





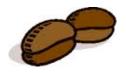


# Architecture des Systèmes d'Information

EJB 3 Hello Example

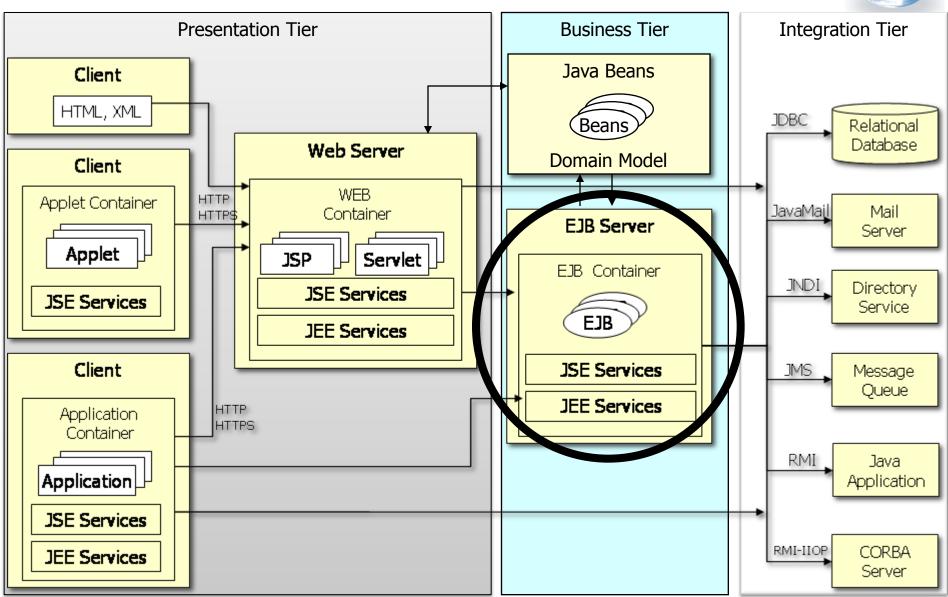






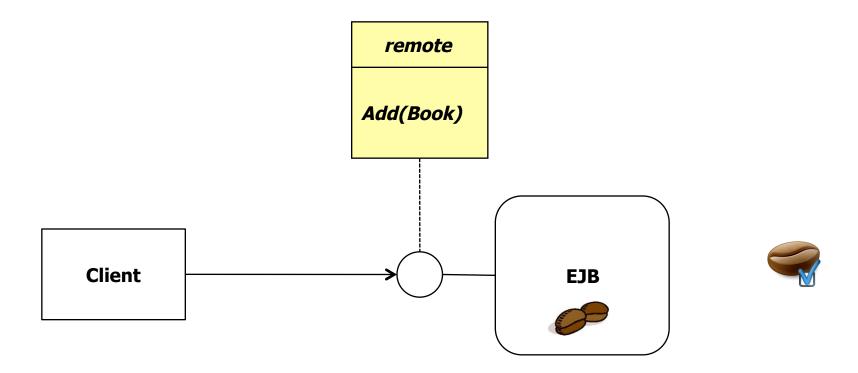
#### JEE JSE and EJB

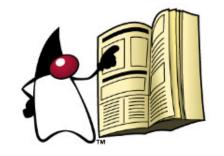




**Emmanuel fuchs Architecture des Systèmes d'Information** 

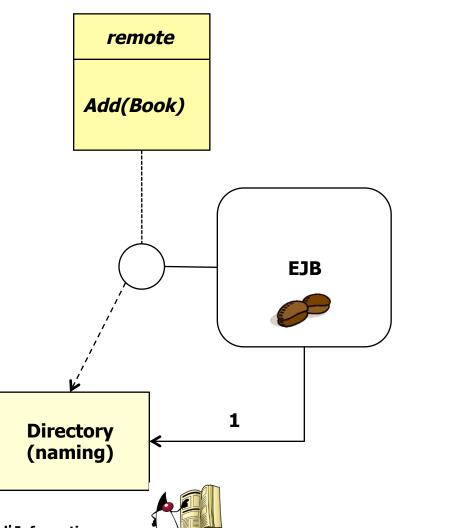




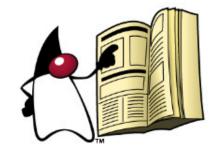




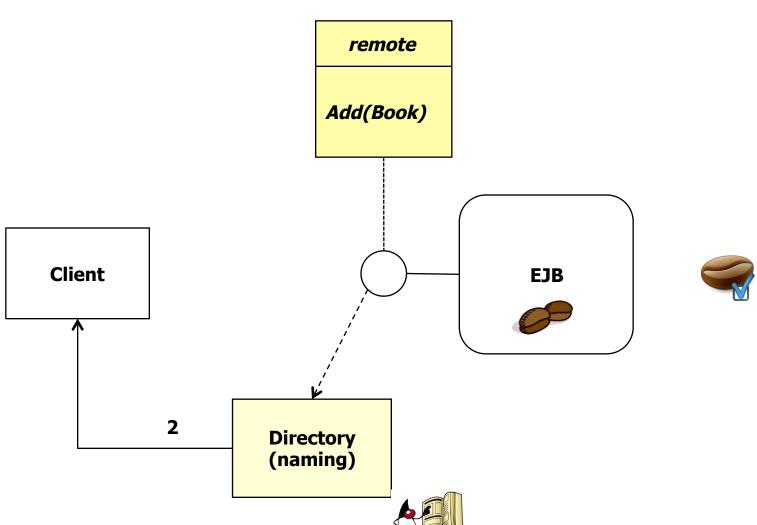
Client

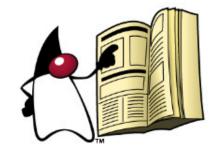


**Emmanuel fuchs Architecture des Systèmes d'Information** 

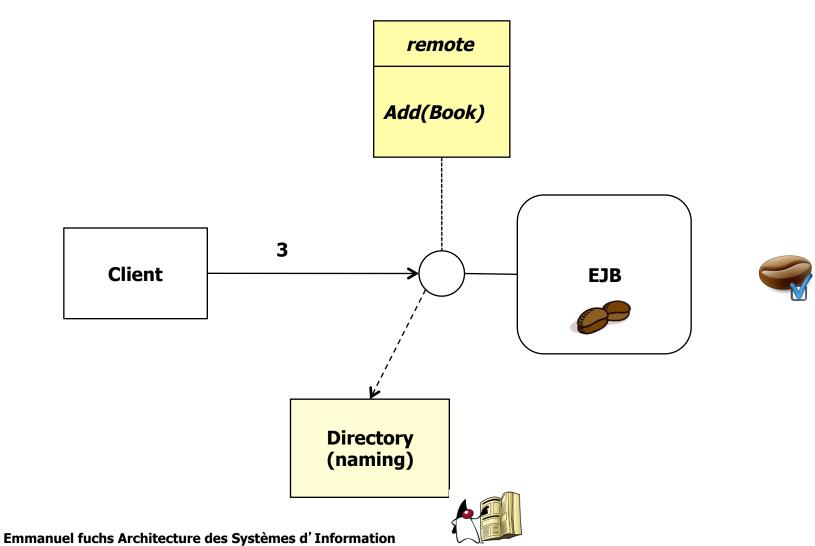


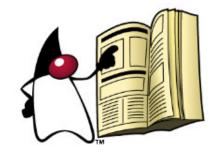




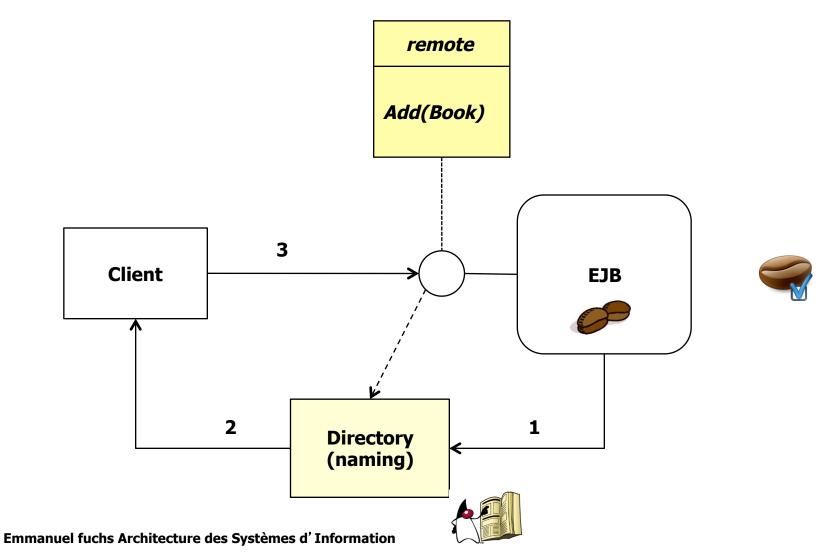




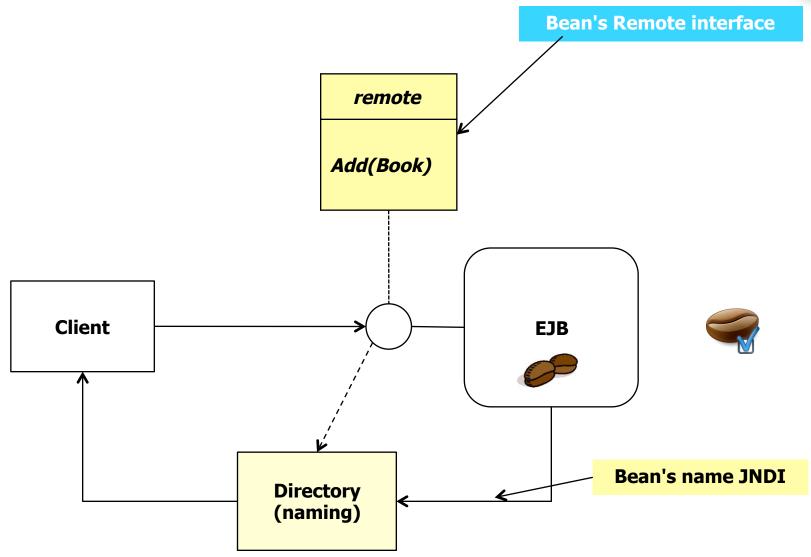






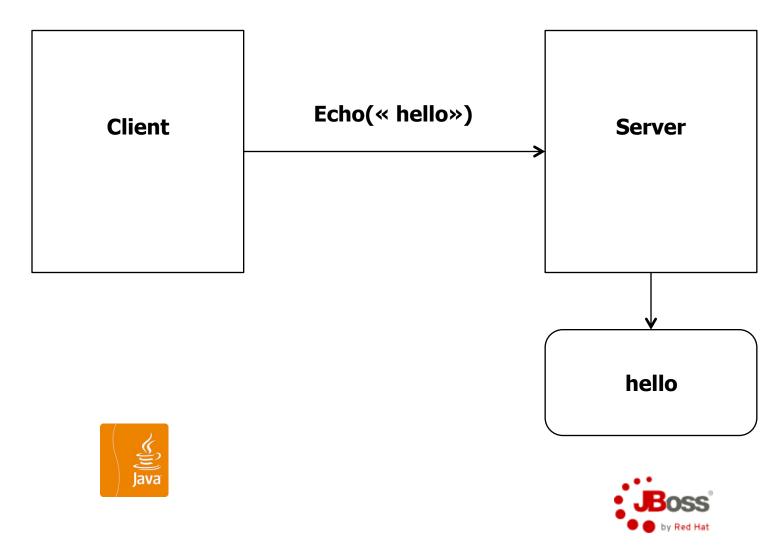






