

Using mod_jk 1.2.x with JBoss/Tomcat bundle and Apache2

Quick Overview

1. Download Apache2
2. Download modjk 1.2.x (At least 1.2.27 suggested)
3. Change the main Apache config to include modjk config
4. Create the modjk config
5. Configure the modjk workers (which JBoss/Tomcat nodes Apache uses)
6. Configure the Apache URIs served by modjk (the applications served by JBoss/Tomcat)
7. Restart Apache
8. Configure Tomcat (Give each JBoss/Tomcat a jvmRoute for session stickness)
9. Restart JBoss
10. Test it

mod_proxy

Most httpd-2.2.x actual distributions (x>=6) have a decent AJP proxying and don't require to compile an external module. See

<http://community.jboss.org/wiki/usingmodproxywithjboss> for more information.

More Details

This wiki outlines the various steps required to install a basic load-balancing solution based on JBoss/Tomcat and mod_jk 1.2.

Step 1: Download Apache2 Web Server

Get the latest Apache2 package from [Apache.org](http://httpd.apache.org) and install it. We require no special configuration, just use the default settings.

In the following steps, APACHE_HOME will represent the Apache install directory.

Step 2: Download mod_jk 1.2.x

Download the latest package available from [Tomcats's 'Download Tomcat connector section' page](http://tomcat.apache.org/connectors/download/1.2/) .
Always download the latest stable release if possible.

Rename the lib **mod_jk.so** and drop it in APACHE_HOME/modules directory.

NOTE: Don't use any release prior to mod_jk 1.2.15. Earlier releases are fairly buggy.

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Note: Darwin Ports supports the installation of mod_jk on OS X. See <http://darwinports.opendarwin.org/> for more info.

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Step 3: Setup Apache to use modjk

Add this line at the very bottom in APACHE_HOME/conf/httpd.conf :

```
# Include mod_jk configuration file
Include conf/mod-jk.conf
```

Step 4: Create the modjk config

Under `APACHE_HOME/conf`, create **mod-jk.conf** and populate it as follows:

```

# Load mod_jk module
# Specify the filename of the mod_jk lib
LoadModule jk_module modules/mod_jk.so

# Where to find workers.properties
JkWorkersFile conf/workers.properties

# Where to put jk logs
JkLogFile logs/mod_jk.log

# Set the jk log level [debug/error/info]
JkLogLevel info

# Select the log format
JkLogStampFormat "[%a %b %d %H:%M:%S %Y]"

# JkOptions indicates to send SSK KEY SIZE
# Notes:
# 1) Changed from +ForwardURICompat.
# 2) For mod_rewrite compatibility, use +ForwardURIProxy (default since 1.2.24)
# See http://tomcat.apache.org/security-jk.html
JkOptions +ForwardKeySize +ForwardURICompatUnparsed -ForwardDirectories

# JkRequestLogFormat
JkRequestLogFormat "%w %V %T"

# Mount your applications
JkMount /__application__/* loadbalancer
# Let Apache serve the images
JkUnMount /__application__/images/* loadbalancer

# You can use external file for mount points.
# It will be checked for updates each 60 seconds.
# The format of the file is: /url=worker
# /examples/*=loadbalancer
JkMountFile conf/uriworkermanifest.properties

# Add shared memory.
# This directive is present with 1.2.10 and
# later versions of mod_jk, and is needed for
# for load balancing to work properly
# Note: Replaced JkShmFile logs/jk.shm due to SELinux issues. Refer to
# https://bugzilla.redhat.com/bugzilla/show_bug.cgi?id=225452
JkShmFile run/jk.shm

# Add jkstatus for managing runtime data
<Location /jkstatus>
JkMount status
Order deny,allow
Deny from all
Allow from 127.0.0.1
</Location>

```

mod_jk is ready to forward requests to JBoss instances. We need now to setup the workers

Note: As of mod_jk 1.2.6+ you need to include "JkMountCopy all" in globals if you intend to specify global JkMount's or JkMountFile's instead of per VirtualHost. If you do not want to copy the same JkMount/JkMountFile for each VirtualHost, you can specify "JkMountCopy On" inside the VirtualHost

directive.

