

# Weblogic 10.3 vs IAS 10.1.3

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**samenwerking, pragmatische aanpak en innovatie met Java en Oracle**

# Agenda



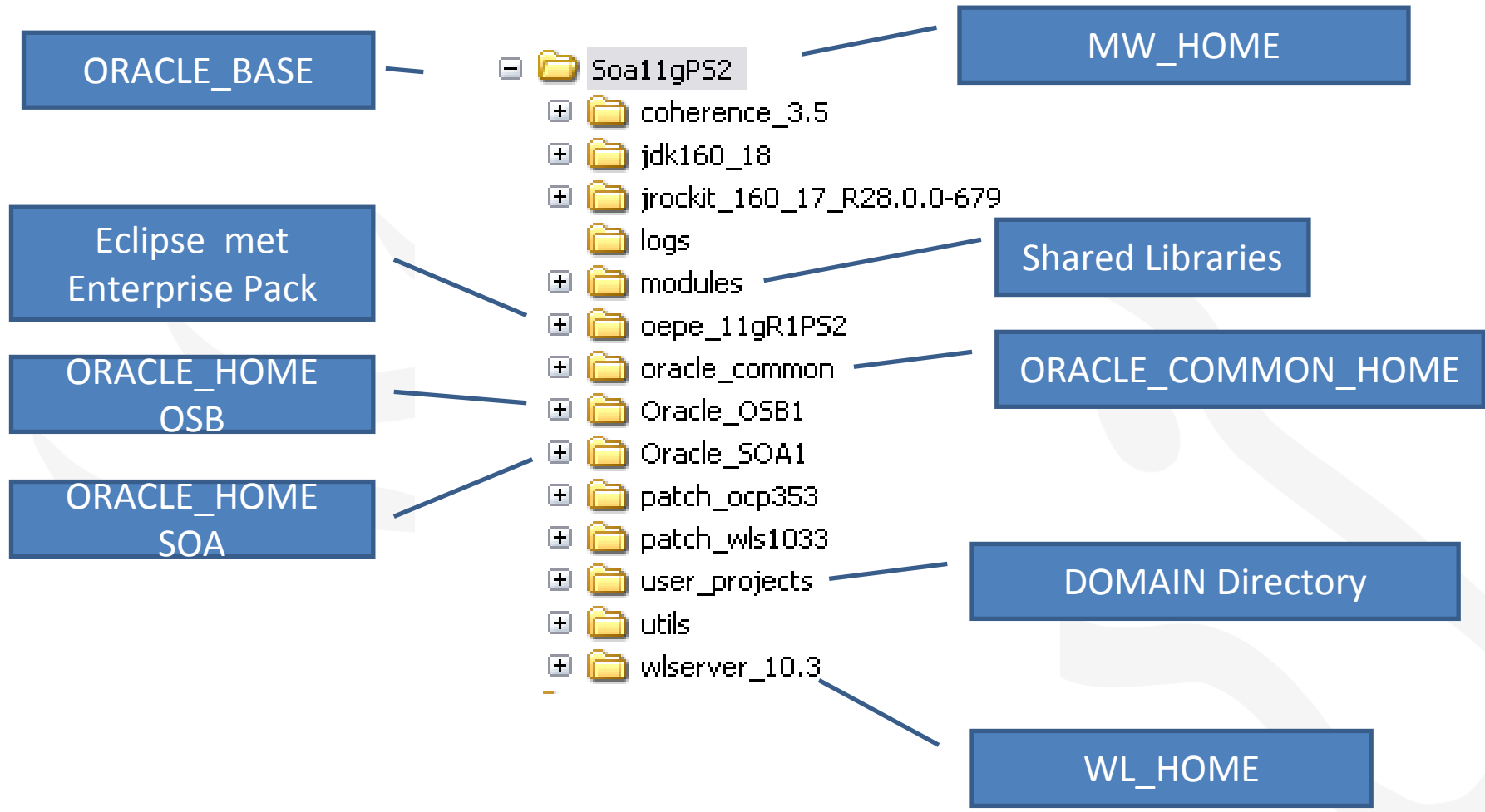
- Installatie
- FMW Home
- Weblogic Componenten
- Maken van een WLS Domein
- Starten van Weblogic
- Scripten in WLS
- Security
- Work managers
- Tuning en Monitoring
- Schaalbaarheid
- Hoge beschikbaarheid
- What's next
- Conclusie