### **Client Server**

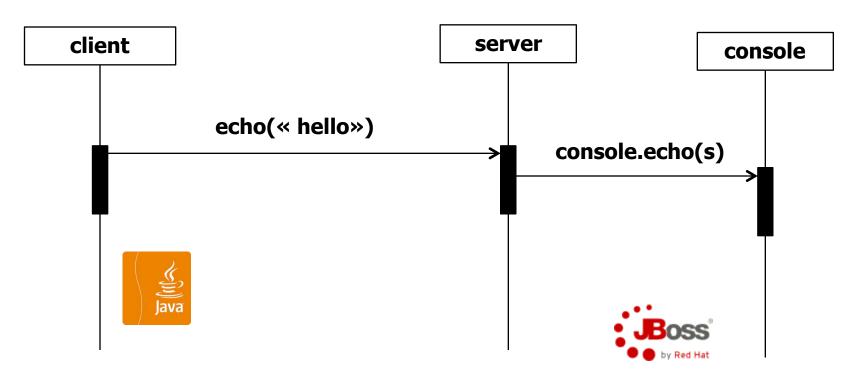




#### Client Server



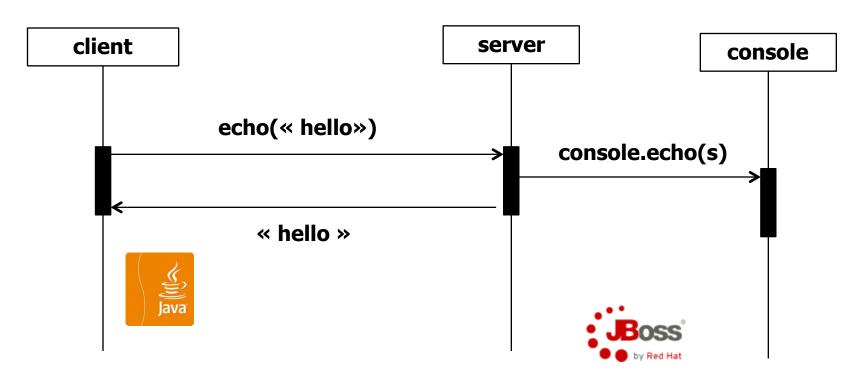




#### Client Server



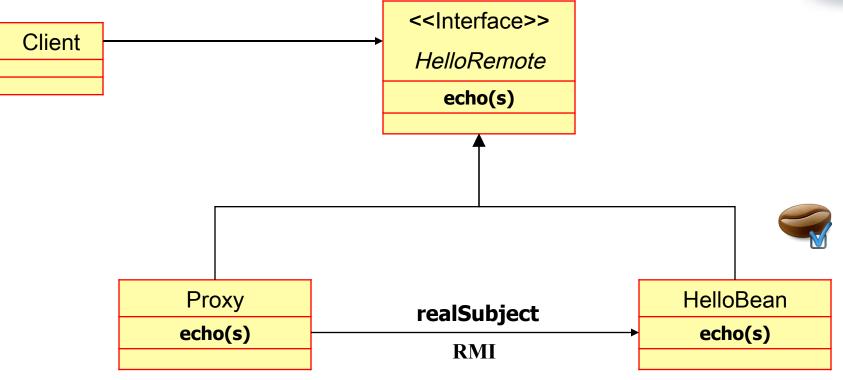




# EJB 3 (UML)







Client side Stub

**Client JVM** 



Server side Skeleton

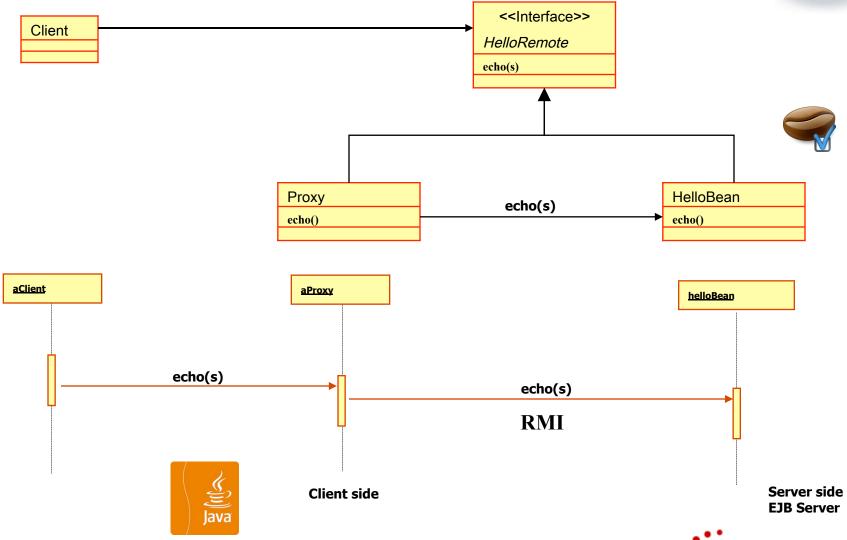
**EJB** server



### EJB 3

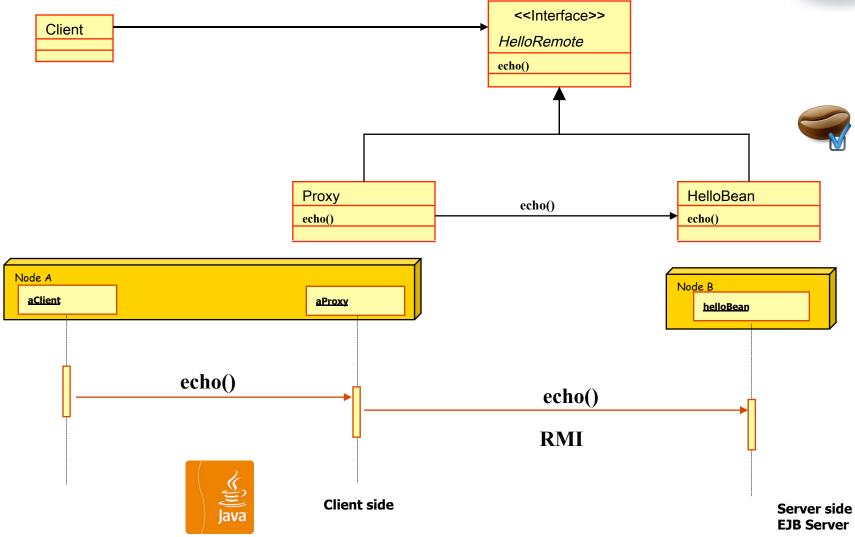






### EJB 3





#### Servlet VS EJB





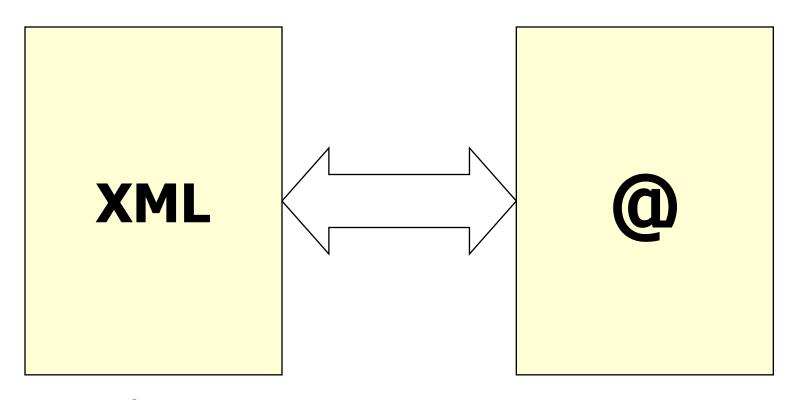












Deployement Descriptor

**Annotations** 



#### EJB versions





**EJB 1.x** 

**Client** ← Remote



**EJB 2.x** 

Client Remote Local

**EJB 3.x** 

Client Remote
Local
Annotation



#### Tree Structure (EJB3)





```
D:\simple-Hello>tree /A /F
D:.
+---classes
     jndi.properties
   \---hello
       Client.class
       HelloBean.class
       HelloRemote.class