See entry in: <http://tomcat.apache.org/connectors-doc/reference/apache.html>

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Step 5: Configuring workers

Under APACHE_HOME/conf, create **workers.properties** and populate it as follows:

```
# Define list of workers that will be used
# for mapping requests
# The configuration directives are valid
# for the mod_jk version 1.2.18 and later
#
worker.list=loadbalancer,status

# Define Node1
# modify the host as your host IP or DNS name.
worker.node1.port=8009
worker.node1.host=node1.mydomain.com
worker.node1.type=ajp13
worker.node1.lbfactor=1
worker.node1.prepost_timeout=10000 #Not required if using ping_mode=A
worker.node1.connect_timeout=10000 #Not required if using ping_mode=A
worker.node1.ping_mode=A #As of mod_jk 1.2.27
# worker.node1.connection_pool_size=10 (1)

# Define Node2
# modify the host as your host IP or DNS name.
worker.node2.port=8009
worker.node2.host= node2.mydomain.com
worker.node2.type=ajp13
worker.node2.lbfactor=1
worker.node2.prepost_timeout=10000 #Not required if using ping_mode=A
worker.node2.connect_timeout=10000 #Not required if using ping_mode=A
worker.node2.ping_mode=A #As of mod_jk 1.2.27
# worker.node1.connection_pool_size=10 (1)

# Load-balancing behaviour
worker.loadbalancer.type=lb
worker.loadbalancer.balance_workers=node1,node2

# Status worker for managing load balancer
worker.status.type=status
```

Important: Please review <http://tomcat.apache.org/connectors-doc/reference/workers.html> for the directive descriptions. Especially lookout for the comments on cachsize for Apache 1.3.x.

(1) You should only set the connection_pool_size if the number of allowed connection to the Httpd is higher than maxThreads in server.xml

If you specify worker.loadbalancer.sticky_session=Off, each request will be load balanced between node1 and node2. But when a user opens a Session on one server, it is a good idea to always forward this user's requests to the same server. Otherwise the user's session data would need to be synchronized between both servers. This is called a "sticky session", as the client is always using the same server he reached on his first request.

Session stickiness is enabled by default.

Side Note: a non-loadbalanced setup with a single node required the "worker.list=node1" entry before mod_jk would function correctly. Without this setting I would only get a 500 error and no other useful messages in log or otherwise. -Harlequin516

Side Note: I tried both loadbalanced and single node methods on Fedora 4. Both setups causing `jk.shm errno=13` and `jk-runtime-status errno=13` in the `mod_jk.log`. Could only get 500 errors. As a last resort disabled selinux on apache server. Restarted service and connection was made first try. - paulbrown

Step 6: Create the URI to worker map file

Create a **uriworkermap.properties** file in the `APACHE_HOME/conf` directory. This file should contain the URL mappings you want Apache to forward to Tomcat. The format of the file is `/url=worker_name`. To get things started, paste this example into the file you created:

```
# Simple worker configuration file
#

# Mount the Servlet context to the ajp13 worker
/jmx-console=loadbalancer
/jmx-console/*=loadbalancer
/web-console=loadbalancer
/web-console/*=loadbalancer
/myapp/*=loadbalancer
!/myapp/images/*=loadbalancer
```

This will configure `mod_jk` to forward requests for the `/jmx-console`, `/web-console` and `/myapp` contexts to JBoss Web. The `!` at the beginning of the last line results in the URLs for the `images` dir in the `myapp` context not being forwarded. Instead `httpd` will handle them directly (which means they must be available on the `httpd` server).

Step 7: Restart Apache

Step 8: Configure Tomcat

To complete the configuration, we also need to name each node to match the names specified in `workers.properties`.

To do this, edit the `server.xml` file. Where `server.xml` is located depends on the version of JBoss AS:

- In JBoss 5, it's `$JBOSS_HOME/server/all/deploy/jbossweb.sar/server.xml`
- In JBoss 4.2.x and EAP 4.x, it's `$JBOSS_HOME/server/all/deploy/jboss-web.deployer/server.xml`
- In earlier releases it's `$JBOSS_HOME/server/all/deploy/jbossweb-tomcatXX.sar/server.xml` where `XX` is 40, 50, 55 etc depending on the Tomcat version embedded in the AS.

(In the examples above, replace `/all/` with the name of the AS configuration you are running.)

Locate the `<Engine/>` element and add an attribute **jvmRoute**:

```
<Engine name="jboss.web" defaultHost="localhost" jvmRoute="node1">
.
</Engine>
```

The `jvmRoute` attribute value must match the name specified in `workers.properties`.

