

# JBoss AS 101

## JBoss Basic Usage

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## EJB Open Source Software

### An Open Source, full Java, implementation of EJB Specification

- Designed by Marc Fleury
- EJB Open Source Software become JBoss AS
- Fleury left SUN to create JBoss Inc., professional support to JBoss
- JBoss become the first Open Source AS compliant to J2EE

### Professional Open Source

- Open Source Software
- Support

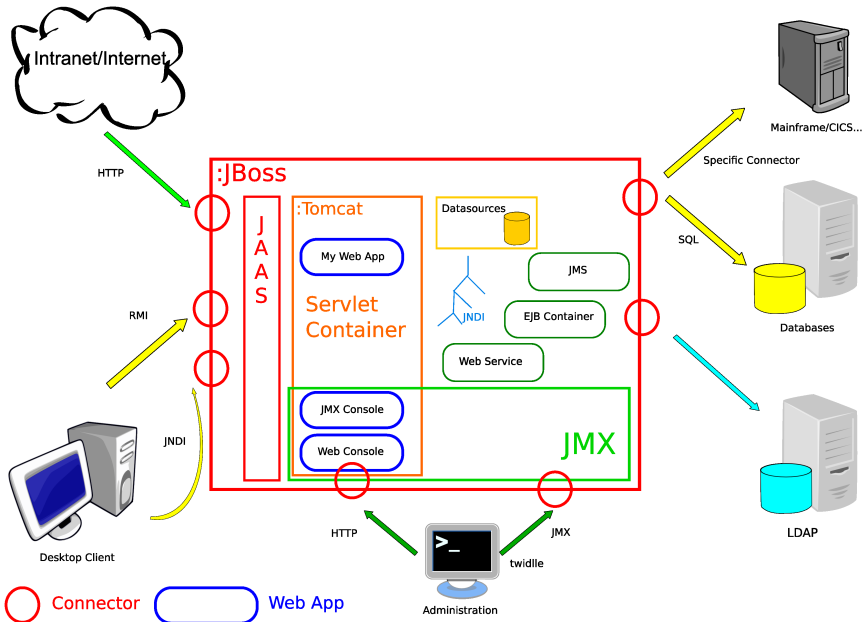
## J2EE Specification

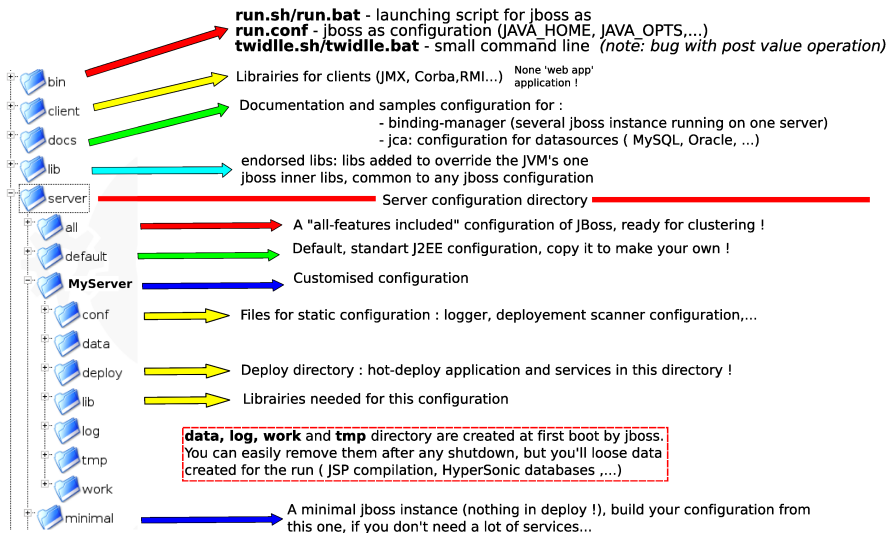
- Defines an application server duties
- Set of technical services, most likely to required by to any application
  - Security : JAAS Implementation
  - Servlet Container (Servlet, JSP) : Tomcat Web Server
  - JMS Implementation : JBossMQ, JBossMessaging
  - Database access : Support for Oracle,MySQL,...
  - Web Services : Axis,JBossWS
  - Transactionnal monitoring : Arjuna

## Purpose of the specification

- Basicly, J2EE specification defines what an application server should do (not how it should do it)
- Application development is focused on business logic

# Application Server : An integration product





## Create your configuration

Simply copy *default* configuration into a new folder \$ `cp -R default td`  
Ready to run !

