

WebLogic Feature Timeline

What is new in WLS9, 10, 10.3, 11,
and WebLogic 12c?



munz & more

Disclaimer

The following is my personal, biased view of WebLogic features and how they were added over time starting from WebLogic 9 to WebLogic 12c.

The slides are derived from various WebLogic coachings I delivered world-wide, targeting admins, architects and developers. I don't strive for a complete list of features and deliberately leave out things I consider less important (for my audience).

To keep updated feel free to subscribe to my blog (for tech stuff), newsletter (talks and trainings) or twitter (annoyances, announcements and musings). If you find that some links are not working for you, try to download the PDF file instead of using the browser plugin. Your feedback is welcome.

WLS 9

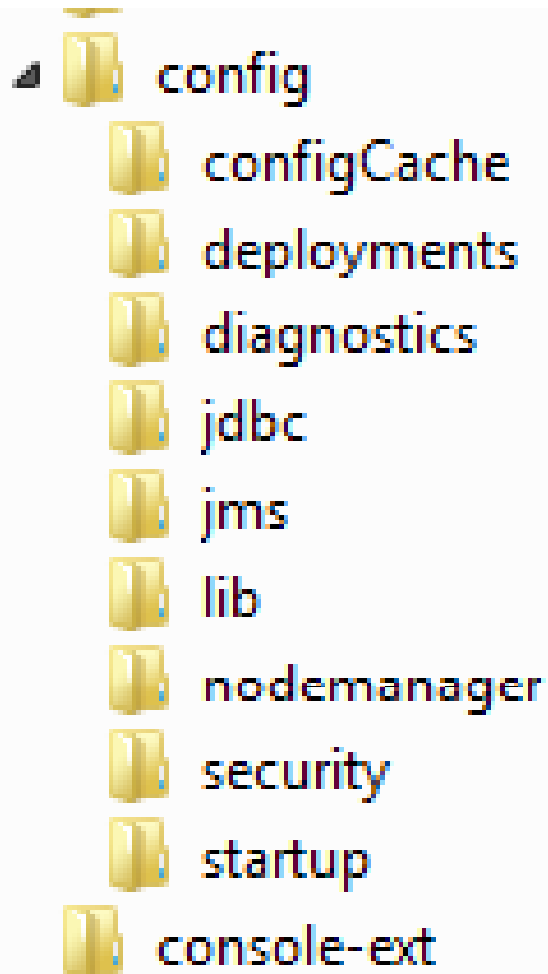
New in WLS 9

- Running on Java 5
- Portal light framework used for admin console
- Workshop IDE is Eclipse based first time
- Change center -> new scripting: `startEdit()`
- Improved scripting tool (WLST)
- Workmanager concept replaces fixed size execute queue

... also new in WLS 9

- Side-by-side deployment keeps user sessions = production redeployment
- Application modules: config deployment
- Deployment plans
- MAN and WAN clustering
- config.xml is in DOMAIN_HOME/config and references subdirectories

config.xml and Subdirectory



config.xml = core config file

deployments = staging directory
diagnostics, jdbc, jms, security = system modules

lib = added to classpath

startup = startup plan for shell scripts at server startup

config.xml is XSD based

Check XML namespace of system modules:
<http://www.bea.com/ns/weblogic/weblogic-diagnostics/1.1/weblogic-diagnostics.xsd>

In JAR files in META-INF subdirectory under
WL_HOME/server/lib/schema

Workmanager

WLS has only *one* thread pool /
Default Workmanager

Pool size based on runtime metrics
(self tuning)

You can create additional workmanagers (system
or application scoped)

Assign applications to workmanager
("dispatch policy")

Workmanager

Workmanager components:

- Fair Share Request Class
- Response Time Request Class
- Min Threads Constraint
- Max Threads Constraint
- Capacity Constraint
- Context Request Class

WLS 10

New in WLS 10

- Admin: rather small step from WLS9.x
- biggest change: EJB3 support
- WLST recording from admin GUI
- Still running on Java 5

So what is new in WLS 10?

