Analyzing Java Thread Dumps

INTRODUCTION TO THREAD DUMPS

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Overview

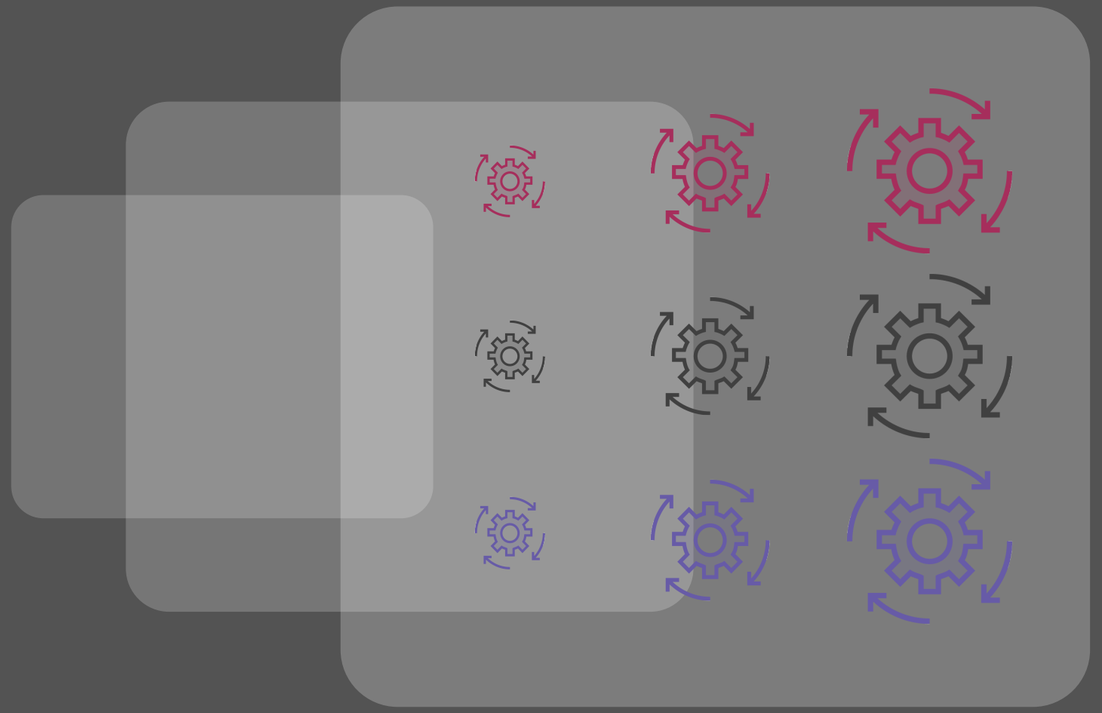
What is a thread dump?

Thread call stacks

Capturing thread dumps

What Is a Thread Dump?

A Snapshot

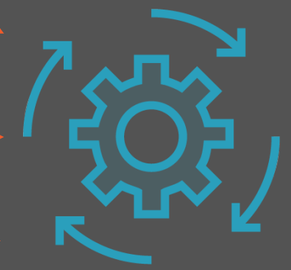


A Thread

println(“foo”)

int baz = 0

while (true)

