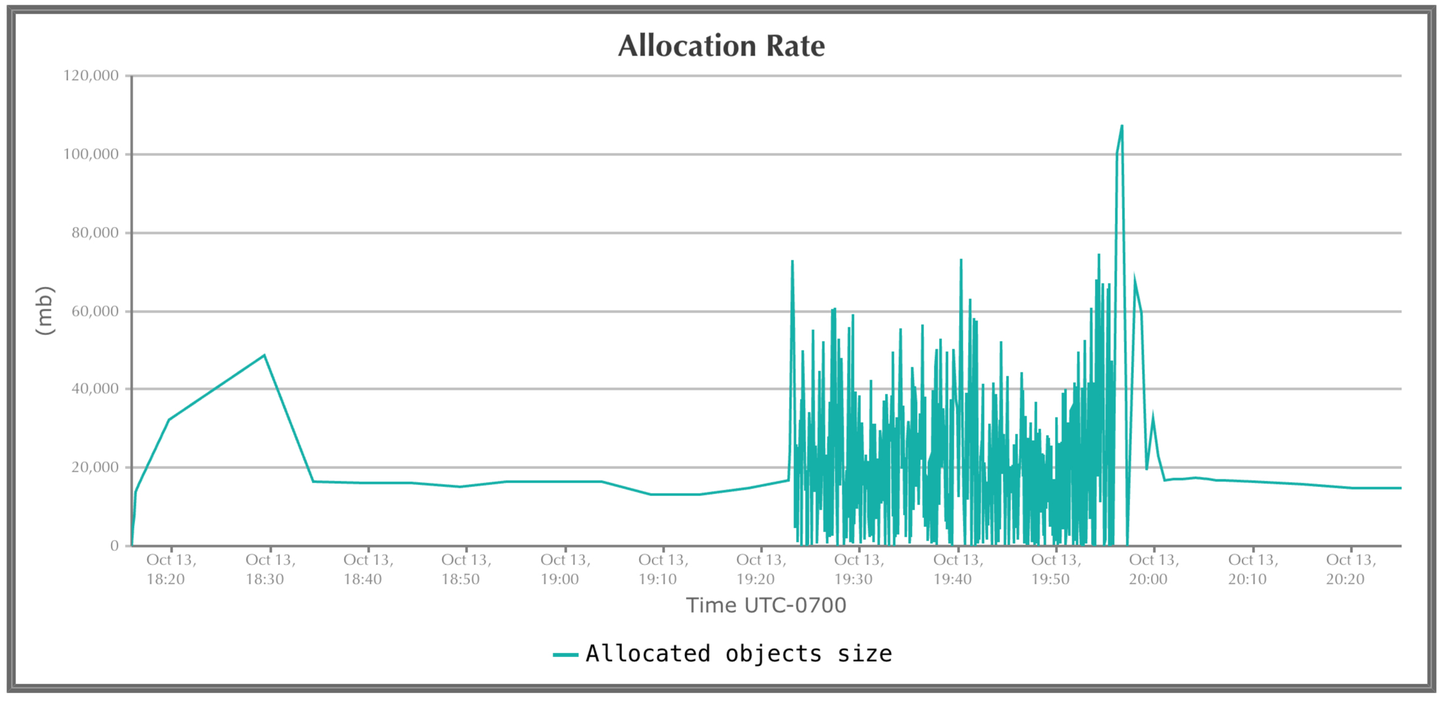

Heap Usage (before GC)
Heap size (mb)
140,000
120,000
100,000
80,000
60,000
40,000
20,000
0
Oct 13, 18:20
Oct 13, 18:30
Oct 13, 18:40
Oct 13, 18:50
Oct 13, 19:00
Oct 13, 19:10
Oct 13, 19:20
Oct 13, 19:30
Oct 13, 19:40
Oct 13, 19:50
Oct 13, 20:00
Oct 13, 20:10
Oct 13, 20:20
Time UTC-0700