Almost the same admin console

The screenshot displays the BEA WebLogic Server Administration Console. The browser window shows the URL `http://localhost:7001/console/console.portal`. The page header includes the BEA logo and the text "WEBLOGIC SERVER ADMINISTRATION CONSOLE". The navigation bar contains links for "Home", "Log Out", "Preference", "Record" (circled in red), "Help", and "Ass". The main content area is titled "Domain" and includes sections for "Information and Resources" and "Domain Configurations". The "Information and Resources" section has two columns: "Helpful Tools" with links for "Configure applications" and "Recent Task Status", and "General Information" with links for "Common Administration Task Descriptions", "Set your console preferences", and "Read the documentation". The "Domain Configurations" section has tabs for "Domain", "Services", and "Interoperability". On the left side, there is a "Change Center" section with a message about pending changes and buttons for "Activate Changes" and "Undo All Changes", and a "Domain Structure" tree showing a hierarchy for "wls10" including Environment, Deployments, Services, Security Realms, Interoperability, and Diagnostics.

WLS 10gR3

What is new in WLS 10g R3?

- Java 6 based
- New JAX-WS web service stack
- On demand deployment:

Deploying application for /console/login/LoginForm.jsp....

This application is deployed on the first access. You can change this application to instead deploy during startup. Refer to instructions in the On-Demand Deployment documentation.

- C# JMS client support
- Change center is off again (default)
- New and faster admin server GUI

