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 Softare become JBoss AS
- Fleury left SUN to create JBoss Inc., professionnal support to JBoss
- JBoss become the first Open Source AS compliant to J2EE

Professional Open Source

- Open Source Software
- Support

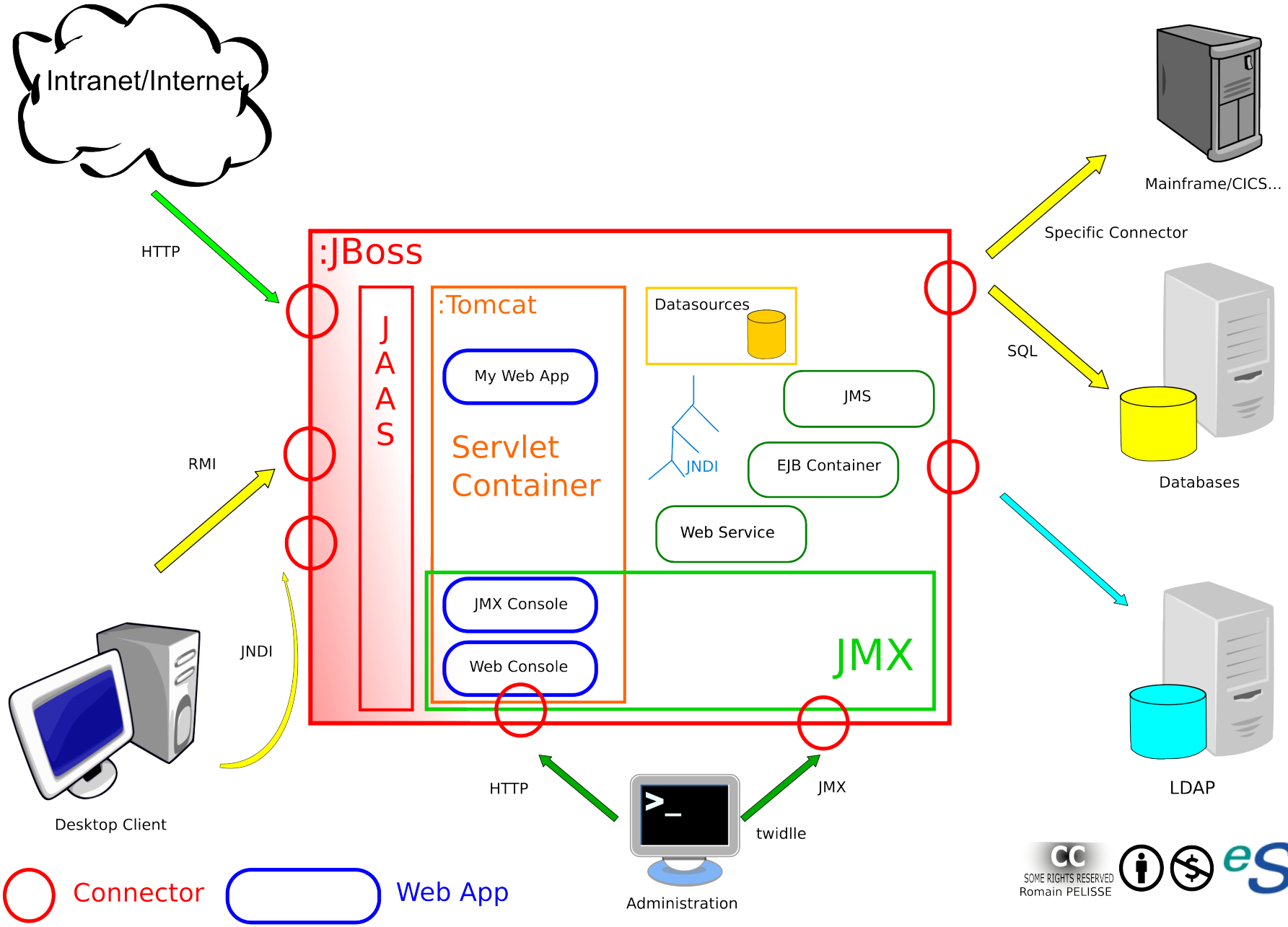
J2EE Specification

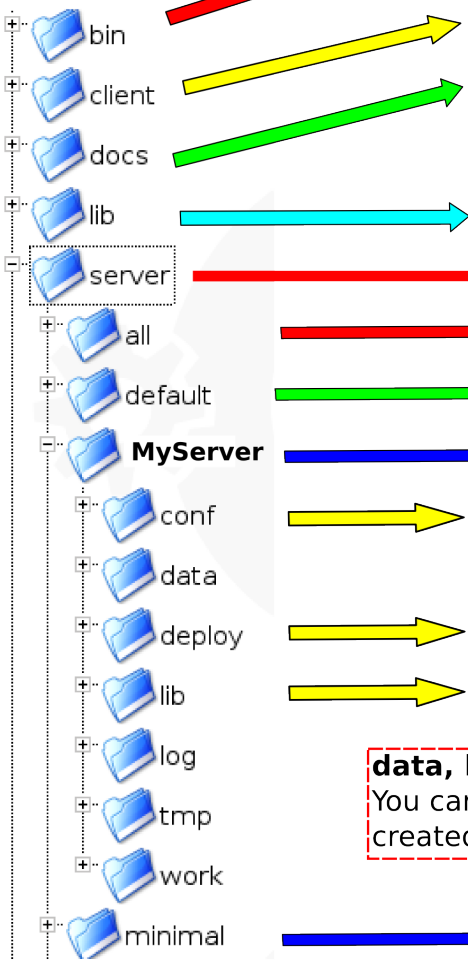
- Defines an application server duties
- Set of technical services, most likely to required by to any application
  - Security : JAAS Implementation
  - Servlet Container (Servlet, JSP) : Tomcat Web Server
  - JMS Implementation : JBossMQ, JBossMessaging
  - Database access : Support for Oracle,MySQL,...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

Purpose of the specification

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

Application Server : An integration product





run.sh/run.bat - launching script for jboss as
run.conf - jboss as configuration (JAVA_HOME, JAVA_OPTS,...)
twidlle.sh/twidlle.bat - small command line *(note: bug with post value operation)*

Librairies for clients (JMX, Corba,RMI...) None 'web app' application !

Documentation and samples configuration for :
- binding-manager (several jboss instance running on one server)
- jca: configuration for datasources (MySQL, Oracle, ...)

endorsed libs: libs added to override the JVM's one
jboss inner libs, common to any jboss configuration

Server configuration directory

A "all-features included" configuration of JBoss, ready for clustering !

Default, standart J2EE configuration, copy it to make your own !

Customised configuration

Files for static configuration : logger, deployement scanner configuration,...

