INSTALLATION PROCEDURE

In this beginners java Tutorial ,We will first download, install and configure the J2SE development environment.

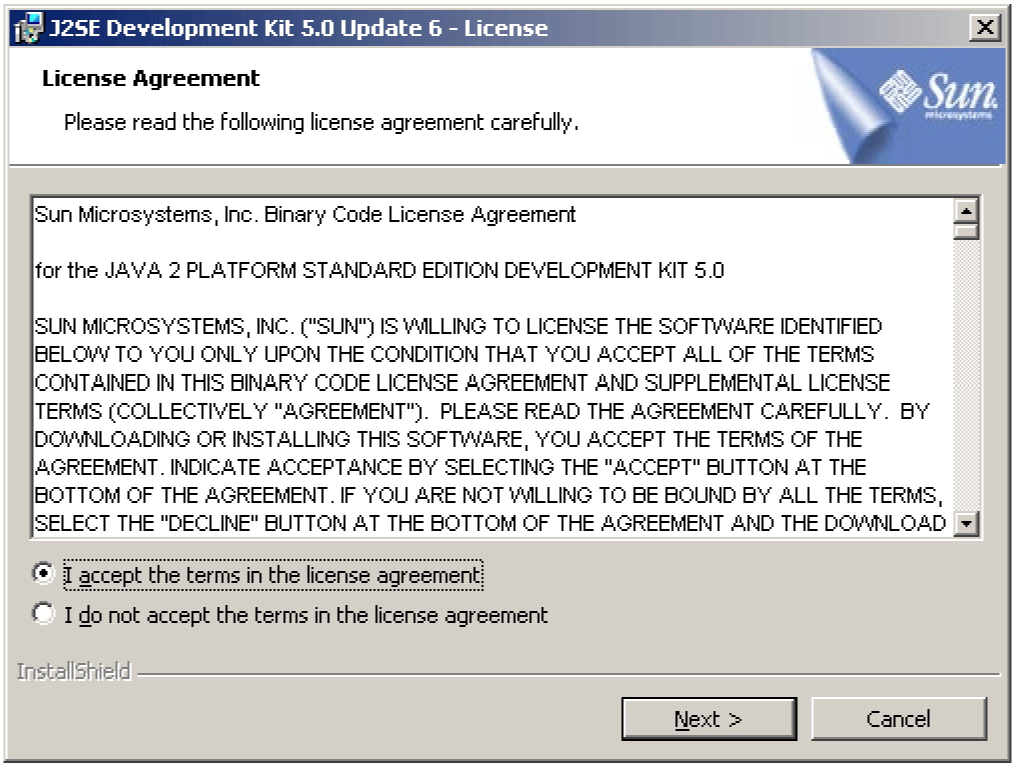
Downloading and Installing J2SE Software on Windows Platform

To download J2SE for development visit http://www.java.sun.com/j2se and download J2SE on your machine. In this tutorial we have used jdk-1_5_0_06-windows-i586.exe.The java 2Platform or (JDK) can be downloaded from the sun. Formerly Known as the java Development kit ,or JDK, Downloading java is really about downloading the java 2 plat form that comes in three editions , J2ME, J2SE and J2EE , if you are learning java, then, you should start by downloading J2EE.

Once you have downloaded the j2se on your system, you are ready to install . In the following section we will learn how to install jdk development environment on your machine. here are the step to install JDK on your windows machine.

Step 1

Double click the JDK down loaded file, the executable extracts the required Contents to the temporary directory and then License agreement screen appears. On the license agreement page read and accept the license and the click the next button .



J2SE Development Kit 5.0 Update 6 - License

License Agreement

Please read the following license agreement carefully.

Sun Microsystems, Inc. Binary Code License Agreement

for the JAVA 2 PLATFORM STANDARD EDITION DEVELOPMENT KIT 5.0

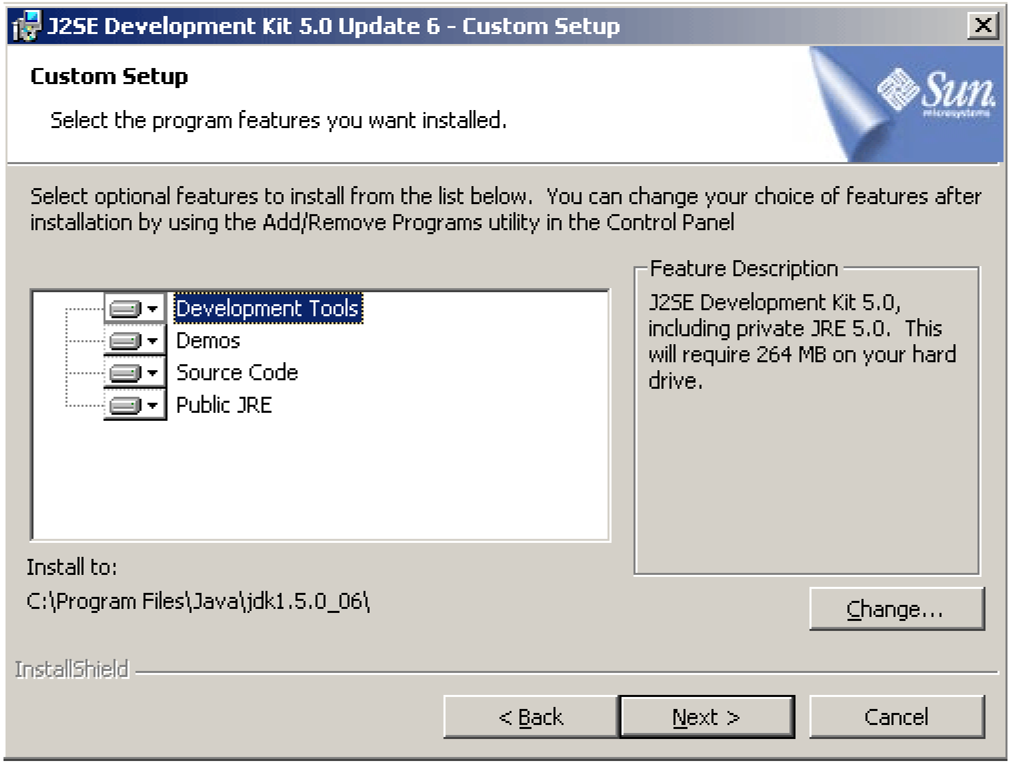
SUN MICROSYSTEMS, INC. ("SUN") IS WILLING TO LICENSE THE SOFTWARE IDENTIFIED BELOW TO YOU ONLY UPON THE CONDITION THAT YOU ACCEPT ALL OF THE TERMS CONTAINED IN THIS BINARY CODE LICENSE AGREEMENT AND SUPPLEMENTAL LICENSE TERMS (COLLECTIVELY "AGREEMENT"). PLEASE READ THE AGREEMENT CAREFULLY. BY DOWNLOADING OR INSTALLING THIS SOFTWARE, YOU ACCEPT THE TERMS OF THE AGREEMENT. INDICATE ACCEPTANCE BY SELECTING THE "ACCEPT" BUTTON AT THE BOTTOM OF THE AGREEMENT. IF YOU ARE NOT WILLING TO BE BOUND BY ALL THE TERMS, SELECT THE "DECLINE" BUTTON AT THE BOTTOM OF THE AGREEMENT AND THE DOWNLOAD

● I accept the terms in the license agreement

○ I do not accept the terms in the license agreement

Step 2

The custom setup screen appears as follows.



J2SE Development Kit 5.0 Update 6 - Custom Setup

Custom Setup

Select the program features you want installed.

Select optional features to install from the list below. You can change your choice of features after installation by using the Add/Remove Programs utility in the Control Panel

Feature Description

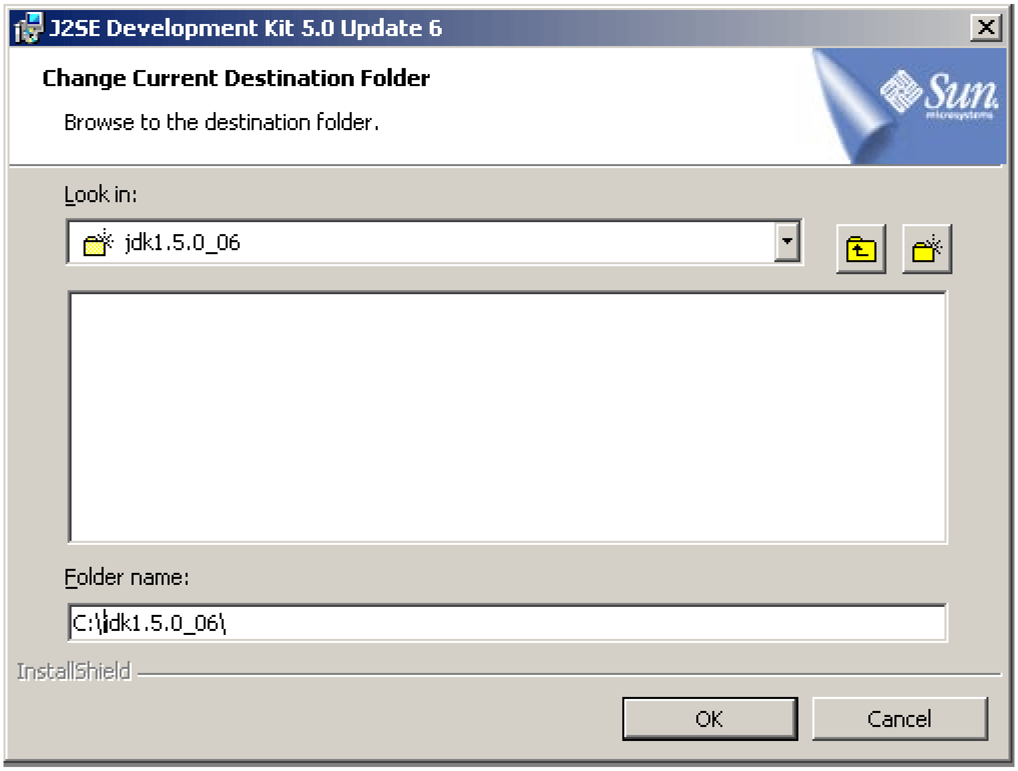
J2SE Development Kit 5.0, including private JRE 5.0. This will require 264 MB on your hard drive.

Install to:

C:\Program Files\Java\jdk1.5.0_06\

Step 3

Click on the change button to change the installation directory to "**c:\jdk1.5.0_06**" as shown in the following screen.



J2SE Development Kit 5.0 Update 6

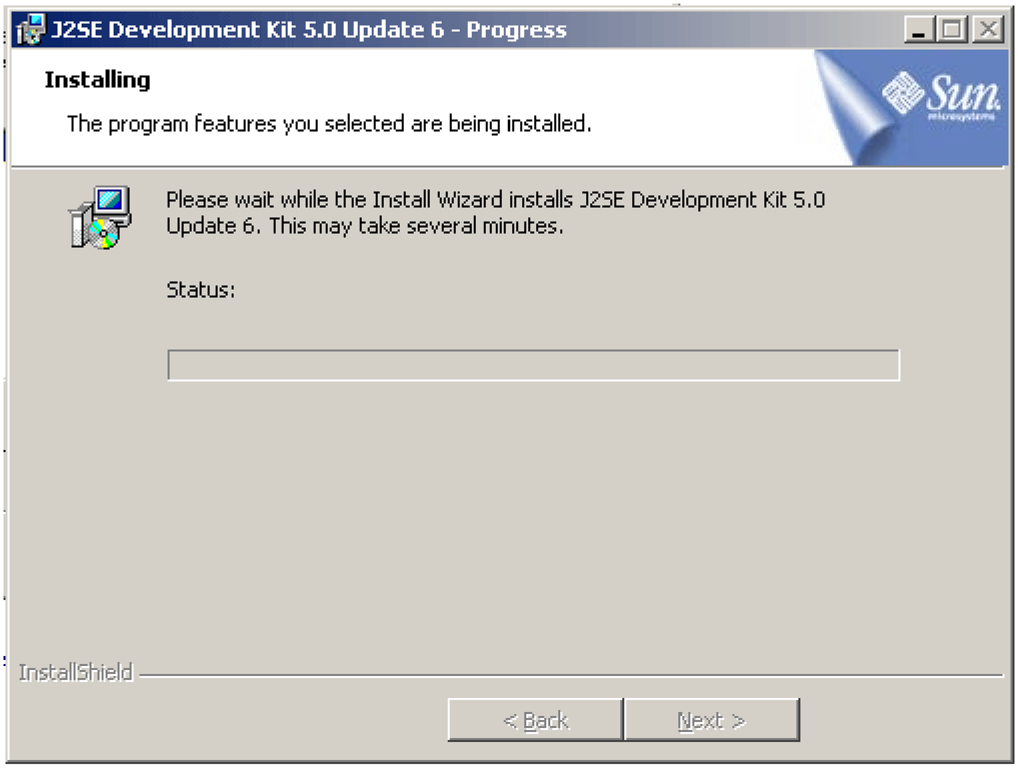
Change Current Destination Folder

Browse to the destination folder.

