

Oracle
Weblogic Server 11g
Scripting Tool & JMX
SOUG Presentation June 2010



munz & more
Dr. Frank Munz

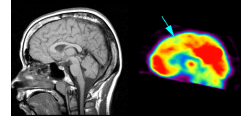
getting started

INTRODCUTION



Who is this guy?

- Frank Munz
- Research in supercomputing and medical imaging
- Worked for
 - ConSol Director JavaEE
 - TIBCO Technical Architect / Project Manager
 - BEA Education/Presale in Sydney (freelance)



Who is this guy?

- **Founded munz & more in 2007**
 - High end training + own curriculum for WebLogic, Oracle Service Bus, Performance Tuning, Web Services, Amazon and Rackspace Cloud Computing with Oracle Middleware:
<http://www.munzandmore.com/courses>
 - Architecture reviews and fire fighting
- 12 years experience



JMX

JMX

- Standard to decouple managed device from a management tool
- MBeans are building blocks of JMX
- MBeans live in a MBean server
- MBean server hosted in WLS

JMX

JMX 1.2 supported since WLS 9.x

WLS MBeans encapsulate

- Configuration Data
- Runtime Values

JVM itself has platform MBean Server

JMX

MBeans have

- attributes -> e.g. ListenPort
- operations -> e.g. shutdown()
- children -> directed graph
- notifications

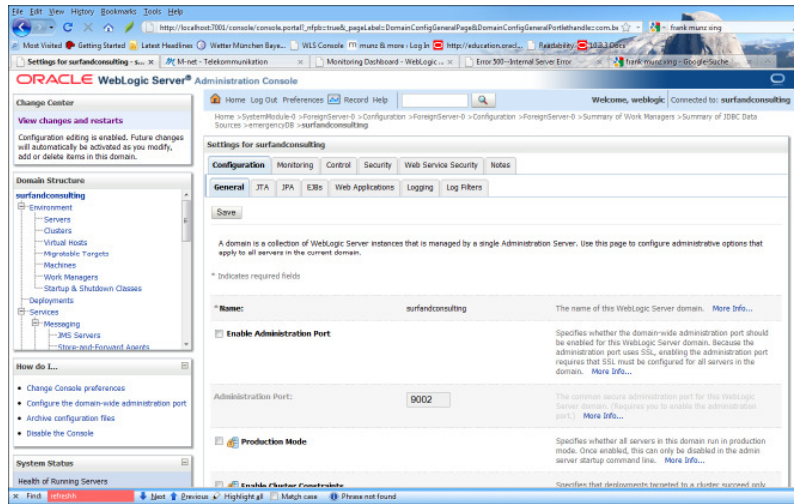
WLST/TOOLS

JMX Clients

- Administration console
- WLST (comes with weblogic.jar)
- jconsole from JDK / visualvm JDK6 update 7
- JMX4Perl
- New WebLogic dashboard

Not covered here: Nagios, Patrol, etc.

WebLogic Admin Console



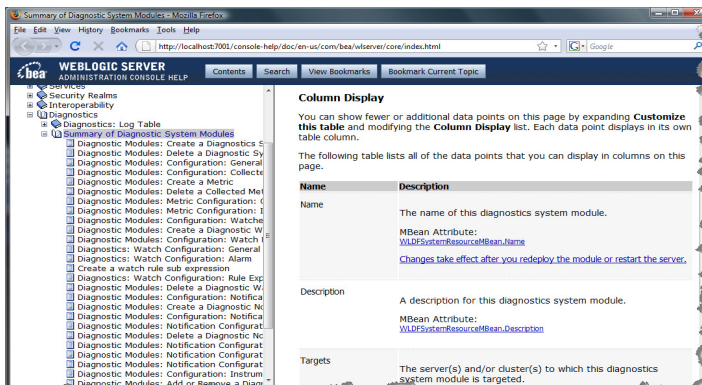
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Administration Console: Help

Starting point for MBean type and attribute:
Context sensitive help in admin console



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Admin Console

- Admin console is a very comfortable and feature-rich graphical JMX client.
- All changes from console are done via JMX.
- These changes can be recorded.
- Sometimes scripting is still preferred to the console

WLST

- implemented in Jython
- domain specific language (DSL)

Jython = Python implementation for the JVM

-> Plays well with Java

WLST

For WLST you need to

- set WL_HOME
- weblogic.jar in classpath

best run `setDomainEnv.cmd`
from the `domain/bin` directory,
then start WLST with:

```
java weblogic.WLST [script.py]
```