 ---source
  \---hello
       Client.java
       HelloBean.java
       HelloRemote.java
```

#### Interface HelloRemote



```
package hello;
import javax.ejb.*;
@Remote
public interface HelloRemote {
    public String echo(String s);
}
```







#### Bean class Hello (EJB3)





```
package hello;
import javax.ejb.*;
import javax.annotation.Resource;
@Stateless
public class HelloBean implements HelloRemote {
         public String echo(String s) {
         System.out.println("HelloEcho = "+s);
         return s;
```



### Hello Bean Java Client (EJB3)

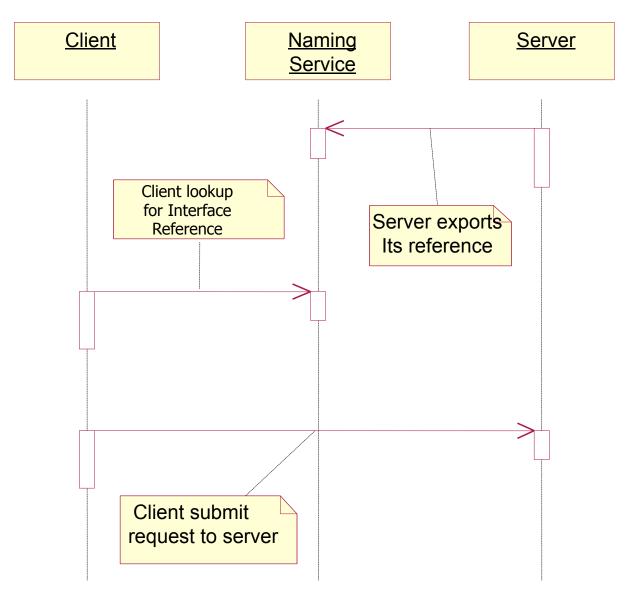


```
package hello;
import javax.ejb.*;
import javax.naming.*;
public class Client {
     public static void main(String[] args) throws Exception {
          //JBoss default remote jndi: <ejb-name>/remote
