

Integración AS – Apache (I)

- Generalmente los servidores de aplicaciones se integran con un servidor web como frontend.
 - El acceso se realiza a través del servidor web (puerto 80).
 - El usuario no necesita seleccionar el puerto para acceder al contenido de los servidores de aplicaciones.

Integración AS – Apache (II)

- La integración entre los servidores de aplicaciones y el servidor web Apache se realiza mediante el protocolo Apache JServ Protocol (AJP).
 - Es un protocolo binario que permite la comunicación entre un AS y Apache.
- Hasta la versión 2.0.X incluida la conexión se realizaba mediante la extensión `mod_jk` disponible en la URL:

<http://tomcat.apache.org/connectors-doc/>
- A partir de la versión 2.2.X el propio Apache permite conectar el servidor de aplicaciones con el apache usando la extensión `proxy_ajp_module`.

Instalación de Apache (I)

- La instalación de Apache se realiza como cualquier otro programa:

```
yum -y install httpd
```

- Si se desea utilizar conexiones seguras (protocolo HTTPS) debe instalarse también el módulo de SSL:

```
yum -y install mod_ssl
```

Instalación de Apache (II)

- El fichero de configuración de Apache es `/etc/httpd/conf/httpd.conf`.
 - Si se desea utilizar HTTPS debe configurarse también el fichero `/etc/httpd/conf.d/ssl.conf`.
- Debemos comprobar que la extensión `proxy_ajp_module` se carga en la configuración del Apache.
 - En caso de que no sea así debe añadirse la línea:

```
LoadModule proxy_ajp_module modules/mod_proxy_ajp.so
```

Instalación de Apache (III)



