

COP 4610L: Applications in the Enterprise Fall 2006

Introduction to PHP – Part 3

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Dynamic Content in PHP

- Of all the strengths PHP exhibits as a server-side scripting language, perhaps its greatest strength lies in its ability to dynamically change XHTML output based on user input.
- In this final section of notes, we'll build on the examples we've constructed in the previous two sets of notes by combining `form.html` and `form.php` into one dynamic PHP document named `dynamicForm2.php`.
- We'll add error checking to the user input fields and inform the user of invalid entries on the form itself, rather than on an error page. If an error exists, the script maintains the previously submitted values in each form element.
- Finally, after the form has been successfully completed, we'll store the input from the user in a MySQL database.



Sample form to take user input in XHTML - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Homegroup

Address <http://localhost:8081/dynamicForm2.php> Go Links

This is a sample registration form.

Please fill in all fields and click Register.

User Information

Please fill out the fields below.

First Name

Last Name

Email

Phone

Must be in the form (555)555-5555

Publications

Which magazine would you like information about?

Velo-News

Operating System

Which operating system are you currently using?

Windows XP Windows 2000 Windows 98

Linux Other

Done Local intranet

Basically, the same registration form that was used in a previous example.



Sample form to take user input in XHTML - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Recycle Bin Mail Print Taskbar

Address <http://localhost:8081/dynamicForm2.php>

Hi **Mark**. Thank you for completing the survey.
You have been added to the **Pro Cycling** mailing list.

The following information has been saved in our database:

Name	Email	Phone	OS
Mark Llewellyn	markl@cs.ucf.edu	(407)823-2790	Windows XP

[Click here to view entire database.](#)

Local intranet

Screen the user sees after clicking the **Register** button.



Database Search Results - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites

Address <http://localhost:8081/formDatabase2.php>

Mailing List Contacts

ID	Last Name	First Name	E-mail Address	Phone Number	Magazine	Operating System
1	Schumacher	Ralf	ralf@toyota.com	(222)222-222	Cycling Weekly	Other
2	Thurau	Didi	agirl.de	(456)123-3345	Mirror du Cylisme	Windows 98
3	Jolie	Angelina	aj@hollywood.com	(123)456-7890	Velo-news	Windows XP
4	Schumacher	Michael	michael@ferrari.it	(407)823-2790	RadSport	Windows 2000
5	Campbell	Kristi	im_not_sure	(345)987-6545	Cycle Sport	Windows 2000
6	Einstein	Albert	relative	(111)111-1111	Cycling Weekly	Other
7	Llewellyn	Mark	markl@cs.ucf.edu	(407)823-2790	Pro Cycling	Windows XP

Done Local intranet

Screen the user sees after clicking to see the entire database.



Sample form to take user input in XHTML - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites Print Mail Stop Links

Address <http://localhost:8081/dynamicForm2.php> Go Links

This is a sample registration form.

Please fill in all fields and click Register.
Fields with * need to be filled in properly.

User Information

Please fill out the fields below.

First Name *

Last Name

Email

Phone

Must be in the form (555)555-5555

Publications

Which magazine would you like information about?

Operating System

Which operating system are you currently using?

Windows XP Windows 2000 Windows 98

Linux Other

Done Local intranet

Dynamic nature of the PHP form is illustrated when the user fails to enter proper information into the form. In this case, the user forgot to enter their first name. Error checking is in place on each user input location and the page is dynamically updated to reflect the error processing and correction capabilities. The database will not be updated until the user has correctly filled in all required fields.



MySQL Query Browser - root@localhost:3306 / mailinglist

File Edit View Query Script Tools Help

Go back Next Refresh

SELECT * FROM `contacts` c

Execute Stop

Transaction Explain Compare

SELECT FROM WHERE GROUP HAVING ORDER SET CREATE

Resultset 1

ID	LastName	FirstName	Email	Phone	Magazine	OS
1	Schumacher	Ralf	ralf@toyota.com	(222)222-222	Cycling Weekly	Other
2	Thurau	Didi	agirl.de	(456)123-3345	Mirror du Cylisme	Windows 9
3	Jolie	Angelina	aj@hollywood.com	(123)456-7890	Velo-news	Windows X
4	Schumacher	Michael	michael@ferrari.it	(407)823-2790	RadSport	Windows 2
5	Campbell	Kristi	im_not_sure	(345)987-6545	Cycle Sport	Windows 2
6	Einstein	Albert	relative	(111)111-1111	Cycling Weekly	Other
7	Llewellyn	Mark	markl@cs.ucf.edu	(407)823-2790	Pro Cycling	Windows X