# Installatie



- Weblogic installeren: WLS 10.3.x = FMW11g
- ADF / SOA , BAM , BPM / Webcenter PS1  
erbij installeren
- Patch: PS2
- OSB 11g

# FMW Home



# Weblogic Componenten



- Domein
- Admin Server
- Managed Server
- Node Manager
- Cluster
- Console
- Enterprise Manager
- Sun JVM of JRocket JVM

# Weblogic Componenten2



MBeans zijn managed beans ( java objects ) en een MBean heeft een *management interface* met de volgende onderdelen:

- Attributes, Deze kunnen uitgelezen of gezet worden
- Operations, Kunnen uitgevoerd worden
- Notifications, Kan notificatie uitzenden

Elk WLS onderdeel / Resource heeft zijn eigen MBean.

Deze Mbeans vormen samen de core van Weblogic

Een MBean kan via de WLS Console, EM , Java , Scripting benaderd worden.

# Weblogic Componenten 3



Sun JVM (Java HotSpot VM ) of JRocket JVM, ze zijn gelijk aan elkaar en kunnen elkaar vervangen

Sun JVM kan soms sneller zijn maar JRocket levert constante performance -> constante response tijden SLA

JRocket heeft een monitoring laag.

JRocket mag gebruikt worden bij WLS Suite

# Maken van een WLS Domein



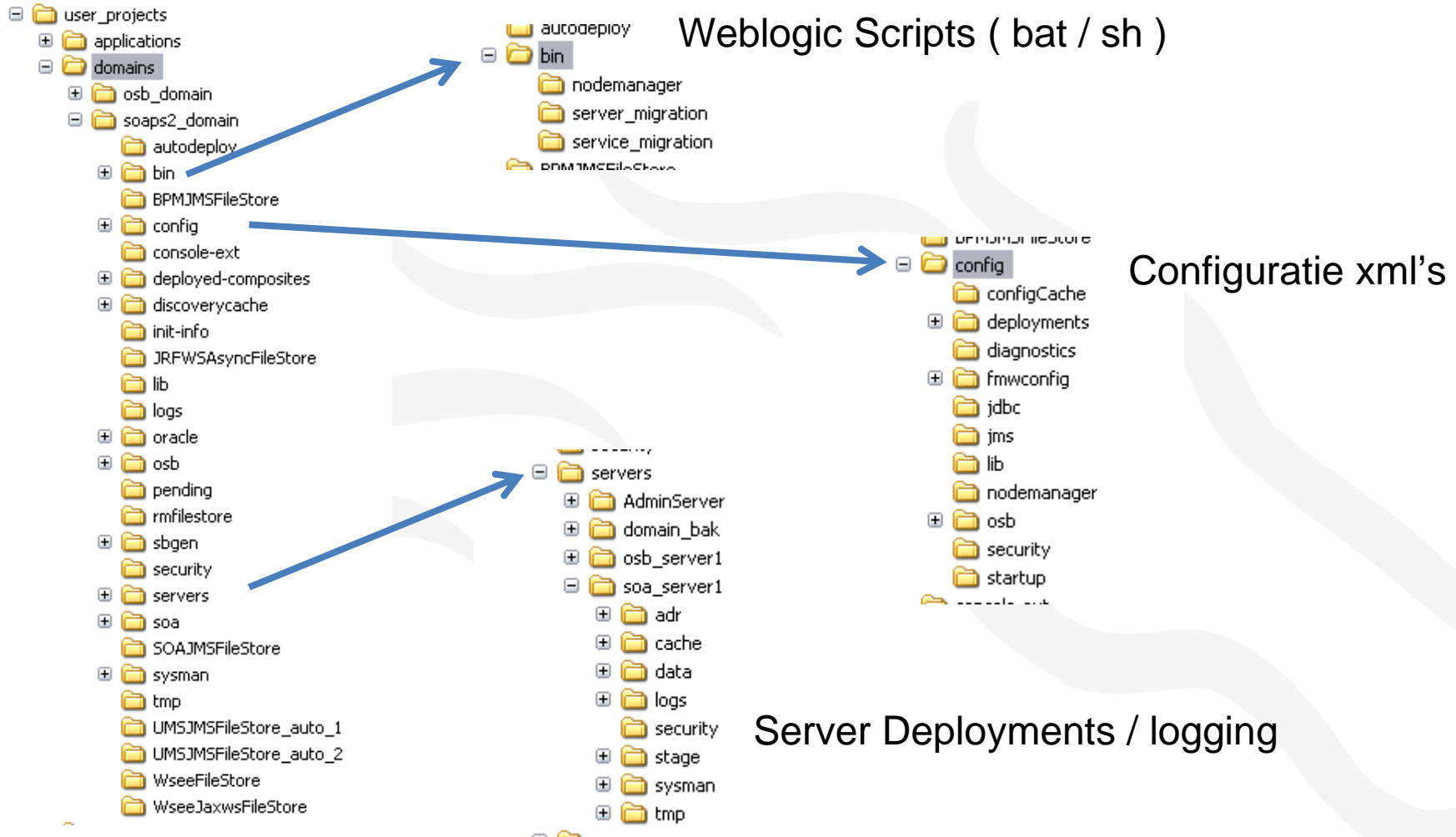
- config.cmd of config.sh in wlsserver\_10.3\common\bin