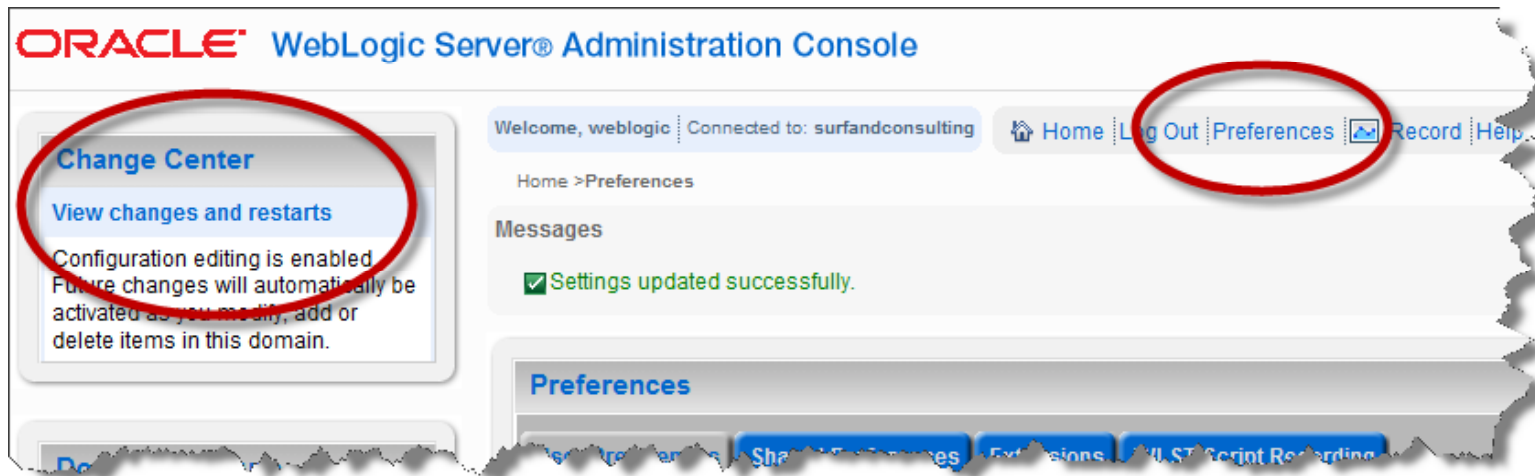
New console in WLS 10g R3

ORACLE WebLogic Server® Administration Console

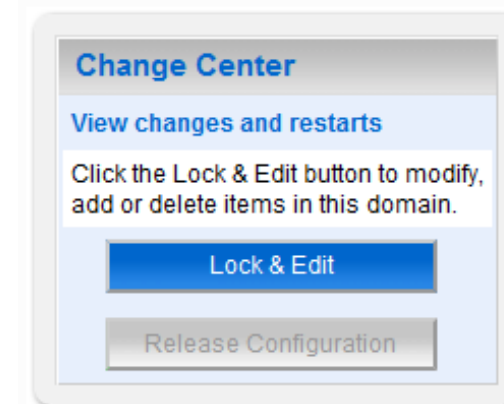
The screenshot displays the Oracle WebLogic Server Administration Console interface. At the top, it shows the user is logged in as 'weblogic' and connected to the domain 'prod103er'. The main content area is titled 'Home Page' and is divided into several sections:

- Information and Resources:** Includes 'Helpful Tools' (Configure applications, Recent Task Status, Set your console preferences) and 'General Information' (Common Administration Task Descriptions, Read the documentation, Ask a question on Oracle eSupport, Oracle Guardian Overview).
- Domain Configurations:** A tree view showing the domain structure: Domain, Environment (Servers, Clusters, Virtual Hosts, Migratable Targets, Machines, Work Managers, Startup And Shutdown Classes), Services (Messaging: JMS Servers, Store-and-Forward Agents, JMS Modules, Path Services, Bridges; JDBC: Data Sources, Multi Data Sources, Data Source Factories; Persistent Stores, XML Registries, XML Entity Caches, Foreign JNDI Providers, Work Contexts, JCOM, Mail Sessions, FileT3, JTA), and Interoperability (WTC Servers, Jolt Connection Pools). Below this are sections for 'Your Deployed Resources' (Deployments) and 'Your Application's Security Settings' (Security Realms).
- Change Center:** A sidebar panel with a 'View changes and restarts' link and a message: 'Configuration editing is enabled. Future changes will automatically be activated as you modify, add or delete items in this domain.'
- Domain Structure:** A sidebar panel showing a tree view of the domain: prod103er, Environment, Deployments, Services, Security Realms, Interoperability, and Diagnostics.
- How do I...:** A sidebar panel with links: Search the configuration, Use the Change Center, Record WLST Scripts, Change Console preferences, and Monitor servers.
- System Status:** A sidebar panel showing 'Health of Running Servers' with a 'Failed (0)' indicator.

Change Center

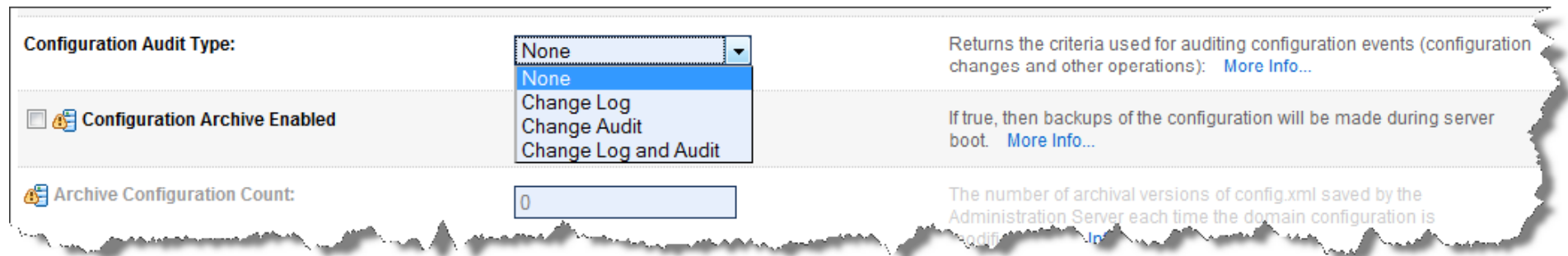


- Preferences: Enable change center
- Always ON in production mode



Audit Configuration Changes

You can enable auditing for configuration changes under:
Domain / General / Config / Advanced



