



Smarten

Advanced Data Discovery

Powered by ElegantJ BI

Monitoring with JVisualVM

Business Intelligence & Advanced Data Discovery

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Disclaimer

This document is intended to support administrators, technology managers or developers using and implementing Smarten. The business needs of each organization will vary and this document is expected to provide guidelines and not rules for making any decisions related to Smarten. The overall performance of Smarten depends on many factors, including but not limited to hardware configuration and network throughput.

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1 Smarten-Monitoring with JVisualVM

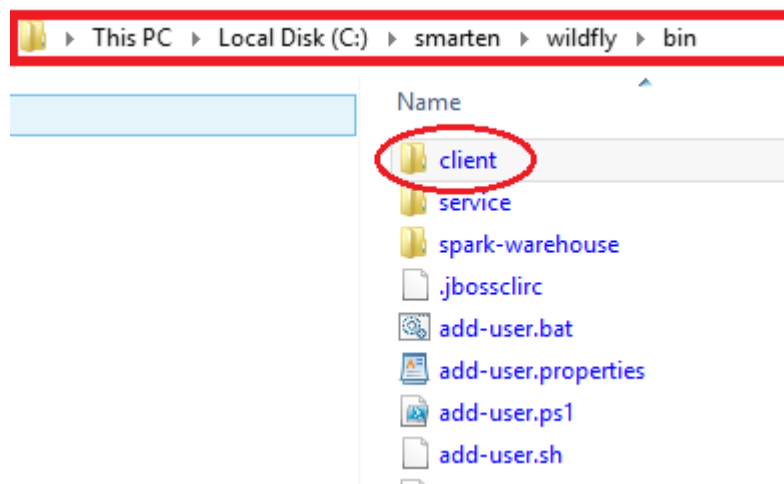
JVisualVM is a tool that provides a visual interface for viewing detailed information about java applications while they are running on a java Virtual Machine (JVM) and for troubleshooting and profiling these applications.

1.1 Configure JVisualVM

1.1.1 For Windows

Procedure

1. Stop wildfly services.
2. Download jboss-cli-client.jar using below mention Dropbox link.
<https://www.dropbox.com/s/mvmuuum7ok2nz3i/jboss-cli-client.jar?dl=0>
3. Create a new client folder inside <WILDFLY_HOME>/bin folder and put jboss-cli-client.jar file in client folder.



JVISUALVM WINDOWS—COPY CLIENT JAR

4. Open standalone.conf.bat file which is located in <WILDFLY_HOME>/bin folder and add below mentioned parameter.
 - set "JAVA_OPTS=%JAVA_OPTS% -Xms2048M -Xmx2048M -XX:+UseG1GC -XX:MaxMetaspaceSize=512m -noverify -Djava.util.Arrays.useLegacyMergeSort=true -Dfile.encoding=UTF-8"
 - set "JAVA_OPTS=%JAVA_OPTS% -Dcom.sun.management.jmxremote.port=9902"
 - set "JAVA_OPTS=%JAVA_OPTS% -Dcom.sun.management.jmxremote.authenticate=false"
 - set "JAVA_OPTS=%JAVA_OPTS% -Dcom.sun.management.jmxremote"
 - set "JAVA_OPTS=%JAVA_OPTS% -Dcom.sun.management.jmxremote.ssl=false"
 - set "JAVA_OPTS= %JAVA_OPTS% -Djboss.modules.system.pkgs=org.jboss.byteman,org.jboss.logmanager"
 - set "JAVA_OPTS=%JAVA_OPTS% -Djava.util.logging.manager=org.jboss.logmanager.LogManager"
 - set "JAVA_OPTS=%JAVA_OPTS% -Xbootclasspath/p:<WILDFLY_HOME>/modules/system/layers/base/org/jboss/log4j/logmanager/main/log4j-jboss-logmanager-1.1.4.Final.jar"

- set "JAVA_OPTS=%JAVA_OPTS% Xbootclasspath/p:
<WILDFLY_HOME>/modules/system/layers/base/org/jboss/logmanager/main/jboss-logmanager-2.0.7.Final.jar"
- set "JAVA_OPTS=%JAVA_OPTS% -Djava.net.preferIPv4Stack=true"
- set "JAVA_OPTS=%JAVA_OPTS% -
 Djboss.modules.system.pkgs=org.jboss.byteman,com.manageengine,org.jboss.logmanager"

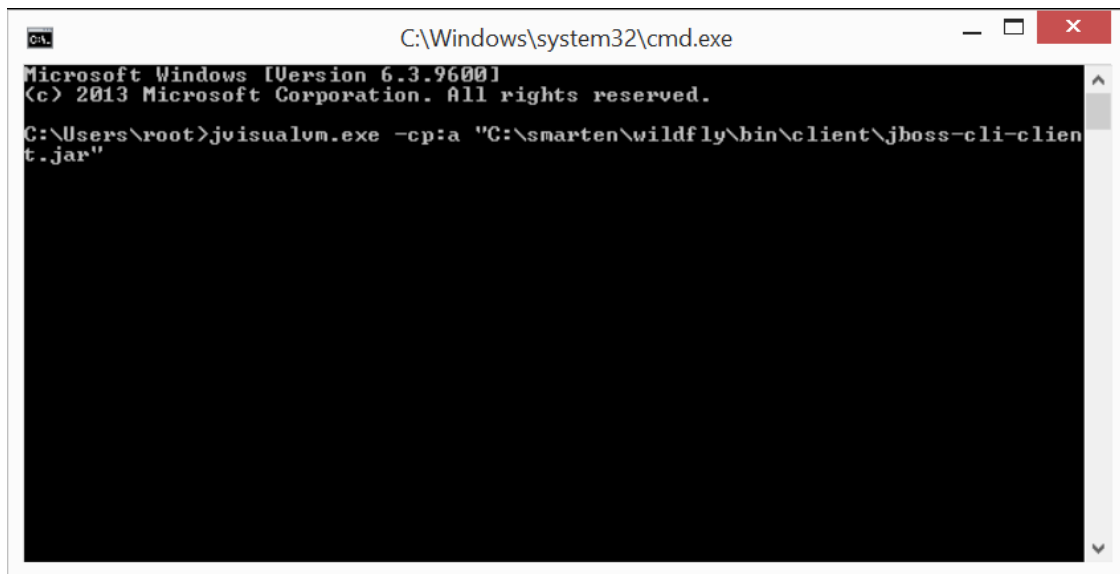
```
rem # JVM memory allocation pool parameters - modify as appropriate.
set "JAVA_OPTS=%JAVA_OPTS% -Xms2048M -Xmx2048M -XX:+UseG1GC -XX:MaxMetaspaceSize=512m -noverify -Djava.util.Arrays.useLegacyMergeSort=true -Dfile.encoding=UTF-8"
set "JAVA_OPTS=%JAVA_OPTS% -Dcom.sun.management.jmxremote.port=9902"
set "JAVA_OPTS=%JAVA_OPTS% -Dcom.sun.management.jmxremote.authenticate=false"
set "JAVA_OPTS=%JAVA_OPTS% -Dcom.sun.management.jmxremote"
set "JAVA_OPTS=%JAVA_OPTS% -Dcom.sun.management.jmxremote.ssl=false"
set "JAVA_OPTS=%JAVA_OPTS% -Djboss.modules.system.pkgs=org.jboss.byteman,org.jboss.logmanager"
set "JAVA_OPTS=%JAVA_OPTS% -Djava.util.logging.manager=org.jboss.logmanager.LogManager"
set "JAVA_OPTS=%JAVA_OPTS% -Xbootclasspath/p:C:/smarten/wildfly/modules/system/layers/base/org/jboss/log4j/logmanager/main/log4j-jboss-logmanager-1.1.4.Final.jar"
set "JAVA_OPTS=%JAVA_OPTS% -Xbootclasspath/p:C:/smarten/wildfly/modules/system/layers/base/org/jboss/logmanager/main/jboss-logmanager-2.0.7.Final.jar"

rem # Prefer IPv4
set "JAVA_OPTS=%JAVA_OPTS% -Djava.net.preferIPv4Stack=true"

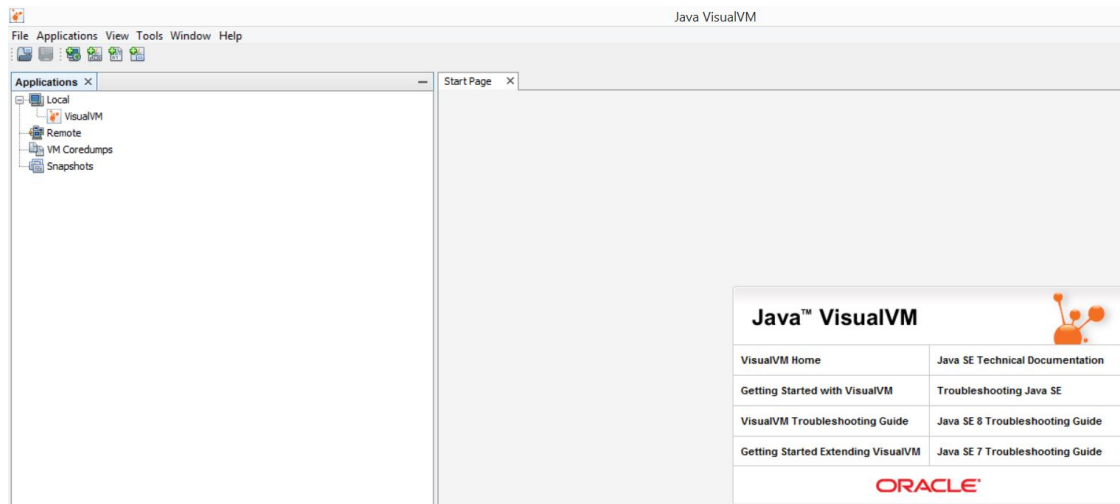
rem # Make Byteman classes visible in all module loaders
rem # This is necessary to inject Byteman rules into R37 deployments
set "JAVA_OPTS=%JAVA_OPTS% -Djboss.modules.system.pkgs=org.jboss.byteman,com.manageengine,org.jboss.logmanager"
```