⊙ Generate a domain configured automatically to support the following products:

- Basic WebLogic Server Domain - 10.3.3.0 [wlsserver\_10.3] \*
- Oracle BPM Suite - 11.1.1.0 [Oracle\_SOA1]
- Oracle SOA Suite - 11.1.1.0 [Oracle\_SOA1]
- Oracle Service Bus OWSM Extension - 11.1.1.3 [Oracle\_OSB1]
- Oracle Enterprise Manager - 11.1.1.0 [oracle\_common]
- Oracle Service Bus Extension - Single Server Domain Topology - 11.1.1.3 [Oracle\_OSB1]
- Oracle Service Bus Extension - All Domain Topologies - 11.1.1.3 [Oracle\_OSB1]
- WebLogic Advanced Web Services for JAX-RPC Extension - 10.3.3.0 [wlsserver\_10.3]
- Oracle Business Activity Monitoring - 11.1.1.0 [Oracle\_SOA1]
- Oracle WSM Policy Manager - 11.1.1.0 [oracle\_common]
- Oracle JRF WebServices Asynchronous services - 11.1.1.0 [oracle\_common]
- Oracle JRF - 11.1.1.0 [oracle\_common]
- WebLogic Advanced Web Services for JAX-WS Extension - 10.3.3.0 [wlsserver\_10.3]



# Maken van een WLS Domein 2



# Starten van Weblogic



- Scripts voor Windows en Linux
  - Meestal alleen gebruikt voor de adminserver
- Via Node managers en WLS Console
  - SSH + scripts nodemanager -> non-FMW & Unix
  - Java nodemanager
    - FMW + domeinscripts
    - Non FMW
- WLST
- Windows Services ( beasvc )

# Scripten in WLS



- WebLogic Scripting Tool ( WLST, gebaseerd op Jython <http://www.jython.org>)