WLST

- Online / offline mode
- Small and very versatile. It can replace:
 - Config wizard
 - Template builder
 - Command line deployment:
`weblogic.Deployer`
 - Web based admin console
 - `weblogic.Admin` (deprecated anyway)

WLST Quick Reference

<code>ls()</code>	show current mbean / cmo = current managed object ls('a') shows attributes , 'c' child mbeans, 'o' operations
<code>cd()</code>	navigate
<code>serverConfig()</code>	change to config mbeans
<code>serverRuntime()</code>	change to server runtime
<code>domainRuntime()</code>	change to domain runtime
<code>jndi()</code>	change to jndi tree
<code>edit()</code>	change to edit tree
<code>startEdit()</code>	start an edit session, then use <code>set('pn', 'v')</code> / <code>get('pn')</code>
<code>save()</code>	persist changes
<code>activate()</code>	activate changes
<code>undo()</code>	undo changes
<code>easeSyntax()</code>	switch off python syntax, do not use for scripting

WLST commands / examples

See online documentation ([scripting_config.pdf](#)) for examples and more commands eg. how to:

- Connect to nodemanager
- Start/stop admin/managed servers
- Create/update a domain
- Create resources such as JDBC, JMS,...

Example: script to change log settings

```
# Connect to the server
connect("weblogic","weblogic","t3://localhost:7001")
edit()
startEdit()
# set CMO to the server log config
cd("Servers/myserver/Log/myserver")
# change LogMBean attributes
set("FileCount", 5)
set("FileMinSize", 400)
# save and activate the changes
save()
activate()
# all done...
exit()
```

Script to Create a New Domain

WL_HOME\common\templates\scripts\wlst:

```
readTemplate("C:/bea101/wlserver_10.0/common/templates/domains/wls.jar")
cd('Servers/AdminServer')
set('ListenAddress','')
set('ListenPort', 7001)
cd('/')
cd('Security/base_domain/User/weblogic')
cmo.setPassword('weblogic')
setOption('OverwriteDomain', 'true')
writeDomain('C:/bea101/user_projects/domains/basicWLSDomain')
closeTemplate()
exit()
```

WLST for Deployment ...

Example usage of deploy():

```
wls:/surfandconsulting/serverConfig/Servers>
  deploy( 'demoApp',
    'c:/myapps/demos/app/demoApp.ear',
    targets='myserver',
    planPath='c:/myapps/demos/app/plan/plan.xml',
    timeout=120000)
```

Progress Return from WLST Deploy

Example:

```
wls:/surfandconsulting/serverConfig/Servers>
progress = deploy (...)
```

```
wls:/surfandconsulting/serverConfig/Servers>
progress.printStatus()
Current Status of your Deployment:
Deployment command type:      deploy
Deployment State :           completed
Deployment Message :         null
```

WLST in ANT Scripts

```
<target name="loop">
  <wlst debug="true" executeScriptBeforeFile="false"
        fileName="./myscript.py" failOnError="true">
    <classpath>
      <pathelement location="${my.classpath.dir}"/>
    </classpath>
    <script>

      connect('weblogic','weblogic','t3://localhost:7001')
      svrs = cmo.getServers()
      print 'Servers in the domain are'
      for x in svrs: print x.getName()

    </script>
  </wlst>
</target>
```

WLST Scripting Best Practices

- Record configuration scripts, then edit them
- Extend examples from pdf docs
- Use scripts to create prerequisites for deployments, then deploy
- You can convert domain configurations to scripts including deployments with `configToScript()`

wlnav Fronted for WLST

The screenshot displays the wlnav web interface. At the top, there are navigation tabs: Root, MBean, JNDI, Monitor, Help, History, About, and Logout. Below these are sub-tabs: Edit, Server Runtime, Server Config, Domain Runtime, Domain Config, Custom, and Help. A search bar is present with a 'Find' button and a dropdown menu for 'Cmd., line'. The main content area shows the 'Diagnostics Center' for a 'serverRuntime' MBean. It includes a 'Children filter/grep' and an 'Attribute filter/grep' section. A table lists various attributes and their values, such as 'ActivationTime' (1250341094988), 'AdminServer' (true), 'AdminServerHost' (192.168.0.7), and 'ListenPort' (7001). The interface also has 'Show children' and 'Show manual tooltip' options.