JVISUALVM WINDOWS—EDIT STANDALONE CONF FILE

5. Open 9902 port in firewall, if any firewall is setup.
6. Start wildfly services.
7. Open cmd and open jvisualvm using jboss-cli-client.jar path as shown below example
 jvisualvm.exe -cp:a "C:\smarten\wildfly\bin\client\jboss-cli-client.jar"

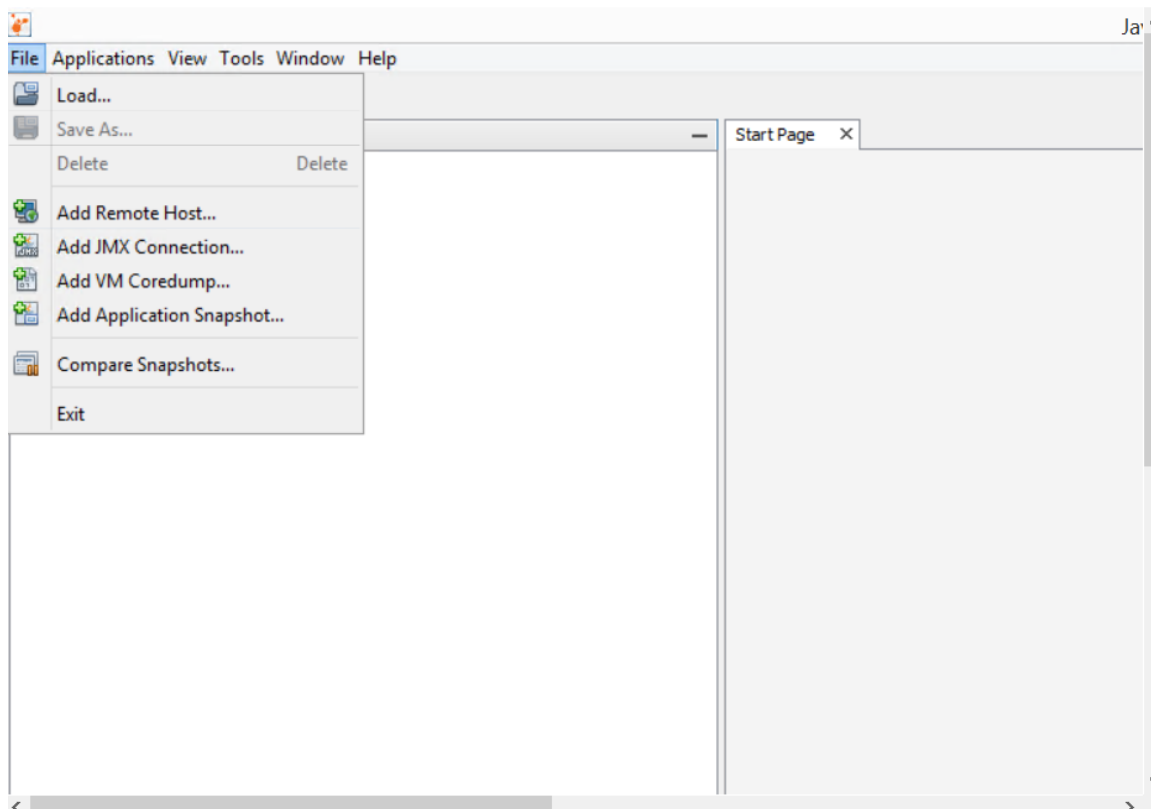


JVISUALVM WINDOWS—RUN JVISUALVM COMMAND



JVISUALVM WINDOWS—MAIN SCREEN

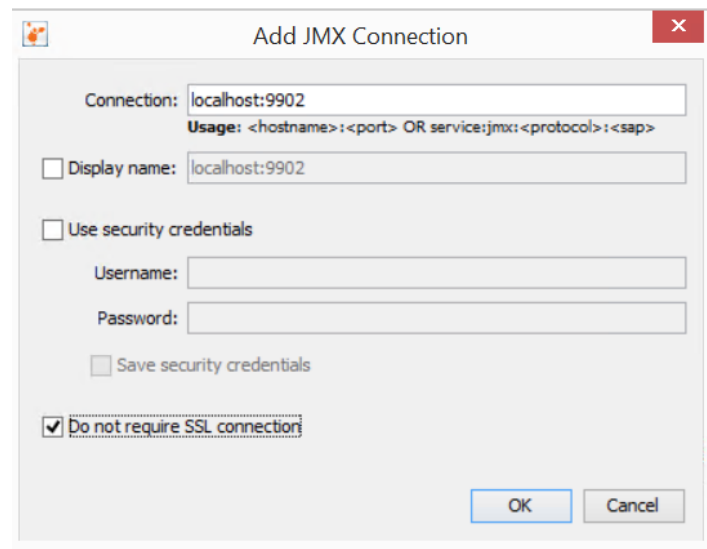
- Click on file and add JMX connection.