Start wlst.cmd of wlst.sh in wls\_server\_10.3\common\bin

```
Initializing WebLogic Scripting Tool <WLST> ...
Welcome to WebLogic Server Administration Scripting Shell
Type help(<>) for help on available commands

wls:/offline> connect('weblogic','weblogic','t3://localhost:7001')
Connecting to t3://localhost:7001 with userid weblogic ...
Successfully connected to Admin Server 'AdminServer' that belongs to
Warning: An insecure protocol was used to connect to the
server. To ensure on-the-wire security, the SSL port or
Admin port should be used instead.

wls:/soaps2_domain/serverConfig>
```

```
1 datasource='scottDS'
2 jdbcurl='jdbc:oracle:thin:@localhost:1521:orcl'
3 user='scott'
4 password='tiger'
5 targets='AdminServer,soa_server1'
6
7 def __genTargetList(serverTargets):
8     targets = []
9     if serverTargets and serverTargets.strip():
10        targets.extend(map(lambda x: ObjectName('com.bea:Name=%s,Type=Server'% (x)), \
11                          serverTargets.strip().split(',')))
12        return targets
13
14 edit()
15 startEdit()
16
17 cd('/')
18 cmo.createJDBCSystemResource(datasource)
19
20 cd('/JDBCSystemResources/'+datasource+'/JDBCResource/'+datasource)
21 cmo.setName(datasource)
22
23 cd('/JDBCSystemResources/'+datasource+'/JDBCResource/'+datasource+'/JDBCDataSourceParams/'+datasource)
24 set('JNDINames',jarray.array([String('jdbc/'+datasource)],String))
25
26 cd('/JDBCSystemResources/'+datasource+'/JDBCResource/'+datasource+'/JDBCDriverParams/'+datasource)
27 cmo.setUrl(jdbcurl)
28 cmo.setDriverName('oracle.jdbc.xa.client.OracleXADataSource')
29 cmo.setPassword(password)
30
31 cd('/JDBCSystemResources/'+datasource+'/JDBCResource/'+datasource+'/JDBCConnectionPoolParams/'+datasource)
32 cmo.setTestTableName('SQL SELECT 1 FROM DUAL\r\n\r\n\r\n\r\n\r\n\r\n')
33
34 cd('/JDBCSystemResources/'+datasource+'/JDBCResource/'+datasource+'/JDBCDriverParams/'+datasource+'/Properties/'+datasource)
35 cmo.createProperty('user')
36 cd('/JDBCSystemResources/'+datasource+'/JDBCResource/'+datasource+'/JDBCDriverParams/'+datasource+'/Properties/'+datasource+'/Properties/user')
37 cmo.setValue(user)
38
39 cd('/JDBCSystemResources/'+datasource+'/JDBCResource/'+datasource+'/JDBCDataSourceParams/'+datasource)
40 cmo.setGlobalTransactionsProtocol('TwoPhaseCommit')
41
42 wls_targets = __genTargetList(targets)
43 cd('/SystemResources/'+datasource)
44 set('Targets',jarray.array(wls_targets, ObjectName))
45
46 save()
47 activate()
48
49 cd('/')
```

help('all') voor alle commando's

# Scripten in WLS 2



## ● ANT

```
set ANT_HOME=C:\oracle\MiddlewareJdev11gR1PS2\jdeveloper\ant
set JAVA_HOME=C:\oracle\MiddlewareJdev11gR1PS2\jdk160_18
set PATH=%ANT_HOME%\bin;%JAVA_HOME%\bin;%PATH%
set CLASSPATH=%CLASSPATH%;C:\oracle\Soa11gPS2\wlserver_10.3\server\lib\weblogic.jar
ant
```

```
C:\documenten\whitehorses\ogh>ant
Unable to locate tools.jar. Expected to find it in C:\Program Files\Java\jre6\lib\tools.jar
Buildfile: build.xml

createJDBC:
[wlst] Connecting to t3://localhost:7001 with userid weblogic ...
[wlst] Successfully connected to Admin Server 'AdminServer' that belongs to domain 'soaps2_domain'.
[wlst]
[wlst] Warning: An insecure protocol was used to connect to the
[wlst] server. To ensure on-the-wire security, the SSL port or
[wlst] Admin port should be used instead.
[wlst]
[wlst] Location changed to edit tree. This is a writable tree with
[wlst] DomainMBean as the root. To make changes you will need to start
[wlst] an edit session via startEdit().
[wlst]
[wlst] For more help, use help(edit)
[wlst] You already have an edit session in progress and hence WLSI will
[wlst] continue with your edit session.
[wlst]
[wlst] Starting an edit session ...
[wlst] Started edit session, please be sure to save and activate your
[wlst] changes once you are done.
[wlst] Saving all your changes ...
[wlst] Saved all your changes successfully.
[wlst] Activating all your changes, this may take a while ...
[wlst] The edit lock associated with this edit session is released
[wlst] once the activation is completed.
[wlst] Activation completed
```

```
<?xml version="1.0" encoding="iso-8859-1"?>
<project name="createDataSource" default="createJDBC">
  <target name="createJDBC">
    <wlCreateDataSource datasource="scottDS"
      jdbcurl="jdbc:oracle:thin:@localhost:1521:orcl"
      user="scott"
      password="tiger"
      target="AdminServer"
      adminUser="weblogic"
      adminPassword="weblogic1"
      adminUrl="t3://localhost:7001"/>
  </target>
  <macrodef name="wlCreateDataSource">
    <attribute name="datasource"/>
    <attribute name="jdbcurl"/>
    <attribute name="user"/>
    <attribute name="password"/>
    <attribute name="target"/>
    <attribute name="adminUser"/>
    <attribute name="adminPassword"/>
    <attribute name="adminUrl"/>
  </macrodef>
  <sequential>
    <wlst failonerror="true" debug="false" arguments="@{datasource} @{jdbcurl}
      <script>
        datasource=sys.argv[0]
        jdbcurl=sys.argv[1]
        user=sys.argv[2]
        password=sys.argv[3]
        target=sys.argv[4]

        adminUser=sys.argv[5]
        adminPassword=sys.argv[6]
        adminUrl=sys.argv[7]

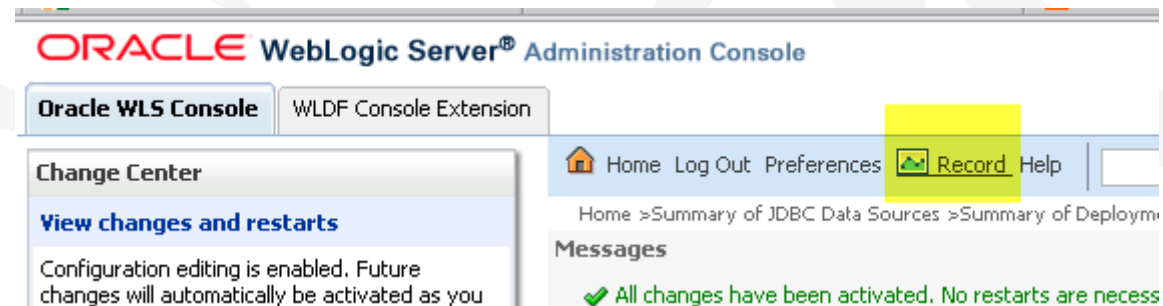
        connect (adminUser,adminPassword,adminUrl)
```