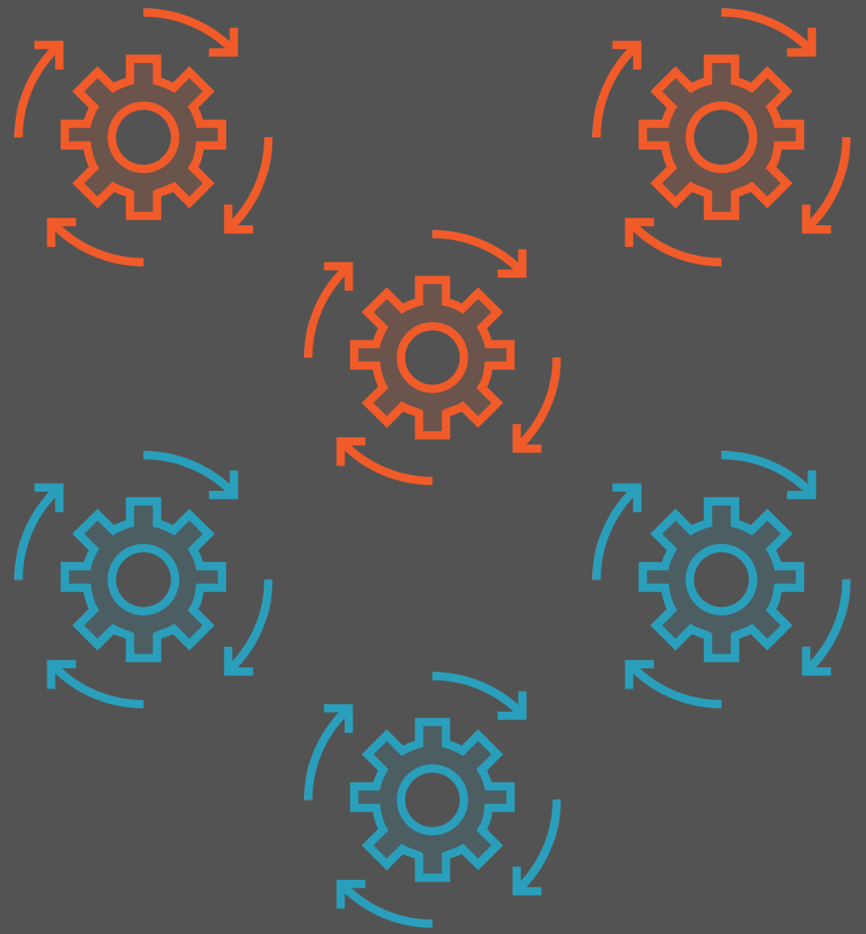


0001110100100100

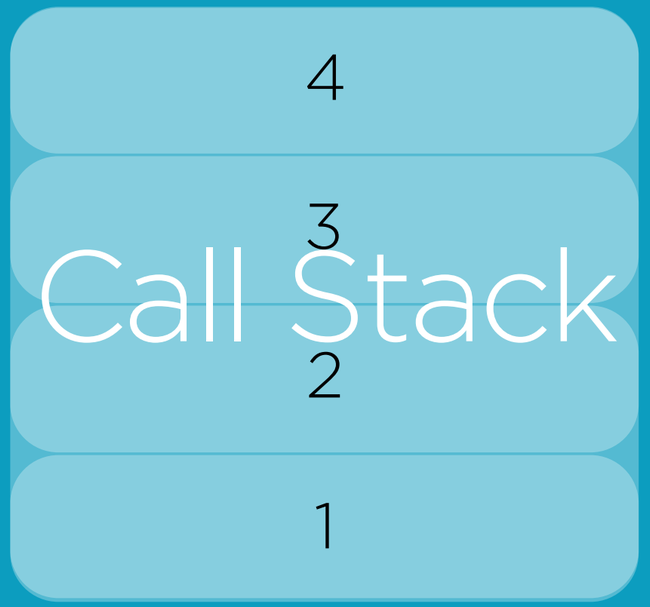
1100001011110001

0000001111101011

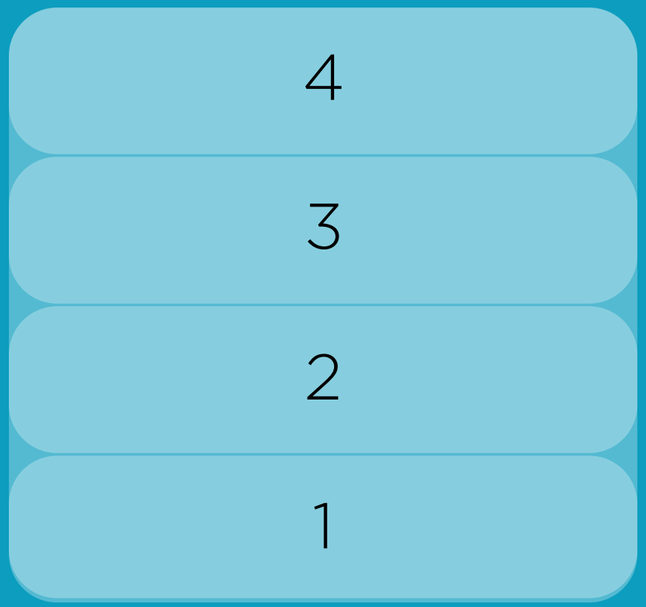
Multithreading



Thread Call Stacks


4
3
Call Stack
2
1

Call Stack



Stack Frame

Call Stack

Method -> Frame


JVM
Thread-1
method3
method2
method1
Thread-2
method4
method3
method2
method1
Thread-3
method2
method1