JVISUALVM WINDOWS—ADD JMX CONNECTION

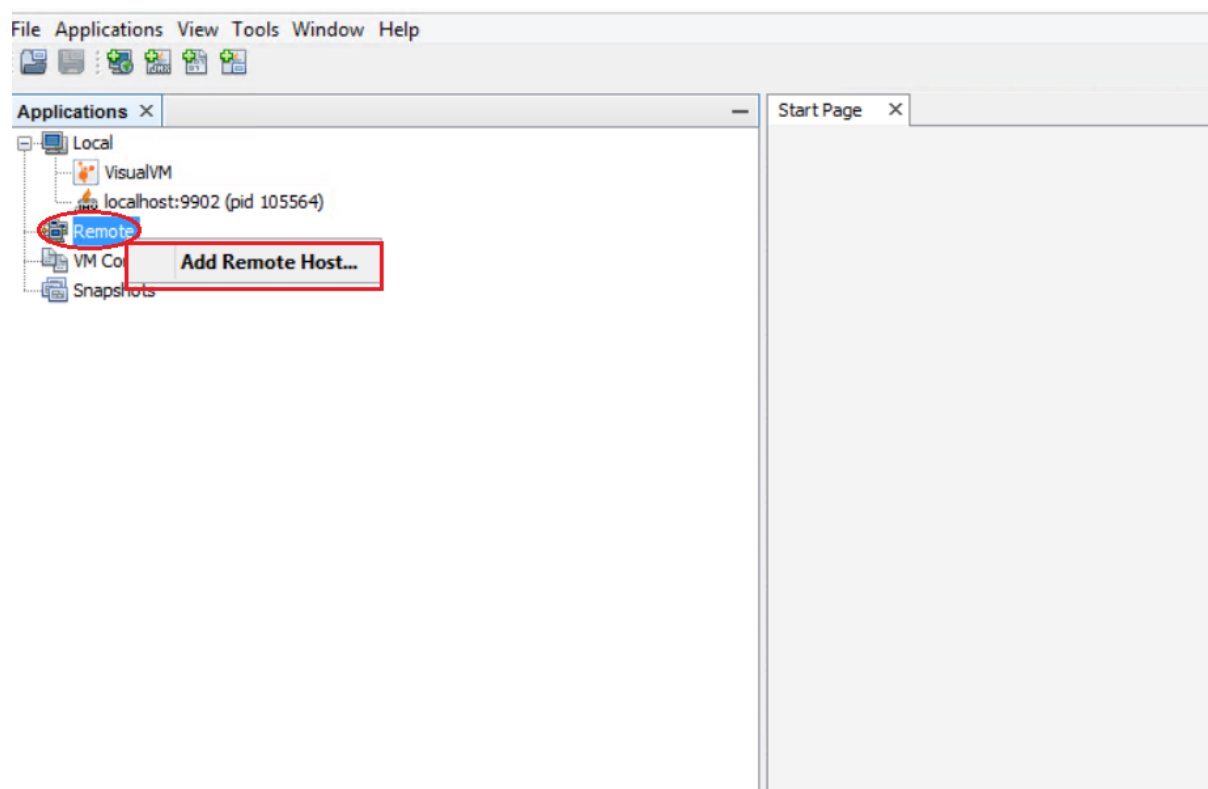
- Connection string >> localhost:9902

Check check box **Do not require SSL connection**, then click ok.



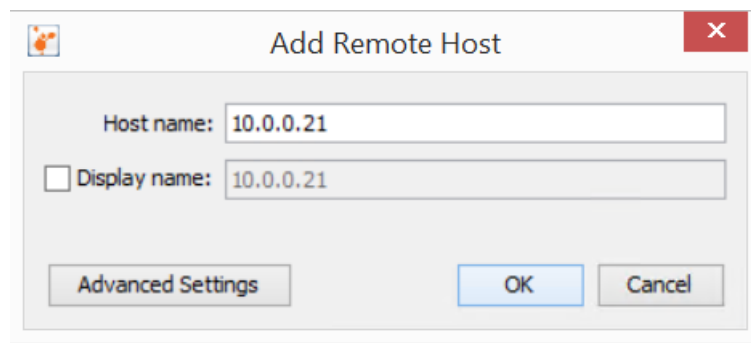
JVISUALVM WINDOWS—JMX CONNECTION SETTINGS

10. Add remote JVisualVM host, Right click on Remote and Add Remote Host.



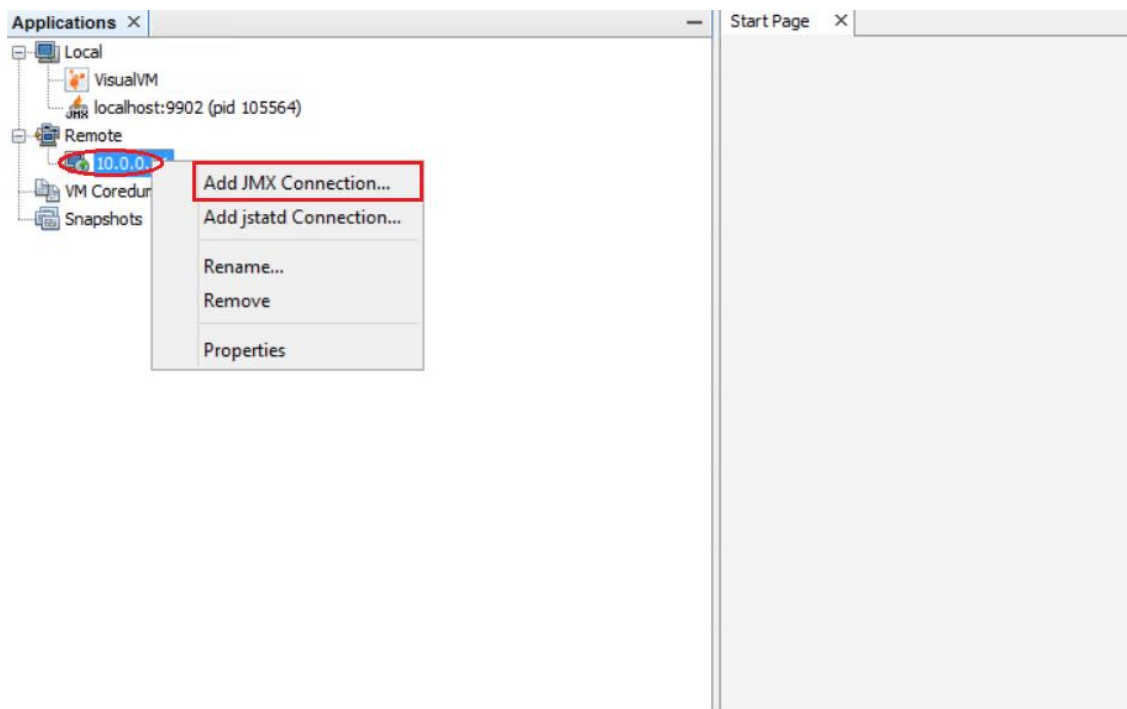
JVISUALVM WINDOWS—ADD REMOTE HOST

11. Enter remote host ip address and click ok



JVISUALVM WINDOWS—ADD REMOTE HOST SETTINGS

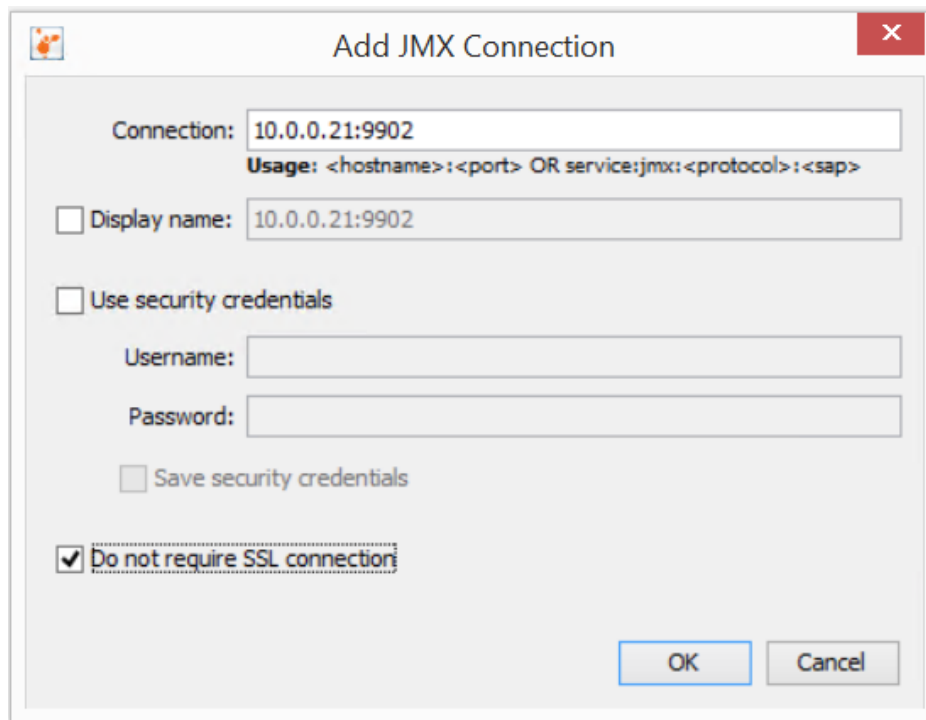
12. Right click on remote host and Add JMX Connection.