In the `server.xml` file, make sure that the AJP 1.3 Connector is uncommented, e.g.:

```
<!-- A AJP 1.3 Connector on port 8009 -->
<Connector port="8009" address="{jboss.bind.address}"
    emptySessionPath="true" enableLookups="false" redirectPort="8443
"
    protocol="AJP/1.3" connectionTimeout="600000" maxThreads="200"/>
```

If you are only accepting requests via mod_jk, you can comment out the regular HTTP Connector; Tomcat then won't listen on port 8080.

Step 9: Activate the JvmRouteValve in JBoss (not needed with Tomcat Standalone)

Finally, we need to tell JBoss to add a special valve that detects when failover of a session from a distributable webapp has occurred. This JvmRouteValve ensures a new session cookie is emitted that includes the jvmRoute of the server that is now handling the session.

This configuration step is only needed with JBoss 4.2.x and earlier; beginning with JBoss AS 5 the application server uses the existence of a jvmRoute configuration in server.xml as an indication that it should add the JvmRouteValve.

To do this, edit the `jboss-service.xml` file for the JBoss Web service. Where this is located depends on the version of JBoss AS:

- In JBoss 5, this step isn't needed.
- In JBoss 4.2.x and EAP 4.x, it's `$JBOSS_HOME/server/all/deploy/jboss-web.deployer/META-INF/jboss-service.xml`
- In earlier releases it's `$JBOSS_HOME/server/all/deploy/jbossweb-tomcatXX.sar/META-INF/jboss-service.xml` where XX is 40, 50, 55 etc depending on the Tomcat version embedded in the AS.

Locate the `<attribute>` element with a name of `UseJK`, and set its value to `"true"`:

```
<attribute name="UseJK">true</attribute>
```

Step 10: Restart JBoss AS.

Step 11: Access the JBoss AS web-console through Apache by browsing to <http://localhost/web-console> and you should see the JBoss web console page.

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Note: to use mod_jk with Jboss 2 (e.g. jboss 2.4.6), you must edit `jboss.jcml`. Add the `'jvmRoute="myWorker"'` to the Engine element under the `EmbeddedCatalinaSX` mbean.

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Note: You may need to use `VirtualHost` in your `mod-jk.conf`. For example:
Instead of just

```
JkMount /jmx-console loadbalancer
JkMount /jmx-console/* loadbalancer
```

try

```
<VirtualHost host.name.or.IP>
  ServerName host.name.or.IP

  JkMount /jmx-console loadbalancer
  JkMount /jmx-console/* loadbalancer
</VirtualHost>
```

-

Resources

JBoss Clustering Guide: Additional details about HTTP Session replication, workers.properties and other goodies.

[The Apache Tomcat Connector - Generic HowTo](#)
[The Apache Tomcat Connector - Documentation Index](#)
[The Apache Tomcat Connector - workers.properties configuration](#)
[The Apache Tomcat Connector - Configuring Apache](#)
[The Apache Tomcat Connector - Configuring IIS](#)
[Configuring Tomcat and Apache With JK 1.2](#)
[Tomcat - Workers HowTo](#)
[Tomcat user-mail archive](#)
[mod_jk FAQ](#)
[What is an optimized mod_jk configuration for use in Apache with JBoss?](#)
[Apache -> JBoss Loadbalancing Configuration Generator](#)
[Using mod_jk 1.2 with a Firewall](#)
[Using mod_jk 1.2 with JBoss & Microsoft IIS](#)
[Using mod_jk 1.2 with JBoss & Microsoft IIS7](#)
[Using mod_jk 1.2 with JBoss & Netscape / Iplanet / SunOne](#)
[Fronting Tomcat with Apache, White paper by Mladen Turk](#)

Referenced by:

130962 Aufrufe

gefällt mir (0)

Durchschnittliche Benutzerbewertung 4.5 (2 Bewertungen)

Kommentare (18)



Onur AKTAS 19.01.2009 13:04

Hi, I passed the step for `jboss-service.xml` for UseJK on JBoss 5.0 GA and also commented

```
# Load-balancing behaviour
# worker.loadbalancer.type=lb
# worker.loadbalancer.balance_workers=node1,node2
```

For Single server. Must we have a server named as server/node1 in JBoss, or can we do same thing with server/default or server/all ?