Look in: jdk1.5.0_06

Folder name: C:\jdk1.5.0_06\

and click on the "OK" button. After clicking on the "OK" button installation begins:



J2SE Development Kit 5.0 Update 6 - Progress

Installing

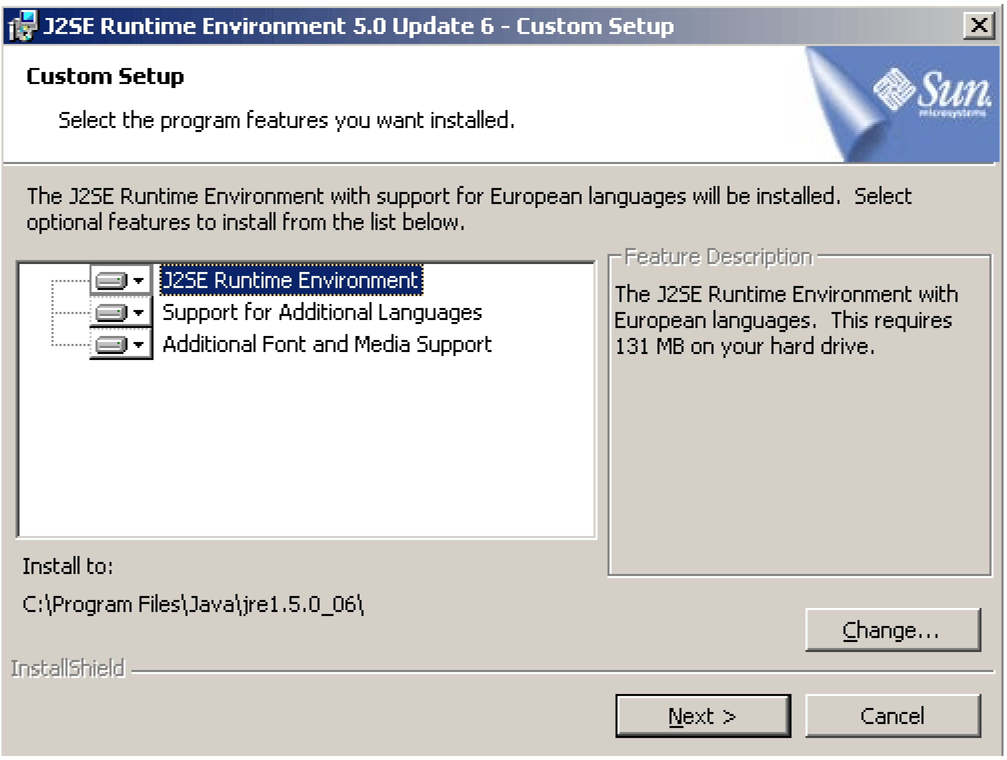
The program features you selected are being installed.

Please wait while the Install Wizard installs J2SE Development Kit 5.0 Update 6. This may take several minutes.

Status:

Step 4

In the next window installer asks for the installing the runtime as shown in the following screen:



J2SE Runtime Environment 5.0 Update 6 - Custom Setup

Custom Setup

Select the program features you want installed.

The J2SE Runtime Environment with support for European languages will be installed. Select optional features to install from the list below.

- J2SE Runtime Environment
- Support for Additional Languages
- Additional Font and Media Support

Feature Description

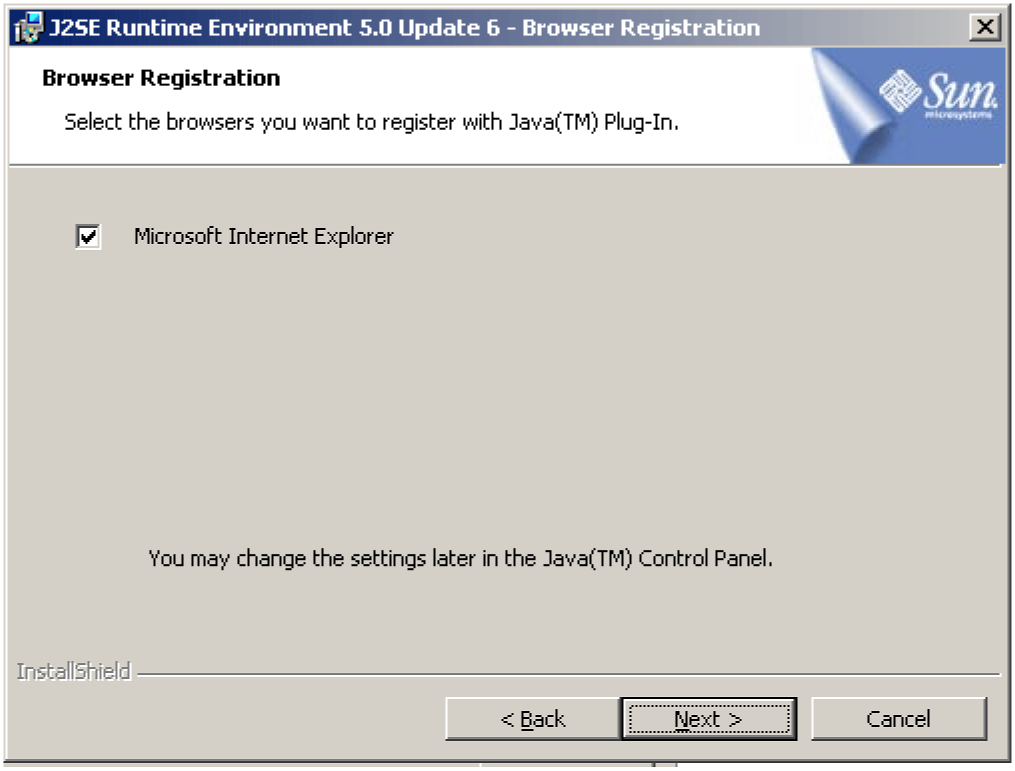
The J2SE Runtime Environment with European languages. This requires 131 MB on your hard drive.

Install to:

C:\Program Files\Java\jre1.5.0_06\

Step 5

Click on next button install the J2SE runtime on your machine. Next screen shows the browser selection:



J2SE Runtime Environment 5.0 Update 6 - Browser Registration

Browser Registration

Select the browsers you want to register with Java(TM) Plug-In.

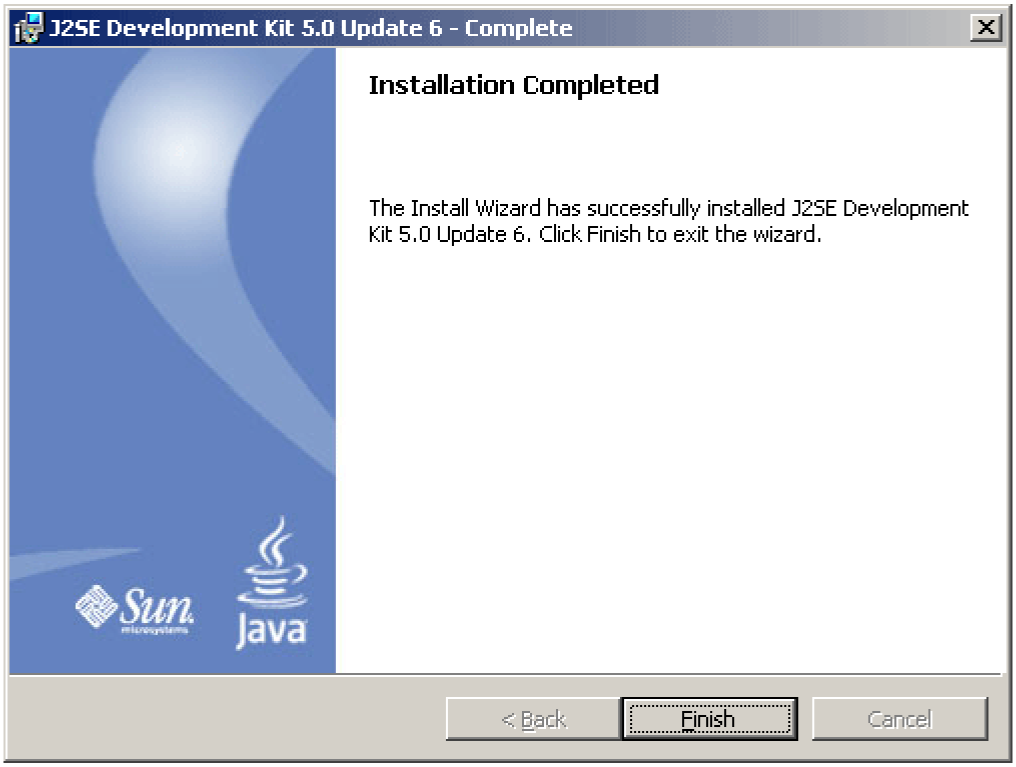
☑ Microsoft Internet Explorer

You may change the settings later in the Java(TM) Control Panel.

Click on the "Next" button.

Step 6

Once the installation is finished it shows you the final screen indications the success. Now you have successfully installed J2SE on your machine. Installer shows the following final confirmation window as shown below:



J2SE Development Kit 5.0 Update 6 - Complete

Installation Completed

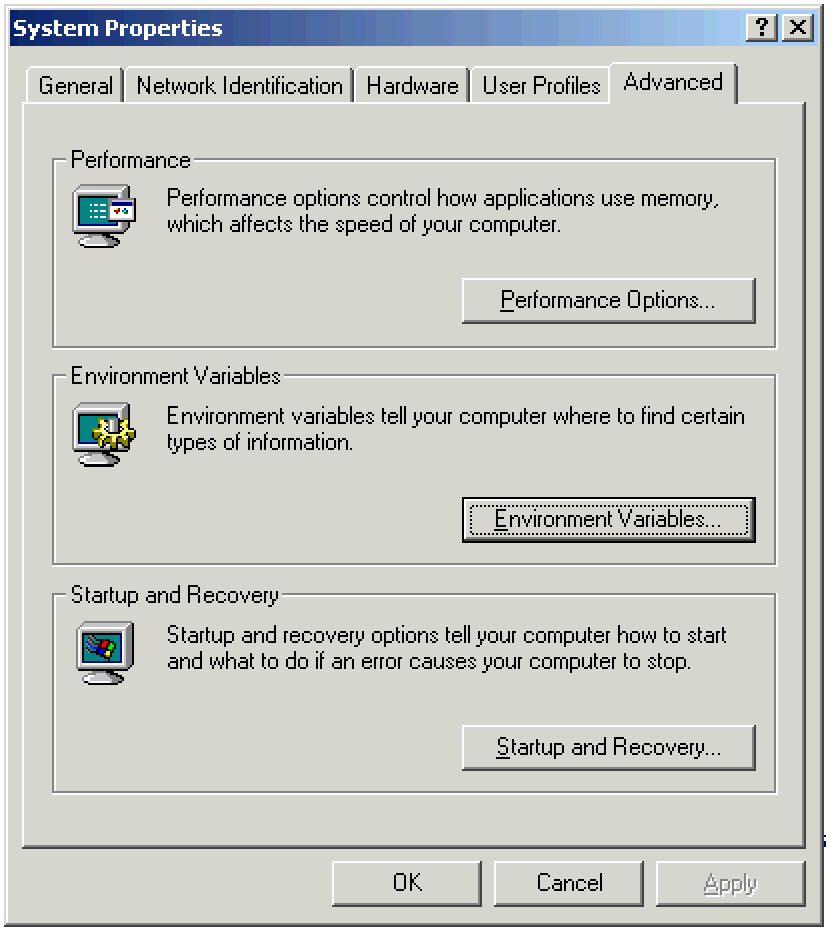
The Install Wizard has successfully installed J2SE Development Kit 5.0 Update 6. Click Finish to exit the wizard.

Click on the "Finish" button to exit from the installer.

Configuring the installation on windows machine:

In this Section we will add some settings to the windows environment so that the java compiler and runtime becomes available for compiling and running the java application.

Go to the control panel and double click on "System Properties" and to to the advance tab.

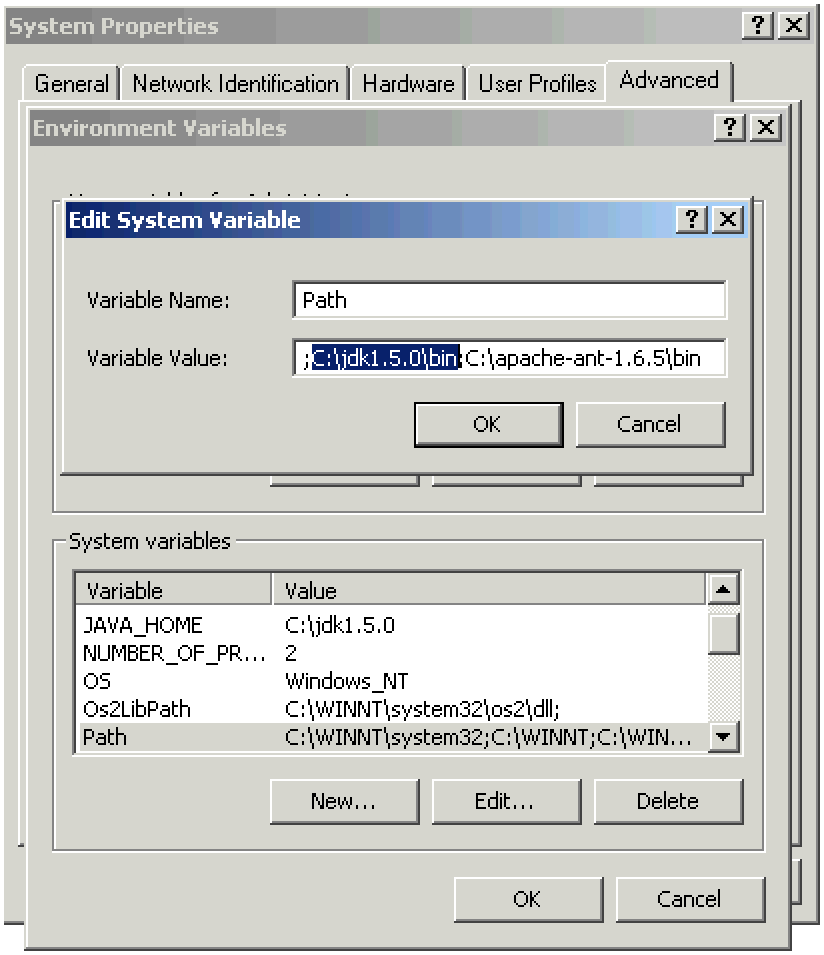


Performance options control how applications use memory, which affects the speed of your computer.

Environment variables tell your computer where to find certain types of information.