Schemata Bookmarks History

- bikedb
- book_sc
- coloursurvey
- guestbook
 - guests
- imagedb
- mailinglist
 - contacts

Syntax Functions Params Trx

- Data Manipulation
- Data Definition
- MySQL Utility
- Transactional and Locking

7 rows fetched in 0.0113s (0.0006s)

Edit Apply Changes Discard

1: 1

Screen shot from MySQL of the contacts relation after the inclusion of several users. Note that the values in the table are the same as those returned to the PHP document in the previous slide.



```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<!-- dynamicForm2.php      -->

<html xmlns = "http://www.w3.org/1999/xhtml">
  <head>
    <title>Sample form to take user input in XHTML</title>
  </head>
  <body style = "font-family: arial, sans-serif; background-color: #856363"
background=background.jpg>
  <?php
    extract ( $_POST );
    $iserror = false;
    // array of magazine titles
    $maglist = array( "Velo-News",
      "Cycling Weekly",
      "Pro Cycling",
      "Cycle Sport",
      "RadSport",
      "Mirror du Cyclisme" );
    // array of possible operating systems
    $systemlist = array( "Windows XP",
      "Windows 2000",
      "Windows 98",
      "Linux",
      "Other");
```




```
// array of name and alt values for the text input fields
$inputlist = array( "fname" => "First Name",
    "lname" => "Last Name",
    "email" => "Email",
    "phone" => "Phone" );
if ( isset ( $submit ) ) {
    if ( $fname == "" ) {
        $formerrors[ "fnameerror" ] = true;
        $iserror = true;
    }
    if ( $lname == "" ) {
        $formerrors[ "lnameerror" ] = true;
        $iserror = true;
    }
    if ( $email == "" ) {
        $formerrors[ "emailerror" ] = true;
        $iserror = true;
    }
    if ( !ereg( "^\([0-9]{3}\)[0-9]{3}-[0-9]{4}$", $phone ) ) {
        $formerrors[ "phoneerror" ] = true;
        $iserror = true;
    }
    if ( !$iserror ) {
        // build INSERT query
        $query = "INSERT INTO contacts " .
            "(ID, LastName, FirstName, Email, Phone, Magazine, OS ) " .
            "VALUES (null, '$lname', '$fname', '$email', " .
            "\" . \"\" . quotemeta( $phone ) . \"', '$mag', '$os' )";
    }
}
```



```
// Connect to MySQL
if ( !( $database = mysql_connect( "localhost",
    "root", "root" ) ) )
    die( "Could not connect to database" );

// open MailingList database
if ( !mysql_select_db( "MailingList", $database ) )
    die( "Could not open MailingList database" );

// execute query in MailingList database
if ( !( $result = mysql_query( $query, $database ) ) ) {
    print( "Could not execute query! <br />" );
    die( mysql_error() );
}
print( "<p>Hi
    <span style = 'color: blue'> <strong>$fname</strong></span>.
    Thank you for completing the survey.<br />
    You have been added to the <span style = 'color: blue'>
    <strong>$mag</strong></span> mailing list.          </p>
    <strong>The following information has been saved in our database:</strong><br />

    <table border = '0' cellpadding = '0' cellspacing = '10'>
    <tr>
    <td bgcolor = '#ffffaa'>Name </td>
    <td bgcolor = '#ffffbb'>Email</td>
    <td bgcolor = '#ffffcc'>Phone</td>
    <td bgcolor = '#ffffdd'>OS</td>
    </tr>
    <tr>
```



```

<!-- print each form field's value -->
<td>$fname $lname</td>
<td>$email</td>
<td>$phone</td>
<td>$os</td>
</tr></table>
<br /><br /><br />
<div style = 'font-size : 10pt; text-align: center'>
    <div style = 'font-size : 18pt'>
    <a href = 'formDatabase2.php'>
    Click here to view entire database.</a>
    </div>
</div></body></html>" );
die();
}
}
print( "<h1>This is a sample registration form.</h1>
Please fill in all fields and click Register." );
if ( $iserror ) {
    print( "<br /><span style = 'color : red'>
Fields with * need to be filled in properly.</span>" );
}
print( "<!-- post form data to dynamicForm2.php -->
<form method = 'post' action = 'dynamicForm2.php'>
<img src = 'images/user.gif' alt = 'User' /><br />
<span style = 'color: blue'>
Please fill out the fields below.<br />
</span>