The screenshot shows a terminal window titled "root@localhost:/etc/httpd/conf". The window contains a list of Apache modules being loaded. The line "LoadModule proxy_ajp module modules/mod_proxy_ajp.so" is highlighted. Below the list of loaded modules, there is a comment indicating that the following modules are not loaded by default, followed by three commented-out lines for "asis_module", "authn_dbd_module", and "cern_meta_module". The terminal window has a menu bar with "Archivo", "Editar", "Ver", "Buscar", "Terminal", and "Ayuda". The status bar at the bottom right shows "208,1" and "18%".

```
root@localhost:/etc/httpd/conf
Archivo  Editar  Ver  Buscar  Terminal  Ayuda

LoadModule spelling_module modules/mod_spelling.so
LoadModule userdir_module modules/mod_userdir.so
LoadModule alias_module modules/mod_alias.so
LoadModule substitute_module modules/mod_substitute.so
LoadModule rewrite_module modules/mod_rewrite.so
LoadModule proxy_module modules/mod_proxy.so
LoadModule proxy_balancer_module modules/mod_proxy_balancer.so
LoadModule proxy_ftp_module modules/mod_proxy_ftp.so
LoadModule proxy_http_module modules/mod_proxy_http.so
LoadModule proxy_ajp module modules/mod_proxy_ajp.so
LoadModule proxy_connect_module modules/mod_proxy_connect.so
LoadModule cache_module modules/mod_cache.so
LoadModule suexec_module modules/mod_suexec.so
LoadModule disk_cache_module modules/mod_disk_cache.so
LoadModule cgi_module modules/mod_cgi.so
LoadModule version_module modules/mod_version.so

#
# The following modules are not loaded by default:
#
#LoadModule asis_module modules/mod_asis.so
#LoadModule authn_dbd_module modules/mod_authn_dbd.so
#LoadModule cern_meta_module modules/mod_cern_meta.so

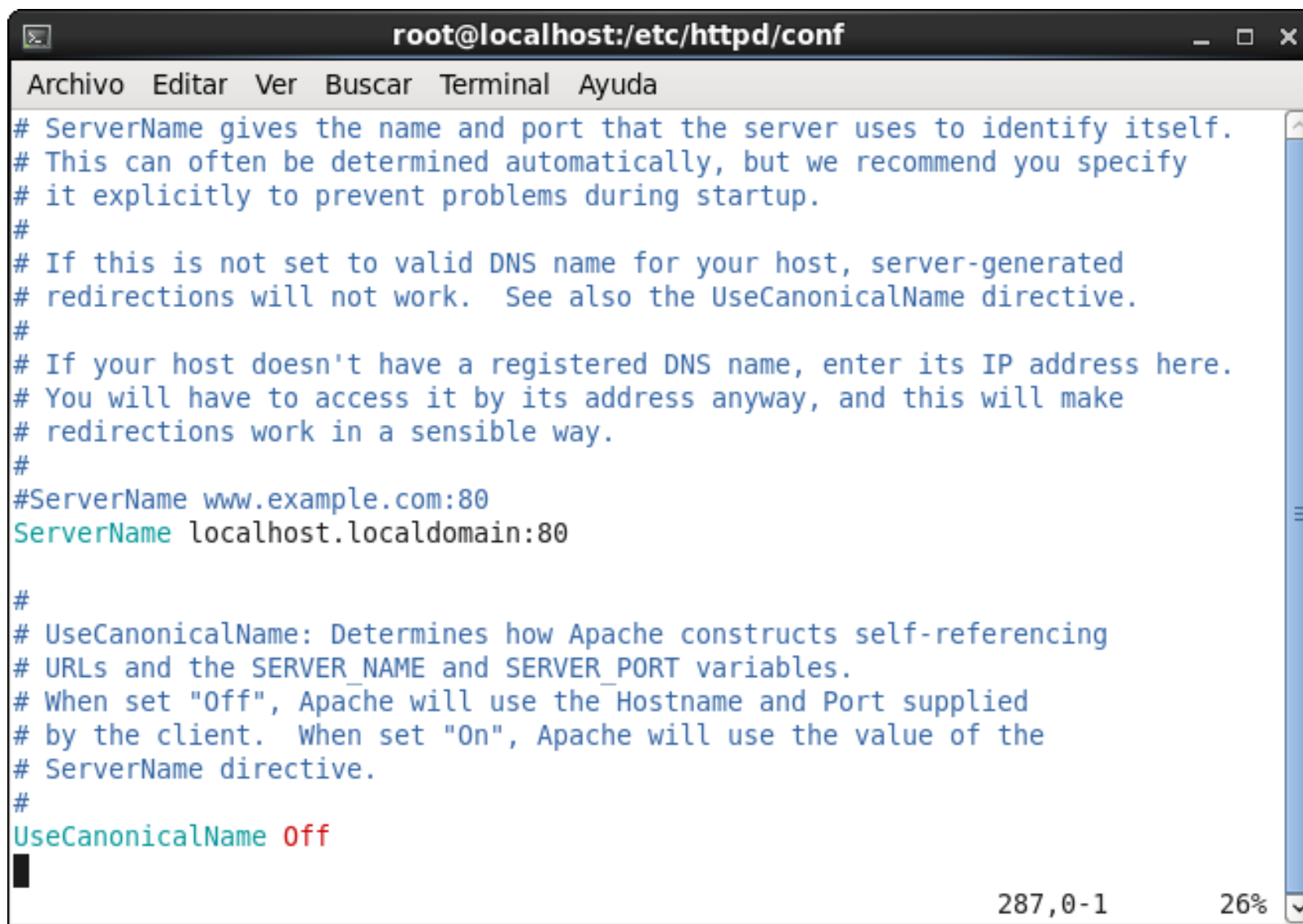
208,1 18%
```