Startup and recovery options tell your computer how to start and what to do if an error causes your computer to stop.

and add "**c:\jdk1.5.0_06**" to path variable:



Variable Name: Path

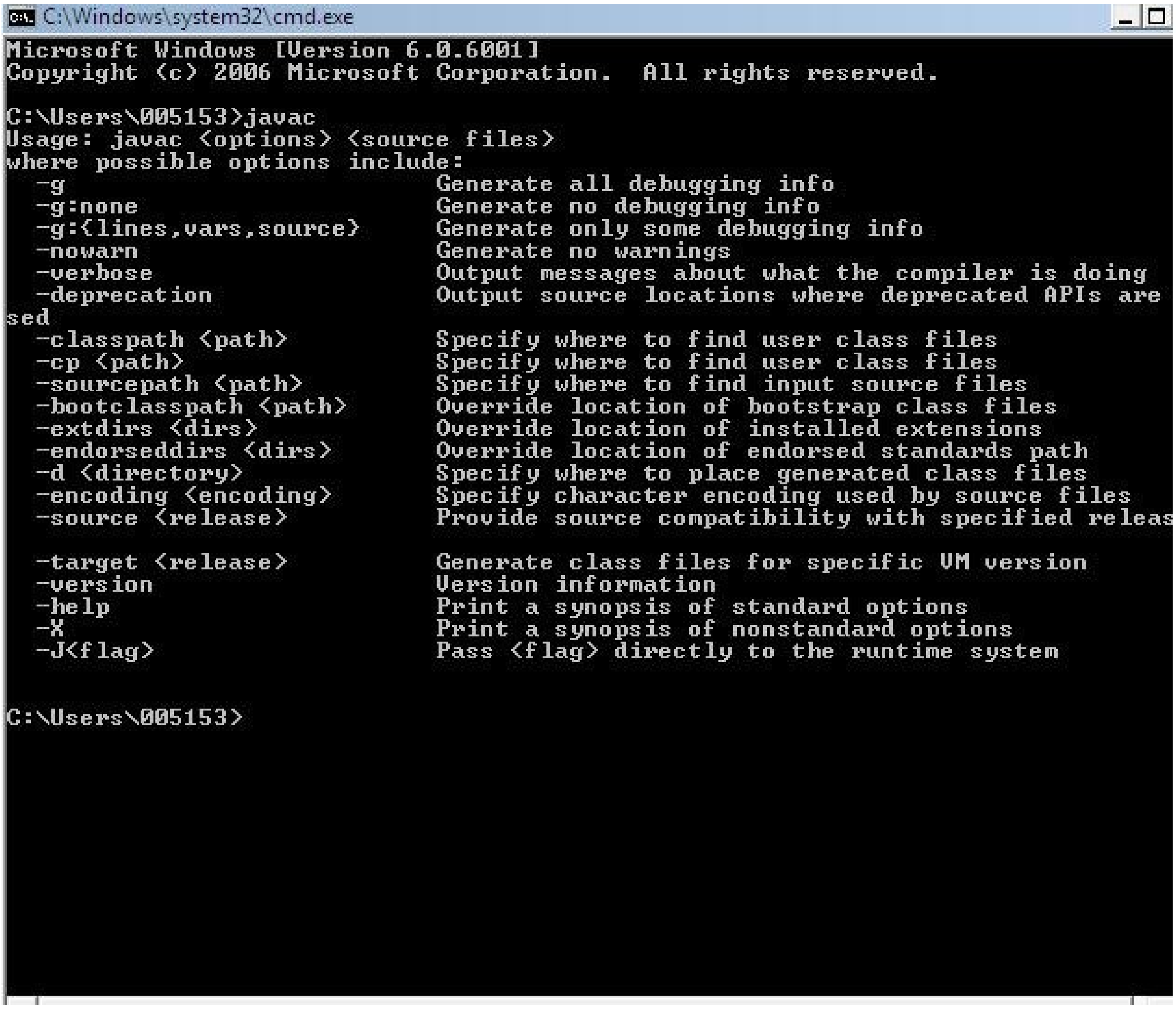
Variable Value: ;C:\jdk1.5.0\bin;C:\apache-ant-1.6.5\bin

System variables

Variable	Value
JAVA_HOME	C:\jdk1.5.0
NUMBER_OF_PR...	2
OS	Windows_NT
Os2LibPath	C:\WINNT\system32\os2\dll;
Path	C:\WINNT\system32;C:\WINNT;C:\WIN...

and click on ok button. To save the setting click on "OK" button.

This will make the java environment available for development. Open the dos prompt and type **javac** on the console, it should show the following output:

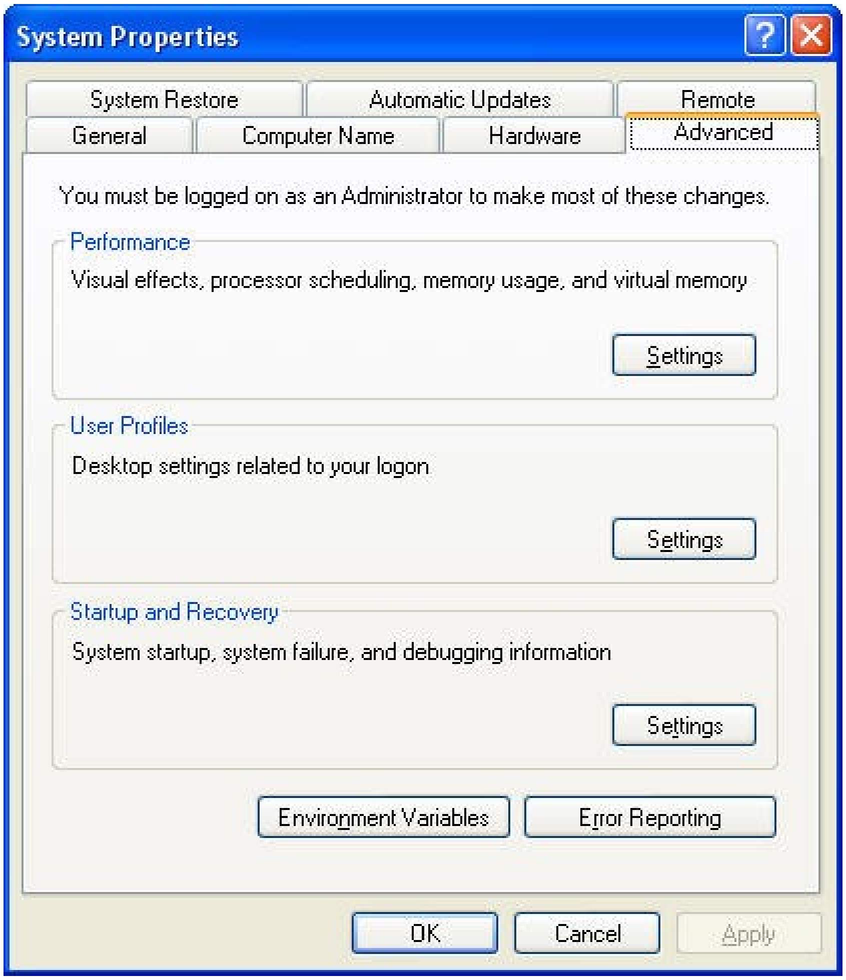


```
Microsoft Windows [Version 6.0.6001]
Copyright (c) 2006 Microsoft Corporation.  All rights reserved.

C:\Users\005153>javac
Usage: javac <options> <source files>
where possible options include:
  -g                         Generate all debugging info
  -g:none                    Generate no debugging info
  -g:{lines,vars,source}     Generate only some debugging info
  -nowarn                    Generate no warnings
  -verbose                   Output messages about what the compiler is doing
  -deprecation               Output source locations where deprecated APIs are
sed
  -classpath <path>          Specify where to find user class files
  -cp <path>                 Specify where to find user class files
  -sourcepath <path>         Specify where to find input source files
  -bootclasspath <path>      Override location of bootstrap class files
  -extdirs <dirs>            Override location of installed extensions
  -endorseddirs <dirs>       Override location of endorsed standards path
  -d <directory>             Specify where to place generated class files
  -encoding <encoding>       Specify character encoding used by source files
  -source <release>          Provide source compatibility with specified releas

  -target <release>          Generate class files for specific VM version
  -version                   Version information
  -help                      Print a synopsis of standard options
  -X                         Print a synopsis of nonstandard options
  -J<flag>                   Pass <flag> directly to the runtime system


C:\Users\005153>
```

Now your development environment is ready for development.

Set JAVA_ HOME variable

Click **Start** > **Control Panel** > **System** icon to open System Properties dialog box.



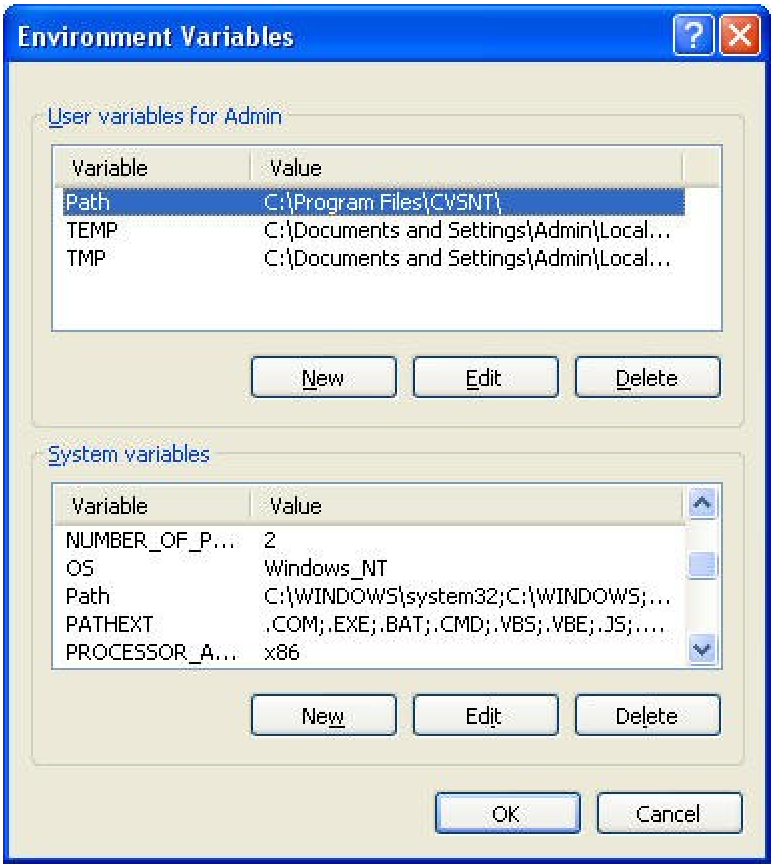
You must be logged on as an Administrator to make most of these changes.

Visual effects, processor scheduling, memory usage, and virtual memory

Desktop settings related to your logon

System startup, system failure, and debugging information

Click **Advanced** > **Environment Variables**.



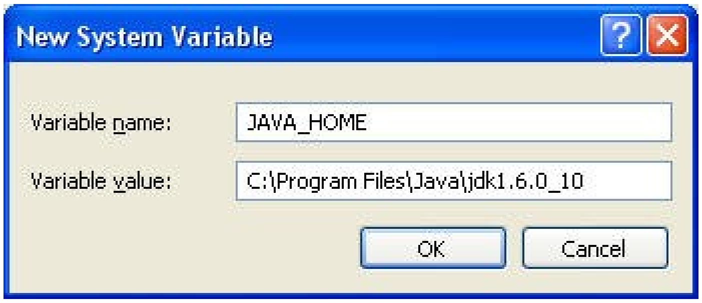
User variables for Admin

Variable	Value
Path	C:\Program Files\CVSNT\
TEMP	C:\Documents and Settings\Admin\Local...
TMP	C:\Documents and Settings\Admin\Local...

System variables

Variable	Value
NUMBER_OF_P...	2
OS	Windows_NT
Path	C:\WINDOWS\system32;C:\WINDOWS;...
PATHEXT	.COM;.EXE;.BAT;.CMD;.VBS;.VBE;.JS;....
PROCESSOR_A...	x86

Click New button in System variables panel and create **JAVA_HOME** and **CLASSPATH** variables with values as shown:



Variable name: JAVA_HOME

Variable value: C:\Program Files\Java\jdk1.6.0_10

You can verify the availability of Java compiler by executing the following command in the command window:

Installing MySQL Server 5.1 on Windows

Get the Installer

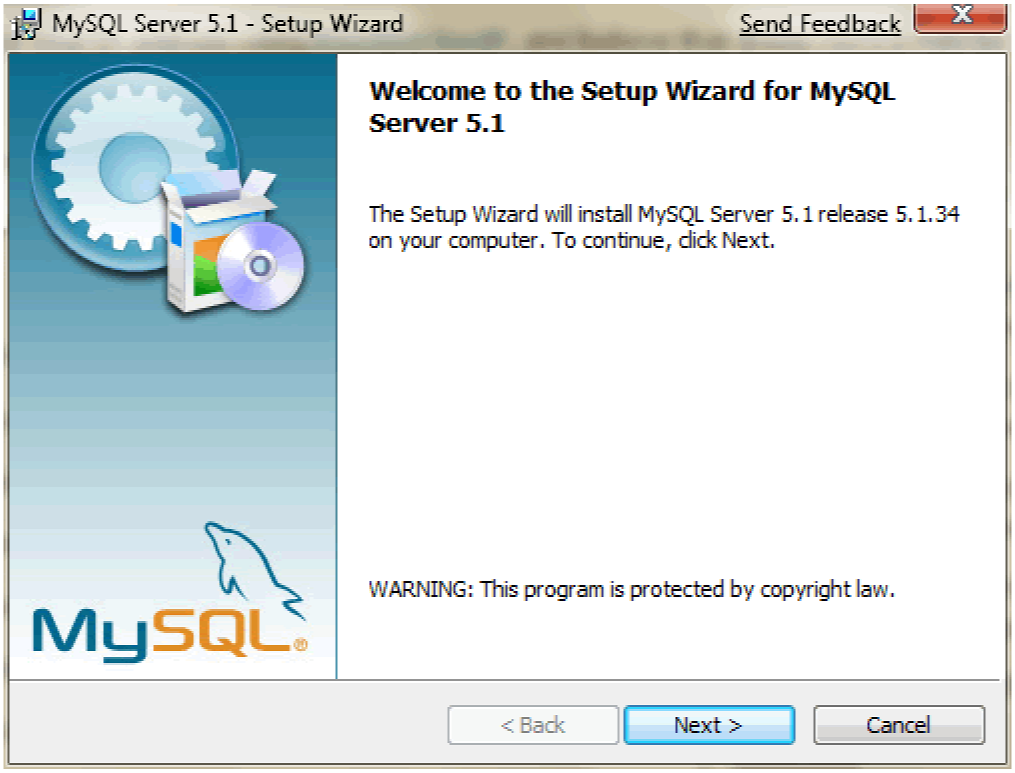
The version we're interested in is the free-as-in-both-speech-and-beer Community Edition, which is available at the MySQL site. Here are the links to the installers:

- Here are the links for the Windows 32-bit installers
- Here are the links for the Windows 64-bit installers

Both these options provide you with three different installers. I recommend getting the .msi (Windows Installer) as it's the lowest-headache option. It's also the version I use in this walkthrough.