```

Invoke PHP script to see contents of entire database if user clicks this link. Code begins on page 14.

The form created is self-submitting (i.e., it posts to itself). This is done by setting the action to dynamicForm2.php



```

<!-- create four text boxes for user input -->" );
foreach ( $inputlist as $inputname => $inputalt ) {
    $inputtext = $inputvalues[ $inputname ];

    print( "<img src = 'images/$inputname.gif'
        alt = '$inputalt' /><input type = 'text' name = '$inputname' value = '" . $$inputname . "' />" );
    if ( $formerrors[ ( $inputname )."error" ] == true )
        print( "<span style = 'color : red'>*</span>" );
    print( "<br />" );
}
print( "<span style = 'font-size : 10pt'" );
if ( $formerrors[ "phoneerror" ] ) print( "; color : red" );
print( "'>Must be in the form (555)555-5555
    </span><br /><br />
    <img src = 'images/downloads.gif'
    alt = 'Publications' /><br />
    <span style = 'color: blue'>
    Which magazine would you like information about?
    </span><br />
    <!-- create drop-down list containing magazine names -->
    <select name = 'mag'>" );
foreach ( $maglist as $currmag ) {
    print( "<option" );
    if ( ( $currmag == $mag ) )
        print( " selected = 'true'" );
    print( ">$currmag</option>" );
}

```

The \$\$variable notation specifies variable variables. PHP permits the use of variable variables to allow developers to reference variables dynamically. The expression \$\$variable could also be written as \${\$variable} for added clarity.



```
print( "</select><br /><br />
<img src = 'images/os.gif' alt = 'Operating System' />
<br /><span style = 'color: blue'>
Which operating system are you currently using?
<br /></span>

<!-- create five radio buttons -->" );

$counter = 0;

foreach ( $systemlist as $currssystem ) {
    print( "<input type = 'radio' name = 'os'
        value = '$currssystem'" );

    if ( $currssystem == $os ) print( "checked = 'checked'" );
    if ( iserror && $counter == 0 ) print( "checked = 'checked'" );

    print( " />$currssystem" );

    if ( $counter == 2 ) print( "<br />" );
    $counter++;
}

print( "<!-- create a submit button -->
<br />
<input type = 'submit' name = 'submit' value = 'Register' />
</form></body></html>" );
?>
```



```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<!-- formDatabase2.php      -->
<!-- Program to query a database and send results to the client.  -->

<html xmlns = "http://www.w3.org/1999/xhtml">
  <head>   <title>Database Search Results</title>  </head>
  <body style = "font-family: arial, sans-serif"
    style = "background-color: #F0E68C" background=image1.jpg>
    <?php
      extract( $_POST );
      // build SELECT query
      $query = "SELECT * FROM contacts";
      // Connect to MySQL
      if ( !( $database = mysqli_connect( "localhost", "root", "root", MailingList ) ) )
        die( "Could not connect to database" );
      // query MailingList database
      if ( !( $result = mysqli_query( $database, $query ) ) ) {
        print( "Could not execute query! <br />" );
        die( mysqli_error() );
      }
    ?>
    <h3 style = "color: blue">
    Mailing List Contacts</h3>
```



```
<table border = "1" cellpadding = "3" cellspacing = "2"
style = "background-color: #ADD8E6">
<tr>
  <td>ID</td>
  <td>Last Name</td>
  <td>First Name</td>
  <td>E-mail Address</td>
  <td>Phone Number</td>
  <td>Magazine</td>
  <td>Operating System</td>
</tr>
<?php
// fetch each record in result set
for ( $counter = 0;
  $row = mysqli_fetch_row( $result );
  $counter++ ){
  // build table to display results
  print( "<tr>" );
  foreach ( $row as $key => $value )
    print( "<td>$value</td>" );
  print( "</tr>" );
}
mysqli_close( $database );
?>

</table>
</body>
</html>
```