# Scripten in WLS 3



## Maken van WLST scripts

- Start recording
- Wijzigingen doorvoeren
- Stop recording
- Open de scripts in de domain folder



# Security



## Weblogic Security

Console applicatie

WS, Autorisatie en Authenticatie in Applicaties

## FMW WSM

Enterprise Manager

WS -> Soa Suite , OSB

# Security 2



## Weblogic Security

The screenshot displays the 'Providers' tab in the 'Settings for myrealm' configuration page. A blue arrow points from the 'Authentication Providers' table to the 'Providers' dropdown menu.

**Authentication Providers**

Name	Description	Version
<input type="checkbox"/> DefaultAuthenticator	WebLogic Authentication Provider	1.0
<input type="checkbox"/> DefaultIdentityAsserter	WebLogic Identity Assertion provider	1.0

**Providers List:**

- SAML2IdentityAsserter
- PAssertedIdentityAsserter
- PAssertedIdentityStrictAsserter
- OSSOIdentityAsserter
- OAMIdentityAsserter
- OAMAuthenticator
- ActiveDirectoryAuthenticator
- CustomDBMSAuthenticator
- DefaultAuthenticator
- DefaultIdentityAsserter
- IPlanetAuthenticator
- LDAPAuthenticator
- LDAPX509IdentityAsserter
- NegotiateIdentityAsserter
- NovellAuthenticator
- OpenLDAPAuthenticator
- OracleInternetDirectoryAuthen
- OracleVirtualDirectoryAuthen
- ReadOnlySQLAuthenticator
- SQLAuthenticator
- WindowsNTAuthenticator

**Policy Selection:**

Select	Policy URI	Direction
<input type="checkbox"/>	policy:Wssp1.2-2007-EncryptBody.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Https-BasicAuth.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Https-ClientCertReq.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Https-UsernameToken-Digest.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Https-UsernameToken-Plain.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Https.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Saml1.1-Bearer-Https.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Saml1.1-HolderOfKey-Wss1.0-Basic128.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Saml1.1-HolderOfKey-Wss1.0.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Saml1.1-HolderOfKey-Wss1.1-Asymmetric.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Saml1.1-HolderOfKey-Wss1.1-IssuedToken.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Saml1.1-SenderVouches-Https.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Saml1.1-SenderVouches-Wss1.0.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Saml1.1-SenderVouches-Wss1.1-Asymmetric.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Saml1.1-SenderVouches-Wss1.1.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Saml2.0-Bearer-Https.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Saml2.0-HolderOfKey-Wss1.1-Asymmetric.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Saml2.0-SenderVouches-Wss1.1-Asymmetric.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Saml2.0-SenderVouches-Wss1.1.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Sign-Wsa-Headers.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-SignAndEncryptWSAHeaders.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-SignBody.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Wsp1.5-EncryptBody.xml	Both
<input type="checkbox"/>	policy:Wssp1.2-2007-Wsp1.5-SignAndEncryptWSAHeaders.xml	Both

# Security 3



## WSM in the Enterprise Manager

The screenshot displays two overlapping windows from the Oracle Enterprise Manager console. The background window is titled 'soaps2\_domain' and shows the 'Security Provider Configuration' page. The foreground window is also titled 'soaps2\_domain' and shows the 'Web Services Policies' page.

