

Selected JMX Beans

This document divides JMX¹ beans into two categories, native Java beans for extracting Virtual Machine (VM) statistics and game server beans for Firebase (FB).

There are console JMX clients that can be used by scripted collectors, for example [this](#).

Beans are presented in a “<name> | <attribute> | <return Java type>” format. When the return Java type is “<composite>” it refers to the JMX CompositeData type where names are mapped to values.

Native Java Beans

- **java.lang:type=Threading | ThreadCount | int** – Integer detailing the current number of thread in the VM, may oscilate but should not escalate.
java.lang:type=ClassLoading | LoadedClassCount | long – Number of loaded classes in the VM, may oscilate slightly but should not escalate.
- **java.lang:type=MemoryPool,name=PS Old Gen | Usage | <composite>**
 - “max” - Max generation size in bytes, fixed value
 - “committed” - Current generation size in bytes, variable value
 - “used” - Size of allocations on generation, oscillating. This value will slowly escalate approaching “max” after which a garbage collection (GC) will occur and the value will sink down to a “base line” and rise again. The base line should be stable, if the base line is slowly increasing between GC's it indicates that the VM cannot handle the current load, or that there is a memory leak in the system. A “used” value consistently very close to “max” is a bad sign.

Firestore Java Beans

- **com.cubeia.dqueue:type=ReplicationChannel,id=game | ChannelTotalSize | long** – This value represents the total number of incoming events to all games within the server. It may oscilate but should not escalate. An escalating value indicates that the clients are sending more events than the server can currently execute. NB: The value of this bean is only significant on game nodes.
- **com.cubeia.dqueue:type=ReplicationChannel,id=game | KnownChannels | int array** – The returns integers corresponds to internal table ids. Ie. the length of this array is equal to the number of tables in the system. NB: The value of this bean is only significant on game nodes.
- **com.cubeia.dqueue:type=ReplicationChannel,id=mtt | ChannelTotalSize | long** – This value represents the total number of incoming events to all tournaments within the server. It may oscillate but should not escalate. An escalating value indicates that the clients are sending more events than the server can currently execute. NB: The value of this bean is only significant on tournament nodes.
- **com.cubeia.firebaseio.daemon:type=ReceivingGameEventDaemon |**

¹ <http://java.sun.com/javase/technologies/core/mntr-mgmt/javamanagement/index.jsp>

AverageRawExecutionTime | double - The average time in milliseconds it takes for FB to execute an event. Should stay below 100 ms, may oscillate but should not escalate. NB: This bean is only available on game nodes.

- **com.cubeia.firebaseio:type=ReceivingGameEventDaemon | DispatchedEventsPerSecond | int** – The average number of events executed by FB per second and server. For a given game there's usually a factor X which can be used with the number of clients to approximate the “normal” median of this value. For example, if a game seems to have factor 16.5, which would mean that given 1000 users one can expect approx. $1000 / 16.5 = 60$ events per seconds. If this value is consistently zero it means there's not play going on at any table on the server. NB: This bean is only available on game nodes.
- **com.cubeia.firebaseio:type=ReceivingGameEventDaemon | NumberOfExecutingThreads | int** – The number of currently executing threads for incoming events in a given server. The max number is configured, defaults to 64, and if this value is stuck or consistently very close to the max it means either that the server is overloaded or that the game takes to long executing. A common problem would be that a game has external dependencies, such as web services, that takes a long time responding causing this value to rise. One way of reading this value is as a measure of the concurrent execution in the system, if 5 threads are executing it means there's execution on 5 tables simultaneously. NB: This bean is only available on game nodes.
- **com.cubeia.firebaseio:type=ReceivingMttEventDaemon | AverageRawExecutionTime | double** - The average time in milliseconds it takes for FB to execute an event. May oscillate but should not escalate. NB: This bean is only available on tournament nodes.
- **com.cubeia.firebaseio.gateway:type=Monitor | LocalClients | int** – Logged in clients at the local server. NB: This bean is only available on client nodes.
- **com.cubeia.firebaseio.gateway:type=Monitor | LocalSeatedClients | long** – Logged in and seated clients at the current server. NB: This bean is only available on client nodes.