By the way, the screenshots provided in this walkthrough are from my actual installation process on PC.

Here's what you should see when you launch the installer:



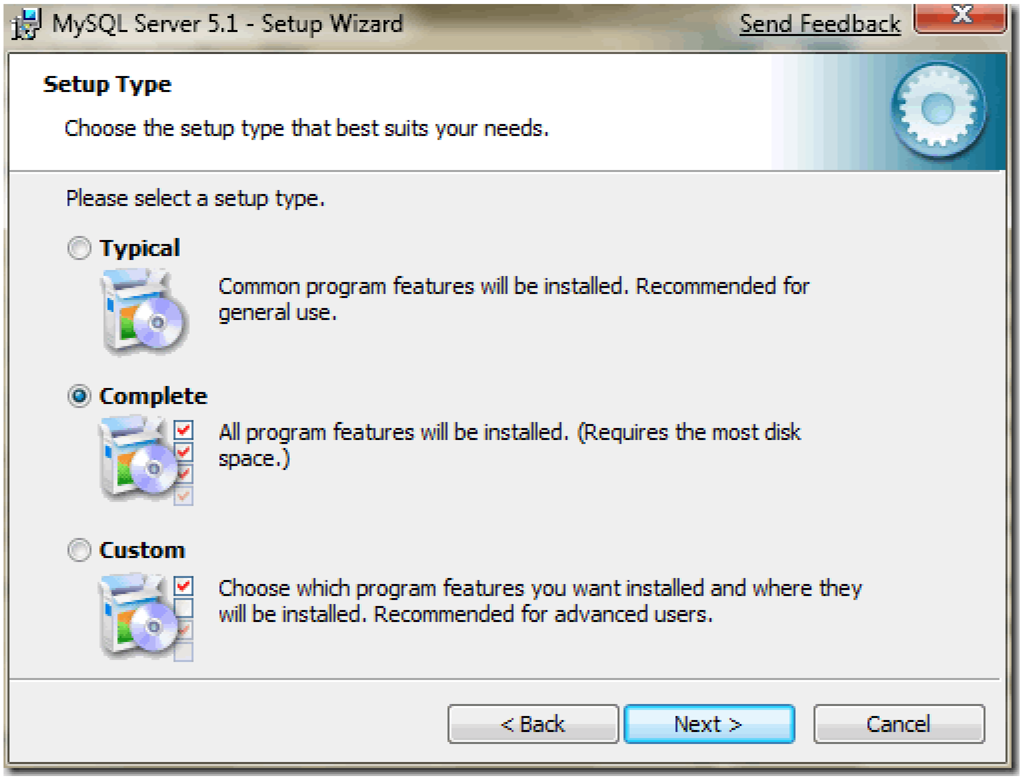
Welcome to the Setup Wizard for MySQL Server 5.1

The Setup Wizard will install MySQL Server 5.1 release 5.1.34 on your computer. To continue, click Next.

WARNING: This program is protected by copyright law.

Which Setup Type?

The first choice you have to make is the type of setup you want:



Setup Type

Choose the setup type that best suits your needs.

Please select a setup type.

○ **Typical**

Common program features will be installed. Recommended for general use.

● **Complete**

All program features will be installed. (Requires the most disk space.)

○ **Custom**

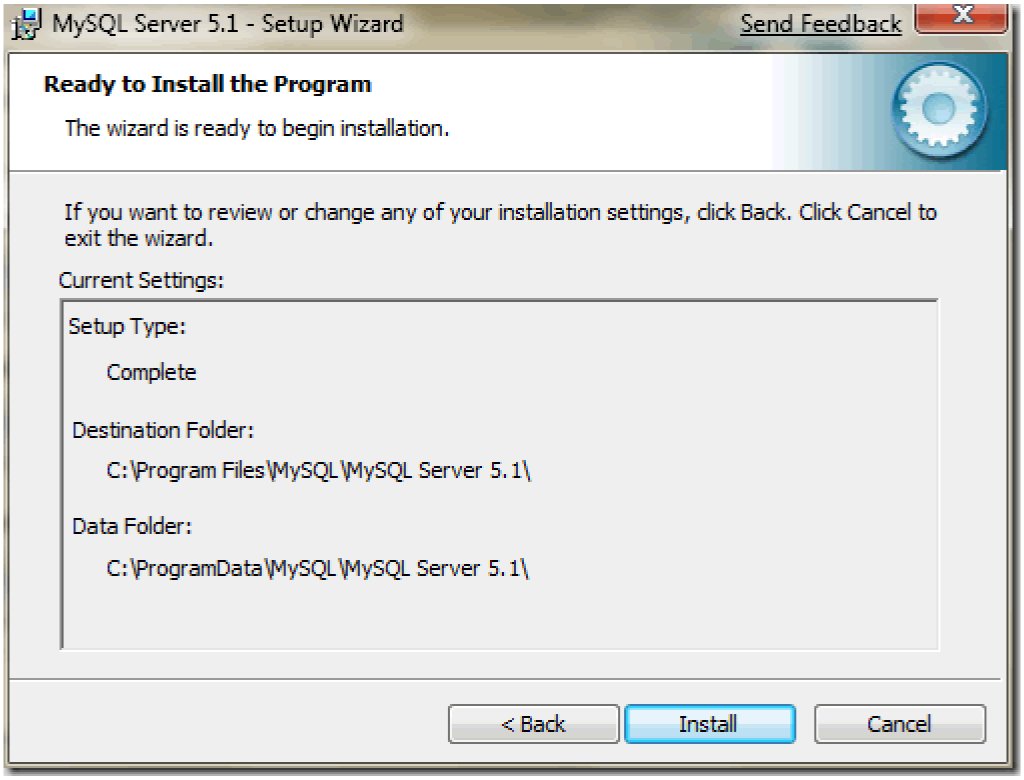
Choose which program features you want installed and where they will be installed. Recommended for advanced users.

The three choices offered are:

1. Typical: Installs the basic components for MySQL to the default installation path, C:\Program Files\MySQL\MySQL Server 5.1\, including:
   - The MySQL server
   - The mysql command-line client
   - Other command-line utilities like mysqldump, myisamchk and more.
2. Complete: Installs all the MySQL components to the default installation path, C:\Program Files\MySQL\MySQL Server 5.1\, including those listed in the Typical setup, plus:
   - Documentation
   - The embedded server library
   - The benchmark suite
   - Support scripts
3. Custom: Gives you complete control over the components installed and the installation path.

Although the components in the Typical setup will work fine for most web development purposes, I like having the docs handy, so I went with the Complete setup.

Once you've selected the setup, you'll be shown a confirmation window like the one below:



Ready to Install the Program

The wizard is ready to begin installation.

If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

Current Settings:

Setup Type:

Complete

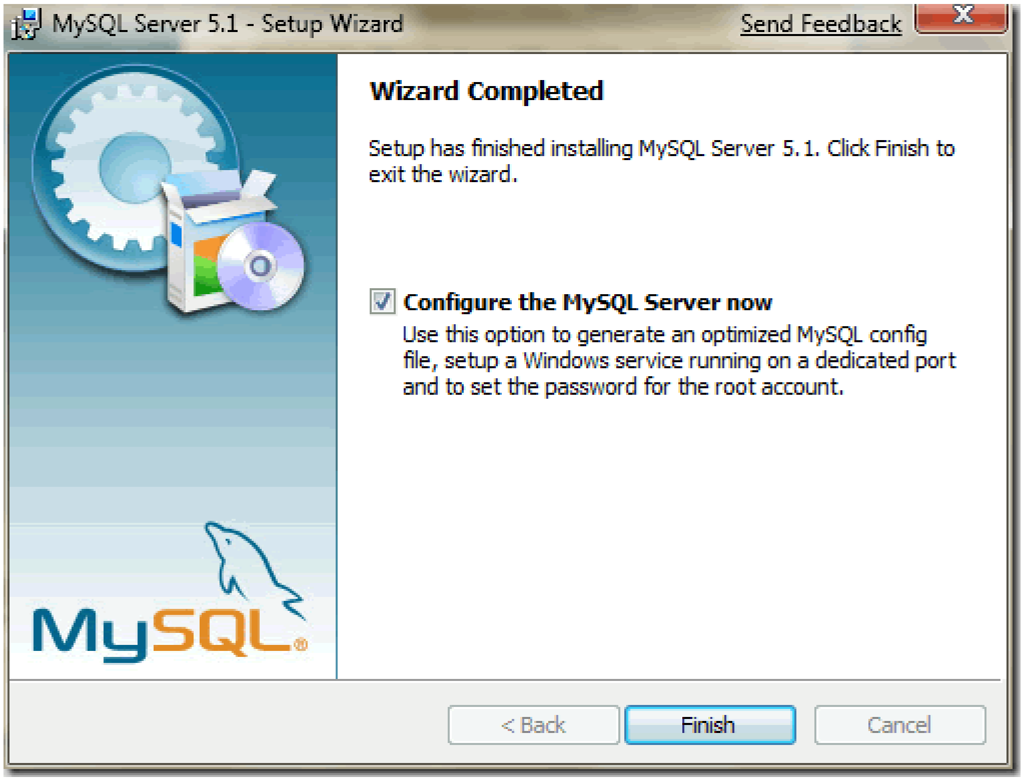
Destination Folder:

C:\Program Files\MySQL\MySQL Server 5.1\

Data Folder:

C:\ProgramData\MySQL\MySQL Server 5.1\

Once MySQL has been installed, you'll see the window below:



Wizard Completed

Setup has finished installing MySQL Server 5.1. Click Finish to exit the wizard.

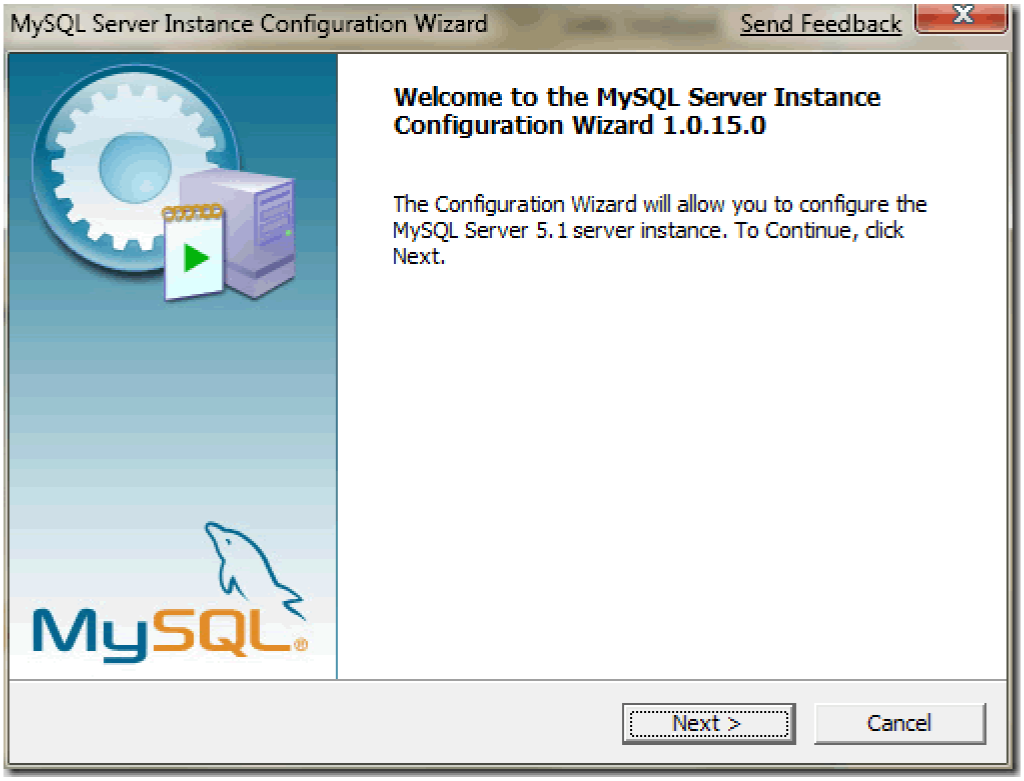
☑ **Configure the MySQL Server now**

Use this option to generate an optimized MySQL config file, setup a Windows service running on a dedicated port and to set the password for the root account.

You'll be given the choice to configure MySQL server, which I recommend. You can do so by leaving the Configure the MySQL Server now checkbox checked and then clicking Finish.