Instalación de Apache (IV)

- No es objetivo de este tema estudiar la configuración del servidor Apache.
 - Para el correcto funcionamiento debemos añadir, en la configuración por defecto, la línea:

```
ServerName localhost.localdomain:80
```


Instalación de Apache (V)



```
root@localhost:/etc/httpd/conf
Archivo  Editar  Ver  Buscar  Terminal  Ayuda
# ServerName gives the name and port that the server uses to identify itself.
# This can often be determined automatically, but we recommend you specify
# it explicitly to prevent problems during startup.
#
# If this is not set to valid DNS name for your host, server-generated
# redirections will not work.  See also the UseCanonicalName directive.
#
# If your host doesn't have a registered DNS name, enter its IP address here.
# You will have to access it by its address anyway, and this will make
# redirections work in a sensible way.
#
#ServerName www.example.com:80
ServerName localhost.localdomain:80

#
# UseCanonicalName: Determines how Apache constructs self-referencing
# URLs and the SERVER_NAME and SERVER_PORT variables.
# When set "Off", Apache will use the Hostname and Port supplied
# by the client.  When set "On", Apache will use the value of the
# ServerName directive.
#
UseCanonicalName Off
█
```

287,0-1 26%

Instalación de Apache (VI)

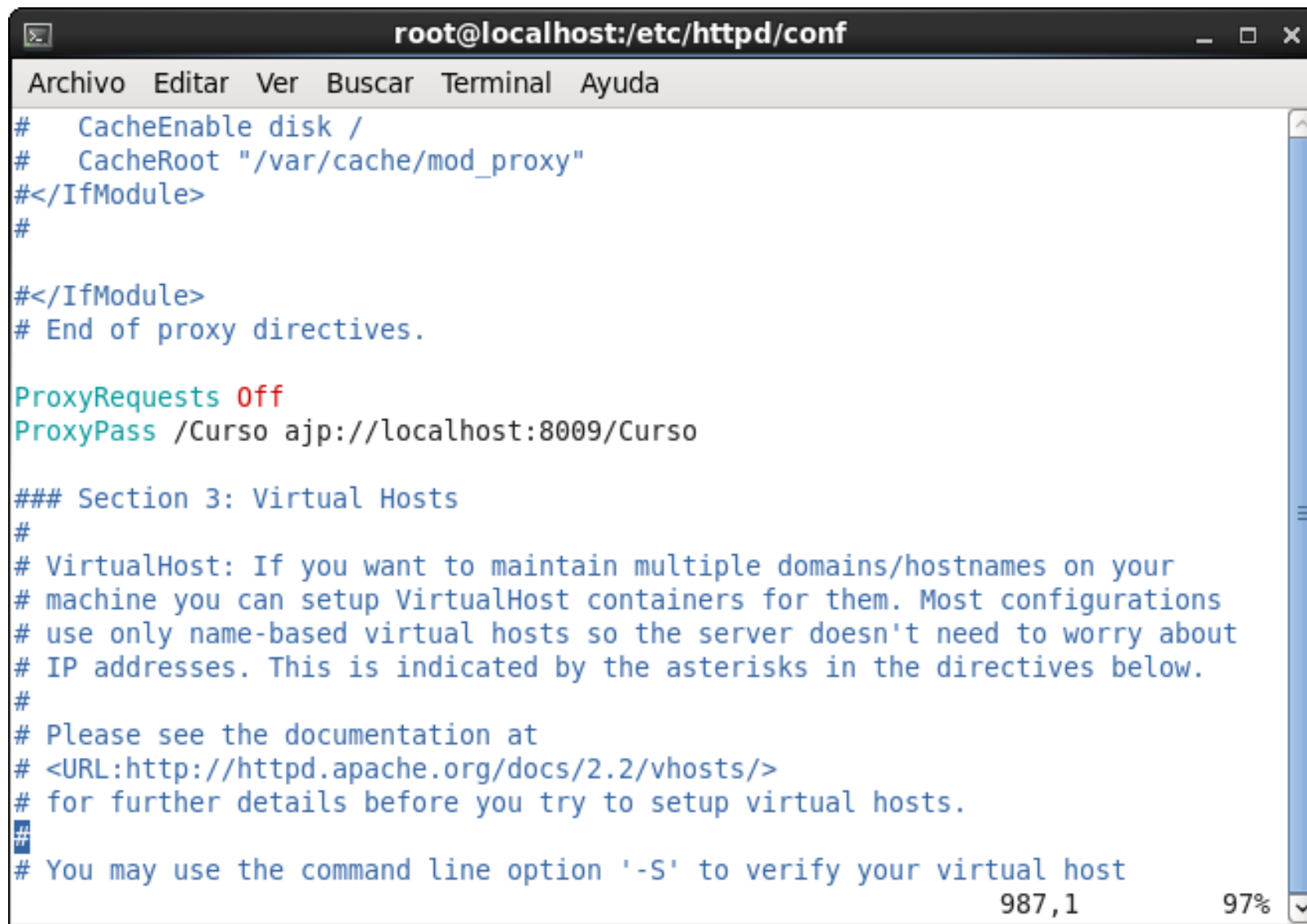
- Añadir antes de la configuración de los servidores virtuales las líneas:

ProxyRequests Off

ProxyPass /<aplicación> ajp://localhost:8009/<aplicación>

- <aplicación> es el nombre que tiene la aplicación que despliega el servidor de aplicaciones.
- En nuestro caso <aplicación> es Curso.

Instalación de Apache (VII)



```
root@localhost:/etc/httpd/conf
Archivo  Editar  Ver  Buscar  Terminal  Ayuda
#  CacheEnable disk /
#  CacheRoot "/var/cache/mod_proxy"
#</IfModule>
#
#</IfModule>
# End of proxy directives.

ProxyRequests Off
ProxyPass /Curso ajp://localhost:8009/Curso

### Section 3: Virtual Hosts
#
# VirtualHost: If you want to maintain multiple domains/hostnames on your
# machine you can setup VirtualHost containers for them. Most configurations
# use only name-based virtual hosts so the server doesn't need to worry about
# IP addresses. This is indicated by the asterisks in the directives below.
#
# Please see the documentation at
# <URL:http://httpd.apache.org/docs/2.2/vhosts/>
# for further details before you try to setup virtual hosts.
#
# You may use the command line option '-S' to verify your virtual host
```