Let's run...

\$`{JBoss_HOME}/bin/run.sh -c td -b 127.0.0.1`

- `-c` : specify the configuration ( default is *default* )
- `-b` : specify IP binding ( by default binds on any interfaces )

```

rnelisse@os-ports:/opt/java/jboss.dir/jboss-4.0.5.GA$ ./bin/run.sh -c myServer -b 127.0.0.1

JBoss Bootstrap Environment

JBoss_HOME: /opt/java/jboss.dir/jboss-4.0.5.GA
JAVA: /opt/java/jdk/bin/java
JAVA_OPTS: -Dprogram.name=run.sh -server -Xms128m -Xmx512m -Dsun.rmi.dgc.client.gcInterval=3600000 -Dsun.rmi.dgc.server.gcInterval=3600000 -Djava.awt.headless=true
CLASSPATH: /opt/java/jboss.dir/jboss-4.0.5.GA/bin/run.jar:/opt/java/jdk/lib/tools.jar

18:39:01,334 INFO [Server] Starting JBoss [MI MicroKernel]...
18:39:01,336 INFO [Server] Release ID: JBoss (Zion) 4.0.5.GA (build: C5TagBranch_4.0_data-200610162339)
18:39:01,336 INFO [Server] Home Dir: /opt/java/jboss.dir/jboss-4.0.5.GA
18:39:01,337 INFO [Server] Home URL: file:/opt/java/jboss.dir/jboss-4.0.5.GA/
18:39:01,338 INFO [Server] Patch URL: null
18:39:01,339 INFO [Server] Server Name: myServer
18:39:01,339 INFO [Server] Server Home Dir: /opt/java/jboss.dir/jboss-4.0.5.GA/server/myServer
18:39:01,340 INFO [Server] Server Home URL: file:/opt/java/jboss.dir/jboss-4.0.5.GA/server/myServer/
18:39:01,340 INFO [Server] Server Temp Dir: /opt/java/jboss.dir/jboss-4.0.5.GA/server/myServer/tmp
18:39:01,339 INFO [Server] Root Deployment Filename: jboss-service.xml
18:39:01,847 INFO [ServerInfo] Java version: 1.5.0_85; Sun Microsystems Inc.
18:39:01,847 INFO [ServerInfo] Java VM: Java HotSpot(TM) Server VM 1.5.0_86-b05; Sun Microsystems Inc.
18:39:01,848 INFO [ServerInfo] OS System: Linux 2.6.22-14-generic; L206
18:39:02,461 INFO [Server] Core system initialized
18:39:07,485 INFO [WebService] Using RMI server codebase: http://localhost:8083/
18:39:07,531 INFO [Log]ServiceURLWatchTask] Configuring from URL: resource://opt.xml
  
```

## Standart J2EE packaging format

J2EE application are simple directory tree (that may be zipped). Suffix indicates type of application :

- war : Web Archive, simple web application (no EJB)
- ear : Enterprise Archive (EJB application)
- sar : Service Archive (Specific to JBoss, the application is a JBoss Service)
- jar : Java Archive



## Deployment order

JBoss deploys applications according to the filename suffix, plus some jboss-specific mecanism

- 1 deploy.first/, if this directory exist in deploy folder
- 2 \*.sar
- 3 \*.ear
- 4 \*.war
- 5 deploy.last/

## How to deploy

Simply put the file/directory, with the proper suffix, into the server/*config*/deploy directory to deploy it.