The Configuration Wizard

Here's the first window of the Configuration Wizard:

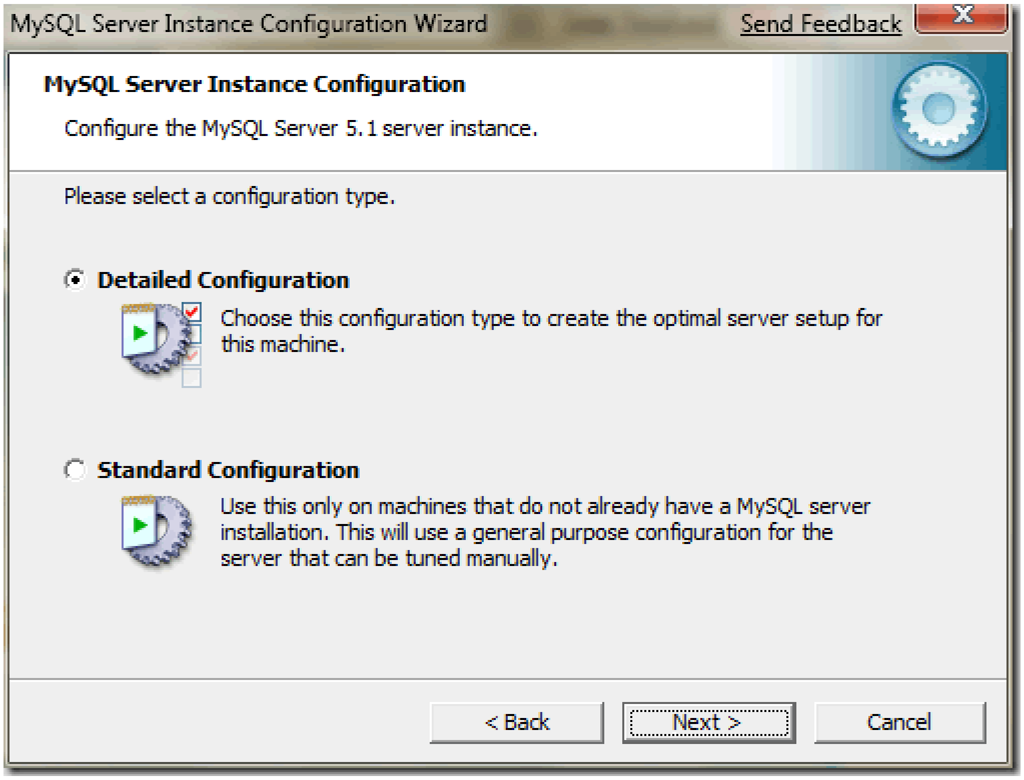


Welcome to the MySQL Server Instance Configuration Wizard 1.0.15.0

The Configuration Wizard will allow you to configure the MySQL Server 5.1 server instance. To Continue, click Next.

Which Configuration?

You'll be asked which configuration type to use:



MySQL Server Instance Configuration Wizard

MySQL Server Instance Configuration

Configure the MySQL Server 5.1 server instance.

Please select a configuration type.

● Detailed Configuration

Choose this configuration type to create the optimal server setup for this machine.

○ Standard Configuration

Use this only on machines that do not already have a MySQL server installation. This will use a general purpose configuration for the server that can be tuned manually.

The two choices offered are:

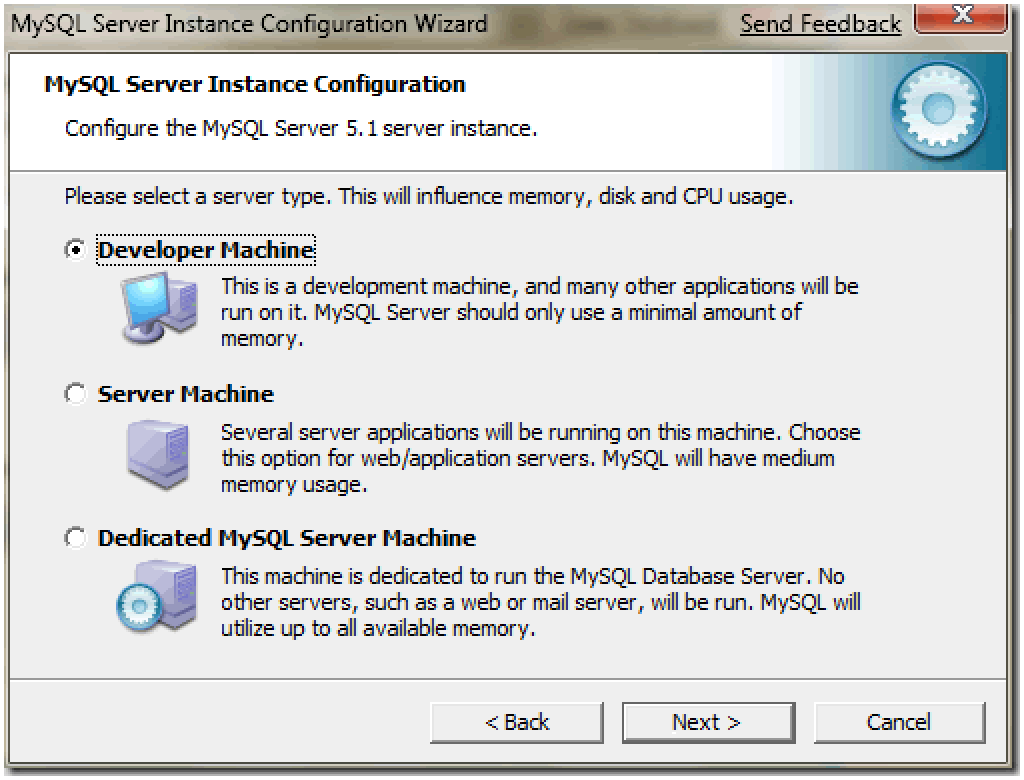
1. Detailed Configuration: Gives you fine-grained control over the configuration process. I'm familiar with the options being offered, so this is the option I chose. If you choose this option, you will have to make some additional choices in the windows that follow.
2. Standard Configuration: If you're new to MySQL and need a server configured as a single-user developer machine, this configuration should suit your needs. If you choose this option, you'll skip the next few steps and go directly to the Root Password window.

Detailed Configuration Options

If you chose to use the Detailed Configuration, you will see the following windows.

Server Type

The first choice in the Detailed Configuration is Server Type:



MySQL Server Instance Configuration

Configure the MySQL Server 5.1 server instance.

Please select a server type. This will influence memory, disk and CPU usage.

● Developer Machine

This is a development machine, and many other applications will be run on it. MySQL Server should only use a minimal amount of memory.

○ Server Machine

Several server applications will be running on this machine. Choose this option for web/application servers. MySQL will have medium memory usage.

○ Dedicated MySQL Server Machine

This machine is dedicated to run the MySQL Database Server. No other servers, such as a web or mail server, will be run. MySQL will utilize up to all available memory.

The three options are:

1. Developer Machine: This setup assumes that MySQL will be running on a machine used to write applications, where the database will be used for basic developer proofs of concept and simple testing. MySQL will be configured to use minimal system resources. This is the option I selected.
2. Server Machine: This setup is for server systems where MySQL will be running along with other server applications such as a web server, mail server, FTP server and so on. MySQL will be configured to use a moderate portion of the system resources.
3. Dedicated MySQL Server Machine: This is for machines that will be running only MySQL. in this configuration, MySQL will be configured to use all available system resources.

Storage Engines

The next choice to make is selecting the storage engines to be used: MyISAM or InnoDB. If you're not familiar with MySQL, you're probably asking "What's the difference between InnoDB and MyISAM?"

Of the two engines, MyISAM is the older of the two, and the default engine. The general consensus is that in most cases, it's faster than InnoDB for typical CRUD operations. It supports up to around 4 billion rows of data and 64 indexed fields per table. MyISAM uses table-level locking, which means than when a row is being updated, the table is locked and no other operations can update any other rows until the first row is updated and the lock on the table is released.

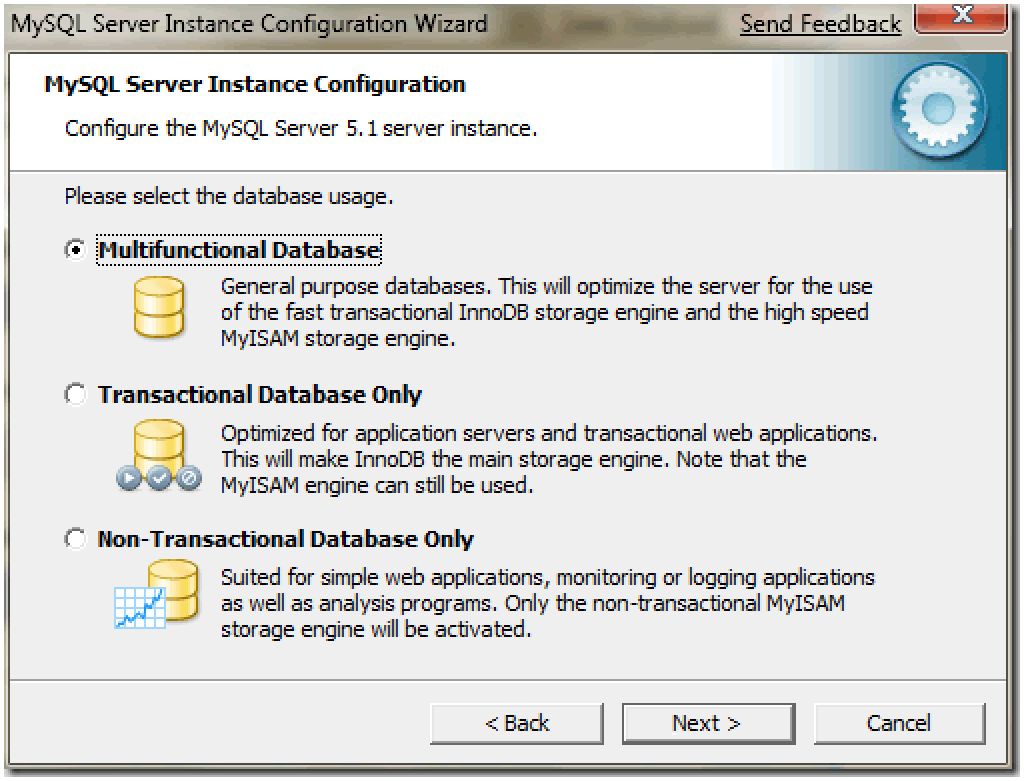
InnoDB is the newer (and some would say *sexier*) engine. It's called "the transactional one", and it's built with data integrity in mind. It supports foreign key constraints, meaning that changes to a table (say, "Actors") that references another table (say, "Movies") are allowed only if those changes leave both in a valid state. For example, you wouldn't be able to delete a row from the "Actors" table if it referenced any rows in the "Movies" table (that is, you can't remove an actor from the database if s/he's listed as starring in any movies). It also supports row-level locking, which means that so that more than one row can be updated at the same time.

The general guidelines for choosing between MyISAM and InnoDB are as follows:

- Will your use of the database be mostly ***reading***? That is, will you be doing mostly select operations and few insert, update and delete operations? Then you want MyISAM.
- Will your use of the database involve at least as many writes as reads, if not more? That is, will you be doing as many insert, update and delete operations as select operations? Then you want InnoDB.
- Do you need full-text search? You want MyISAM.
- Do you need to conserve disk space and RAM? You want MyISAM.
- Does the idea of using a non-SQL Server database irk you? You might feel better going with InnoDB, since it has the row-level locking, transaction safety and generally more "relational" feel.

Keep in mind that when adding a table to a MySQL database, you can specify which engine it uses. Lately, I've been in the habit of specifying InnoDB for most tables *except* those on which I want to provide full-text search; for those, I've specified MyISAM. (For more on specifying engines when creating tables, see MySQL's page on the **create table** command.)

Now that I've done a quick review of MyISAM and InnoDB, let's look at the storage engine choices that the Configuration Wizard offers.



MySQL Server Instance Configuration Wizard

MySQL Server Instance Configuration

Configure the MySQL Server 5.1 server instance.

Please select the database usage.

● **Multifunctional Database**

General purpose databases. This will optimize the server for the use of the fast transactional InnoDB storage engine and the high speed MyISAM storage engine.

○ **Transactional Database Only**

Optimized for application servers and transactional web applications. This will make InnoDB the main storage engine. Note that the MyISAM engine can still be used.

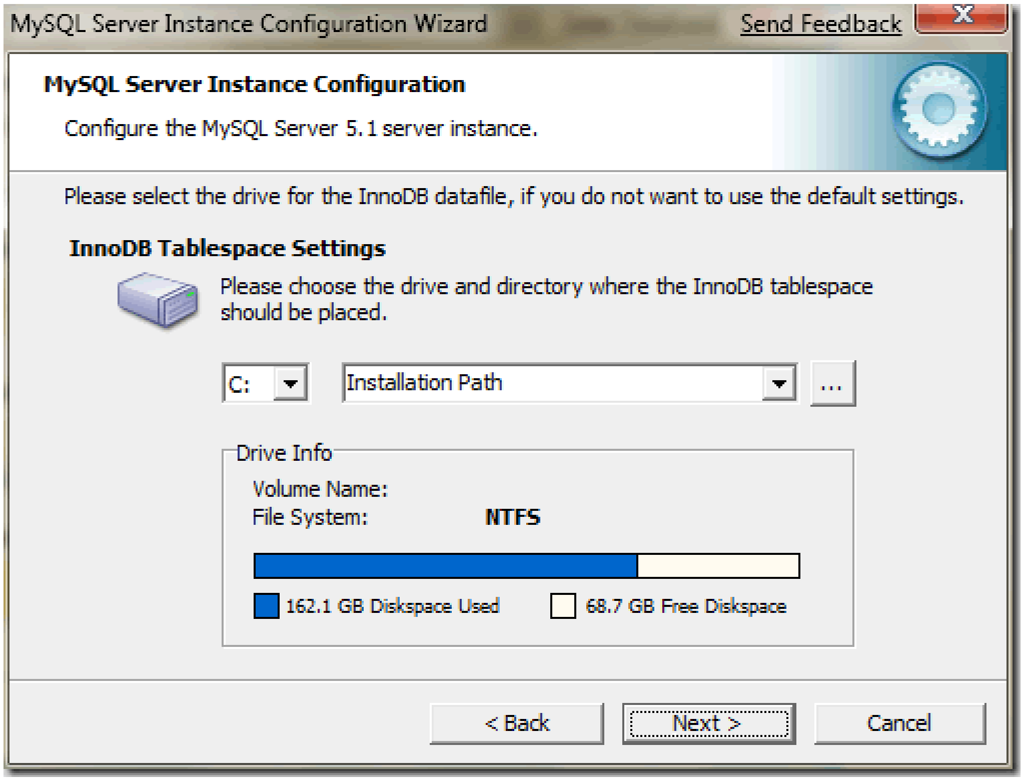
○ **Non-Transactional Database Only**

Suited for simple web applications, monitoring or logging applications as well as analysis programs. Only the non-transactional MyISAM storage engine will be activated.

