CNT 4714: Enterprise Computing
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Integrating Apache And Tomcat

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Connecting Apache To Tomcat

- Although it is possible for Tomcat to run standalone and handle HTTP requests directly (we did this for servlets and jsp's), 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 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.

• Windows based connector binary files will typically have the name of mod_jk.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.
mod_jk download page.
Index of /dist/tomcat/tomcat-connectors/jk/binaries/windows

Important Notices

- Windows Users, Read These First...
- Obtain the Current Stable Release
- Debugging and Source Code

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Installing The Tomcat Connector

- Once you’ve downloaded the Tomcat connector, put it in the `modules` sub-directory of your Apache installation’s root directory.
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.
This was added earlier to enable PHP

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.
Invoking the original welcome servlet from the Apache web server. Recall that this is a servlet running inside the CNT4714 webapp (also inside first-example webapp).
Hello!!

Welcome To The Exciting World Of Servlet Technology!