          InitialContext ctx = new InitialContext();
          Object obj = ctx.lookup("HelloBean/remote");
          System.out.println("lookup returned " + obj);
          HelloRemote hello = (HelloRemote) obj;
          String s = hello.echo("Hello EJB3");
          System.out.println(hello + " echo returned " + s);
```



# Name advertising

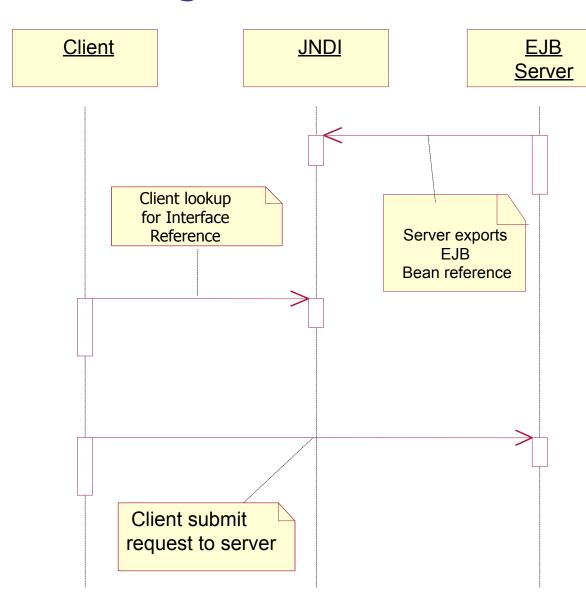




# Name advertising

#### **Java Naming and Directory Interface**







#### **EJB Name**



■ EJB 2.1 : Home Name

■ EJB 3.x : Remote Name



# JBOSS naming pattern



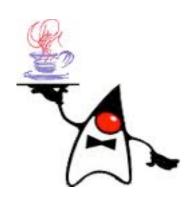


- The JBoss EJB 3.x pattern is:
  - First the EAR name / The EJB Implementation
     Component / remote or local.
- The context.lookup method looks for the remote object inside the EJB module and returns its instance.