MySQL Table Editor

Table Name: contacts Database: mailinglist Comment: InnoDB free: 7168 kB

Columns and Indices Table Options Advanced Options

Column Name	Datatype	NOT NULL	AUTO INC	Flags	Default Value	Comment
ID	INTEGER	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/> UNSIGNED <input checked="" type="checkbox"/> ZEROFILL	NULL	
LastName	VARCHAR(30)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY	NULL	
FirstName	VARCHAR(30)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY	NULL	
Email	VARCHAR(30)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY	NULL	
Phone	VARCHAR(14)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY	NULL	
Magazine	VARCHAR(60)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY	NULL	
OS	VARCHAR(30)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/> BINARY	NULL	

Indices Foreign Keys Column Details

PRIMARY

Index Settings

Index Name: PRIMARY

Index Kind: PRIMARY

Index Type: BTREE

Index Columns (Use Drag'n'Drop)

ID

Apply Changes Discard Changes Close

Schema of the MailingList database table contacts required for the PHP database example to work. Script is available on the code page.



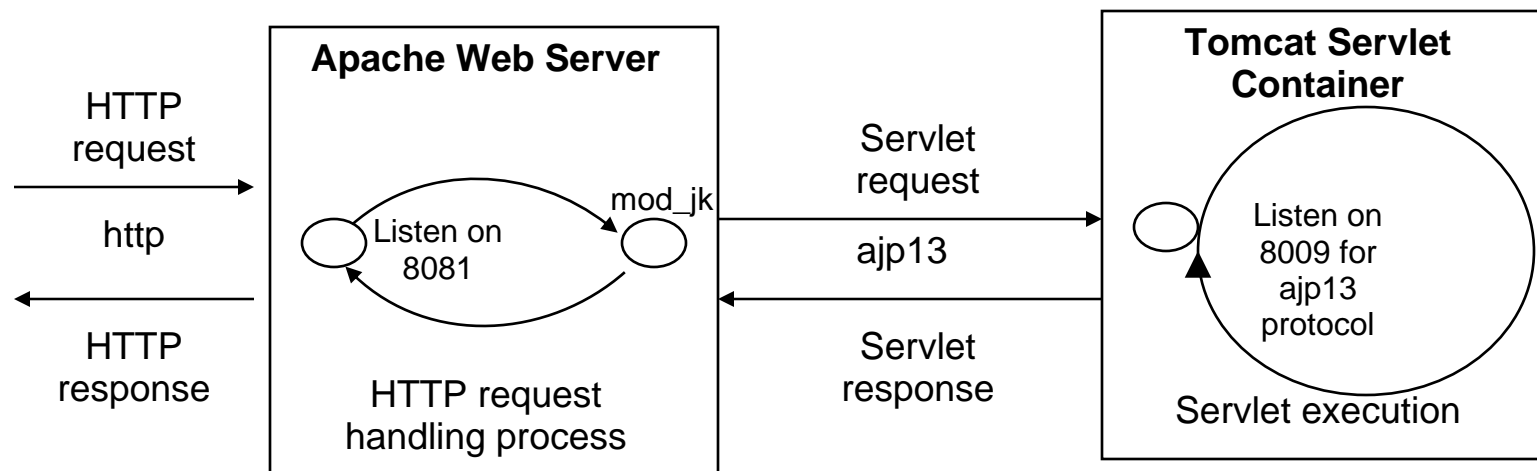
Connecting Apache To Tomcat

- Although it is possible for Tomcat to run standalone and server 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.
- Windows based connector binary files will typically have the name of `mod_jk.so`.




Apache Tomcat - Apache Tomcat - Microsoft Internet Explorer


File Edit View Favorites Tools Help

Address http://tomcat.apache.org/

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Apache Tomcat



http://www.apache.org/

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Apache Tomcat

Apache Tomcat is the standard Java Servlet and JavaServer Pages (JSP) implementation for Apache HTTP Server.

Apache Tomcat is developed as a collaboration of the best minds involved, [click here](#).