And also with what options are we going to start Jboss? And also what port will JBoss use, 8080 or 80?

Thanks



Krishna Kumar 05.03.2009 13:58



Krishna Kumar 05.03.2009 13:00

I have downloaded mod_jk-1.2.27-httpd-2.2.6.so from apache and pasted the file in \$APACHE_HOME/modules and configured the above stuff.

I get the below error while starting apache.

httpd: Syntax error on line 411 of /usr/local/httpd/conf/httpd.conf: Syntax error on line 3 of /usr/local/httpd/conf/mod-jk.conf: Cannot load /usr/local/httpd/modules/mod_jk.so into server:
/usr/local/httpd/modules/mod_jk.so: wrong ELF class: ELFCLASS32

I am using Apache 2.2.11 in Linux.

Can anyone help me fixing this

thanks,
KK



Samuel Mendenhall 05.03.2009 14:10 (als Antwort auf Krishna Kumar)

Download and compile from source, the instructions are in BUILD.txt.



Krishna Kumar 05.03.2009 14:54 (als Antwort auf Samuel Mendenhall)

Thank you.. It worked.

Regards,
KK



venkat raya 07.04.2009 06:59 (als Antwort auf Krishna Kumar)

Hello everybody,

I followed the instructions of configuration of Mod_jk with JBOSS.
Installed Apache, copied mod_jk.so in /modules. After that created and added the necessary steps in mod-jk.config, workers.properties and uriworkemap.properties file.

At last I verified the configuration of JBOSS with Apache by clicking <http://localhost/web-console> ... its not working it thrown error as

Service Temporarily Unavailable

The server is temporarily unable to service your request due to maintenance downtime or capacity problems. Please try again later.

Apache/2.0.63 (Win32) mod_jk/1.2.27 Server at localhost Port 80

but when I type <http://localhost:8080/web-console>, its working fine ... So I guess somewhere the configuration missed .. can anyone please tell me whats the root cause for this ?

Thanks in Advance!
- rams



Samuel Mendenhall 07.04.2009 09:22 (als Antwort auf venkat raya)

It could be one of a few things

- * Wrongly defined port/ip address for your workers
- * Defining your works AND loadbalancer in the worker list (Wrong, you only want loadbalancer)
- * Hardware or software firewall, if you are on linux try a iptables -F and retest

But these are just suggestions, if you have follow up issues go to the Tomcat/mod_jk user forum and ask there.



venkat raya 07.04.2009 10:00 (als Antwort auf Samuel Mendenhall)

Thanks for your quick response Samuel.

1. My workers.properties file is contains::

worker.list=loadbalancer,status

Define Node1

modify the host as your host IP or DNS name.

worker.node1.port=8009

worker.node1.host=<IP Address of my machine name>

worker.node1.type=ajp13

worker.node1.lbfactor=1

worker.node1.socket_timeout=10

worker.node1.prepost_timeout=10000 #Not required if using ping_mode=A

worker.node1.connect_timeout=10000 #Not required if using ping_mode=A

worker.node1.ping_mode=A #As of mod_jk 1.2.27

worker.node1.connection_pool_size=10 (1)

Load-balancing behaviour

worker.loadbalancer.type=lb

worker.loadbalancer.balance_workers=node1

Status worker for managing load balancer

worker.status.type=status

2. worker list ? ... i'm not getting what exactly I need to do this here

3. I'm doing this on Windows 2003 machine.

Can you please help me on this and It would be great if you can send me the link of **Tomcat/mod_jk user forum**



Onur AKTAS 07.04.2009 16:50 (als Antwort auf venkat raya)

Hi,

Please check if it works:

worker.loadbalancer.balance_workers=node1

worker.list=node1

Have you also done configurations in server.xml ?

<Engine name="jboss.web" defaultHost="localhost" jvmRoute="node1">

Regards,

Onur AKTAS



karthik m 08.05.2009 04:49 (als Antwort auf Krishna Kumar)

None



wil c 25.06.2009 06:12

AS 5.1

I want a web server with clustering. "web" configuration is not enough. "all" configuration is too much.

I just created one (say "webCluster" configuration)

1. copy everything from \$JBOSS_HOME/server/web to
\$JBOSS_HOME/server/webCluster

2.