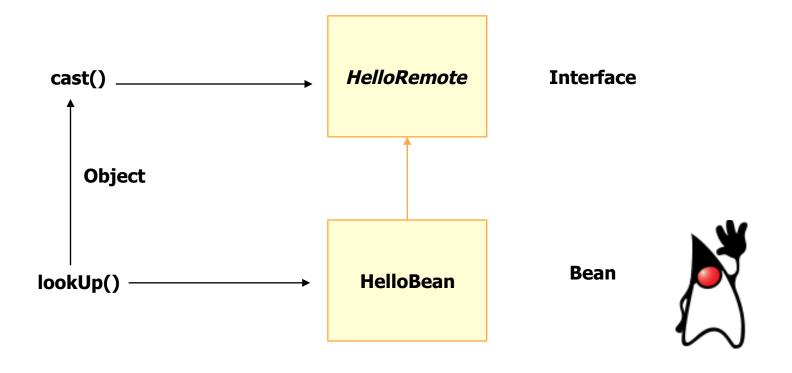


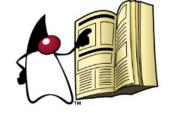


## Détail du Casting









## Returned Proxy



```
Object obj = ctx.lookup("HelloEJB3Bean/remote");
System.out.println("lookup returned " + obj);
HelloEJB3Remote hello = (HelloEJB3Remote) obj;
String s = hello.echo("Hello EJB3");
System.out.println(hello + " echo returned " + s);
```

lookup returned Proxy to jboss.j2ee:jar=helloEJB3.jar,name=HelloEJB3Bean,service=EJB3 implementing [interface EJB3.HelloEJB3Remote]
Proxy to jboss.j2ee:jar=helloEJB3.jar,name=HelloEJB3Bean,service=EJB3 implementing [interface EJB3.HelloEJB3Remote] echo returned Hello EJB3

### JNDI boostrap



- Servlet client
  - No properties file
    - Managed by the container
- App Client
  - Properties file or
  - Properties Map



**Java Naming and Directory Interface** 





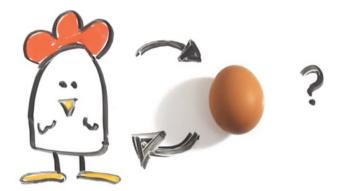
### Contexte Initial (boostrap)





- Créer le contexte initial
  - Création sans paramètres provoque la recherche d'un fichier « jndi.properties ».

InitialContext ctx = new InitialContext();



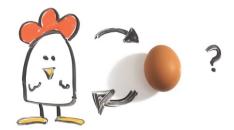


# jndi.properties





java.naming.factory.initial=org.jnp.interfaces.NamingContextFactory java.naming.factory.url.pkgs=org.jboss.naming:org.jnp.interfaces java.naming.provider.url=localhost:1099



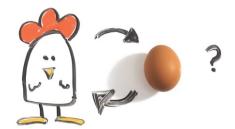


# jndi.properties





java.naming.factory.initial=org.jnp.interfaces.NamingContextFactory java.naming.factory.url.pkgs=org.jboss.naming:org.jnp.interfaces java.naming.provider.url=localhost:1099







# jndi.properties





java.naming.factory.initial=org.jnp.interfaces.NamingContextFactory java.naming.factory.url.pkgs=org.jboss.naming:org.jnp.interfaces java.naming.provider.url=localhost:1099

**Attention: jndi minuscule** 

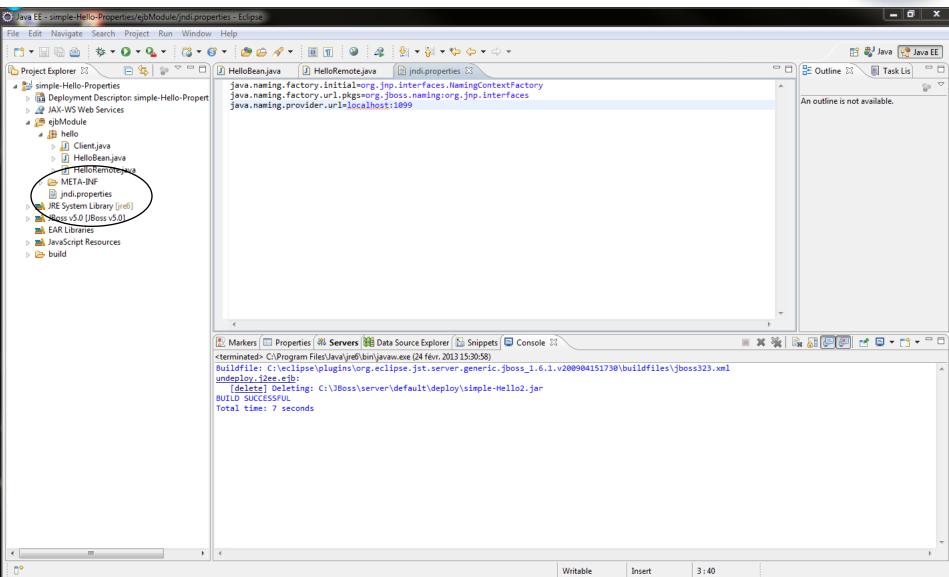


Pas d'espaces



# jndi.properties file in eclipse





#### **EJB Home Naming**

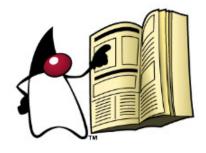




- To use an EJB, a client must first get a reference to its Home interface using JNDI (Java Naming and Directory Interface).
- The Home create() method returns a reference to the EJB remote interface : HelloWorld.
- To find the home client lookups for the EJB name.





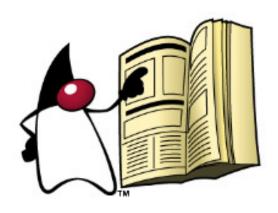


### The JBoss pattern for naming hierarchy



- The JBoss pattern is :
  - First the EAR name / The EJB Implementation
     Component / remote or local.

First the EAR name / The EJB Implementation Component / remote or local.