Apache Tomcat powers numerous large-scale, mission-critical web applications across a diverse range of industries and organizations. Some of these users and their stories are listed on the [PoweredBy](#) wiki page.

Apache Tomcat Versions

For the impatient, current Apache Tomcat production quality releases vs. Servlet/JSP specifications:

Servlet/JSP Spec	Apache Tomcat version
2.4/2.0	5.5.16
2.3/1.2	4.1.31
2.2/1.1	3.3.2

To help you determine which release is right for you, the [releases are described in more detail](#).

Please note that although we offer downloads and documentation of older releases, such as Apache Tomcat 3.x and 4.x, we strongly encourage users to use the latest stable version of Apache Tomcat whenever possible. We recognize that upgrading across major version may not be a trivial task, and some support is still offered on the mailing list for users of old versions. However, because of the community-driven support approach, the older your version the less people would be interested or able to support you.

From the main Tomcat webpage, select Tomcat connectors from the download section. The current documentation is also available from this page.




Apache Tomcat - Tomcat Connectors (mod_jk, mod_jk2) Downloads - Microsoft Internet Explorer

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Address <http://tomcat.apache.org/download-connectors.cgi> Go Links

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Apache Tomcat



The Apache Software Foundation

tomcat.apache.org/

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Tomcat Connectors (mod_jk, mod_jk2) Downloads

We recommend you use a mirror to download our release builds, but you **must** verify the integrity of the downloaded files using signatures downloaded from our main distribution directories. Recent releases (48 hours) may not yet be available from the mirrors.

You are currently using <http://mirror.x10.com/mirror/apache>. If you encounter a problem with this mirror, please select another mirror. If all mirrors are failing, there are *backup* mirrors (at the end of the mirrors list) that should be available.

Other mirrors:



The KEYS link links to the code signing keys used to sign the product. The PGP link downloads the OpenPGP compatible signature from our main site.

For more information concerning Tomcat Connectors (mod_jk, mod_jk2), see the [Tomcat Connectors \(mod_jk, mod_jk2\)](#) site.



Apache Tomcat - Tomcat Connectors (mod_jk, mod_jk2) Downloads - Microsoft Internet Explorer

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Tomcat Connectors (mod_jk, mod_jk2) Downloads

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You are currently using <http://www.devlib.org/apache>. If you encounter a problem with this mirror, please select another mirror. If all mirrors are failing, there are *backup* mirrors (at the end of the mirrors list) that should be available.

Other mirrors:

The KEYS link links to the code signing keys used to sign the product. The PGP link downloads the OpenPGP compatible signature from our main site.

For more information concerning Tomcat Connectors (mod_jk, mod_jk2), see the [Tomcat Connectors \(mod_jk, mod_jk2\)](#) site.

KEYS

- JK 1.2
 - Source
 - [JK 1.2.15 Source Release tar.gz](#)
 - [\[pgp\]](#)
 - [JK 1.2.15 Source Release zip](#)
 - [\[pgp\]](#)
 - [JK 1.2 Binary Releases](#)
- JK 2 (deprecated)
 - Source

mod_jk download page.



Index of /apache/tomcat/tomcat-connectors/jk/binaries - Microsoft Internet Explorer











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Address <http://ftp.wayne.edu/apache/tomcat/tomcat-connectors/jk/binaries/> Go Links

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Index of /apache/tomcat/tomcat-connectors/jk/binaries

<u>Name</u>	<u>Last modified</u>	<u>Size</u>	<u>Description</u>
 Parent Directory	24-Dec-2004 07:50	-	
 aix/	29-Sep-2003 22:05	-	
 freebsd/	28-Sep-2003 21:04	-	
 iseries/	27-Jul-2005 03:02	-	
 linux/	27-Jul-2005 03:03	-	
 macosx/	26-Jul-2005 12:55	-	
 netware/	15-Nov-2005 13:18	-	
 solaris/	06-Dec-2005 05:57	-	
 win32/	08-Nov-2005 03:54	-	
 win64/	08-Nov-2005 08:54	-	

The Apache Jakarta Tomcat Connector

- Current stable version is jk-1.2.15

Internet



Index of /apache/tomcat/tomcat-connectors/jk/binaries/win32 - Microsoft Internet Explorer