The three choices are:

1. Multifunctional Database: This enables both InnoDB and MyISAM storage engines and divides resources evenly between the two. This is the recommended option for developers who use both storage engines on a regular basis. It's the option I chose, since it yields the most flexibility.
2. Transactional Database Only: This enables both InnoDB and MyISAM storage engines, but dedicates more resources to the InnoDB engine.
3. Non-Transactional Database Only: This option completely disables InnoDB; all resources are dedicated to the MyISAM storage engine.

If you chose Multifunctional Database or Transactional Database Only, you'll be presented a windows asking you where to put the InnoDB tablespace:


MySQL Server Instance Configuration Wizard

MySQL Server Instance Configuration

Configure the MySQL Server 5.1 server instance.

Please select the drive for the InnoDB datafile, if you do not want to use the default settings.

InnoDB Tablespace Settings

Please choose the drive and directory where the InnoDB tablespace should be placed.

C: | Installation Path

Drive Info

Volume Name:

File System: NTFS

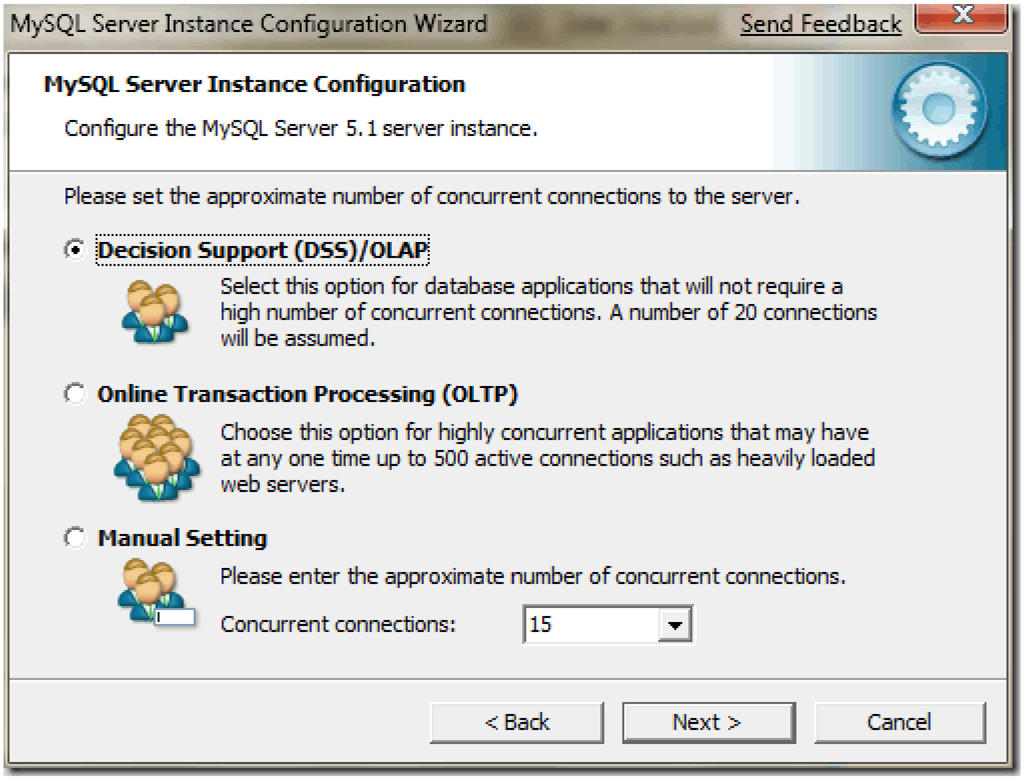
162.1 GB Diskspace Used

68.7 GB Free Diskspace

I went with the default, which puts the tablespace in the MySQL installation directory.

Concurrent Connection Settings

The next window is all about the number of concurrent connections supported:



MySQL Server Instance Configuration Wizard

MySQL Server Instance Configuration

Configure the MySQL Server 5.1 server instance.

Please set the approximate number of concurrent connections to the server.

● **Decision Support (DSS)/OLAP**

Select this option for database applications that will not require a high number of concurrent connections. A number of 20 connections will be assumed.

○ **Online Transaction Processing (OLTP)**

Choose this option for highly concurrent applications that may have at any one time up to 500 active connections such as heavily loaded web servers.

○ **Manual Setting**

Please enter the approximate number of concurrent connections.

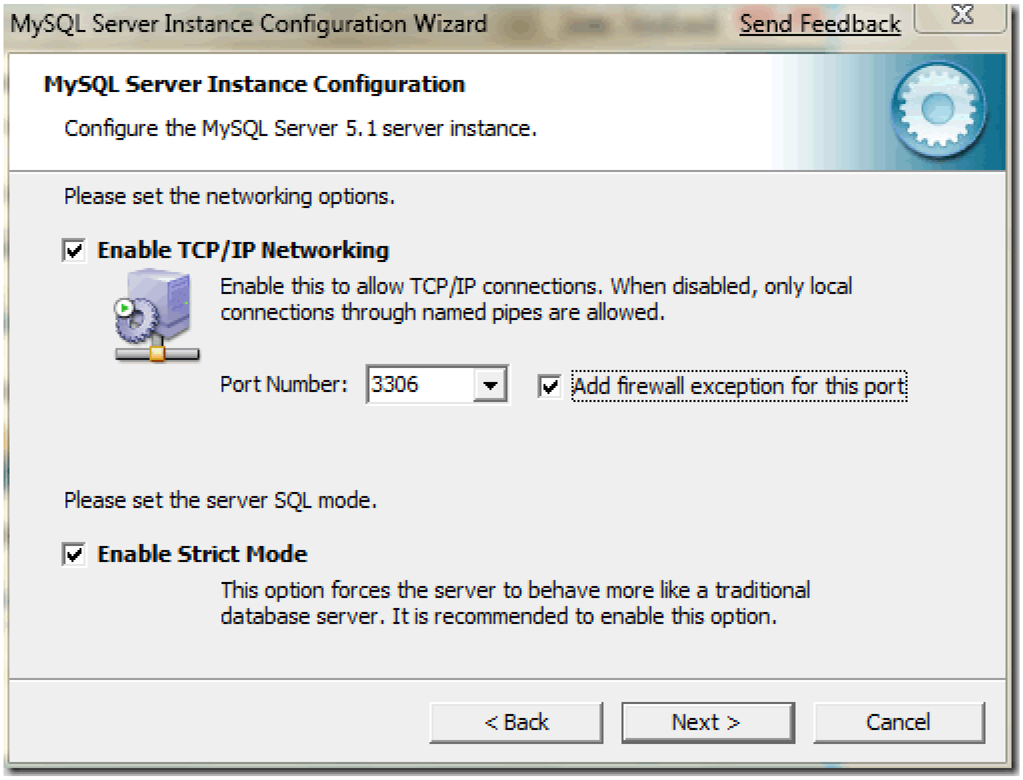
Concurrent connections: 15

The three choices offered are:

1. Decision Support (DSS)/OLAP: This assumes an average of around 20 concurrent connections, with a maximum of 100 concurrent connections supports. I chose this option, as it works for most development scenarios.
2. Online Transaction Processing: This supports up to 500 concurrent connections and is generally for production use.
3. Manual Setting: This lets you specify a specific number of connections. I've seen it used mostly for testing.

Networking Options

The next window concerns itself with networking options:



MySQL Server Instance Configuration Wizard

MySQL Server Instance Configuration

Configure the MySQL Server 5.1 server instance.

Please set the networking options.

☑ **Enable TCP/IP Networking**

Enable this to allow TCP/IP connections. When disabled, only local connections through named pipes are allowed.

Port Number: 3306 ☑ Add firewall exception for this port

Please set the server SQL mode.

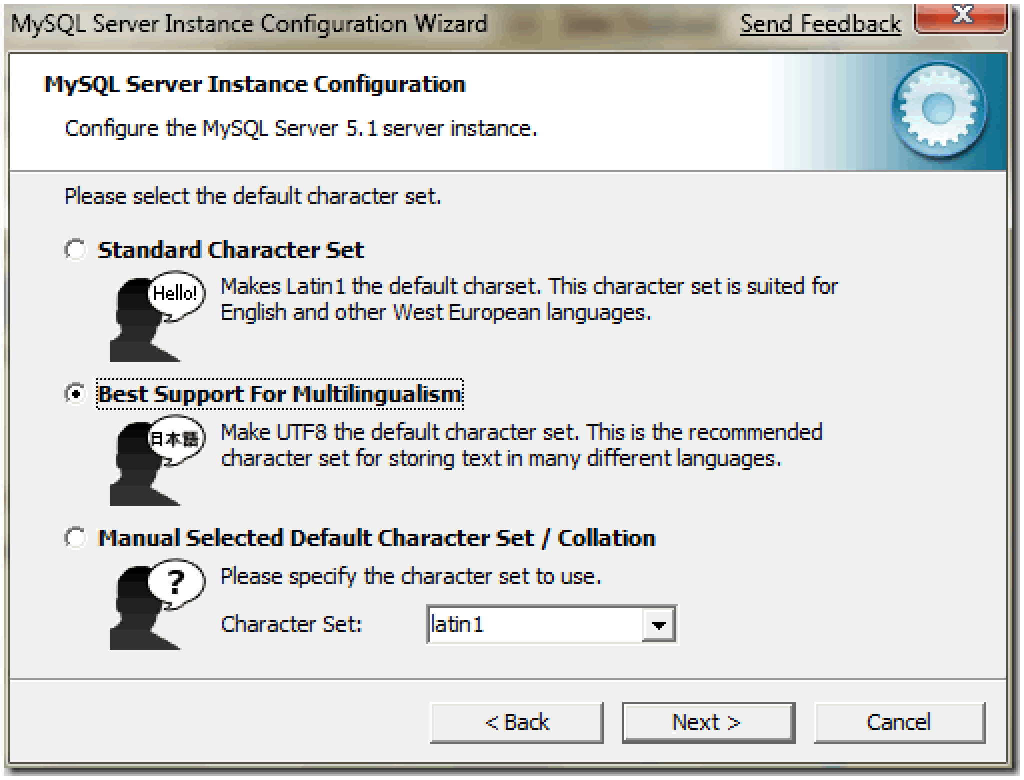
☑ **Enable Strict Mode**

This option forces the server to behave more like a traditional database server. It is recommended to enable this option.

Port 3306 is the default MySQL port, so that’s what I went with; I also checked the Add firewall exception for this port checkbox. I also left the Enable Strict Mode checkbox checked.

Default Character Encoding

Now it’s time to select the default character encoding:



MySQL Server Instance Configuration Wizard

MySQL Server Instance Configuration

Configure the MySQL Server 5.1 server instance.

Please select the default character set.

○ **Standard Character Set**

Makes Latin1 the default charset. This character set is suited for English and other West European languages.

● **Best Support For Multilingualism**

Make UTF8 the default character set. This is the recommended character set for storing text in many different languages.

○ **Manual Selected Default Character Set / Collation**

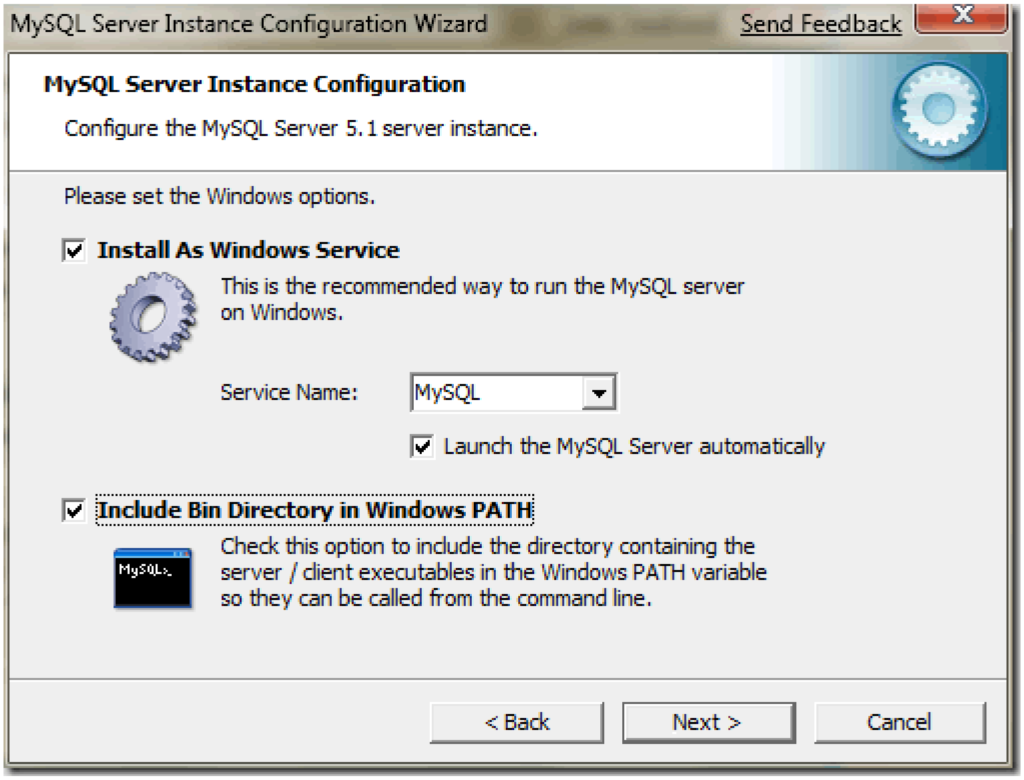
Please specify the character set to use.