Configuration Audit Type: Returns the criteria used for auditing configuration events (configuration changes and other operations): [More Info...](#)

Configuration Archive Enabled If true, then backups of the configuration will be made during server boot. [More Info...](#)

Archive Configuration Count: The number of archival versions of config.xml saved by the Administration Server each time the domain configuration is modified. [More Info...](#)

This is useful in large teams with personalized login for admin role

Web Service Stacks and WebLogic Versions

- WLS 10 begins with basic JAX-WS support (successor of JAX-RPC)
- JAX-B data binding will replace XMLBeans in the long term
- JAX-WS does not support all "advanced" JAX-RPC features
- JAX-RPC still supported in WLS 10.3
- Derived from Sun Glassfish Metro

Web Service Standards in WLS 10.3

JDK 6

JAX-WS2.1

JAXB 2.1

WS-Security 1.1

WS-Addressing 1.0

WS-Policy 1.5

WS-SecurityPolicy 1.2

WS-ReliableMessaging 1.1

WS-Trust 1.3

WS-SecureConversation 1.3

SAML 2.0

WLS 11g

= WebLogic 10.3.3

WebLogic 11g

Starts with Naming Confusion...

- Technically WebLogic Server 10.3.3
- Foundation for Fusion Middleware 11g
- Default install to:

`\Oracle\Middleware\wlserver_10.3`

WebLogic 11g

Technically WLS 10.3.1, but

- new admin console look and feel**
- new schema namespaces and locations:
www.bea.com -> xmlns.oracle.com**

For all WLS schema definitions see:

http://www.oracle.com/technology/weblogic/wls_10.3.1.0.html

New Namespace Example

WLS specific web deployment descriptor:

```
<weblogic-web-app xmlns=  
"http://xmlns.oracle.com/  
weblogic/weblogic-web-app">
```

WebLogic 11g New Features

- Formal support for JSF 2.0
- Security Updates from My Oracle Support
- MW_HOME takes over from BEA_HOME
(currently still both co-exist)

WebLogic 11g New Features

- Integration with Coherence and Toplink (= WebLogic Suite)
- Two new Authentication Provider:
 - Oracle Internet Directory
 - Oracle Virtual Directory

Oracle Enterprise Pack for Eclipse

- Eclipse version 3.4 SP1+ or version 3.5
- Sun or JRockit JDK 5/6
- Supports Oracle WebLogic Server 8.1 to 10.x

WebLogic 11g

... New Features

Better Spring support:

- Spring console only needs to be enabled
- New monitoring in Spring console
- MedRec demonstrates Spring usage

Still limited supported configurations
e.g. 64 bit Solaris etc.

WebLogic 11g SSL

**Certicom SSL is replaced with
Java Secure Socket Extension (JSSE)**

-> SSLMBean is modified as well

Differences:

http://docs.oracle.com/cd/E21764_01/web.1111/e13707/ssl.htm#SECMG499

JSSE Supported ciphers:

<http://docs.oracle.com/javase/6/docs/technotes/guides/security/SunProviders.html#SunJSSEProvider>

New in WebLogic 10.3.2

WLS 10.3.2 comes with a *technical preview* for Service Component Architecture (SCA)

No other documented new features

WebLogic 10.3.2

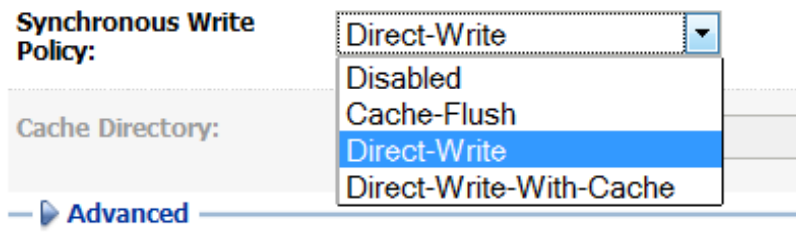
Link to Oracle what-is-new documentation:

http://download.oracle.com/docs/cd/E15523_01/web.1111/e13852/toc.htm

-> This documents repeates all new features from WebLogic 10.3.1 as „new“ again.