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Address <http://ftp.wayne.edu/apache/tomcat/tomcat-connectors/jk/binaries/win32/> Go Links

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Index of /apache/tomcat/tomcat-connectors/jk/binaries/win32

Name	Last modified	Size	Description
 Parent Directory	08-Nov-2005 08:54	-	
 jk-1.2.14/	07-Jul-2005 07:58	-	
 jk-1.2.15/	08-Nov-2005 04:01	-	
 jk-1.2.6/	20-Dec-2004 03:28	-	

The Apache Jakarta Tomcat Connector

- Current stable version is jk-1.2.15

Done Internet



Index of /apache/tomcat/tomcat-connectors/jk/binaries/win32/jk-1.2.15 - Microsoft Internet Explorer

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Address <http://ftp.wayne.edu/apache/tomcat/tomcat-connectors/jk/binaries/win32/jk-1.2.15/> Go Links

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	mod_jk-apache-1.3.34.so.asc	08-Nov-2005 03:55	1k
	mod_jk-apache-2.0.55.so	08-Nov-2005 02:59	132k
	mod_jk-apache-2.0.55.so.asc	08-Nov-2005 03:55	1k
	nsapi_redirect.dll	08-Nov-2005 03:16	132k
	nsapi_redirect.dll.asc	08-Nov-2005 03:55	1k

Apache Tomcat JK 1.2.15 for WIN32

Here you'll find the binaries for IIS, Apache 1.3 and 2.0 Web Server.

Built for Apache 1.3.34 and above, and 2.0.55 and above.

- mod_jk-apache-1.3.34.so is for Apache 1.3.x. Rename to mod_jk.so before putting it in your Apache/modules directory
- mod_jk-apache-1.3.34-eapi.so is for Apache 1.3.x with SSL support. Rename to mod_jk.so before putting it in your Apache/modules directory
- mod_jk-apache-2.0.55.so is for Apache 2.0, and works with Apache 2.0.55 and later. Rename to mod_jk.so before putting it in your Apache2/modules directory.
- isapi_redirect.dll is for IIS 5 and later Web Server.
- isapi_redirect.msi is Installer package for IIS 5 and later Web Server.
- nsapi_redirect.dll is for Sun ONE Web Server 6.1 and later (formerly Netscape iPlanet).
- jk_symbols.zip contains the symbols files (.pdb) for all packages.