Into webCluster/deployers

copy from all/deployers/clustering-deployer-jboss-beans.xml

3.
Into webCluster/deploy
copy from all/deploy/deploy.last
(and also)
cache-invalidation-service.xml
remoting-jboss-beans.xml
cluster

4.
Into webCluster
copy all/farm
(and also)
deploy-hasingleton

5.
Into webCluster/lib
copy from all/lib/jboss-cache-core.jar
(and also)
jboss-cache-pojo.jar
jgroups.jar

6. restart jboss
\$JBOSS_HOME/bin/run.sh -c webCluster -b 0.0.0.0
(provided run.sh is executable and the server is to be accessible through any network interface.
Also I did not use JNDI)



Vishal Sadvilkar 09.10.2009 04:30

Hi there, At step 7 in this document, i am not able to start Apache, it throws out below error in log file, Child 1180: Released the start mutex httpd.exe: Syntax error on line 486 of C:/Program Files/Apache Group/Apache2/conf/httpd.conf: Syntax error on line 3 of C:/Program Files/Apache Group/Apache2/conf/mod-jk.conf: Cannot load C:/Program Files/Apache Group/Apache2/modules/mod_jk.so into server: Access is denied. [Fri Oct 09 11:05:09 2009] [notice] Child 1180: All worker threads have exited. [Fri Oct 09 11:05:09 2009] [notice] Child 1180: Child process is exiting
Also could not understand how to put URL mapping in uriworkermap.properties, could anyone explain by providing example (with URL mentioned) Thanks in advance. Vishal.



Rajesh Kumar 11.08.2010 05:50

Hi,

Thanks for adding such a useful articles. I followed this articles and Implemented Integration of Apache2 with Jboss successfully but got failed in 2nd task which is implementing SSL with Apache. Can you please provide a link which provide me clear understanding and way to implement SSL in Apache with mod_jk2..

Please refer this link for the things what i have done till now as part of this <http://www.scmgalaxy.com/forum/55-jboss/317-integration-of-jboss-and-apache2.html>



Po Kevin 17.09.2010 06:01

Hi there,

Basically I have followed all the setting according this tutorial. But I am stuck at step 11 where they prompt me "Link appear to be broken". But I have no

problem accessing it through <http://localhost:8080/web-console>

The below are the environment I am trying to set this up.

- Windows XP
- JBoss 5.0
- Apache 2.2.16
- mod_jk 1.2.30

Additional info, i have set my worker IP to "localhost", is this the one causing the problem?

Could any one advice me on how to solve this?? Thanks..



ana.tudosa 25.01.2011 12:54

Hi,

I have followed the example to configure Apache LB with JBOSS everything works fine except for this scenario:

I have 2 JBOSS nodes with Apache in front.

1. Access the application through Apache and get redirected to JBOSS1
2. Kill JBOSS1 and access the application again
3. Successfully redirected to JBOSS2
4. Restart JBOSS1 ----> even though I have a web session created on JBOSS2 the session is KILLED and I get redirected to JBOSS1

Note that except for this scenario the sticky session mechanism works fine, meaning once a session created on the server all the subsequent requests are directed to that server.

Can anybody explain this behavior?

Environment used:

- Windows 7 for both Apache and JBOSS machines
- JBOSS 4.2.3, mod_jk 1.2.30

Thanks



Jean-Frederic Clere 26.01.2011 03:08 (als Antwort auf ana.tudosa)

Are the 2 nodes clusterised? Did you set UseJK (in jboss-service.xml)?



ana.tudosa 26.01.2011 07:34 (als Antwort auf Jean-Frederic Clere)

Hi,

thanks for the fast response.

no, the nodes aren't clustered

and yes.... UseJK is set to true inside jboss-service.xml



Jean-Frederic Clere 27.01.2011 02:35 (als Antwort auf ana.tudosa)

It looks like you are affected by JBAS-4893. try the following work around:

"

Workaround:

Set Connector.emptySessionPath=false in jboss-web.deployer/server.xml. The emptySessionPath is required for JBoss Portal cross context session function, but if you are not using JBoss Portal, it's safe to turn off. By this change JBoss will create new session id when failover happens, so the request will stick to new node.

"



ana.tudosa 27.01.2011 05:19 (als Antwort auf Jean-Frederic Clere)

Hi,
thank you it worked 😊

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