New in WebLogic 10.3.3

- PlatformMBeanServerUsed **default true**
- Persistent Store: **Direct-Write-With-Cache**
(data integrity same as Direct-Write,
increased runtime performance)



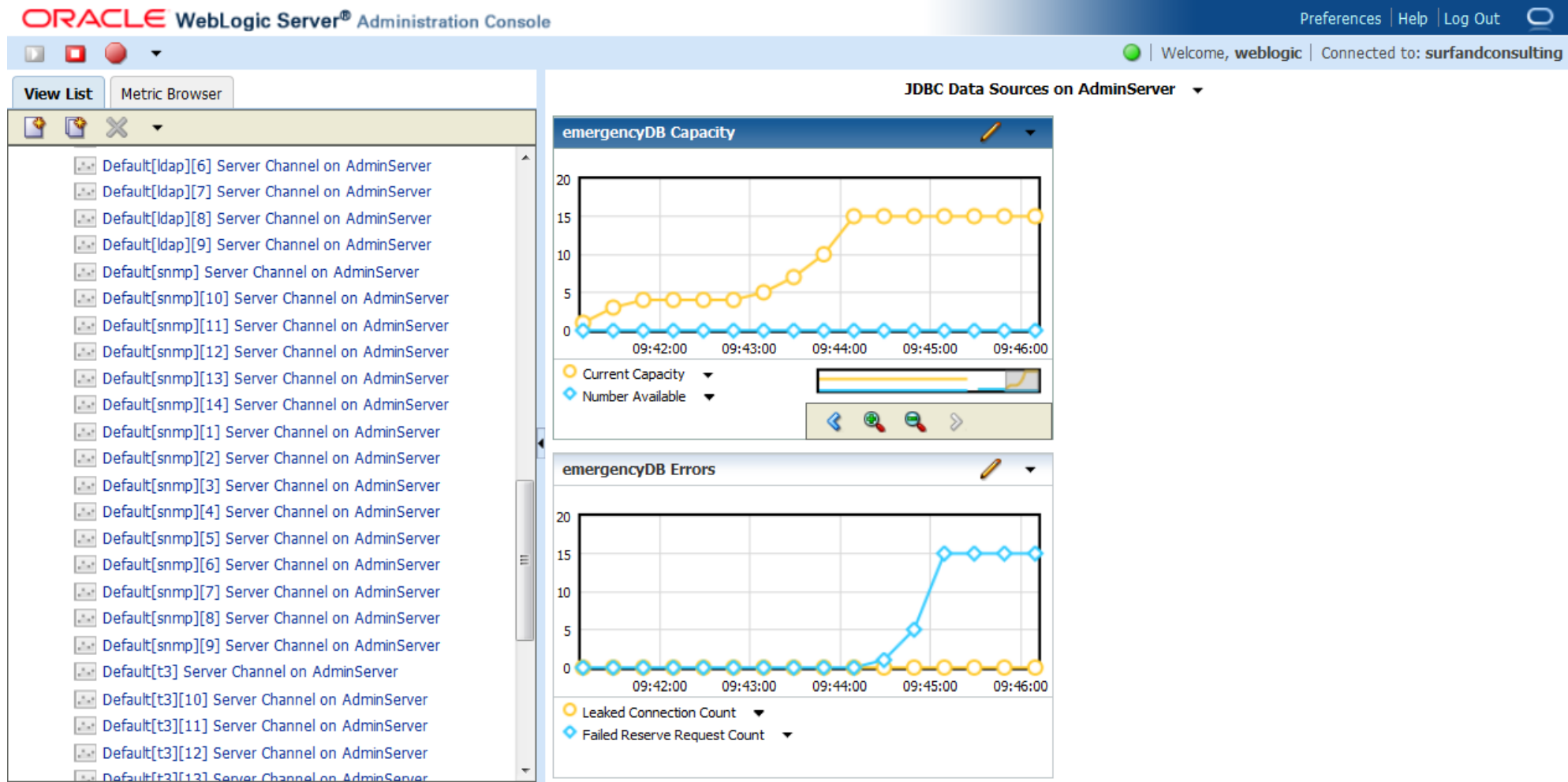
http://download.oracle.com/docs/cd/E14571_01/web.1111/e13701/store.htm#CNFGD242