JVISUALVM WINDOWS—BIND JMX CONNECTIN FOR REMOTE HOST

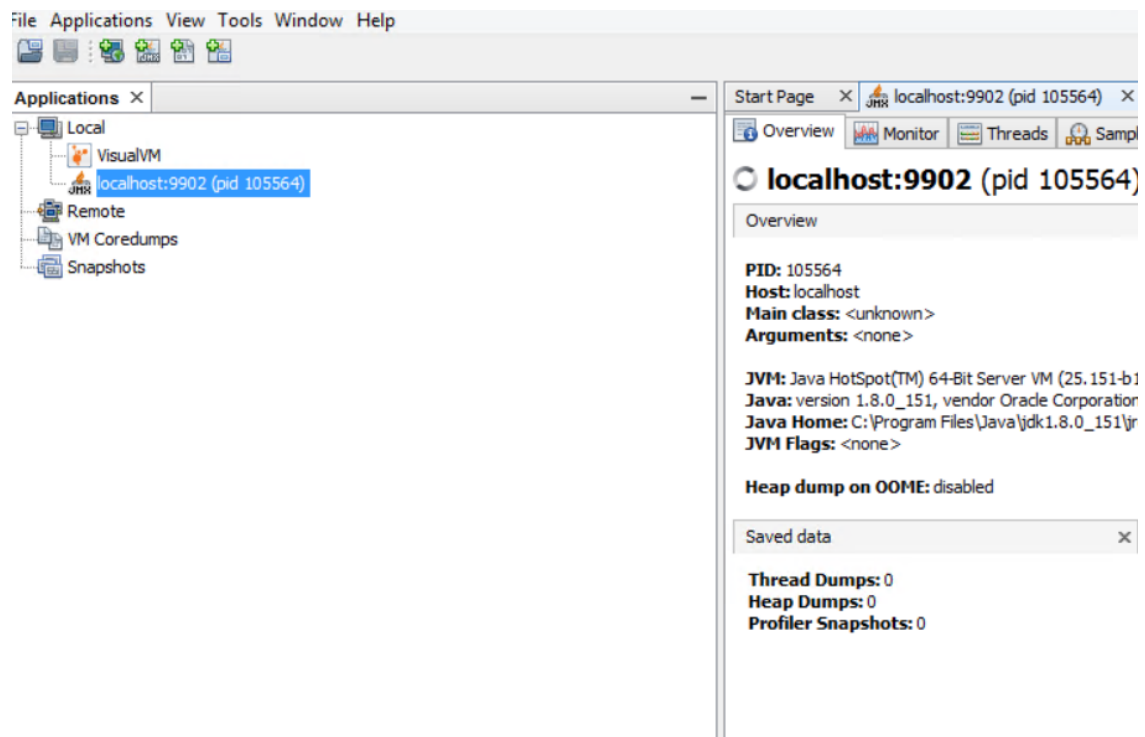
13. Add remote host jmx connection string, remote host: 10.0.0.21 remote port: 9902

Check check box **Do not require SSL connection**, then click ok.



JVISUALVM WINDOWS—ADD JMX CONNECTION FOR REMOTE HOST

14. Double click on JMX connection to monitor JVM details.



JVISUALVM WINDOWS—MONITOR JVM

1.1.2 For Linux

Procedure

1. Stop wildfly services.
2. Open standalone.conf file located in <WILDFLY_HOME>/bin folder and add below mentioned parameter.
 - `sudo nano <WILDFLY_HOME>/bin/standalone.conf`
3. Default configuration look like.

```
if [ "x$JAVA_OPTS" = "x" ]; then
  JAVA_OPTS="-Xms64m -Xmx512m -XX:+UseG1GC -XX:MaxMetaspaceSize=512m -noverify
  -Djava.net.preferIPv4Stack=true -Djava.util.Arrays.useLegacyMergeSort=true -
  Dfile.encoding=UTF-8"
```
4. Remove following parameter

```
JAVA_OPTS="$JAVA_OPTS -Djboss.modules.system.pkgs=$JBoss_MODULES_SYSTEM_PKGS -
Djava.awt.headless=true" From standalone.conf
```
5. Add below mention parameter in standalone.conf.

Parameter Name	Parameter Description
-Djboss.modules.system.pkgs	This parameter initialize the JVM
-Djava.util.logging.manager	This parameter access wildfly log manager
-Dcom.sun.management.jmxremote.port	This parameter use JMX connector to listen through the specified port
-Djava.rmi.server.hostname	The hostname or ip address of the smarten server.
-Djava.awt.headless	This parameter use headless system configuration.
-Dcom.sun.management.jmxremote.local.only	This parameter use disallow JMX connection locally
-Dcom.sun.management.jmxremote.authenticate	This parameter use disable authentication
-Dcom.sun.management.jmxremote	This parameter use allow JMX remote connection
-Dcom.sun.management.jmxremote.ssl	This parameter use disallow SSL remote connection
-Xbootclasspath	This parameter use set location of the log manager

For example

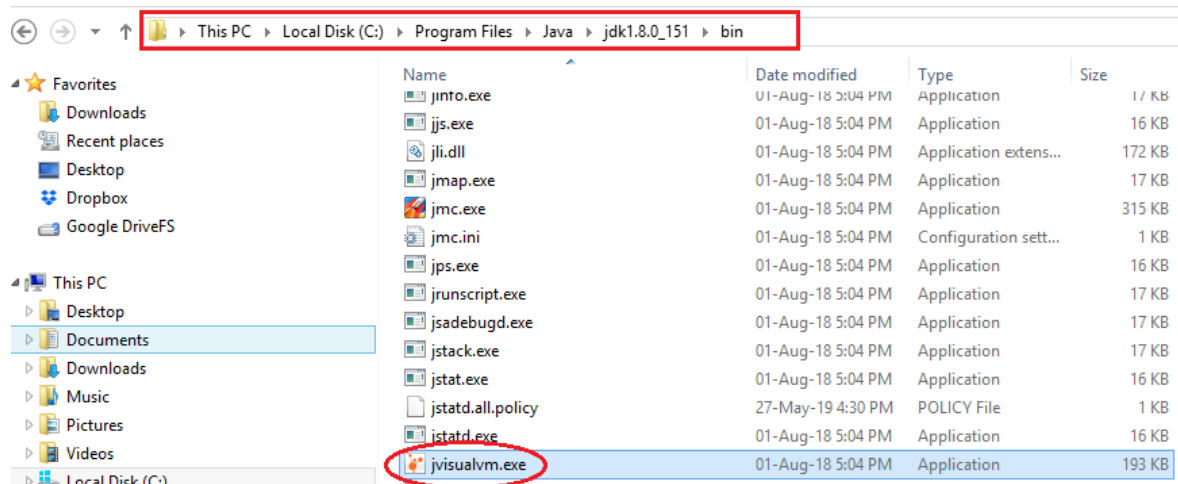
```
if [ "x$JAVA_OPTS" = "x" ]; then
  JAVA_OPTS="-Xms10G -Xmx10G -XX:+UseG1GC -XX:MaxMetaspaceSize=1G -noverify -
  Djava.net.preferIPv4Stack=true -Djava.util.Arrays.useLegacyMergeSort=true -Dfile.encoding=UTF-8"
```

```
JAVA_OPTS="$JAVA_OPTS -Djboss.modules.system.pkgs=org.jboss.byteman,org.jboss.logmanager
-Djava.util.logging.manager=org.jboss.logmanager.LogManager -
Dcom.sun.management.jmxremote.port=9002 -Djava.rmi.server.hostname=172.31.23.241 -
Djava.awt.headless=true -Dcom.sun.management.jmxremote.local.only=false -
```