#### Utilisation de la console Jboss





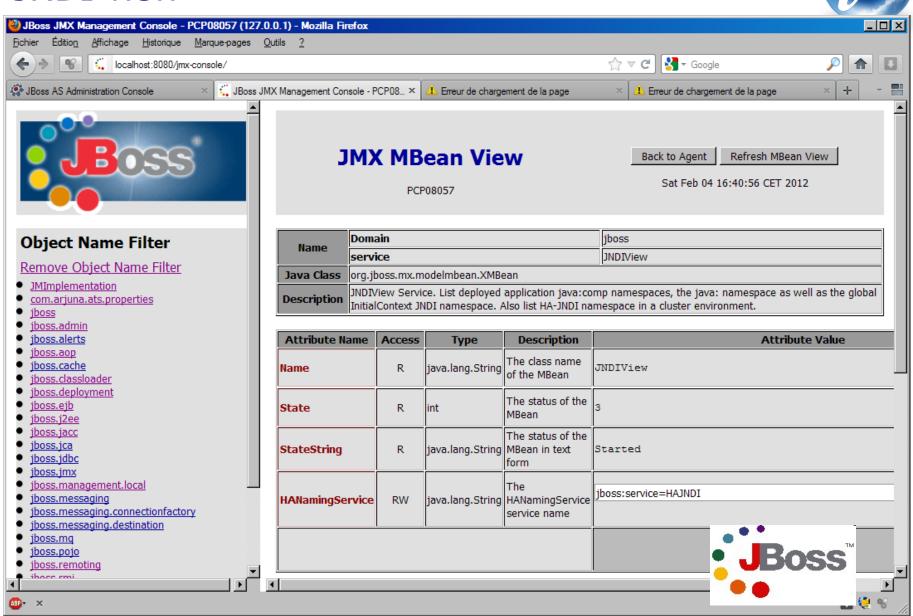
**Choisir JNDI View** 

Utilisation de la console Jboss





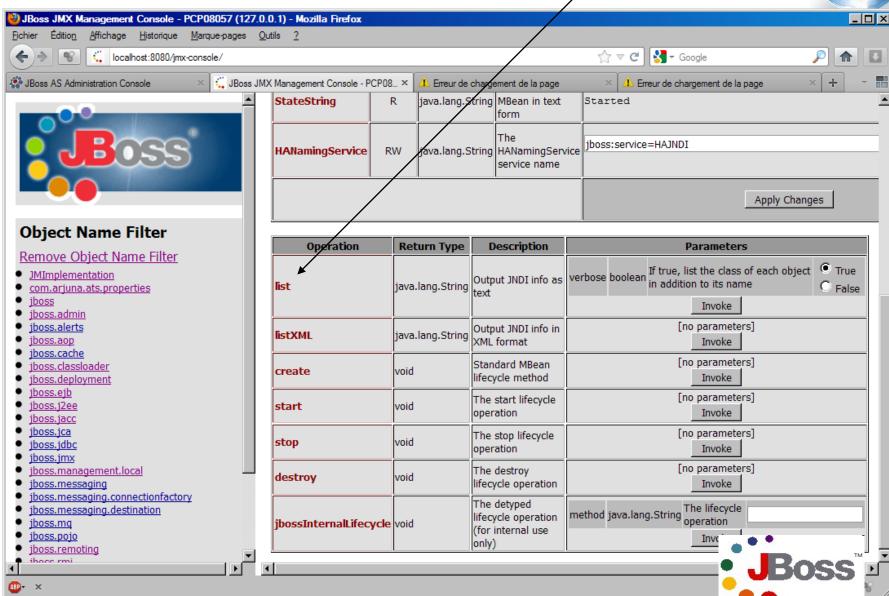
## JNDI view



## JNDI View

#### **Choisir list**



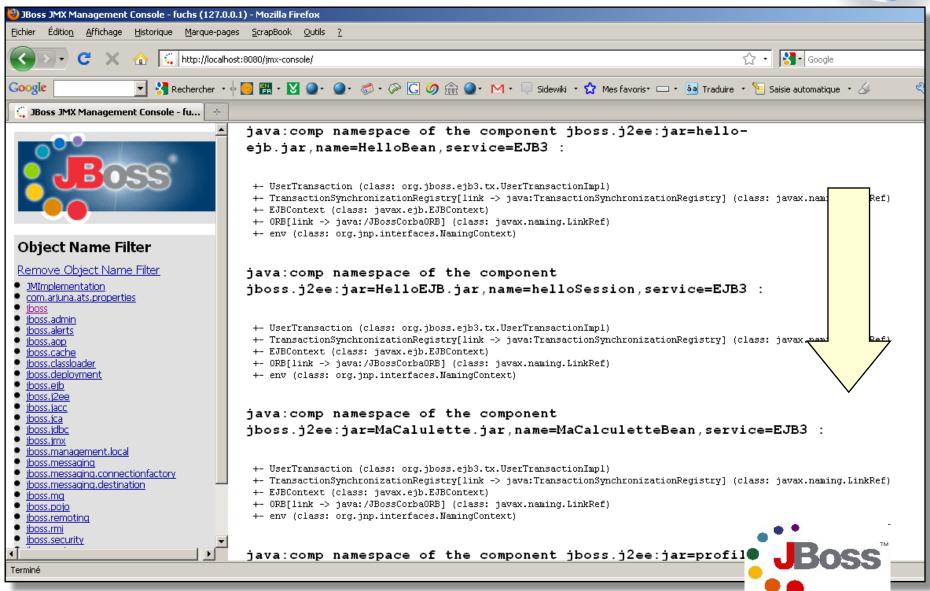


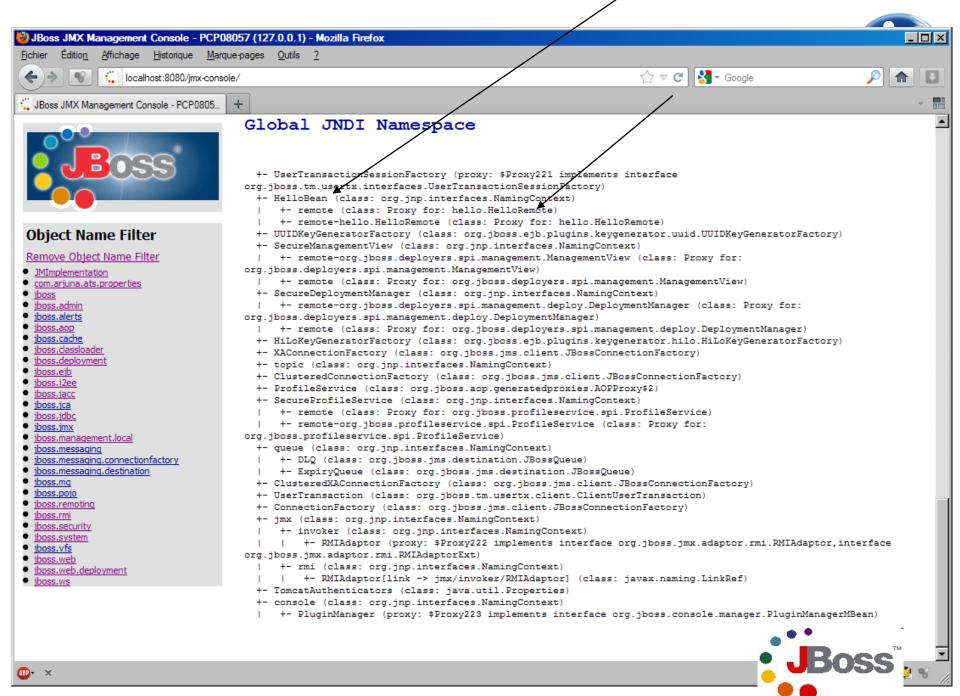
## **JBoss**



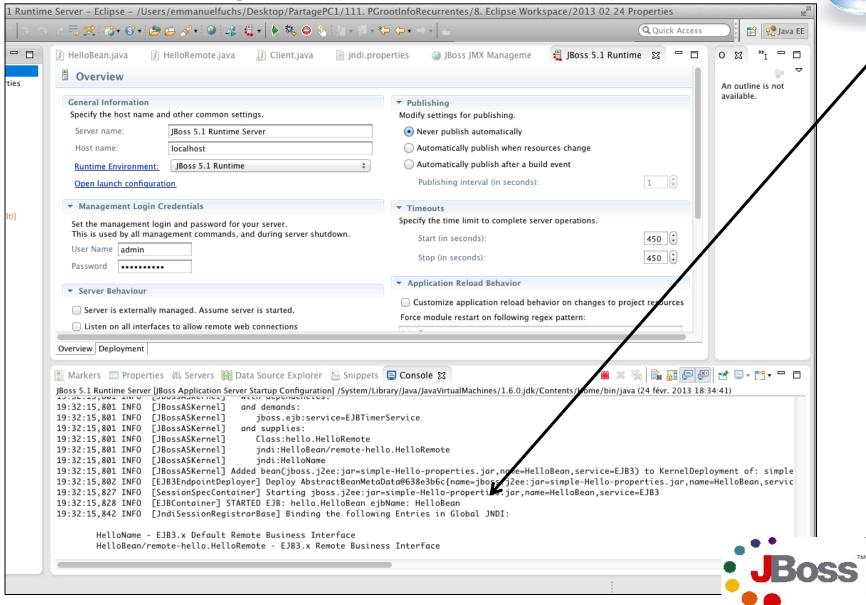








JNDI Binding





```
Java EE - simple-Hello-properties/ejbModule/hello/Client.java - Eclipse - /Users/emmanuelfuchs/Desktop/PartagePC1/111. PGrootInfoRecurrentes/8. Eclipse Workspace/2013 02 24 Properties
                                                       Q Quick Access
                                                                                                                                                                                               😭 🥦 Java EE
 HelloBean.java
                                                                        HelloRemote.java

    Client.iava 
    ☐ indi.properties 
    ☐ JBoss JMX Manageme

                                                         package hello:
  ▼ 🎥 simple-Hello-properties

    ⊜ import java.util.Properties;

    ▶ 13.0 Deployment Descriptor: simple-Hello-properties
    ▶ A JAX-WS Web Services
                                                         import javax.ejb.*;
    ▼ # ejbModule
                                                         import javax.naming.*;
                                                                                                                                                                                           ▼ @ Client
       ▼ 🔠 hello
                                                                                                                                                                                               S main(String)
         ► J Client.java
                                                         public class Client {

▼ J HelloBean.java
           ▶   HelloBean
                                                             public static void main(String[] args) throws Exception {

▼ I HelloRemote.iava
                                                                 //JBoss default remote indi: <ejb-name>/remote
           ▶ 1 HelloRemote
       ▶ B META-INF
                                                                 InitialContext ctx >
                                                                                       new InitialContext(
         indi.properties
    ▶ ■ JRE System Library [Java SE 6 (MacOS X Default)]
                                                                 Object obj = ctx lookup("HelloName");
    ▶ ➡ JBoss 5.1 Runtime [JBoss 5.1 Runtime]
      EAR Libraries
                                                                 System.out.println(
      🗁 build
                                                                 HelloRemote hello = (HelloRemote) obj;
                                                                 String s = hello.echo("Hello EJB3");