Deploy directory : hot-deploy application and services in this directory !

Librairies needed for this configuration

data, log, work and **tmp** directory are created at first boot by jboss.
You can easily remove them after any shutdown, but you'll loose data created for the run (JSP compilation, HyperSonic databases ,...)

A minimal jboss instance (nothing in deploy !), build your configuration from this one, if you don't need a lot of services...

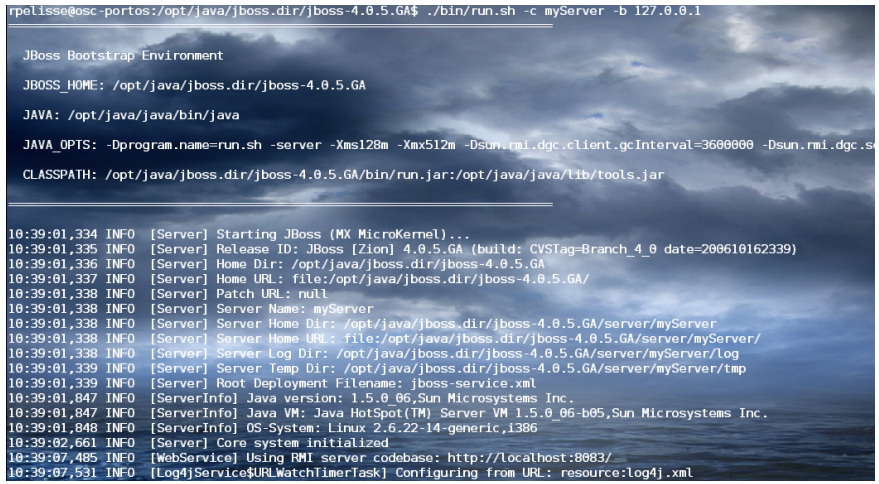
Create your configuration

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)



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 : Entreprise Archive (EJB application)
- sar : Service Archive (Specific to JBoss, the application is a JBoss Service)
- jar : Java Archive

Deployement order

JBoss deploys application according to there 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 loading is possible (seldom used)
- **Russian Doll** packaging (ex : a jar containing a war and an other jar)
- Creates a **Classloader** per top-level deployement

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 INFO  [Server] JBoss (MX MicroKernel) [4.0.5.GA (build: CVSTag=Branch_4_0 date=200610162339)] Started in 36s:389ms
11:40:13,793 INFO  [TomcatDeployer] undeploy, ctxPath=/jboss-101-1.0, warUrl=.../tmp/deploy/tmp36970jboss-101-1.0-exp.war/
11:40:14,002 INFO  [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 debuging

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 deployement scanner, may also be tuned, in the *conf/* directory of jboss

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 deployement 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