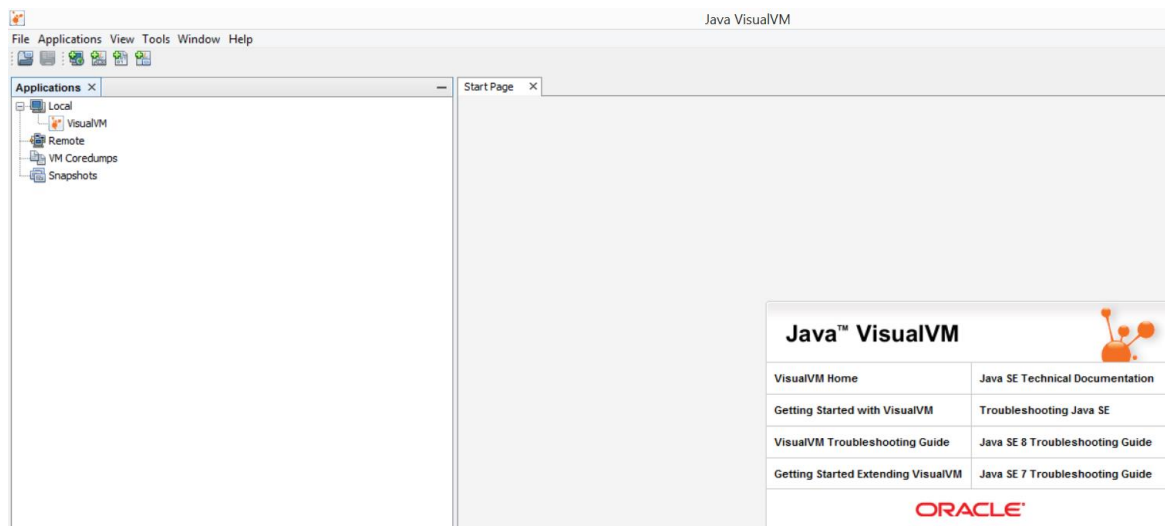
```
Dcom.sun.management.jmxremote.authenticate=false -Dcom.sun.management.jmxremote -
Dcom.sun.management.jmxremote.ssl=false -
Xbootclasspath/p:/home/yarn/smarten/:wildfly/modules/system/layers/base/org/jboss/log4j/logm
anager/main/log4j-jboss-logmanager-1.1.4.Final.jar -
Xbootclasspath/p:/home/yarn/smarten/wildfly/modules/system/layers/base/org/jboss/logmanager
/main/jboss-logmanager-2.0.7.Final.jar"
```

6. Open 9902 port in firewall.
7. Start wildfly services.
8. Open Jvisualvm from any windows host pc using following path.

