

Out of Memory Errors

The Java Application Server Throws "Out of Memory" Errors

Even though you may have a large amount of RAM available, the Java Virtual Machine doesn't get to see all of that - by default it is limited to only 256Mb.

For example, if you are using Tomcat, you can view how much memory is being consumed by apps. To do this you need to have the management console enabled.



On a vanilla install this is done by editing the file `/tomcat/install/directory/conf/tomcat-users.xml` adding these lines in:

```
<role rolename="manager-gui" />
<user username="tomcat" password="password" roles="manager-gui" />
```

Then, restart the server and go to a browser and open the default tomcat page <http://localhost:8080>. On the top right hand side are three buttons, the first of which should be "Server Status". Click that link, login with the details you set above and you should be able to see the memory consumption (see the figure below for an example).

/manager - Google Chrome

localhost:8080/manager/status

Server Status

Manager

List Applications	HTML Manager Help	Manager Help	Complete Server Status
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Server Information

Tomcat Version	JVM Version	JVM Vendor	OS Name	OS Version	OS Architecture	Hostname	IP Address
Apache Tomcat/7.0.54	1.7.0_55-b14	Oracle Corporation	Linux	3.13.0-24-generic	amd64	test	127.0.1.1

JVM

Free memory: 1696.71 MB Total memory: 1963.50 MB Max memory: 1963.50 MB

Memory Pool	Type	Initial	Total	Maximum	Used
PS Eden Space	Heap memory	513.00 MB	513.00 MB	513.00 MB	266.78 MB (52%)
PS Old Gen	Heap memory	1365.50 MB	1365.50 MB	1365.50 MB	0.00 MB (0%)
PS Survivor Space	Heap memory	85.00 MB	85.00 MB	85.00 MB	0.00 MB (0%)
Code Cache	Non-heap memory	2.43 MB	2.43 MB	48.00 MB	1.39 MB (2%)
PS Perm Gen	Non-heap memory	64.00 MB	64.00 MB	512.00 MB	16.65 MB (3%)

"ajp-bio-8009"

Max threads: 200 Current thread count: 0 Current thread busy: 0
 Max processing time: 0 ms Processing time: 0.0 s Request count: 0 Error count: 0 Bytes received: 0.00 MB Bytes sent: 0.00 MB

Stage	Time	B Sent	B Recv	Client (Forwarded)	Client (Actual)	VHost	Request
P: Parse and prepare request S: Service F: Finishing R: Ready K: Keepalive							

"http-bio-8080"

Max threads: 200 Current thread count: 10 Current thread busy: 4
 Max processing time: 53 ms Processing time: 0.157 s Request count: 9 Error count: 3 Bytes received: 0.00 MB Bytes sent: 0.05 MB

Stage	Time	B Sent	B Recv	Client (Forwarded)	Client (Actual)	VHost	Request
S	4 ms	0 KB	0 KB	127.0.0.1	127.0.0.1	localhost	GET /manager/status HTTP/1.1
P	?	?	?	?	?	?	
P	?	?	?	?	?	?	
P	?	?	?	?	?	?	

P: Parse and prepare request S: Service F: Finishing R: Ready K: Keepalive

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To increase the amount of memory:

Tomcat :

Edit the setenv.sh (Unix) or setenv.bat (Windows) to read as follows:



windows config

On Windows, please prefix each line with 'set' and remove the quotes . So the configuration would look like:

```
set CATALINA_OPTS= -Dconfig.file=/config/file/location/application.conf
set JAVA_OPTS= -Xms2048m -Xmx2048m -XX:PermSize=64m -XX:MaxPermSize=512m -Dfile.encoding=utf-8 -Djava.awt.
headless=true -XX:+UseParallelGC -XX:MaxGCPauseMillis=100
```

```
CATALINA_OPTS=" -Dconfig.file=/config/file/location/application.conf
JAVA_OPTS=" -Xms2048m -Xmx2048m -XX:PermSize=64m -XX:MaxPermSize=512m -Dfile.encoding=utf-8 -Djava.awt.headless-
true -XX:+UseParallelGC -XX:MaxGCPauseMillis=100"
```

Jetty :

Edit the start.ini file to read as follows:

```
#####
# Jetty start.jar arguments
# Each line of this file is prepended to the command line
# arguments # of a call to:
# java -jar start.jar [arg...]
#####
-Xms2048m -Xmx2048m -XX:PermSize=64m -XX:MaxPermSize=512m -Dconfig.file=/config/file/location/application.conf
```

Restart the service and confirm the settings have been applied like so:

```
Terminal
File Edit View Search Terminal Help
dev@test ~ $ ps -ef | grep java
root      6960      1 24 11:39 pts/1    00:00:03 /usr/bin/java -Djava.util.logging
g.config.file=/home/dev/jee_servers/tomcat/tomcat-7.0.54/conf/logging.properties
-Djava.util.logging.manager=org.apache.juli.ClassLoaderLogManager -Xms2048m -Xm
x2048m -XX:PermSize=64m -XX:MaxPermSize=512m -Dfile.encoding=utf-8 -Djava.awt.he
adless=true -XX:+UseParallelGC -XX:MaxGCPauseMillis=100 -Dconfig.file=/home/dev/
jee_servers/application.conf -Djava.endorsed.dirs=/home/dev/jee_servers/tomcat/t
omcat-7.0.54/endorsed -classpath /home/dev/jee_servers/tomcat/tomcat-7.0.54/bin/
bootstrap.jar:/home/dev/jee_servers/tomcat/tomcat-7.0.54/bin/tomcat-juli.jar -Dc
atalina.base=/home/dev/jee_servers/tomcat/tomcat-7.0.54 -Dcatalina.home=/home/de
v/jee_servers/tomcat/tomcat-7.0.54 -Djava.io.tmpdir=/home/dev/jee_servers/tomcat
/tomcat-7.0.54/temp org.apache.catalina.startup.Bootstrap start
dev       7104    6991  0 11:39 pts/2    00:00:00 grep --colour=auto java
dev@test ~ $
```