Character Set: latin1

You're given a number of options, but I suggest you go with my choice. I chose UTF-8 because it's the encoding of the Web.

Service Options

Here's the next window:



MySQL Server Instance Configuration Wizard

MySQL Server Instance Configuration

Configure the MySQL Server 5.1 server instance.

Please set the Windows options.

☑ **Install As Windows Service**

This is the recommended way to run the MySQL server on Windows.

Service Name: MySQL

☑ Launch the MySQL Server automatically

☑ **Include Bin Directory in Windows PATH**

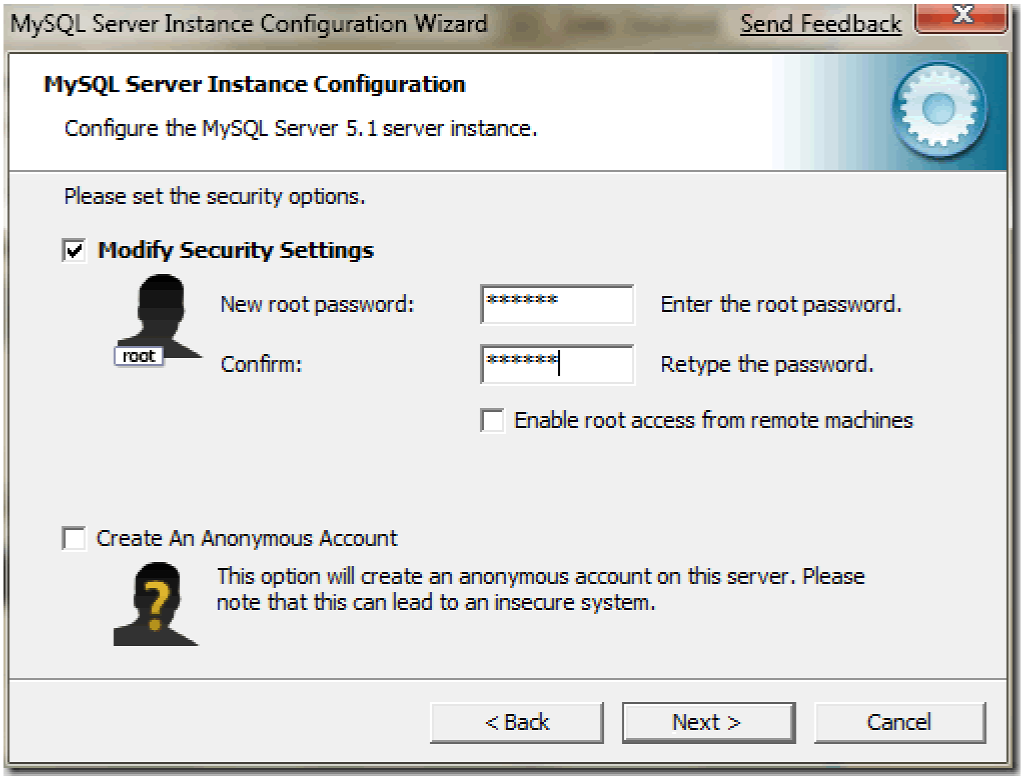
Check this option to include the directory containing the server / client executables in the Windows PATH variable so they can be called from the command line.

I strongly recommend:

- Checking the Install As Windows Service checkbox. When installed as a Windows service, MySQL can be started automatically at system startup and restarted in the event of a service failure.
- Going with the default service name of MySQL unless there's already an instance of MySQL installed, in which case you'll want to provide a different name. Note that service names should be 255 characters or less and can have any legal character except for the forward-slash (/) or backslash (/).
- Checking the Launch the MySQL Server automatically checkbox.
- Checking the Include Bin Directory in Windows PATH checkbox. You'll save yourself a lot of typing if you do this.

Security Options

And now, the Security Options window…



MySQL Server Instance Configuration Wizard

MySQL Server Instance Configuration

Configure the MySQL Server 5.1 server instance.

Please set the security options.

☑ **Modify Security Settings**

New root password: ******* Enter the root password.

Confirm: ******* Retype the password.

□ Enable root access from remote machines

□ Create An Anonymous Account

This option will create an anonymous account on this server. Please note that this can lead to an insecure system.

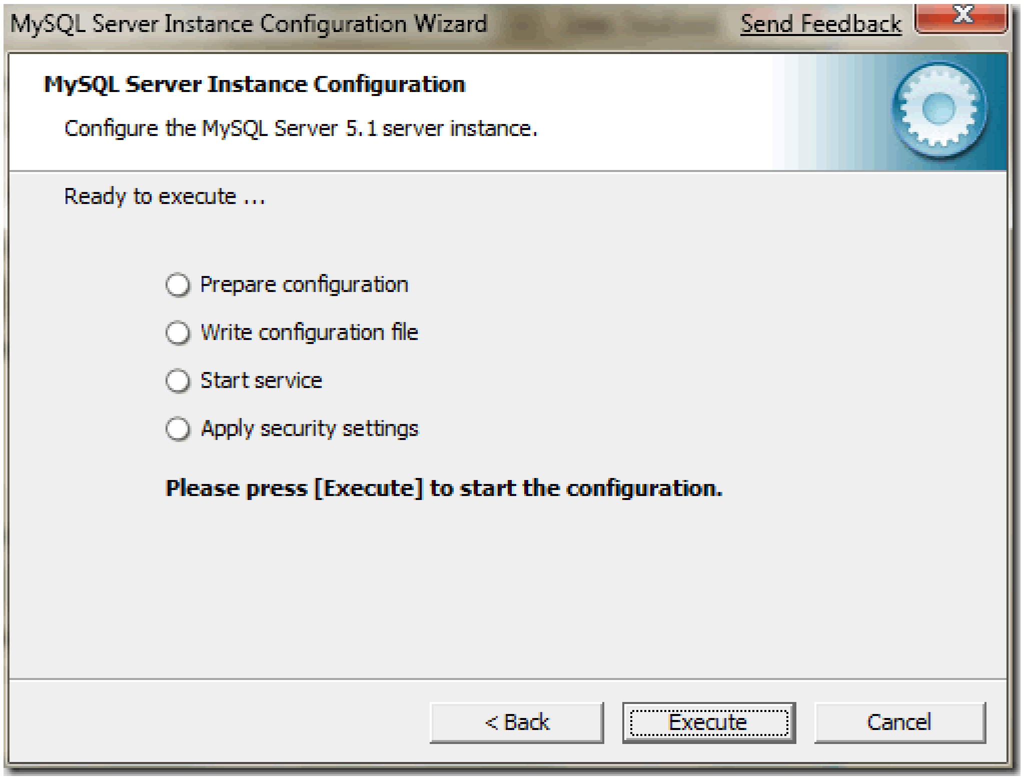
You'll be asked to provide a password for the root user twice.

You can also choose to:

- Enable root access from remote machines. I don't really need this on my development machine, so I ***didn't*** check this checkbox.
- Create an anonymous account. I don't need this either, so I ***didn't*** check this checkbox.

Go!

That's it for all the option setting. You'll now be presented with this window:



MySQL Server Instance Configuration Wizard

MySQL Server Instance Configuration

Configure the MySQL Server 5.1 server instance.

Ready to execute ...

○ Prepare configuration

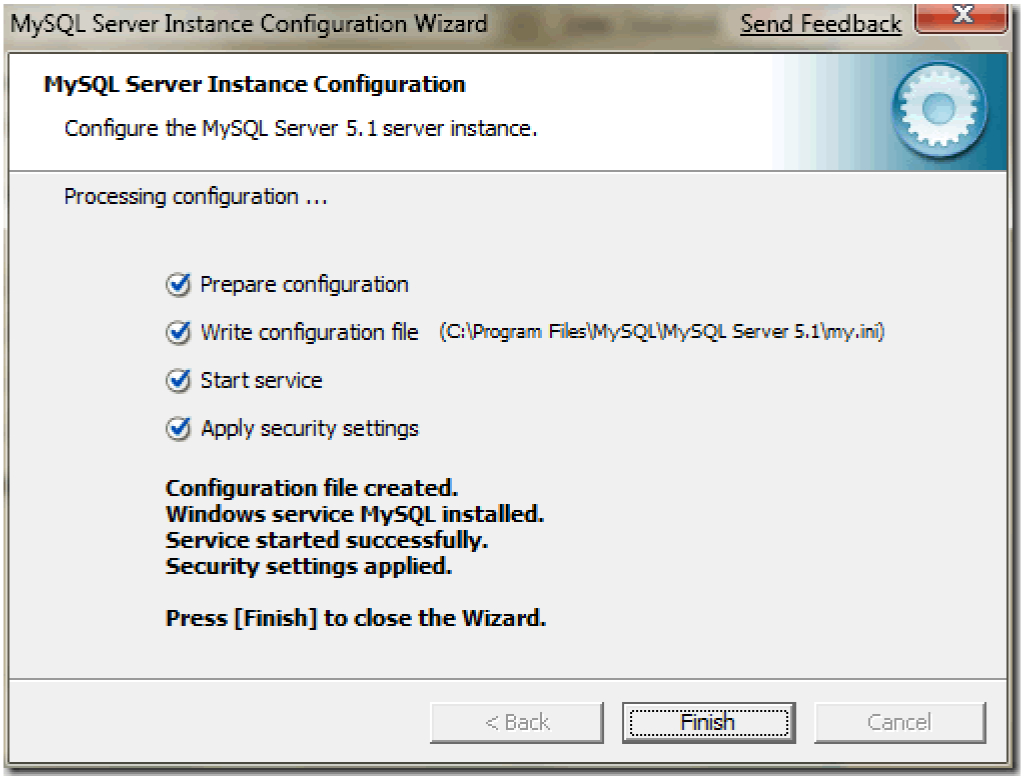
○ Write configuration file

○ Start service

○ Apply security settings

Please press [Execute] to start the configuration.

If you're satisfied with your configuration choices in the previous windows, click the Execute button. You'll be presented with this window as your reward:



MySQL Server Instance Configuration

Configure the MySQL Server 5.1 server instance.

Processing configuration …

☑ Prepare configuration

☑ Write configuration file (C:\Program Files\MySQL\MySQL Server 5.1\my.ini)

☑ Start service

☑ Apply security settings

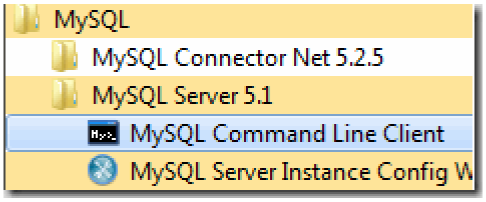
Configuration file created.
Windows service MySQL installed.
Service started successfully.
Security settings applied.

Press [Finish] to close the Wizard.

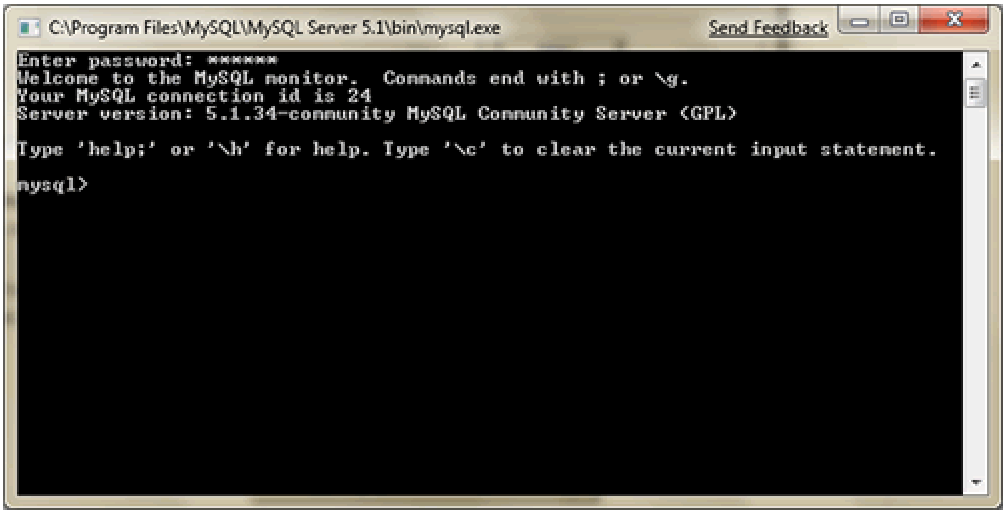
…and you're done!

Taking it for a Quick Spin

Let's take MySQL for a quick spin to confirm it's working. We'll do this using the mysql command-line client and logging in as root. There are a couple of ways to do this. One is by firing up the MySQL Command Line Client from your Windows menu (or Start Menu on XP):


MySQL
MySQL Connector Net 5.2.5
MySQL Server 5.1
MySQL Command Line Client
MySQL Server Instance Config W

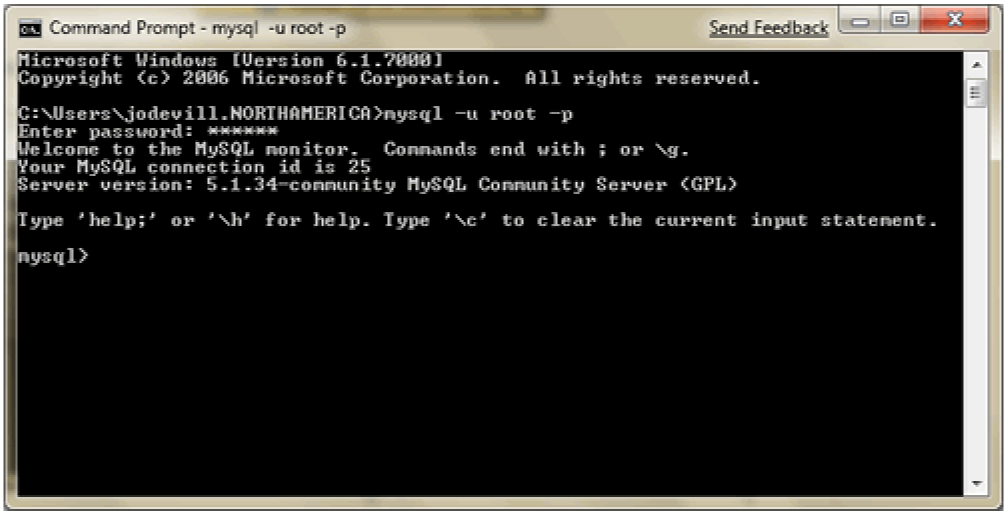
A command-line window will pop up, where you'll be prompted to enter the root password. Enter it, and you'll be in the command-line client!



```
Enter password: *******
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 24
Server version: 5.1.34-community MySQL Community Server (GPL)

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql>
```

The other way is to fire up the Command Prompt and (if you specified that you wanted MySQL’s bin directory included in Windows’ PATH, which you should have), enter **mysql –u root –p**. The -u switch is for specifying a username, and the -p switch is for specifying that you will be providing a password for the specified username.

