Garbage Collection Tools

Logging and Monitoring

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Introduction

- MXBeans

- How do you monitor garbage collection
  - Jstat
  - VisualVM and Visual GC

MXBeans

- There is a Java MX Bean for the Garbage Collector
  - Name of collectors
  - Number of collections
  - Time of collections

JStat

- Command line tool provided with the JVM

JStat

```
λ jstat -gccapacity 5240
NGCMN    NGCMX    NGC      S0C    S1C     EC       OGCMN     OGCMX      OGC       OC        MCMN    MCMX     MC      CCSMN   CCSMX   CCSC   YGC     FGC
5440.0   87360.0  5440.0   512.0  512.0   4416.0   10944.0   174784.0   10944.0   10944.0   0.0     4480.0   2368.0  0.0     0.0     0.0    44053   0
```

```
λ jstat -gcutil 5240
S0       S1     E        O      M       CCS      YGC      YGCT     FGC     FGCT     GCT
0.00     1.53   0.00     2.35   67.34   -        22471    4.060    0       0.000    4.060
```

```
λ jstat -gc 5240
S0C      S1C    S0U      S1U    EC       EU       OC        OU        MC        MU       CCSC   CCSU   YGC     YGCT    FGC    FGCT     GCT
512.0    512.0  0.0      7.8    4416.0   0.0      10944.0   256.8     2368.0    1594.5   0.0    0.0    21529   3.902   0      0.000    3.902
```
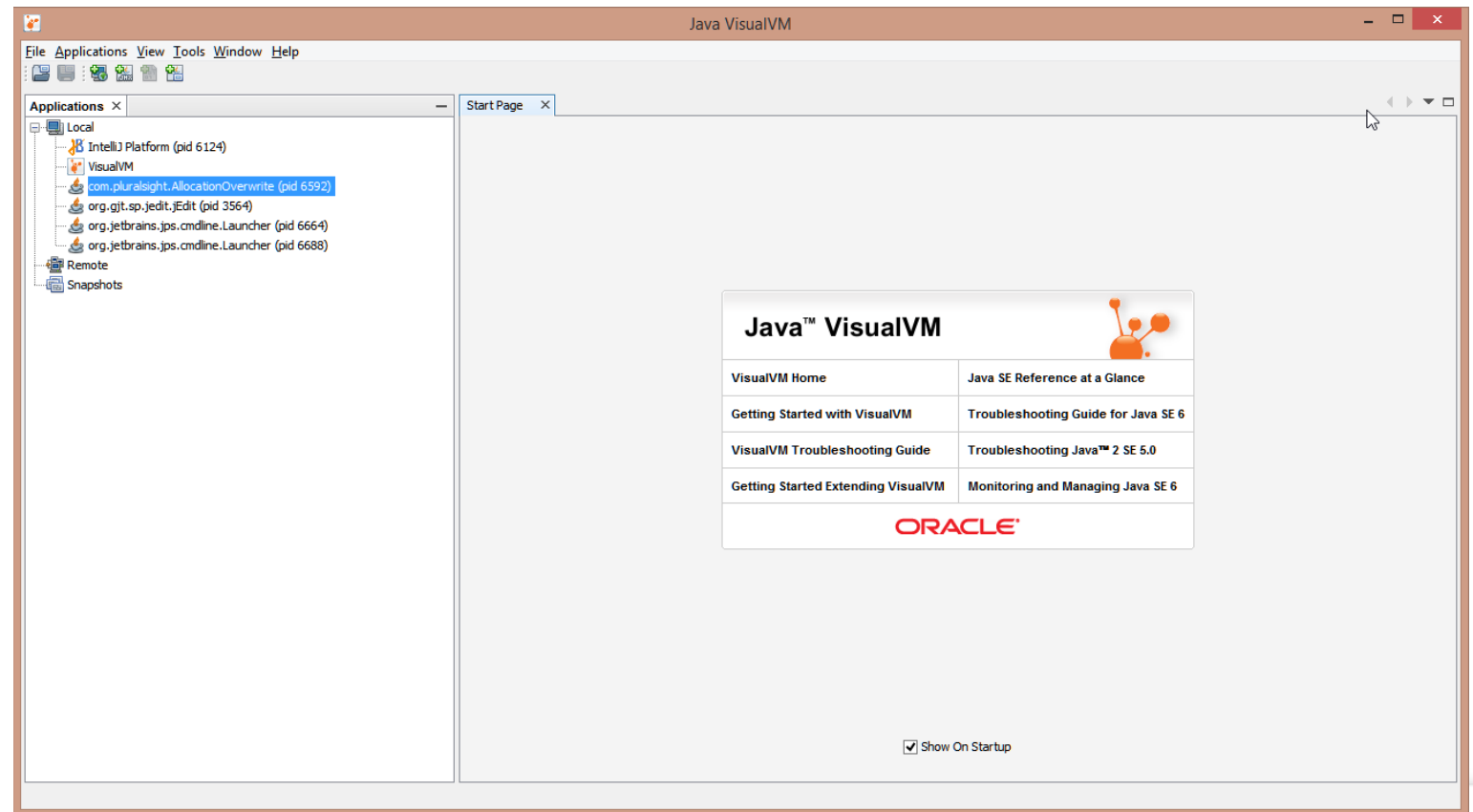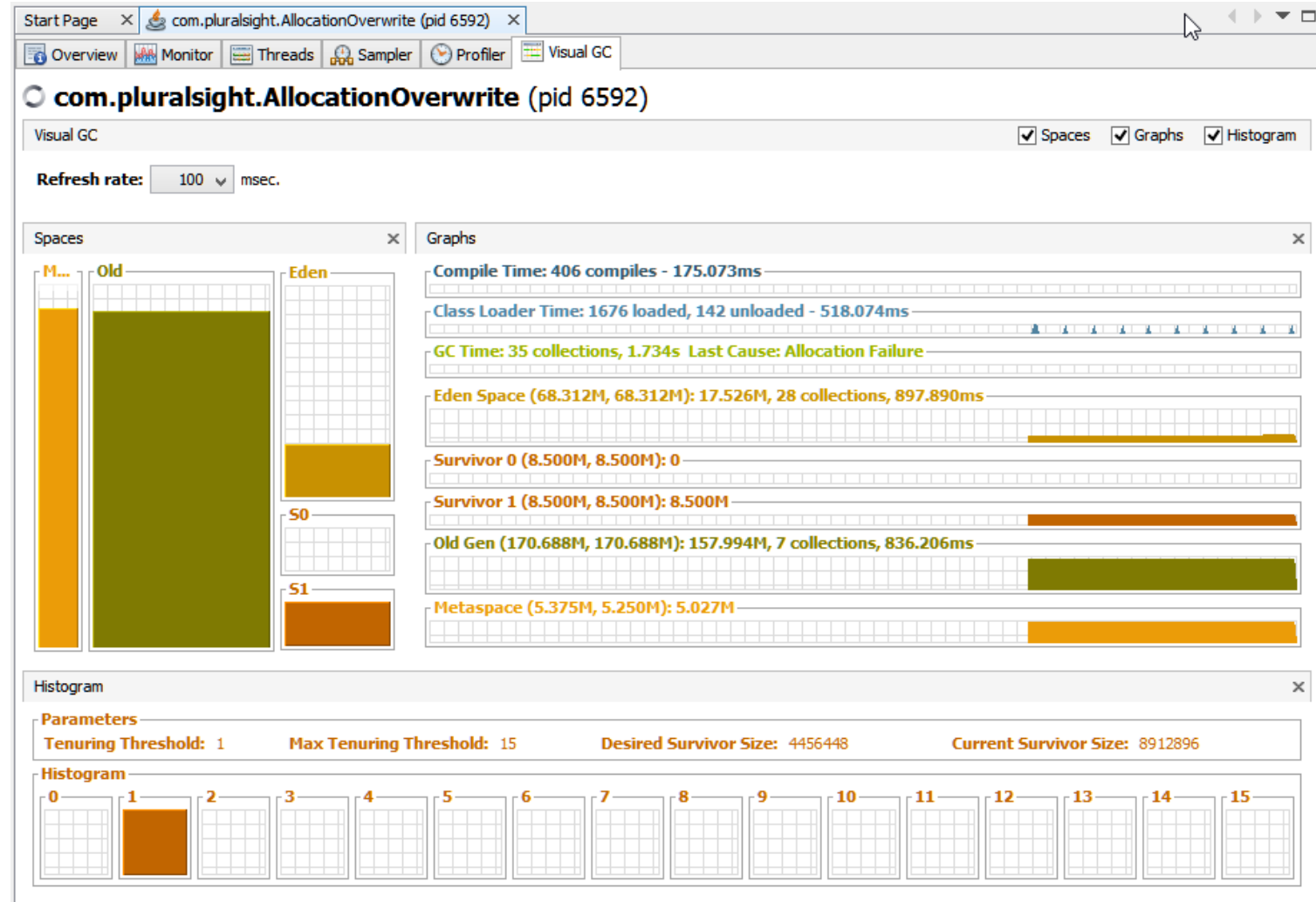
JStat Options

```
jstat -option <pid> <interval> <count>
```

Visual VM

- Provided as part of the JDK
  - Also download it as a separate tool
- Launch as jvisualvm

VisualGC

- Plugin for VisualVM

Memory Management

- 'Use the tools Luke'