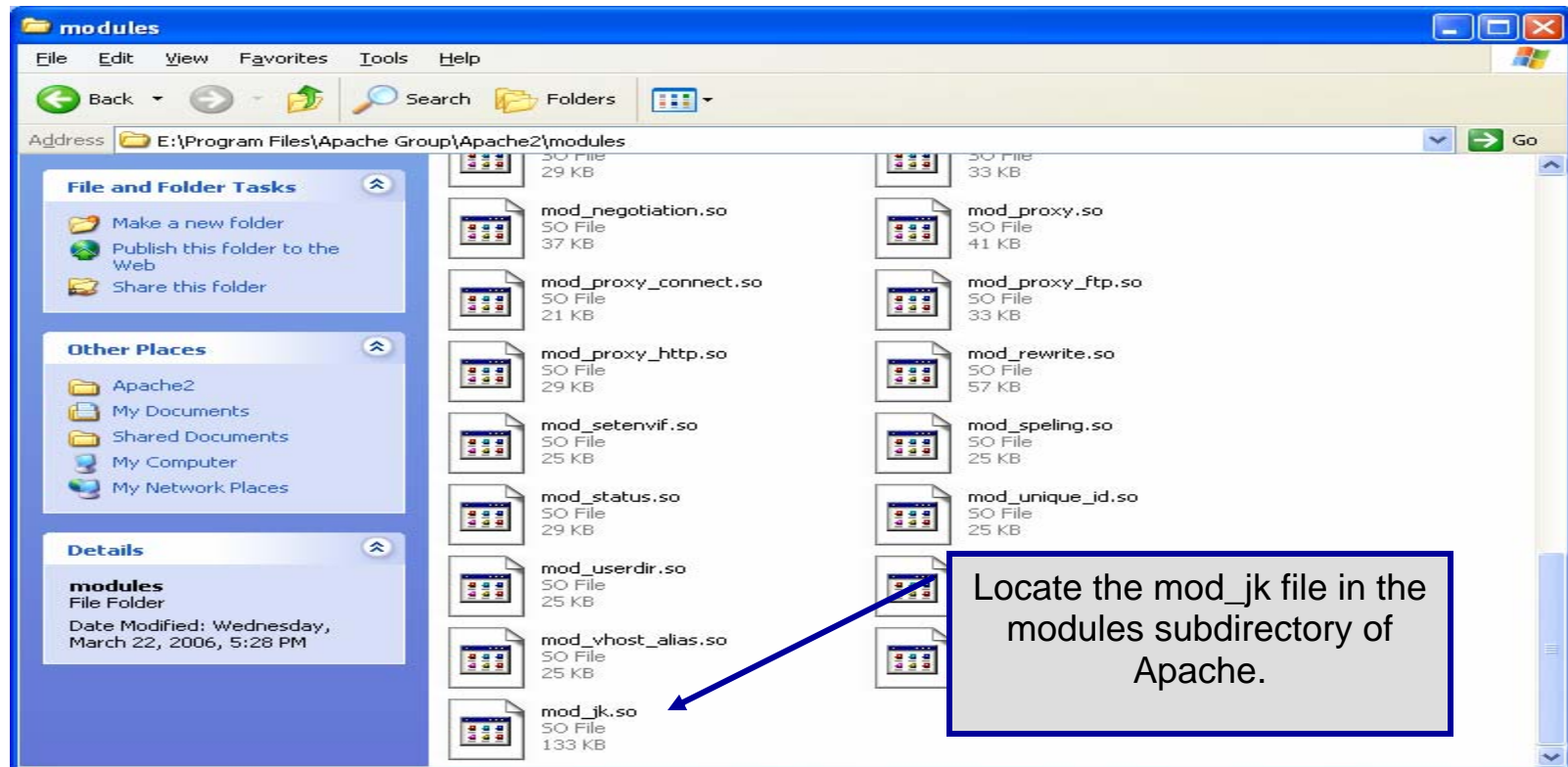
The Apache Tomcat Project
<http://tomcat.apache.org/>