New in WebLogic 10.3.3

- `AppDeploymentRuntimeMBean`
JMX only start and stop operations.
- `TraceMemoryAllocationAction`
Amount of memory allocated during a method similar to `TraceElapsedTimeAction`
- `MethodMemoryAllocationStatisticsAction`
- **Monitoring Dashboard replaces WLDF view**

Monitoring Dashboard

host:port/console/dashboard



New in WebLogic 10.3.3

Development only installer zip 400 MB:

- Samples
- Derby
- web server plugins
- JDK
- Coherence
- OEPE

**All this
NOT
included**

Derby Java DB

Derby 10.5.3 replaces Pointbase DB

Derby manuals:

<http://db.apache.org/derby/manuals/index.html>

... new 10.3.3 Features

- Freeze/Unfreeze the Statement Pool
- Server Logging Bridge:
log messages redirected to WebLogic logging
`weblogic.logging.log4j.ServerLoggingAppender`
configured in `log4j.properties` placed
in application classpath
- `mod_wl.so` supports Oracle HTTP Server too

WebLogic 10.3.3

Link to Oracle what-is-new documentation:

http://download.oracle.com/docs/cd/E14571_01/web.1111/e13852/toc.htm

WLS 10.3.4

CAT: Classloader Analysis Tool

To access the tool in development mode use:

`http://adminserver:port/wls-cat/`

Displays which classes are loaded by which classloader and potential conflicts.

Live demo:

`http://www.youtube.com/watch?v=I5Pt5515TwQ`

WLS 10.3.4

- **GridLink for RAC**

http://docs.oracle.com/cd/E21764_01/web.1111/e13737/gridlink_datasources.htm

- **WLS optimizations for Oracle Exalogic
(can be enabled from WLS admin console)**

http://docs.oracle.com/cd/E18476_01/doc.220/e18479/optimization.htm

WLS 10.3.4

New Standards Supported

- Java Persistence API now JPA 2.0
- REST-ful web services: JAX-RS 1.1

InfoQ overview article about
annotation based REST support in Java EE 6:

<http://www.infoq.com/news/2010/02/javasee6-rest>

WLS 12c

WebLogic 12c New Features

- **Online WLS 12c documentation:**

http://docs.oracle.com/cd/E24329_01/index.htm

- **WLS 12c certified with JDK7 (also WLS10.3.6)**

<http://www.munzandmore.com/2012/ora/weblogic-12c-jdk7-jcmd>

- **ZIP Distribution with 164 Mbytes only**

- **Finally supports Java EE 6**

(EJB3.1 in war, Servlet 3, CDI, BeanValidation)

WebLogic 12c New Features

- JDBC store (non-XA) for JTA TX logs is now possible
- Improved Maven plugin which was introduced with WLS 10.3.4

Supports install, start and stop servers, create domains, execute WLST scripts, and compile and deploy applications

WebLogic 12c DEPRECATED Features

- UDDI v2 registry and explorer removed (most OFM products need v3 anyway)
- -D `weblogic.management.username` is deprecated now (still working in devel mode).