987,1 97%

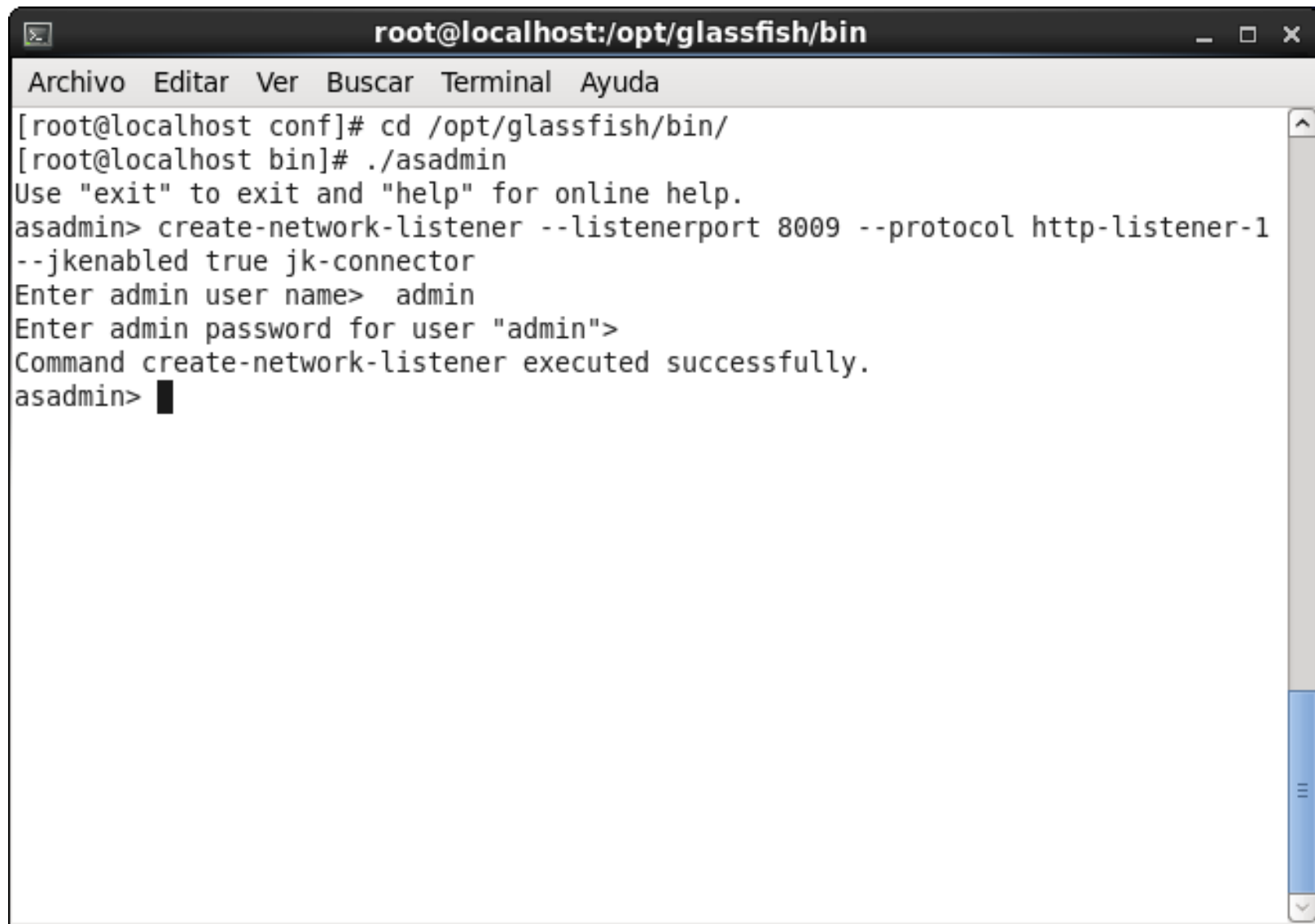
Configuración de Glassfish (I)

- Es necesario crear el conector **ajp** en el Glassfish.
- Se puede crear tanto en modo texto como en modo gráfico.
 - Es necesario reiniciar el servidor de Glassfish para poder utilizar el conector creado.
- En modo texto, se debe ejecutar el comando **asadmin** e introducir la siguiente línea:

```
create-network-listener -listenerport 8009 -protocol  
http-listener-1 -jkenabled true jk-conector
```

- Donde el nombre del conector creado es **jk-conector**.

Configuración de Glassfish (II)

A terminal window titled 'root@localhost:/opt/glassfish/bin' with a menu bar containing 'Archivo', 'Editar', 'Ver', 'Buscar', 'Terminal', and 'Ayuda'. The terminal shows the following commands and output:

```
[root@localhost conf]# cd /opt/glassfish/bin/
[root@localhost bin]# ./asadmin
Use "exit" to exit and "help" for online help.
asadmin> create-network-listener --listenerport 8009 --protocol http-listener-1
--jkenabled true jk-connector
Enter admin user name> admin
Enter admin password for user "admin">
Command create-network-listener executed successfully.
asadmin> █
```

Configuración de Glassfish (III)

- No es necesario reiniciar para ver que se ha creado el conector, pero sí para utilizarlo.

The screenshot shows the GlassFish Administration Console in a Mozilla Firefox browser window. The address bar shows `localhost:4848/common/index.jsf`. The page title is "Network Listeners - Mozilla Firefox". The breadcrumb trail is "Home > About...". The user is logged in as "admin" on "domain1" for "localhost". The page title is "GlassFish™ Server Open Source Edition".

The left sidebar shows the "Tree" view with the following structure:

- Resource Adapter Configs
 - Configurations
 - default-config
 - server-config
 - Admin Service
 - Connector Service
 - EJB Container
 - HTTP Service
 - JVM Settings
 - Java Message Service
 - Logger Settings
 - Monitoring
 - Network Config
 - Network Listeners
 - Protocols
 - Transports
 - ORB
 - Security
 - System Properties
 - Thread Pools
 - Transaction Service

The main content area is titled "Network Listeners". It contains the text: "Click New to define a new network listener. Click the name of an existing listener to modify its settings." Below this, the "Configuration Name" is "server-config".