GC Duration Time
Time (ms)
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
Oct 13, 18:20
Oct 13, 18:30
Oct 13, 18:40
Oct 13, 18:50
Oct 13, 19:00
Oct 13, 19:10
Oct 13, 19:20
Oct 13, 19:30
Oct 13, 19:40
Oct 13, 19:50
Oct 13, 20:00
Oct 13, 20:10
Oct 13, 20:20
Time UTC-0700
GC event


Pause GC Duration Time
1.2
1
0.8
0.6
0.4
0.2
0
Time (ms)
Oct 13, 18:20
Oct 13, 18:30
Oct 13, 18:40
Oct 13, 18:50
Oct 13, 19:00
Oct 13, 19:10
Oct 13, 19:20
Oct 13, 19:30
Oct 13, 19:40
Oct 13, 19:50
Oct 13, 20:00
Oct 13, 20:10
Oct 13, 20:20
Time UTC-0700
GC Event


Reclaimed Bytes
120,000
100,000
80,000
60,000
40,000
20,000
0
(mb)
Oct 13, 18:20
Oct 13, 18:30
Oct 13, 18:40
Oct 13, 18:50
Oct 13, 19:00
Oct 13, 19:10
Oct 13, 19:20
Oct 13, 19:30
Oct 13, 19:40
Oct 13, 19:50
Oct 13, 20:00
Oct 13, 20:10
Oct 13, 20:20
Time UTC-0700
GC event