Internet



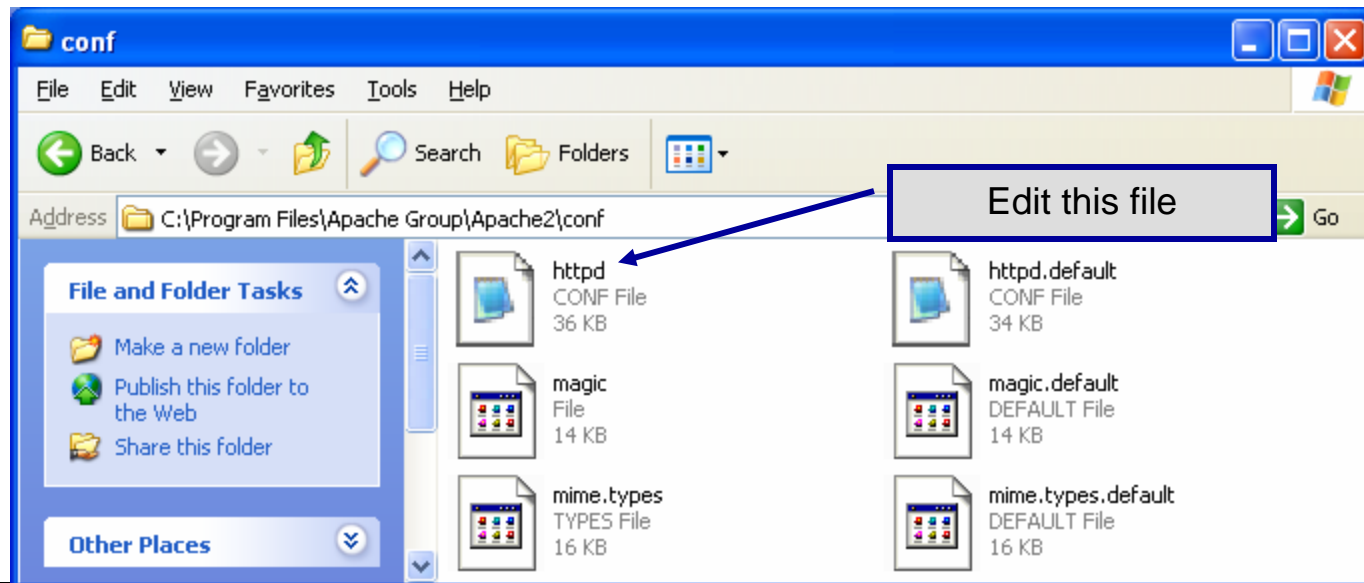
Installing The Tomcat Connector

- 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`.



```
httpd - Notepad
File Edit Format View Help

### section 1: Global Environment
#
# The directives in this section affect the overall operation of Apache,
# such as the number of concurrent requests it can handle or where it
# can find its configuration files.
#
#For PHP5
#
LoadModule php5_module "E:/php/php5apache2.dll"
AddType application/x-httpd-php .php
#configure the path to php.ini
PHPIniDir "E:/php"

### begin material for mod_jk connector
# Load mod_jk module
# Update this path to match your modules location
LoadModule jk_module "E:/Program Files/Apache Group/Apache2/modules/mod_jk.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.
JkWorkersFile "E:/Program Files/Apache Software Foundation/Tomcat 5.5/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/Apache Group/Apache2/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 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 /cop4610/* ajp13
JkMount /first-examples/* ajp13

### end material for mod_jk connector
```

This was added earlier to enable PHP

Add all of this material to enable mod_jk

Add JKMount directives for any servlets and jsp's 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.



```
workers - WordPad
File Edit View Insert Format Help
[Icons]
worker.ajp12.lbfactor=1

#
#----- DEFAULT ajp13 WORKER DEFINITION -----
#-----
#
#
# Defining a worker named ajp13 and of type ajp13
# Note that the name and the type do not have to match.
#
worker.ajp13.port=8009
worker.ajp13.host=localhost
worker.ajp13.type=ajp13
#
# Specifies the load balance factor when used with
# a load balancing worker.
# Note:
# ----> lbfactor must be > 0
# ----> Low lbfactor means less work done by the worker.
worker.ajp13.lbfactor=1

#
# Specify the size of the open connection cache.
#worker.ajp13.cachesize

#
#----- DEFAULT LOAD BALANCER WORKER DEFINITION -----
#-----
#
For Help, press F1
```

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.



```
C:\Program Files\Apache Software Foundation\Tomcat 5.5.12\conf\server.xml - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Home Search Favorites Refresh Mail Print
Address C:\Program Files\Apache Software Foundation\Tomcat 5.5.12\conf\server.xml Go Links
enableLookups="false" disableUploadTimeout="true"
acceptCount="100" scheme="https" secure="true"
clientAuth="false" sslProtocol="TLS" />
-->
<!-- Define an AJP 1.3 Connector on port 8009 -->
<Connector port="8009" enableLookups="false" redirectPort="8443" protocol="AJP/1.3" />
<!-- Define a Proxied HTTP/1.1 Connector on port 8082 -->
<!-- See proxy documentation for more information about using this. -->
<!-- <Connector port="8082"
maxThreads="150" minSpareThreads="25" maxSpareThreads="75"
enableLookups="false" acceptCount="100" connectionTimeout="20000"
proxyPort="80" disableUploadTimeout="true" />
-->
<!-- An Engine represents the entry point (within Catalina) that processes
every request. The Engine implementation for Tomcat stand alone
analyzes the HTTP headers included with the request, and passes them
on to the appropriate Host (virtual host). -->
<!-- You should set jvmRoute to support load-balancing via AJP ie :
<Engine name="Standalone" defaultHost="localhost" jvmRoute="jvml">
-->
<!-- Define the top level container in our container hierarchy -->
- <Engine name="Catalina" defaultHost="localhost">
<!-- The request dumper valve dumps useful debugging information about
the request headers and cookies that were received, and the response
headers and cookies that were sent, for all requests received by
this instance of Tomcat. If you care only about requests to a
particular virtual host, or a particular application, nest this
element inside the corresponding <Host> or <Context> entry instead.
```

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.