The "Network Listeners (4)" table is displayed with the following data:

Select	Name	Port #	Protocol	Thread Pool	Enabled
<input type="checkbox"/>	admin-listener	4848	admin-listener	admin-thread-pool	true
<input type="checkbox"/>	http-listener-1	8080	http-listener-1	http-thread-pool	true
<input type="checkbox"/>	http-listener-2	8181	http-listener-2	http-thread-pool	true
<input type="checkbox"/>	jk-connector	8009	http-listener-1	http-thread-pool	true

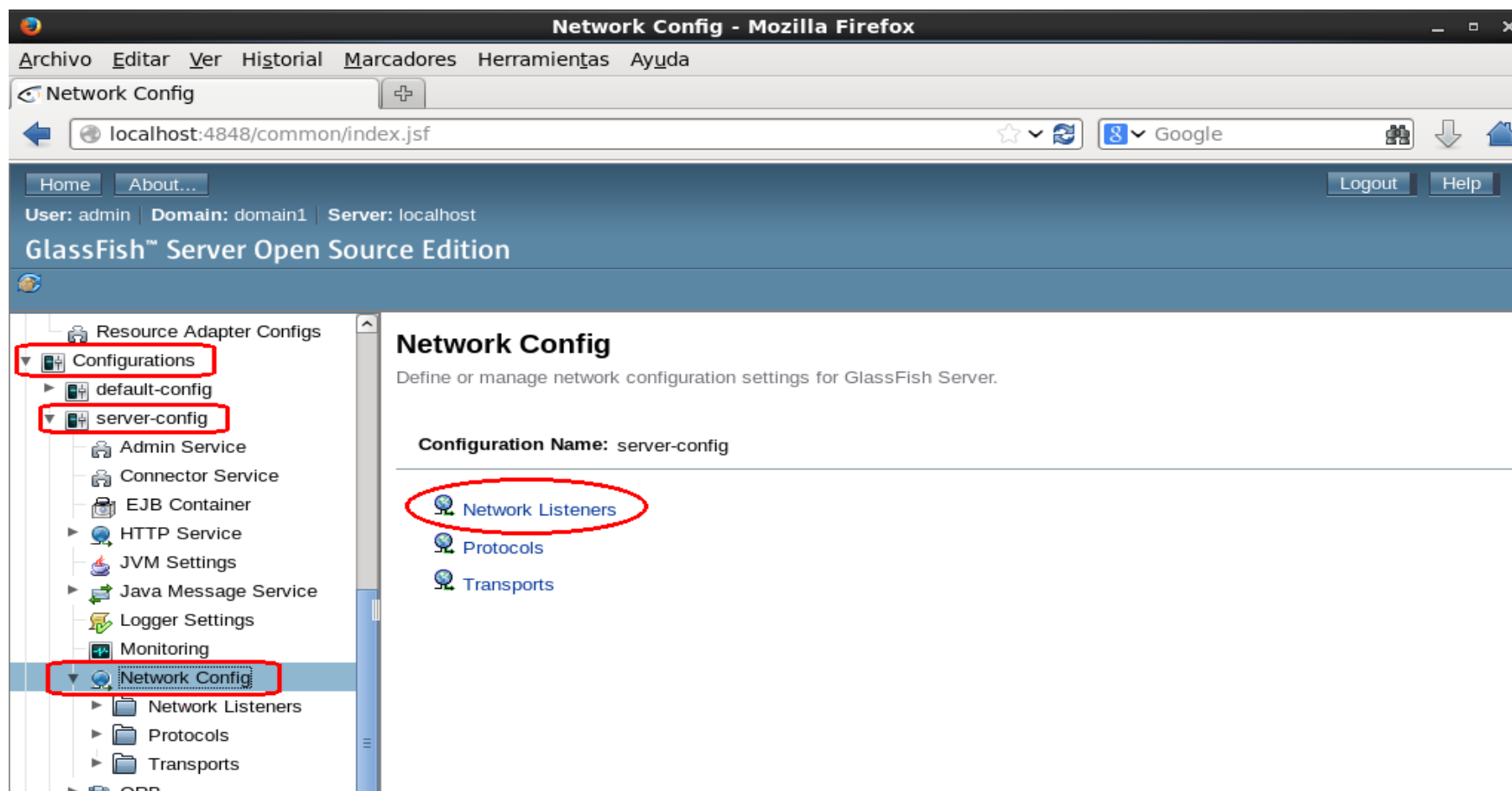
Configuración de Glassfish (IV)

- Una vez reiniciado podemos conectarnos por el puerto 80 a las aplicaciones desplegadas.



Configuración de Glassfish (V)

- Para crear el conector en modo gráfico hay que seguir los siguientes pasos.