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wlnav Tool

- Graphical and very shiny WLST alternative
- Rather poor GUI experience...
- Simply deploy wlnav.war into domain from

<http://wlnav.open.collab.net>

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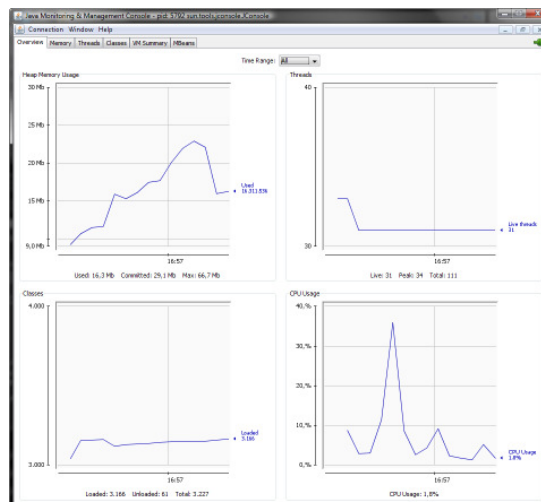
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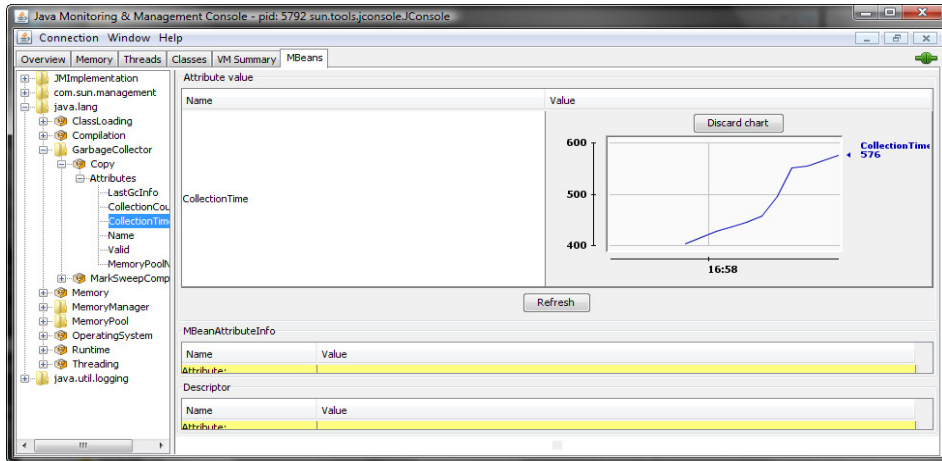
JConsole

- Comes with JDK, also with JRockit
- JDK 5: Start your JVM with
 - Dcom.sun.management.jmxremote
(connection with jconsole is rather buggy...)
- JDK6:
Local connections without –D switch
-> no restart required

Jconsole Overview



Plotting MBean Attributes with Jconsole



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New in WLS 10.3.3: Dashboard console/dashboard



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JMX4Perl

- Avoids JVM overhead on client side
- Perl module + j4p.war deployment on WLS
- Uses http + JSON
- Supports many JEE servers

JMX4Perl

- Uses aliases to map naming schemas of different app servers:
THREAD_COUNT, MEMORY_HEAP_USED,
OS_FILE_DESC_OPEN etc.
- Comes with check_JMX4Perl Nagios plugin
- see the CPAN archive at:
<http://search.cpan.org/dist/jmx4perl/>

SUMMARY

Conclusion

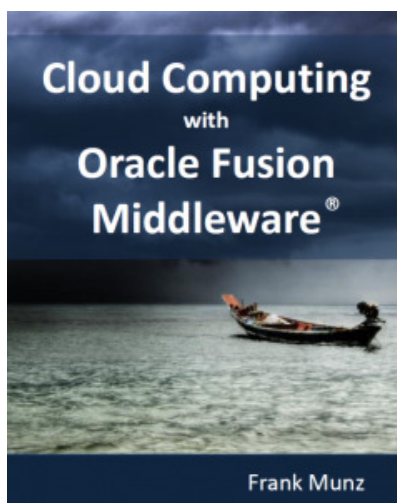
- Define a monitoring and configuration process
- Understand which tool is best for you
- WLST is well documented, comes with many examples
- WLST serves for domain creation, configuration, monitoring, deployment.
- Consider using JMX for your application, eg. changing application log level at runtime.

More Information

WLS, OSB, Oracle, Cloud blog postings:
<http://www.munzandmore.com/blog>

Courses, publications etc. (3-4 mails per year):
<http://www.munzandmore.com/newsletter>

Cloud Computing with Oracle Book Available Summer 2010



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