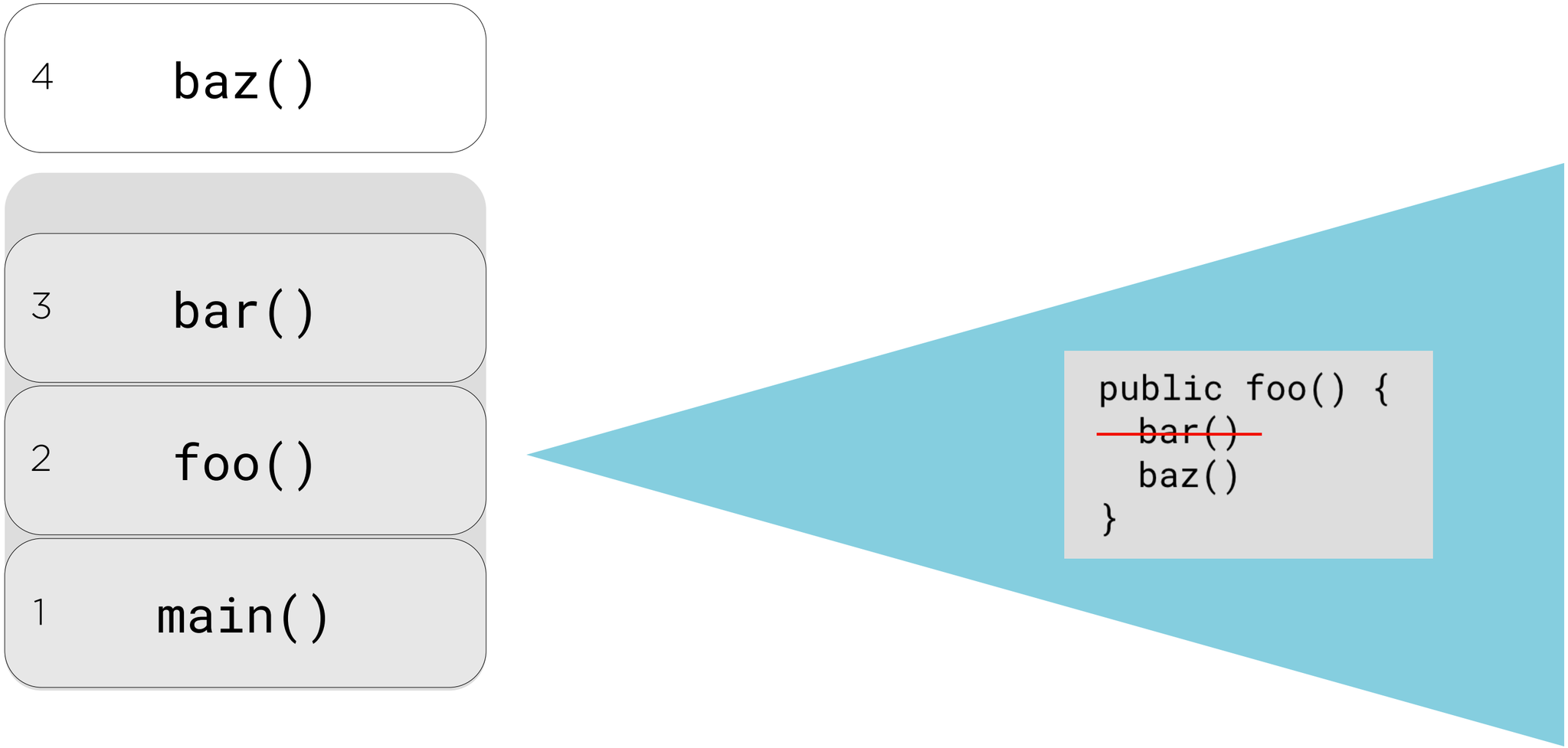
```
public static void main(..) {
  foo()
}

public foo() {
  bar()
  baz()
}

public bar() {
  ..
}

public baz() {
  ..
}
```

Call Stack


4
baz()
3
bar()
2
foo()
1
main()
public foo() {
bar()
baz()
}

Capturing Thread Dumps


Tools

Tools

SIGQUIT (“kill -3” on Linux)

*Windows compatible

jcmd

*Windows compatible

jstack

*Windows compatible

Using **Windows**? read this - https://access.redhat.com/solutions/19170

SIGQUIT Signal

```
> kill -3 $PID
```

SIGQUIT Signal

STDOUT of $PID

Full thread dump Java HotSpot(TM)

"thread-2" #13 prio=5 os_prio=31
tid=0x00007f89590e0800 nid=0x5b03
waiting on condition

“thread-1" #12 prio=5 os_prio=31
tid=0x00007f89590df800 nid=0x5903
waiting on condition

. . .

Demo

Capturing Thread Dumps

- Basic techniques
- Helper functions

https://www.howtogeek.com/249966/how-to-install-and-use-the-linux-bash-shell-on-windows-10/