Configuración de Glassfish (VI)

The screenshot shows the Glassfish Administration Console in Mozilla Firefox. The browser address bar shows `localhost:4848/common/index.jsf`. The page title is "Network Listeners - Mozilla Firefox". The navigation bar includes "Home", "About...", "Logout", and "Help". The user is logged in as "admin" on "domain1" at "localhost". The main heading is "GlassFish™ Server Open Source Edition".

The left sidebar shows a tree view of configurations. The "Network Listeners" folder under "Network Config" is selected.

The main content area is titled "Network Listeners". It includes instructions: "Click New to define a new network listener. Click the name of an existing listener to modify its settings." Below this, the "Configuration Name" is "server-config".

A table titled "Network Listeners (3)" displays the current listeners. The "New..." button is circled in red.

Select	Name	Port #	Protocol	Thread Pool	Enabled
<input type="checkbox"/>	admin-listener	4848	admin-listener	admin-thread-pool	true
<input type="checkbox"/>	http-listener-1	8080	http-listener-1	http-thread-pool	true
<input type="checkbox"/>	http-listener-2	8181	http-listener-2	http-thread-pool	true

Configuración de Glassfish (VII)

The screenshot shows the 'New Network Listener' configuration page in the Glassfish Server Administration console. The browser window is titled 'New Network Listener - Mozilla Firefox' and the URL is 'localhost:4848/common/index.jsf'. The page header includes 'Home', 'About...', 'User: admin', 'Domain: domain1', 'Server: localhost', and 'GlassFish™ Server Open Source Edition'. The left sidebar shows a tree view of configurations, with 'Network Listeners' selected under 'Network Config'. The main content area shows the configuration for a new listener named 'jk-connector'. The configuration name is 'server-config'. The name field is set to 'jk-connector'. The protocol is set to 'Use an existing protocol: http-listener-1'. The port is set to '8009'. The address is set to '0.0.0.0'. The status is 'Enabled'. The security is set to 'Enabled'. The JK Listener checkbox is also checked and enabled.

Configuration Name: server-config

Name: * jk-connector

Protocol: ☐ Create a new Protocol:
Default Virtual Server: server

☒ Use an existing protocol: http-listener-1

Port: * 8009
The port on which the network listener is listening

Address: 0.0.0.0 0.0.0.0
The IP address on which the network listener is listening on

Status: ☒ Enabled
The status of the network listener. The listener can be enabled or disabled.

Security: ☐ Enabled **JK Listener** ☒ Enabled
If using an existing protocol, security setting of that protocol will be changed accordingly

JK Listener: ☒ Enabled
If selected, listener is an Apache mod-jk listener

Configuración de Glassfish (VIII)

The screenshot shows the Glassfish administration console in a Mozilla Firefox browser window. The address bar shows `localhost:4848/common/index.jsf`. The page title is "Network Listeners - Mozilla Firefox". The browser menu bar includes "Archivo", "Editar", "Ver", "Historial", "Marcadores", "Herramientas", and "Ayuda". The page header includes "Home", "About...", "User: admin", "Domain: domain1", "Server: localhost", "Logout", and "Help". The main content area is titled "Network Listeners" and includes a description: "Click New to define a new network listener. Click the name of an existing listener to modify its settings." Below this, the "Configuration Name" is "server-config". A table titled "Network Listeners (4)" lists the following listeners:

Select	Name	Port #	Protocol	Thread Pool	Enabled
<input type="checkbox"/>	admin-listener	4848	admin-listener	admin-thread-pool	true
<input type="checkbox"/>	http-listener-1	8080	http-listener-1	http-thread-pool	true
<input type="checkbox"/>	http-listener-2	8181	http-listener-2	http-thread-pool	true
<input type="checkbox"/>	jk-connector	8009	http-listener-1	admin-thread-pool	true

The "jk-connector" row is highlighted with a red border. The left sidebar shows a tree view of the configuration hierarchy, with "Network Listeners" selected under "Network Config".

Configuración de WildFly (I)

- Hasta la versión JBoss AS 6 era suficiente con configurar el Apache puesto que el servidor de JBoss por defecto tenía el conector **ajp** creado.
- A partir de la versión JBoss AS 7 es necesario crear el conector **ajp**.
 - Se puede crear tanto en modo texto como en modo gráfico.
 - En ambos casos es necesario reiniciar el JBoss para que funcione el conector.

Configuración de WildFly (II)

- En modo texto hay que comprobar la existencia de dos líneas en el fichero:

`/opt/jboss/standalone/configuration/standalone.xml`

- Si no existen, hay que añadirlas.

Configuración de WildFly (III)

```
...  
<subsystem xmlns="urn:jboss:domain:undertow:1.1">  
...  
  <http-listener name="default" socket-binding="http"/>  
  <ajp-listener name="ajp" socket-binding="ajp"/>  
...  
</subsystem>  
...
```

```
...  
  <socket-binding-group name="standard-sockets" default-interface="public" port-  
offset="$${jboss.socket.binding.port-offset:0}">  
...  
    <socket-binding name="http" port="8080"/>  
    <socket-binding name="ajp" port="8009"/>  
...  
  </socket-binding-group>  
...
```


Configuración de WildFly (IV)

The screenshot shows the JBoss Management console in Mozilla Firefox. The browser address bar displays `localhost:9990/console/App.html#mbui;dialog=subsystems_undertow-server.xml`. The console header shows "WildFly 8.1.0.Final" and "Messages: 0" for the "administrador" user. The navigation tabs are "Home", "Configuration" (highlighted with a red box), "Runtime", and "Administration".