### Security Provider Configuration

Use this page to configure WebLogic Domain policy and credential store providers, keystore and login modules used by Web Services Manager.

#### Policy and Credential Store Providers

Current policy and credential store providers are shown below. To change the current policy and credential providers use the Change Association or Edit buttons.

Provider Name	Provider Type	Location
system-jaazn-data.xml	XML	./system-jaazn-data.xml

#### Identity Store Provider

#### Web Services Manager Authentication Providers

You can configure the login modules and keystore for Web Services Manager authentication.

#### Login Modules

The following table lists all configured login modules for Web Services Manager. Use this list to create, configure or delete login modules.

Name	Class	Control Flag	Description
saml.loginmodule	oracle.security.jps.internal.jaas.module.saml.JpsSAMLLoginModule	Required	SAML Login Module
saml2.loginmodule	oracle.security.jps.internal.jaas.module.saml.JpsSAML2LoginModule	Required	SAML2 Login Module
krb5.loginmodule	com.sun.security.auth.module.Krb5LoginModule	Required	Kerberos Login Module
digest.authenticator.loginmodule	oracle.security.jps.internal.jaas.module.digest.DigestLoginModule	Required	Digest Authenticator Login Module
certificate.authenticator.loginmodule	oracle.security.jps.internal.jaas.module.x509.X509LoginModule	Required	X509 Certificate Login Module
wss.digest.loginmodule	oracle.security.jps.internal.jaas.module.digest.WSSDigestLoginModule	Required	WSS Digest Login Module
user.authentication.loginmodule	oracle.security.jps.internal.jaas.module.authentication.JpsUserAuthenticationModule	Required	User Authentication Login Module
user.assertion.loginmodule	oracle.security.jps.internal.jaas.module.assertion.JpsUserAssertionModule	Required	User Assertion Login Module

#### Keystore

Use this section to specify the keystore used to store public and private keys for all secure connections within the WebLogic Domain. [Configure...](#)

Type JKS  
Path ./test\_keystore.jks

### Web Services Policies

This page allows you to create a new policy, make changes to an existing policy, make a copy of a policy, and delete a policy. Policies can be imported into the data store from a file, and policies can be exported to a file.

Category: Security Applies To: Service Endpoints Name: [ ]

Name	Enabled	Attacher Count	Description	View Full Description
oracle/binding_authorization_denyall_policy	✓	0	This policy is a special c...	View Full Description
oracle/binding_authorization_permitall_policy	✓	0	This policy is a special c...	View Full Description
oracle/binding_permission_authorization_policy	✓	0	This policy is a special c...	View Full Description
oracle/wss10_message_protection_service_policy	✓	1	This policy enforces messa...	View Full Description
oracle/wss10_saml_hok_token_with_message_protection_service_policy	✓	0	This policy enforces messa...	View Full Description
oracle/wss10_saml_token_service_policy	✓	0	This policy authenticates ...	View Full Description
oracle/wss10_saml_token_with_message_integrity_service_policy	✓	0	This policy enforces messa...	View Full Description
oracle/wss10_saml_token_with_message_protection_service_policy	✓	0	This policy enforces messa...	View Full Description



# Work managers



- Prioritering van WLS resources aan een applicatie
  - Fair Share Request Class - Verhouding aantal threads
  - Response Time Request Class - Responsetijd verhouding
  - Context Request Class - User / Rol prioritering
  - Min Threads Constraint
  - Max Threads Constraint
  - Capacity Constraint - Afwijzen van requests

# Tuning en Monitoring



- JRockit Mission Control
- Diagnostics uitbreiding voor WLS Console
- Diagnostic system module
  - Mail
  - SNMP
  - JMS

# Tuning en Monitoring 2



- JRocket Mission Control ( Apart product )
  - Monitor en tune JRocket JVM's
  - JRocket Flight Recorder, Offline analyseren van JRocket JVM data
  - Memory Leak Detector, ontdekken van geheugen lekken