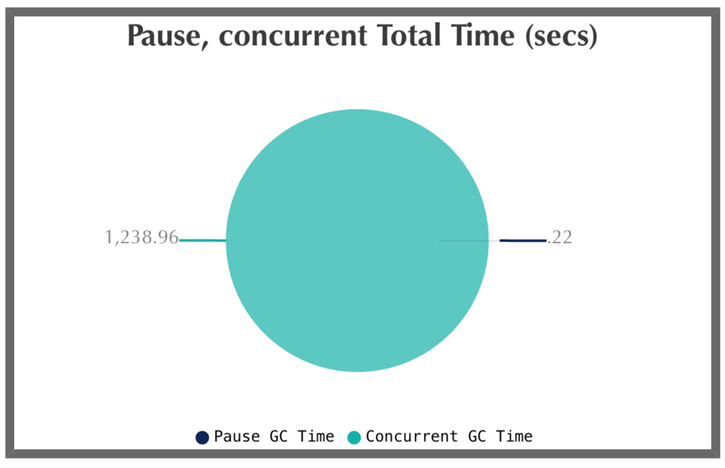


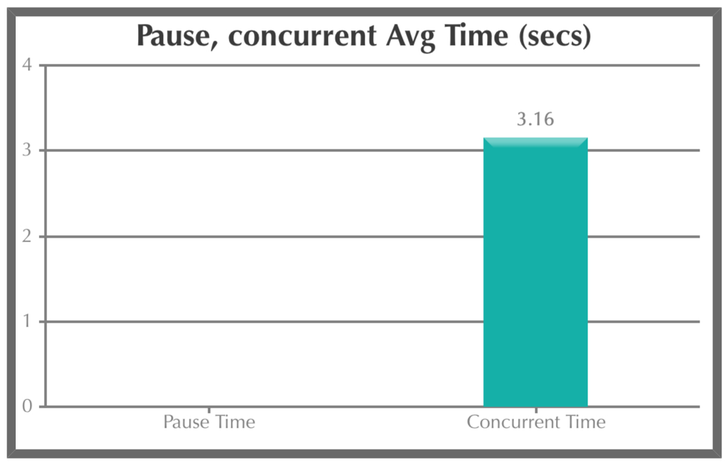


Z Phases Statistics

	Concurrent Mark	Concurrent Relocate	Concurrent Process Non-Strong References	Concurrent Select Relocation Set	Concurrent Reset Relocation Set	Pause Mark End	Pause Mark Start	Pause Relocate Start
Total Time	17 min 17 sec 969 ms	2 min 44 sec 49 ms	19 sec 966 ms	16 sec 284 ms	694 ms	206 ms	8.98 ms	5.40 ms
Avg Time	1 sec 321 ms	418 ms	50.9 ms	41.5 ms	1,320.57 ms	0.522 ms	0.0229 ms	0.0138 ms
Std Dev Time	1 sec 591 ms	237 ms	42.2 ms	21.2 ms	0.887 ms	0.171 ms	0.00397 ms	0.0157 ms
Min Time	0	1.38 ms	0.473 ms	1.38 ms	0	0.0160 ms	0.0140 ms	0.00300 ms
Max Time	6 sec 686 ms	1 sec 274 ms	383 ms	197 ms	10.4 ms	0.997 ms	0.0460 ms	0.296 ms
Count	786	392	392	392	392	394	392	392

Z GC Time





Pause Time

Total GC Pause Time	220 ms
GC Pause Events	1178.0
Avg GC Pause Time	0.187 ms
Std Dev GC Pause Time	0.257 ms
Min GC Pause Time	0.00300 ms
Max GC Pause Time	0.997 ms

Concurrent Time

Total Concurrent GC Time	20 min 38 sec 962 ms
Concurrent GC Events	392.0
Avg Concurrent GC Time	3 sec 161 ms
Std Dev Concurrent GC Time	1 sec 482 ms
Min Concurrent GC Time	7.64 ms
Max Concurrent GC Time	7 sec 769 ms

Object Stats

Total created bytes	7.75 tb

CPU Stats

(To learn more about CPU stats, click here)

CPU Time:	n/a

Total promoted bytes	n/a
Avg creation rate	1,020.92 mb/sec
Avg promotion rate	n/a

User Time:	n/a
Sys Time:	n/a

Memory Leak

No major memory leaks.
(Note: there are 8 flavours of OutOfMemoryErrors. With GC Logs you can diagnose only 5 flavours of them(Java heap space, GC overhead limit exceeded, Requested array size exceeds VM limit, Permgen space, Metaspace). So in other words, your application could be still suffering from memory leaks, but need other tools to diagnose them, not just GC Logs.)

Consecutive Full GC

None.

Long Pause

None.

Safe Point Duration

(To learn more about SafePoint duration, click here)

	Total Time	Avg Time	% of total duration
Total time for which app threads were stopped	3.354 secs	0.001 secs	0.042 %
Time taken to stop app threads	8.897 secs	0.002 secs	0.112 %

Threads Affected By Allocation Stalls

(To learn more about Allocation Stall, click here)

Not Reported in the log.

String Deduplication Metrics

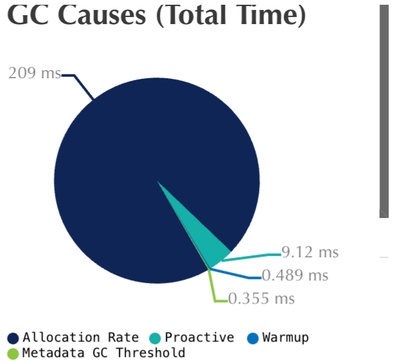
Not Reported in the log.

GC Causes

(What events caused GCs & how much time they consumed?)

Cause	Count	Avg Time	Max Time	Total Time
Allocation Rate	356	0.588 ms	1.41 ms	209 ms
Proactive	27	0.338 ms	0.614 ms	9.12 ms

Warmup	3	0.163 ms	0.194 ms	0.489 ms
Metadata GC Threshold	5	0.0710 ms	0.154 ms	0.355 ms



Tenuring Summary

Not reported in the log.

JVM Arguments

(To learn about JVM Arguments, click here)

Not reported in the log.

Export Data

Normalized GC Data