In the left sidebar, the "Subsystems" section is expanded, showing "Web" (highlighted with a red box) and "HTTP" (highlighted with a red box). Under "Web", "Web Services", "Servlets", and "Undertow Core" are listed. Under "HTTP", "Undertow Core" is listed.

The main content area shows the "LISTENER" configuration for the "AJP" listener (highlighted with a red box). The "entity.key" table has one row: "ajp" with the value "true" (both highlighted with red boxes). The "Attributes" section is visible below the table.

entity.key	enabled
ajp	true

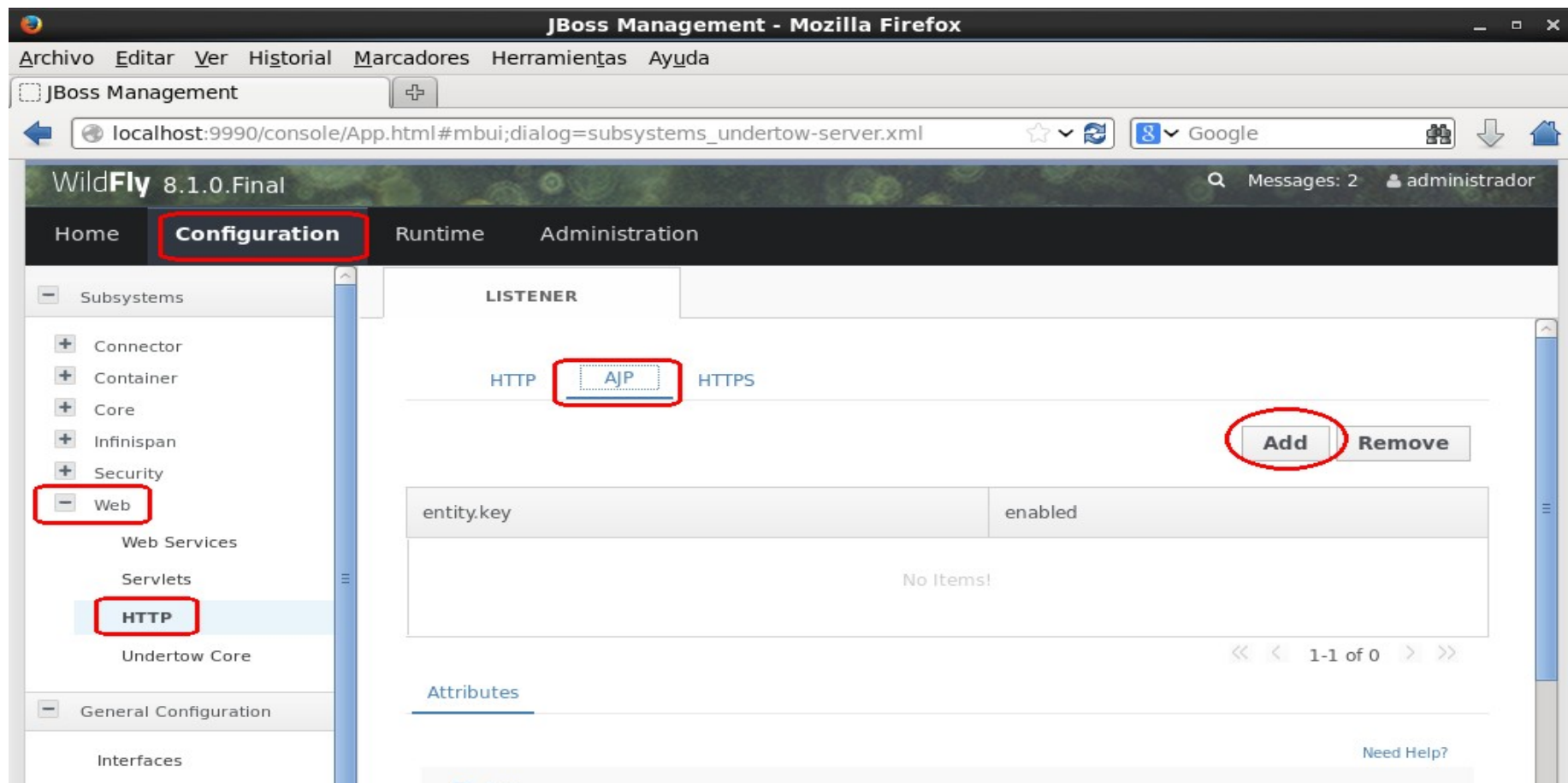
Buttons "Add" and "Remove" are located to the right of the table. The "Attributes" section is currently empty.