- Remote deploy is possible (but seldom used)
- **Russian Doll** packaging (ex : a jar containing a war and an other jar)
- Creates a **Classloader** per top-level deployment

## Deploy the jboss-101-1.0.war

To deploy the application simply copy the war file into the server/myServer/deploy.

```
11:39:49,273 INF-0 [Server] JBoss (MX MicroKernel) [4.0.5.GA (build: CVSTag-Branch 4.0 date=200610162339)] Started in 36s:389ms
11:40:13,793 INF-0 [TomcatDeployer] undeploy, ctxPath=/jboss-101-1.0, warUrl=.../tmp/deploy/tmp36970jboss-101-1.0-exp.war/
11:40:14,882 INF-0 [TomcatDeployer] deploy, ctxPath=/jboss-101-1.0, warUrl=.../tmp/deploy/tmp36971jboss-101-1.0-exp.war/
```

## Deploy as a directory

- 1 Remove the jboss-101-1.0.war from deploy
- 2 Unzip the application into a directory named jboss-101-1.0.war/
- 3 Copy the folder to *deploy*


## Set up JBoss to debug

Simply uncomment the following line in the **bin/run.conf** :

```
# Sample JPDA settings for shared memory debugging
#JAVA_OPTS="$JAVA_OPTS -Xdebug -Xnoagent -Djava.compiler=NONE -Xrunjdwp:transport=dt_shmem,server=y,suspend=n,address=jboss"
```

Sample JPDA settings for remote socket debugging

## Configuring debug configuration for Eclipse

- Run Open Run dialog -  Remote Java Application (Click on the new button)
- Set port (8787) and host (most likely localhost)

## Removing unused services

Services are deployed in deploy, if you don't use them, just remove them !

## Tuning static configuration

Static services, such as the deployment scanner, may also be tuned, in the *conf/* directory of jboss

## More about tuning...

<http://wiki.jboss.org/wiki/Wiki.jsp?page=JBossASTuningSlimingJBoss> Sliming and Tuning

## Removing unused services

Move the deploy/jms folder to undeployed/ (create this folder), restart jboss. Move the deploy/hsqldb-ds.xml to undeployed/ , restart jboss

## Tuning the deployment scanner

Edit the conf/jboss-service.xml, look for the <mbean  
code="org.jboss.deployment.scanner.URLDeploymentScanner"  
Modifying the XML code to reduce the scanner frequency and to ignore  
.test files.

## Removing unused services

- Main ports :
  - 8080 : Tomcat Web Container
  - 1099 : JNDI
  - ...
- Connector
  - HTTP
  - AJP
  - RMI (RMI over HTTP)
  - JMX
- Binding Manager

## Setting up two jboss instances on the same server

Follow the tutorial in order to deploy a copy of your configuration

<http://wiki.jboss.org/wiki/Wiki.jsp?page=ConfiguringMultipleJBossInstancesOnOneMachine>



## How to secure a web application

http:

`//wiki.jboss.org/wiki/Wiki.jsp?page=SecureTheJmxConsole`

## JMX Architecture

- JBoss architecture is based on JMX specification.
- Any services is a Managed MBean.

## Administration tools

- Web applications : web-console and JMX Console
- Command line tool : twiddle.shtwiddle.bat
- Monitoring capabilities : JBoss Monitoring Services

## Using JMX Console

Using the web app browse the jmx-console ( <http://jboss-host:8080/jmx-console/> ) and find the following MBean :  
host=localhost,path=/jboss-101-1.0,type=Manager  
Look to all the data you can gather on this wepapp.

## Using the twiddle script

Using the twiddle.sh/twiddle.bat file in the 'bin' directory

## What is a cluster and what for ?

- ① Farm and Cluster
- ② Session Replication (asynchronous or synchronous)
- ③ Cost

## How to cluster

Run `./bin/run.sh -c all` Adapt the demo application so it became clusterable