                                                                 System.out.println(hello + " echo returned " + s);
                                                         3
                                                    Markers 🔲 Properties 🚜 Servers 🏬 Data Source Explorer 隘 Snippets 📮 Console 🔀
                                                     JBoss 5.1 Runtime Server [JBoss Application Server Startup Configuration] /System/Library/Java/JavaVirtualMachines/1.6.0.jdk/Contents/Home/bin/java (24 févr. 2013 18:34:41)
                                                     19:32:15,801 INFO [JBossASKernel]
                                                                                             jndi:HelloBean/remote-hello.HelloRemote
                                                     19:32:15,801 INFO [JBossASKernel]
                                                                                             jndi:HelloName
                                                     19:32:15,801 INFO [JBossASKernel] Added bean(jboss.j2ee:jar=simple-Hello-properties.jar,name=HelloBean,service=EJB3) to KernelDeployment of: simple
                                                     19:32:15,802 INFO [EJB3EndpointDeployer] Deploy AbstractBeanMetaData@638e3b6c{name=jboss.j2ee:jar=simple-Hello-properties.jar,name=HelloBean,servic
                                                     19:32:15,827 INFO [SessionSpecContainer] Starting jboss.j2ee:jar=simple-Hello-properties.jar,name=HelloBean,service=EJB3
                                                     19:32:15,828 INFO [EJBContainer] STARTED EJB: hello.HelloBean ejbName: HelloBean
                                                     19:32:15,842 INFO [JndiSessionRegistrarBase] Binding the following Entries in Global JNDI:
                                                             HelloName - EJB3.x Default Remote Business Interface
                                                             HelloBean/remote-hello.HelloRemote - EJB3.x Remote Business Interface
                                                     19:38:20,467 WARN [InterceptorsFactory] EJBTHREE-1246: Do not use InterceptorsFactory with a ManagedObjectAdvisor, InterceptorRegistry should be us
                                                     19:38:20,469 WARN [InterceptorsFactory] EJBTHREE-1246: Do not use InterceptorsFactory with a ManagedObjectAdvisor, InterceptorRegistry should be us
                                                     19:38:20,497 INFO [STDOUT] HelloEcho = Hello EJB3
0 items selected
```



```
public static void main(String[] args) throws Exception {
Θ
         //JBoss default remote indi: <ejb-name>/remote
         InitialContext ctx = new InitialContext();
         Object obj = ctx.lookup("HelloName");
         System.out.println("lookup returned " + obj);
         HelloRemote hello = (HelloRemote) obj;
         String s = hello.echo("Hello EJB3");
         System.out.println(hello + " echo returned " + s);
```