C:\Program Files\Java\jdk1.8.0_151\bin\ jvisualvm.exe

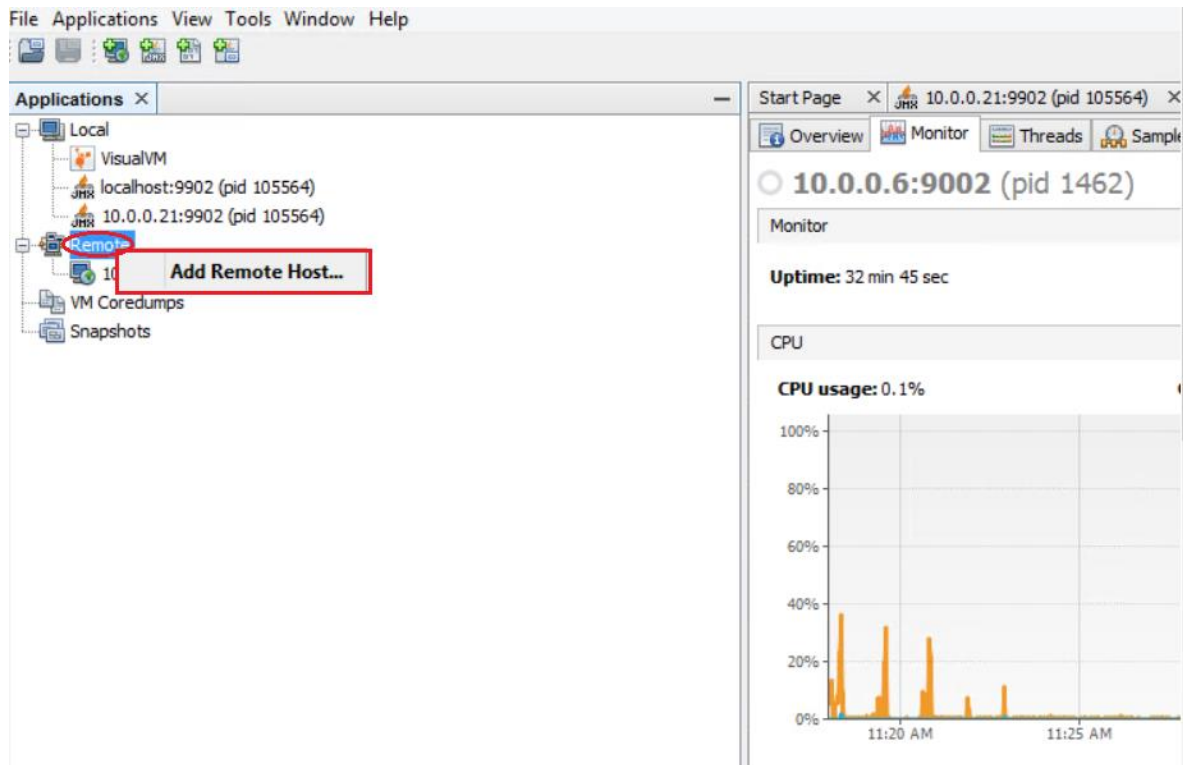


JVISUALVM-OPEN



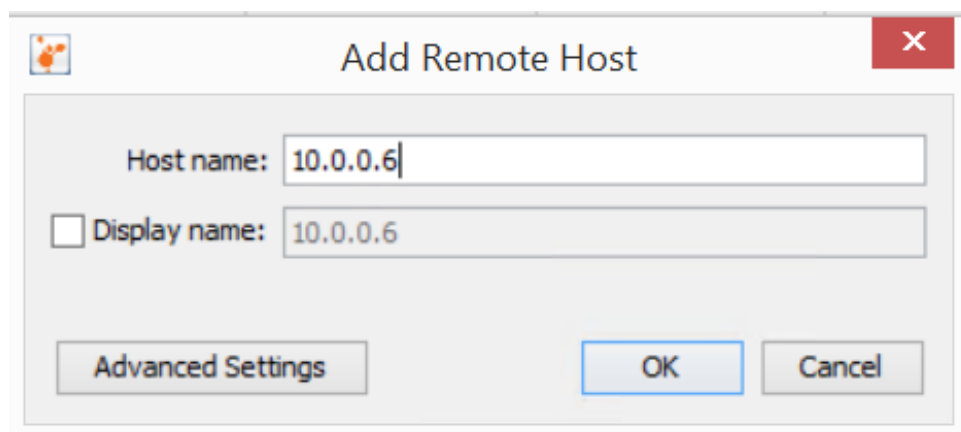
JVISUALVM—MAIN SCREEN

9. Add remote Jvisualvm host, Right click on Remote and Add Remote Host.



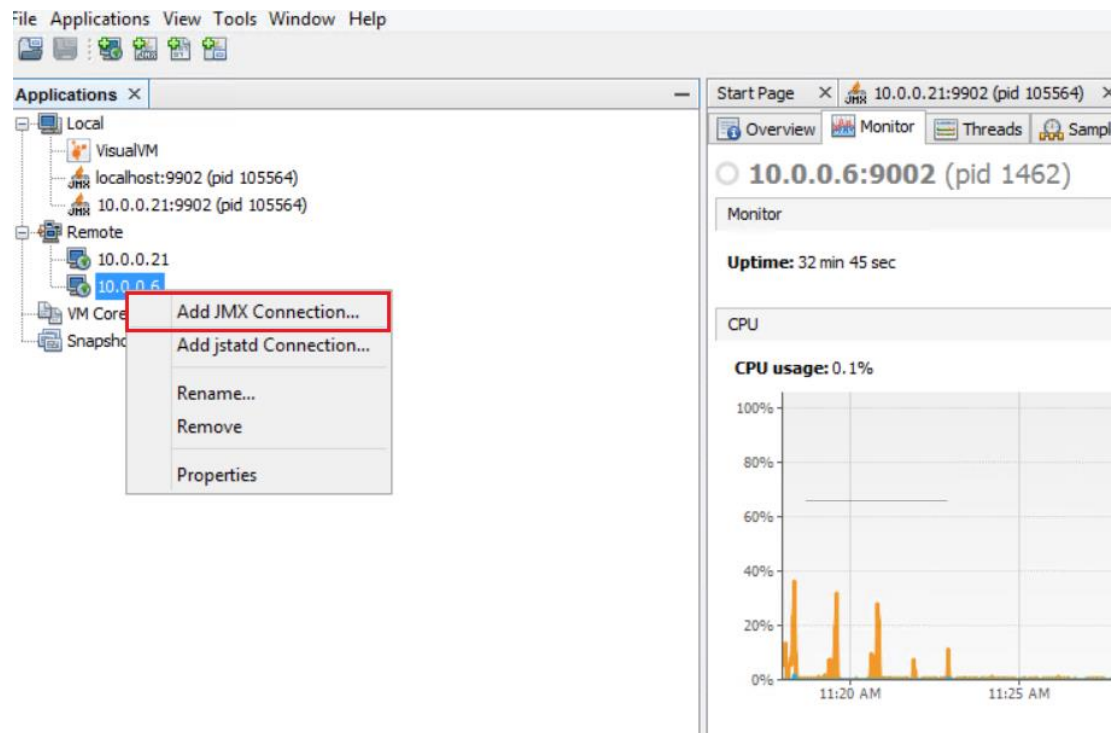
JVISUALVM LINUX-REMOTE HOST

10. Enter remote host ip address and click ok

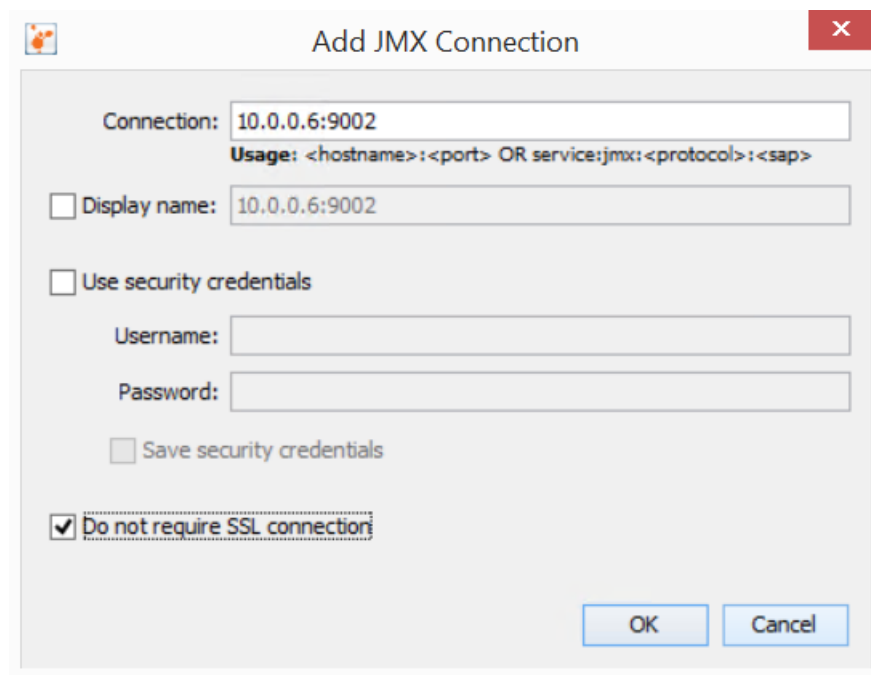


JVISUALVM LINUX—ADD REMOTE HOST SETTINGS

11. Add Linux remote host jmx connection string, Linux remote host: 10.0.0.6 remote port: 9002
Click check box **Do not require SSL connection**, then click ok.