Configuración de WildFly (V)

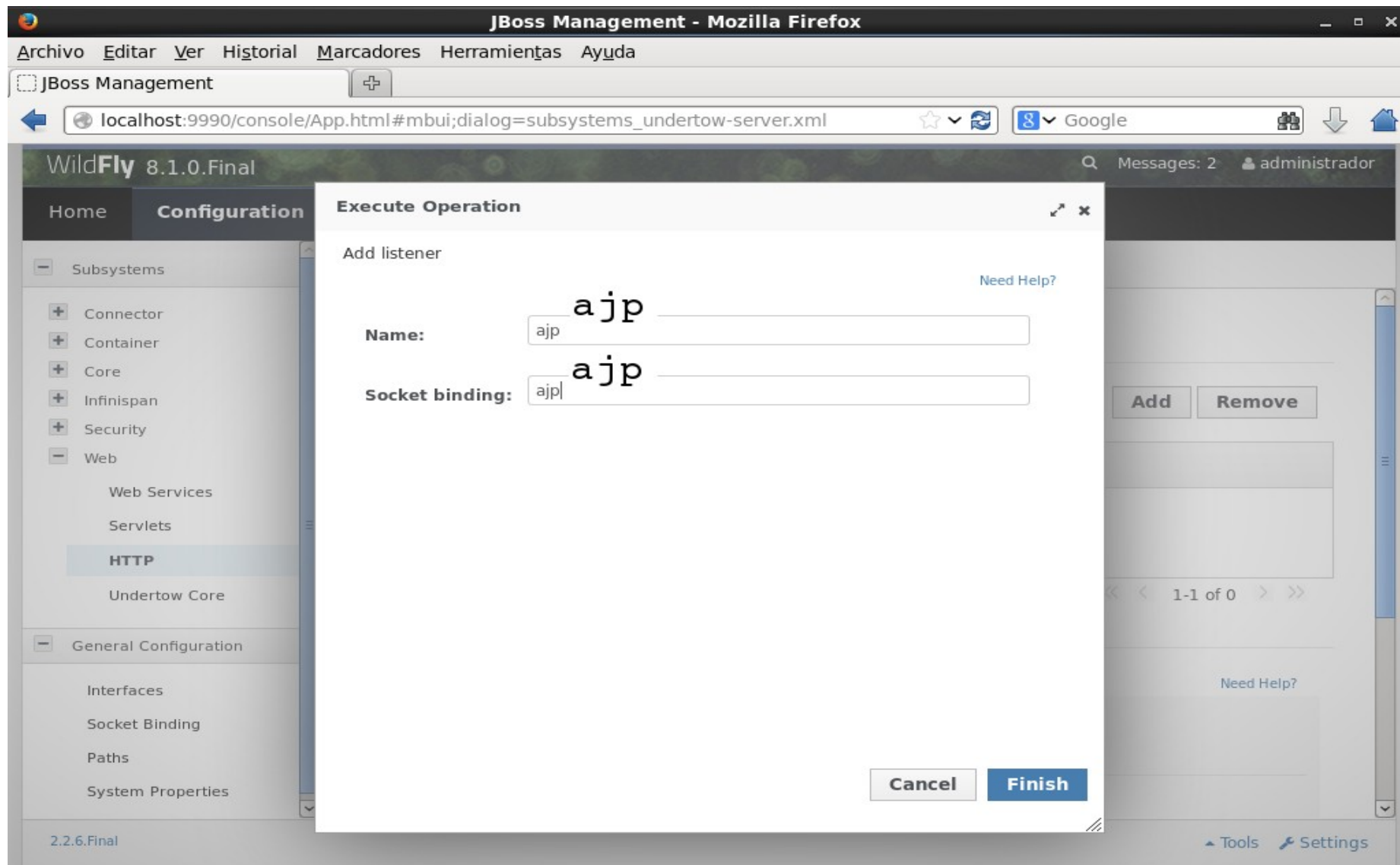


Configuración de WildFly (VI)

- Para crear el conector en modo gráfico hay que seguir los siguientes pasos.



Configuración de WildFly (VII)



Configuración de WildFly (VIII)

The screenshot shows the JBoss Management console in Mozilla Firefox. The browser address bar displays `localhost:9990/console/App.html#mbui;dialog=subsystems_undertow-server.xml`. The console title is "WildFly 8.1.0.Final". The navigation tabs are "Home", "Configuration", "Runtime", and "Administration". The "Configuration" tab is selected. On the left sidebar, under "Subsystems", the "Web" subsystem is expanded, and the "HTTP" configuration is selected. The main content area shows the "LISTENER" configuration for the "HTTP" subsystem. The "AJP" listener is selected. Below the listener name, there is a table with the following data:

entity.key	enabled
ajp	true

Below the table, there is a section for "Attributes" with fields for "Worker:", "Enabled:", and "Socket binding:". The "Need Help?" link is visible. The bottom status bar shows "2.2.6.Final" and "Tools Settings".