# Tuning en Monitoring 3



The screenshot displays the Oracle JRockit Mission Control interface, which is used for monitoring and tuning Java applications. The interface is divided into several sections:

- Overview:** This section provides a high-level summary of the system's health. It includes three gauges:
  - Used Java Heap:** Shows the amount of memory used by the Java heap. The current value is 304,70 MB, and the maximum is 466,87 MB.
  - JVM CPU Usage:** Shows the percentage of CPU usage by the JVM. The current value is 11,72%, and the maximum is 85,16%.
  - Live Set + Fragmentation:** Shows the percentage of memory used by the live set, including fragmentation. The current value is 23,00%, and the maximum is 23,00%.
- Processor:** This section displays a line graph showing the percentage of CPU usage over time. The graph compares Machine CPU Usage (blue line) and JVM CPU Usage (purple line). The x-axis represents time in milliseconds (ms), and the y-axis represents the percentage of CPU usage.
- Memory:** This section displays a line graph showing the percentage of memory usage over time. The graph compares Used Physical Memory (%) (red line) and Used Java Heap (%) (dark red line). The x-axis represents time in milliseconds (ms), and the y-axis represents the percentage of memory usage.

The interface also includes a tree view on the left side, showing the hierarchy of connectors and servers. A context menu is visible over the tree view, listing various actions such as "New Folder", "New Connection", "Disconnect", "Delete", "Start Memleak", "Show Recordings", "Start Flight Recording...", "Dump Default Recording...", "Start Console", "Open Historical Data", and "Properties".