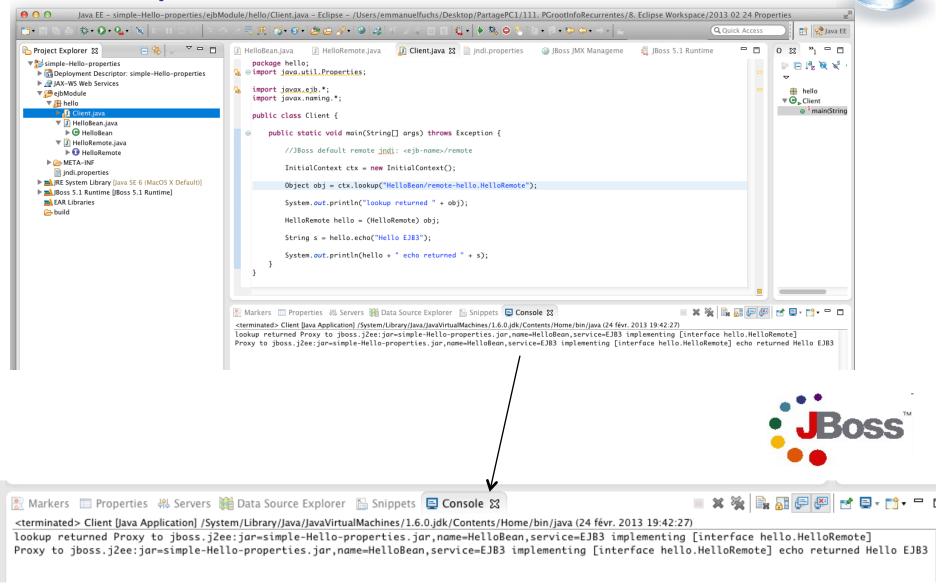




```
JBoss 5.1 Runtime Server [JBoss Application Server Startup Configuration] /System/Library/Java/JavaVirtualMachines/1.6.0.jdk/Contents/Home/
IJ.JE.IJ,001 INTO [JB033MJKETHEL]
                                      mich dépendencies.
19:32:15.801 INFO [JBossASKernel]
                                      and demands:
                                         jboss.ejb:service=EJBTimerService
19:32:15,801 INFO [JBossASKernel]
                                      and supplies:
19:32:15,801 INFO
                   [JBossASKernel]
                                         Class:hello.HelloRemote
19:32:15,801 INFO
                   [JBossASKernel]
                                         indi:HelloBean/remote-hello.HelloRemote
19:32:15,801 INFO
                   [JBossASKernel]
19:32:15,801 INFO
                   [JBossASKernel]
                                         jndi:HelloName
19:32:15,801 INFO
                   [JBossASKernel] Added bean(jboss j2ee:jar=simple-Hello-properties.jar,name=HelloBean,servic
                   [EJB3EndpointDeployer] Deploy AbstractBeanMetaData@638e3b6c{name=jboss.j2ee:jar=simple-Hell
19:32:15,802 INFO
19:32:15,827 INFO
                   [SessionSpecContainer] Starting jboss.j2ee:jar=simple-Hello-properties.jar,name=HelloBean,s
19:32:15,828 INFO
                   [EJBContainer] STARTED EJB: hello.HelloBean ejbName: HelloBean
19:32:15,842 INFO
                   [JndiSessionRegistrarBase] Binding the following Entries in Global JNDI:
        HelloName - EJB3.x Default Remote Business Interface
        HelloBean/remote-hello.HelloRemote - EJB3.x Remote Business Interface
```



Look up return



# Server Publishing option



2 = 3   1   1   1   1   1   2   2   2   2   2			<b>&gt;</b>		Q Quick Ac	
J HelloBean.java 📗	HelloRemote.java 🔝 Client.java 📄 jndi.p	roperties	JBoss JMX Manage	m 👸 *JBoss 5.1 Run	ntime 🛭 🗀	
Overview						
General Information			blishing			
Specify the host name and other common settings.			Modify settings for publishing.			
Server name:	JBoss 5.1 Runtime Server	<b>●</b> I	Never publish automaticall	у		
Host name:			<ul> <li>Automatically publish when resources change</li> <li>Automatically publish after a build event</li> </ul>			
Runtime Environment:						
Open launch configuration			Publishing interval (in seco	onds):	1	
▼ Management Login C	redentials	▼ Tin	neouts			
Set the management login and password for your server. This is used by all management commands, and during server shutdown.  User Name admin  Password ••••••••		Speci	Specify the time limit to complete server operations.			
			Start (in seconds):		450	
			Stop (in seconds):		450	
▼ Server Behaviour		▼ Ap	plication Reload Behavio	r		
Server is externally managed. Assume server is started.  Listen on all interfaces to allow remote web connections		□ c	<ul> <li>Customize application reload behavior on changes to project resources</li> <li>Force module restart on following regex pattern:</li> </ul>			
		Force				
Local   Local			\.jar\$  ▼ Server State Detectors			
		Shute	down Poller Process Ter	minated ‡		
		▼ Sei	rver Ports			
		will p	ports entered here are which poll the server on. Changin not change the ports the se	g these fields		
					C6	
		JNDI	1099	Detect from Local Runtime	Configure	





**Emmanuel fuchs Architecture des Systèmes d'Information**