CNT 4714: Enterprise Computing
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Connecting Apache And Tomcat

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Connecting Apache To Tomcat

- Although it is possible for Tomcat to run standalone and serve HTTP requests directly (we did this for servlets and jsps), the Apache server does a much better job of handling tasks such as static content and SSL connections.

- For this reason, Tomcat is typically used alongside an Apache server. Unlike PHP which runs as a module inside the Apache process, a JVM is external and requires a mechanism to connect it to the web server.

- Tomcat inherited the Apache JServ protocol (AJP) from the JServ project. AJP is a protocol for connecting an external process to a servlet container. It is the responsibility of an Apache module, in this case mod_jk, to speak this protocol to the servlet container (Tomcat).
Connecting Apache To Tomcat (cont.)

- In this last section of notes, I’ll show you how to integrate Apache and Tomcat into a single package.
- The ultimate set-up will resemble the figure shown below. Note that if you also would like Tomcat to run standalone HTTP requests, it will need to run on a different HTTP port than Apache. That’s why I set-up Apache on port 8081 and Tomcat on port 8080.
Getting The Tomcat Connector

- The first step in Apache-Tomcat integration is to obtain the Tomcat connector from Apache.

- Follow the screen shots on the next few pages to obtain the mod_jk connector.

- The Windows based connector binary files has the name mod_jk-apache-2.2.4.so.
From the main Tomcat webpage, select Tomcat connectors from the download section. The current documentation is also available from this page.
mod_jk download page.
Scroll down the page until you see the JK 1.1.21 binary releases.
Pick the directory of your choice for your machine. I’m using win32.
Index of /apache/tomcat/tomcat-connectors/jk/binaries/win32

Make your choice here and select the version you want.

The Apache Jakarta Tomcat Connector

- Current stable version is jk-1.2.21
Index of /apache/tomcat/tomcat-connectors/jk/binaries/win32/jk-1.2.22

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</table>

Download this file and place it in the Wamp/Apache2/modules directory.
Installing The Tomcat Connector

- Once you’ve downloaded the Tomcat connector, put it in the `modules` subdirectory of your Apache installation’s root directory.

Here’s the new module file.
Enabling The Tomcat Connector

• Once you’ve put the connector file in the **modules** sub-directory of your Apache installation’s root directory, you are now ready to configure Apache to recognize and enable the module.

• To do this you’ll need to edit your Apache configuration file. This is the same file you edited to enable PHP.

• This file is located in the **conf** subdirectory and is named **httpd**.
### begin material for mod_jk connector

# Load mod_jk module
# Update this path to match your modules location
LoadModule jk_module "E:/Program Files/wamp/Apache2/modules/mod_jk-apache-2.2.4.so"

# Declare the module for <IfModule directive> (remove this line on Apache 2.x)
#AddModule mod_jk.c

# Where to find workers.properties
# Update this path to match your conf directory location (put workers.properties next to httpd.conf)
#JkworkersFile "E:/Program Files/Apache Software Foundation/Tomcat 5.5.20/conf/workers.properties"

# Where to put jk logs
# Update this path to match your logs directory location (put mod_jk.log next to access_log)
#JkLogFile "E:/Program Files/wamp/Apache2/logs/mod_jk.log"

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

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

# JkOptions indicate to send SSL KEY SIZE,
#JkOptions +ForwardKeySize +ForwardURICompat -ForwardDirectories

# JkRequestLogFormat set the request format
#JkRequestLogFormat "%w %v %T"

# Send everything for context /examples to worker named worker1 (ajp13)
#JkMount /examples/* worker1
#JkMount /core610/* ajp13
#JkMount /first-examples/* ajp13

### end material for mod_jk connector

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Add all of this material to enable mod_jk

Add JKMount directives for any servlets and jsps to go through Tomcat.
• The JWorkerFile directive (see previous page) refers to a separate file that configures the ajp13 protocol communications parameters. An example called workers.properties is included with mod_jk. For a basic set-up, this default file will work fine.

• There are a couple of things you should verify however: (1) workers.tomcat_home should agree with the value you’ve already set for Tomcat called CATALINA_HOME, and (2) worker.ajp13.port must be the same as the one listed in the Tomcat server.xml file as shown on the next page.

• In more robust applications, additional editing of the JWorkerFile will be required. For example, if you have more than one installation of Tomcat on your machine, you’ll need to adjust the worker.ajp.port parameter in workers.properties to make sure that mod_jk is connecting to the correct Tomcat installation as Tomcat installations will not be able to start up sharing port numbers.
The portion of the Tomcat worker.properties file showing the definition for the default AJP 1.3 worker. NOTE: the port number listed here must match the port number listed in the Tomcat server.xml file as shown on the next page.
The portion of the Tomcat server.xml file showing the definition for the AJP 1.3 connector. This connector port number listed here must match the port number in the workers.properties file as shown on the previous page.
Our original welcome servlet now being executed from within the WAMP Apache server illustrating the correct integration of Tomcat and Apache!

Don’t forget to start the Tomcat server!
Final slide illustrating execution of a JSP from within Apache via Tomcat.