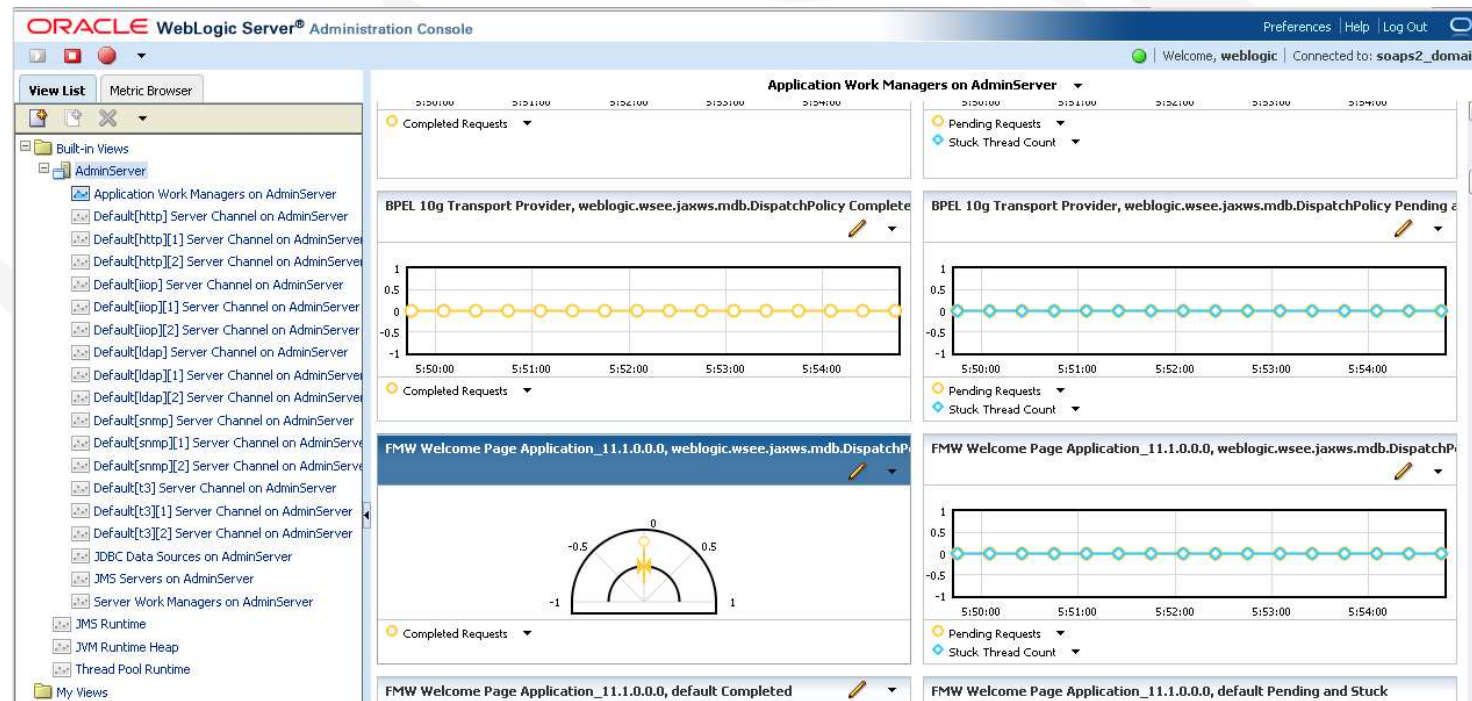
# Tuning en Monitoring 4



## Diagnostics uitbreiding voor WLS Console

Kopieer diagnostics-console-extension.jar ( wlsserver\_10.3\server\lib\console-ext\ ) naar domain\console-ext

<http://adminserver:7001/console/dashboard>



# Tuning en Monitoring 5



## Diagnostic system module

is a software component that you configure to monitor an aspect of a server or server resource

- Maak een Diagnostic module aan
- Verzamel statistieken
- Definieer Watches / Notifications
- Notificaties: Email, SNMP ,JMS

```
<13-mei-2010 19:07:24 uur CEST> <Notice> <weblogicserver> <BEA-000363> <S
<13-mei-2010 19:07:20 uur CEST> <Notice> <Diagnostics> <BEA-320068> <Wate
triggered at 13-mei-2010 19:07:20 uur CEST. Notification details:
WatchRuleType: Harvester
WatchRule: <${ServerRuntime//[weblogic.management.runtime.ServerRuntimeMB
WatchData: com.bea:Name=soa_server1,Type=ServerRuntime//State = RUNNING
WatchAlarmType: AutomaticReset
WatchAlarmResetPeriod: 60000
>
```

Settings for Module-FMWDFW

Configuration Targets

General Collected Metrics **Watches and Notifications** Instrumentation

Save

Use this page to create and configure watches and notifications for this diagnostic module.

Enabled Specifies whether the Watch Notification is enabled. [Info...](#)

Severity: Notice The default notification severity level for all triggers, the severity level is delivered with this level. [More](#)

Log Watch Severity: Warning The threshold severity level of log messages. Messages with a lower severity than this value will not be evaluated against the watch rules. [More](#)

Save

Watches Notifications

Use this page to add watches to the current diagnostic module and to configure those watches. Click the name of an existing watch to configure that watch.

Customize this table

Name	Type	Enabled	Alarm Type
<input type="checkbox"/> Deadlock	Server Log	true	Automatic Reset
<input type="checkbox"/> StuckThread	Server Log	true	Automatic Reset
<input type="checkbox"/> UncheckedException	Server Log	true	Automatic Reset

New Delete Show

# Schaalbaarheid



- Maak een Cluster
- Installeer FMW op elke server ( Software paden moeten zijn zijn ) of installeer FMW op een shared storage
- Kopieer WLS domain naar alle servers ( pack / unpack )
- Configureer Java Nodemangers
- Apache voor load balancing ( 1 aanspreekpunt voor de buitenwereld )
- JMS Queue / Topics -> Distributed Queue / Topics
- Web applicatie -> Sessie replicatie
- EJB -> Behoeft geen configuratie werk

# Hoge beschikbaarheid



- Regel 1 voorkom single points of failure
- Server migratie
  - Virtual IP's
  - Leasing tabel -> Oracle RAC of MySQL Cluster
  - AdminServer op een Shared Storage
  - Transactie Logs op een Shared Storage
  - JMS persistence op een Shared Storage of in een cluster database
- Apache Webservers met heartbeat mechanisme en Shared IP adres



# What's next



## JRokit Virtual Edition

- Java Virtualization Solution voor WebLogic
  - Performance
  - Security
  - Voorwaarde = Oracle VM

## Oracle Virtual Assembly Builder

- Capturing van bestaande omgevingen van App & Db Servers
- Packaging naar een appliance
- Deploy een appliance
- Voorwaarde = Oracle VM

# Conclusie



De Weblogic Server was BEA's Core product, en is na 13 jaar en 8 versies zeer compleet te noemen.

Naast dat het goede J2EE server is, maken vooral JRocket, Domein setup, WLST Scripting, Hoge beschikbaarheid en uitgebreide Security mogelijkheden het verschil.