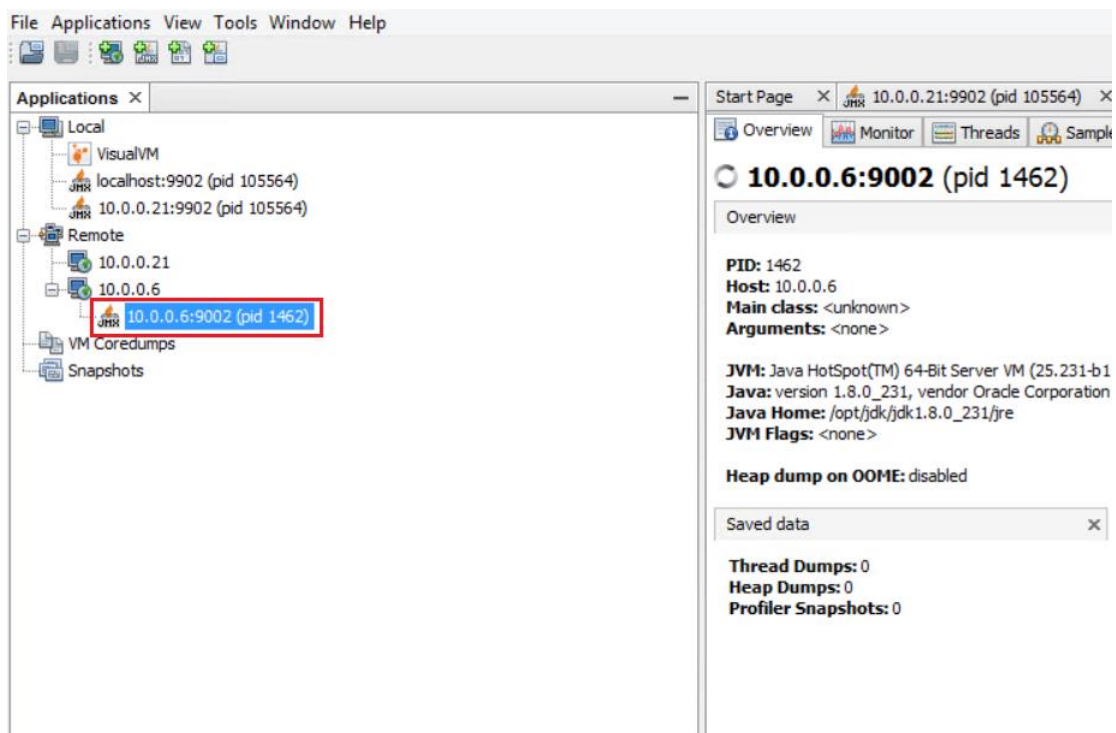


JVISUALVM LINUX—BIND JMX CONNECTION FOR REMOTE HOST



JVISUALVM LINUX—ADD JMX CONNECTION FOR REMOTE HOST

12. Double click on JMX connection.

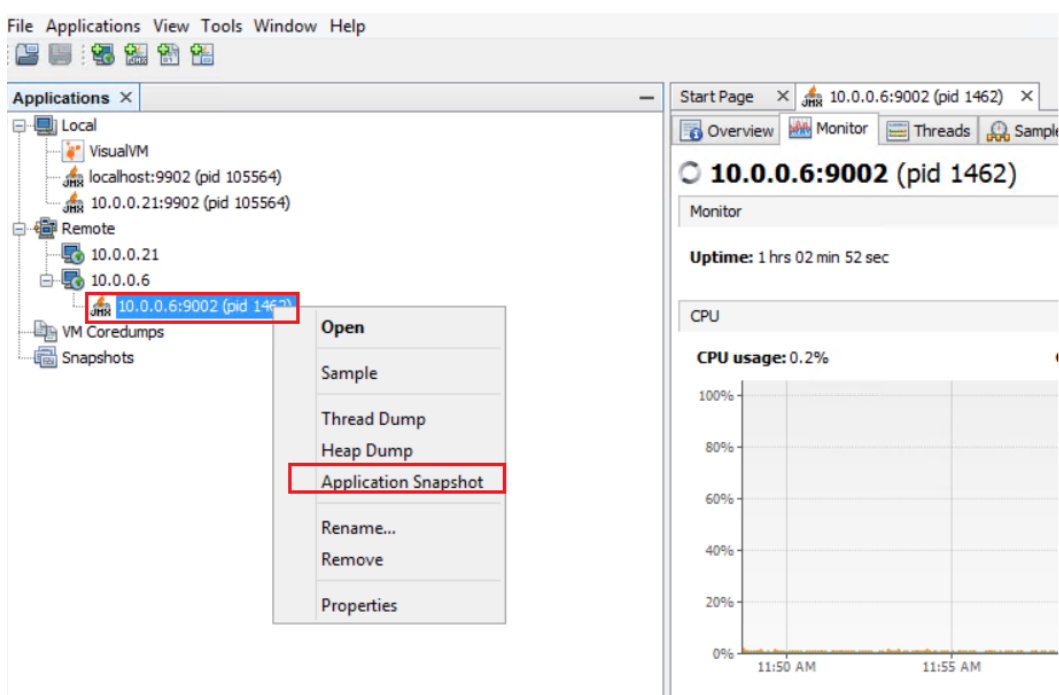


JVISUALVM LINUX—MONITOR JVM

1.2 How to take Snapshot

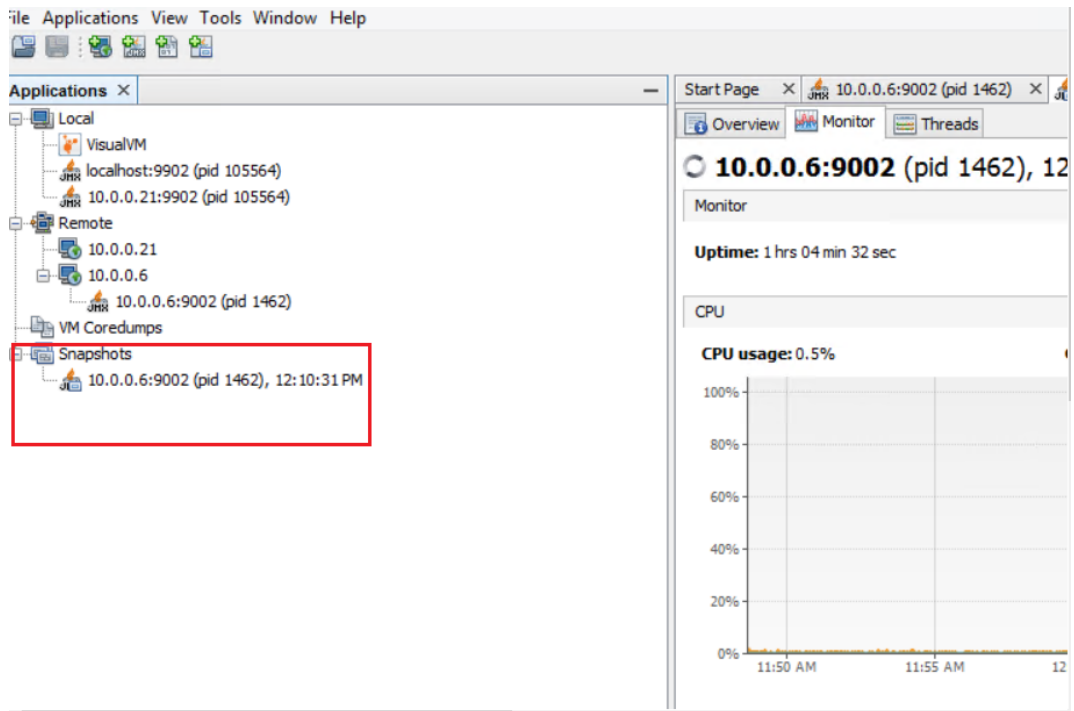
Procedure

1. Select JMX connection, Right click on JMX connection and click on Application Snapshot.



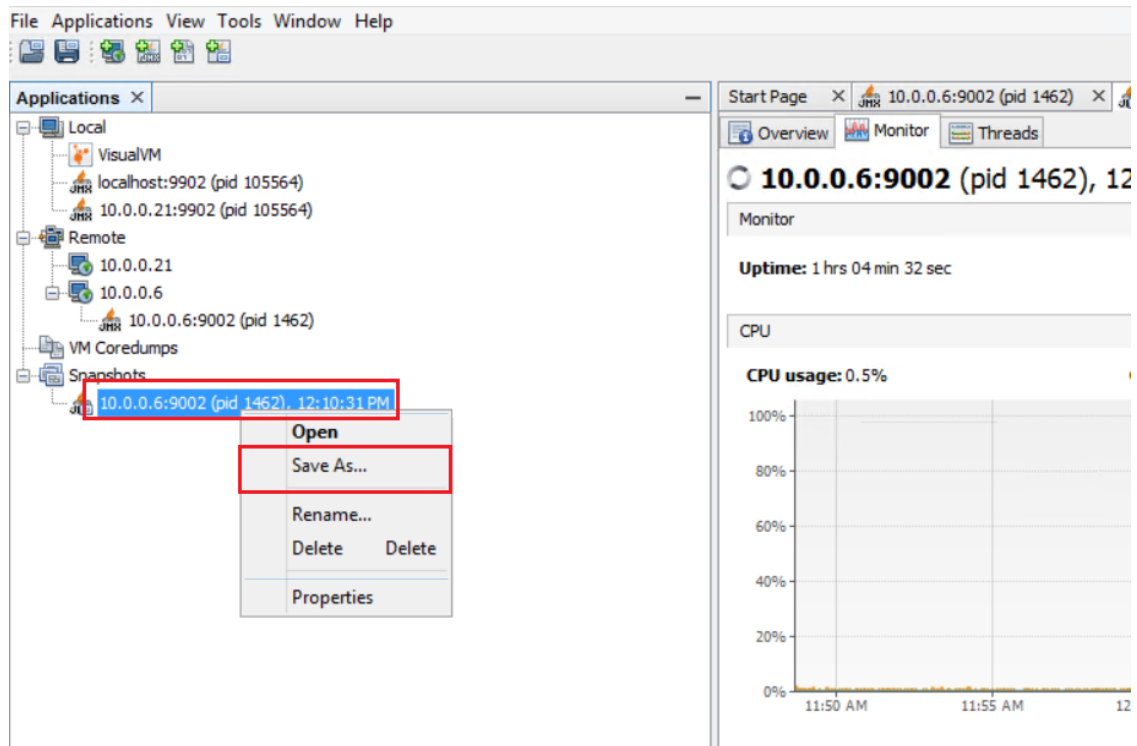
JVISUALVM TAKE A APPLICATION SNAPSHOT

- Application snapshot under the Snapshots.



JVISUALVM APPLICATION SNAPSHOT

- Save as Application Snapshot, Right click on JMX connection and save as Snapshot.