Risks, Glitches and Problems

- WLS12c does not include proxy plugin for web server load balancing.

<https://forums.oracle.com/forums/thread.jspa?threadID=2330613>

<http://www.munzandmore.com/2012/ora/wls-12c-proxy-plugin-is-missing>

Web Services Compatibility

- **Version tag is recommended for Java EE 6 webservices:**

```
<Jan 9, 2012 3:57:34 PM CET> <Warning> <Munger> <BEA-2156203>  
<A version attribute was not found in element "webservices" in  
the deployment descriptor  
weblogic.utils.classloaders.ChangeAwareClassLoader@16fa677  
finder: weblogic.utils.classloaders.CodeGenClassFinder@1846149  
annotation: Monitor@Monitor.war/WEB-INF/webservices.xml. A  
version attribute is required, but this version of the  
WebLogic Server will assume that the latest version is used.  
Future versions of WebLogic Server will reject descriptors  
that do not specify the Java EE version. To eliminate this  
warning, add an appropriate "version=" to element  
"webservices" in the deployment descriptor.>
```

Maven Plugin

**Comes as .jar + .pom file in
WL_SERVER/server/lib**

**Good introduction to the WebLogic Maven plugin by
Jeffrey West**

<http://www.youtube.com/watch?v=hagaMr6UL6U>

Maven Download and Documentation:

<http://maven.apache.org>

Java EE 6 Web

- **Servlets**
 - without XML files -> web.xml optional
 - asyc processing
- **Web Profile**
 - war file can contain EJBs
 - Bean Validation (enforced in JSF and JPA!)
`@Size(min=1, max=18)`
`private String city`

Java EE 6: EJB 3.1

- **EJB 3.1**
 - **No interfaces -> 1 source file per EJB**
 - **Singleton EJBs: 1 instance per JVM**
`@Singleton`
 - **Lightweight Async methods**
return void or Future
 - **Improved EJB Timer Service**
`@Schedule(dayOfWeek="Mon/Wed")`

Java EE 6

- Events across beans with `@Observes`
- Context and Dependency Injection (CDI)
 - Replaces JNDI lookups

Java EE 6 with WLS Introductions

Good resources to get started with Java EE 6

Adam Bien

<http://it-republik.de/jaxenter/news/Adam-Bien-60-Minuten---mit-Java-EE-6-058320.html>

WLS12c and Netbeans

<http://www.youtube.com/watch?v=WkxgrVqZ7D0>

More Information

Blog <http://www.munzandmore.com/blog>

Courses <http://www.munzandmore.com/courses>

WLS Books <http://bit.ly/tdColu>

CloudBook <http://www.amazon.com/dp/0980798000>
(free chapter for downloading at Oracle ArchBeat)

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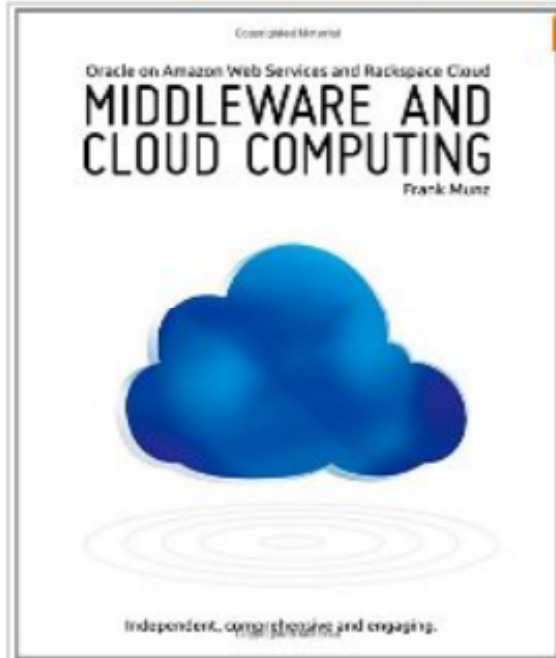
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