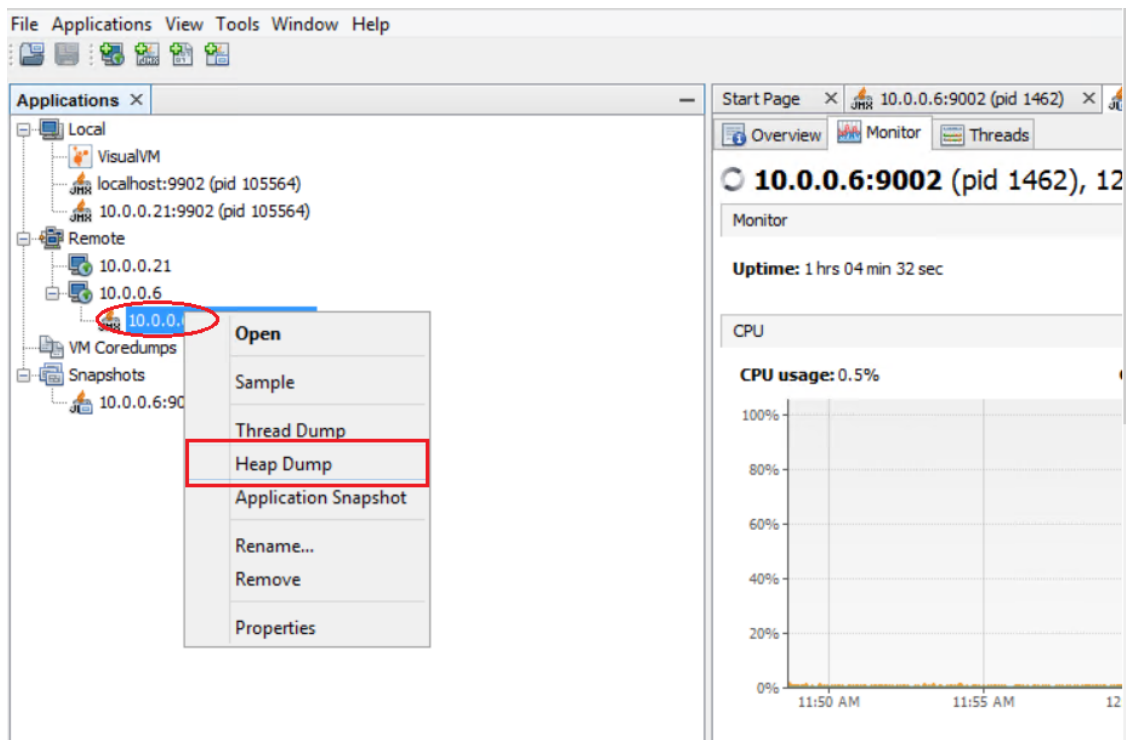


JVISUALVM APPLICATION SNAPSHOT SAVE

1.3 How to take heap dump

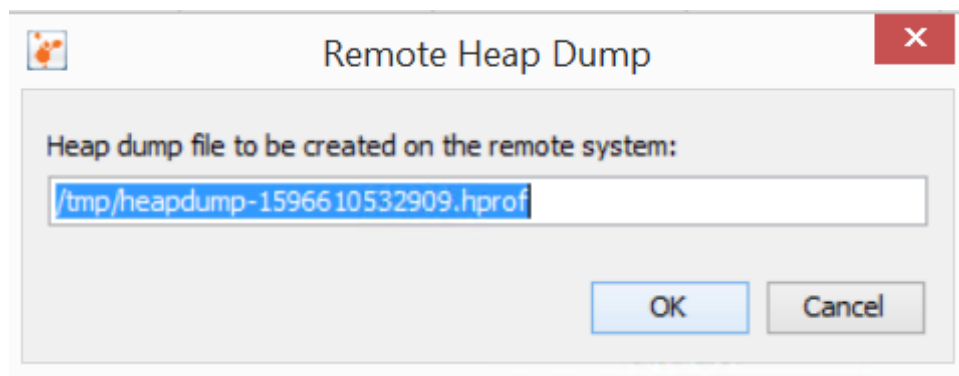
Procedure

1. Right click on JMX connection and click on Heap Dump.



JVISUALVM TAKE A HEAP DUMP

2. Set path which is you want to save Heap Dump and click ok.

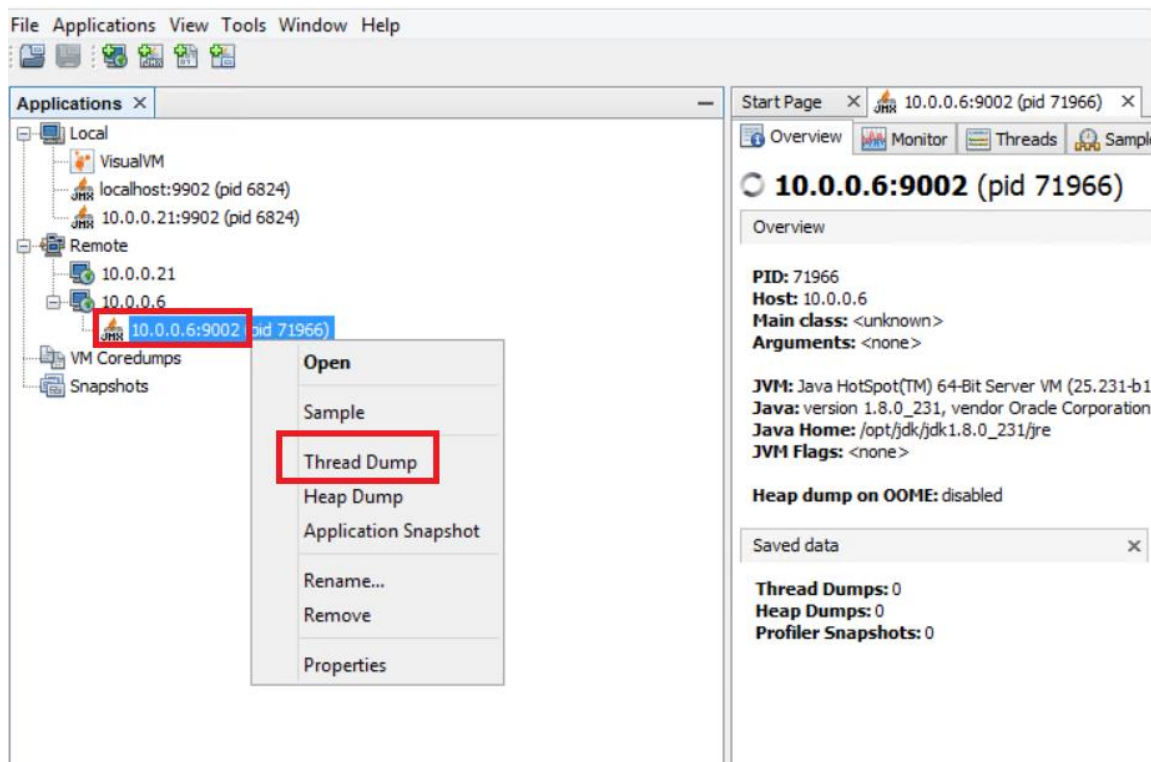


TITLE—NAME OF THE IMAGE

1.4 How to take thread dump

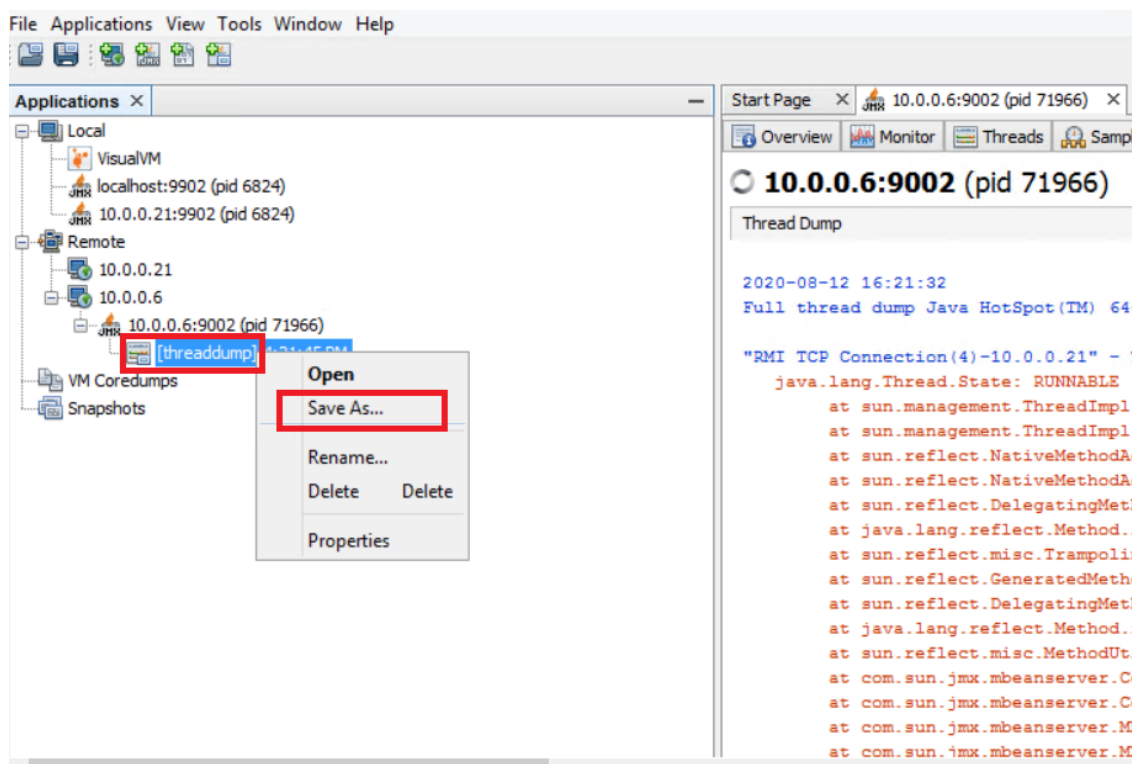
Procedure

1. Right click on JMX connection and click on Heap Dump.



JVISUALVM TAKE A THREAD DUMP

2. Right click on generated Thread Dump and save as.



JVISUALVM THREAD DUMP SAVE

2 Product and Support Information

Find more information about Smarten and its features at www.smarten.com

Support: support@smarten.com

Sales: sales@smarten.com

Feedback & Suggestions: support@smarten.com

Support & Knowledgebase Portal: support.smartent.com