You’ll be prompted to enter a password. Enter the root password and you’ll be in the command-line client:



```
Microsoft Windows [Version 6.1.7000]
Copyright (c) 2006 Microsoft Corporation.  All rights reserved.

C:\Users\jodevill.NORTHAMERICA>mysql -u root -p
Enter password: *******
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 25
Server version: 5.1.34-community MySQL Community Server (GPL)

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql>
```

And MySQL is ready to use!

Install and Configure the Tomcat Server

Here we are illustrating the installation process only for Windows. Steps involved in installation and configuration process for Tomcat 6.0.10 are illustrated below:

Step 1: Installation of JDK: Don't forget to install JDK on your system (if not installed) because any tomcat requires the Java 1.5 (Java 5) and Java 1.6 (Java 6) and then set the class path (environment variable) of JDK.

Step 2: Setting the class path variable for JDK: Two methods are there to set the classpath.

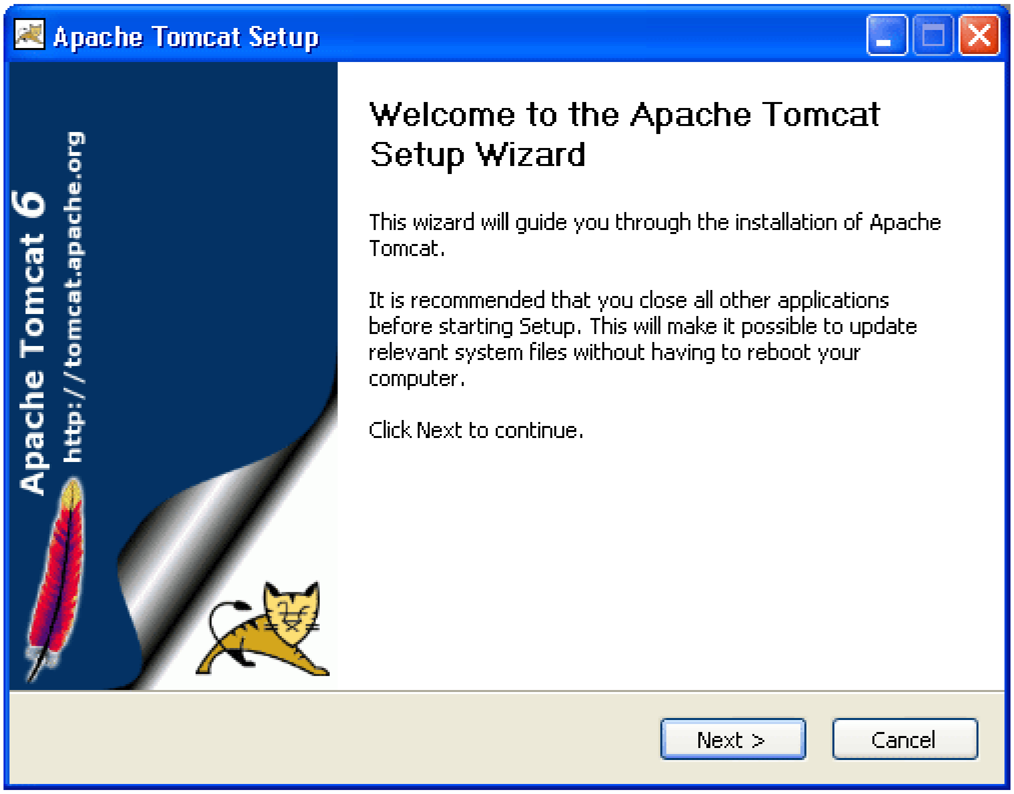
1. Set the class path using the following command.

   ```
   set PATH="C:\Program Files\Java\jdk1.5.0_08\bin";%PATH%
   ```

2. The other way of setting the class path variable is:

First right click on the My Computer->properties->advance->Environment Variables->path.
Set bin directory path of JDK in the path variable.

Step 3: Now it's time to shift on to the installation process of Tomcat 6.0.10. It takes various steps for installing and configuring the Tomcat 6.0.
For Windows, Tomcat comes in two forms : **.**zip file and the Windows installer (**.**exe file). Here we are exploring the installation process by using the **.**exe file. The directory C:\apache-tomcat-6.0.10 is the common installation directory as it is pre-specified C:\ as the top-level directory. First unpack the zipped file and simply execute the **.**exe file.



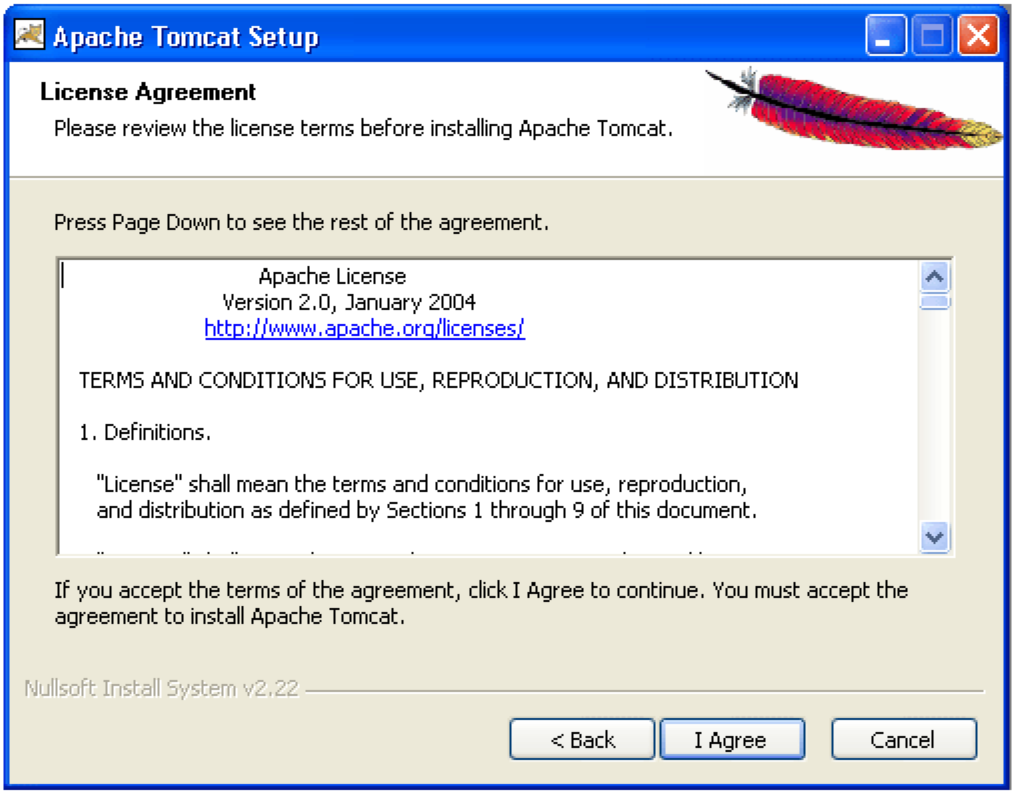
Welcome to the Apache Tomcat Setup Wizard

This wizard will guide you through the installation of Apache Tomcat.

It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer.

Click Next to continue.

The above shown screen shot is the first one shown in the installation process. Just click on the Next button to proceed the installation process.



License Agreement

Please review the license terms before installing Apache Tomcat.

Press Page Down to see the rest of the agreement.

Apache License
Version 2.0, January 2004
http://www.apache.org/licenses/

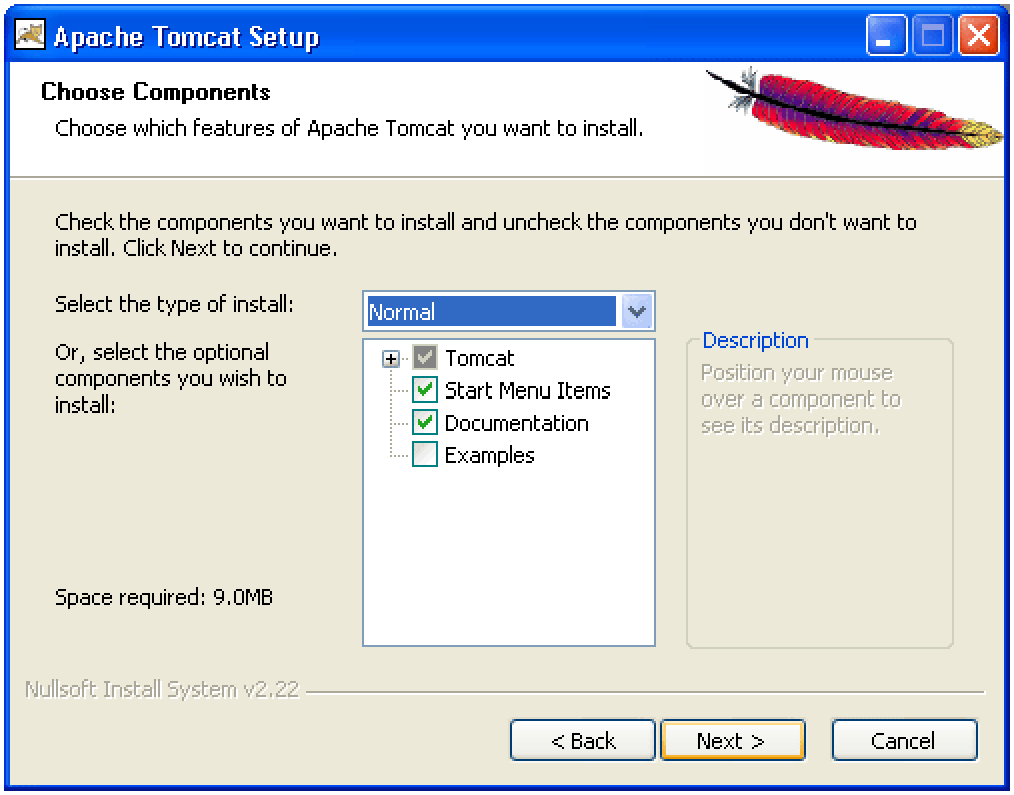
TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

"License" shall mean the terms and conditions for use, reproduction, and distribution as defined by Sections 1 through 9 of this document.

If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install Apache Tomcat.

click "I Agree" button to continue the installation process.



Choose Components

Choose which features of Apache Tomcat you want to install.

Check the components you want to install and uncheck the components you don't want to install. Click Next to continue.

Select the type of install: Normal

Or, select the optional components you wish to install:

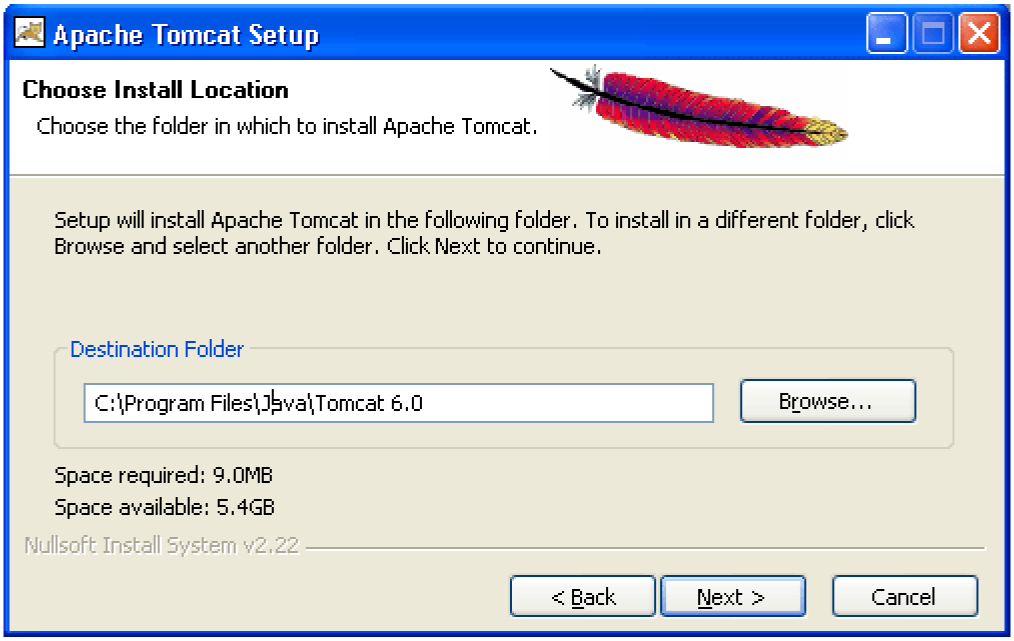
- ☑ Tomcat
- ☑ Start Menu Items
- ☑ Documentation
- □ Examples

Space required: 9.0MB

Description

Position your mouse over a component to see its description.

Click next to go with the default components choosen.



Choose Install Location

Choose the folder in which to install Apache Tomcat.

Setup will install Apache Tomcat in the following folder. To install in a different folder, click Browse and select another folder. Click Next to continue.

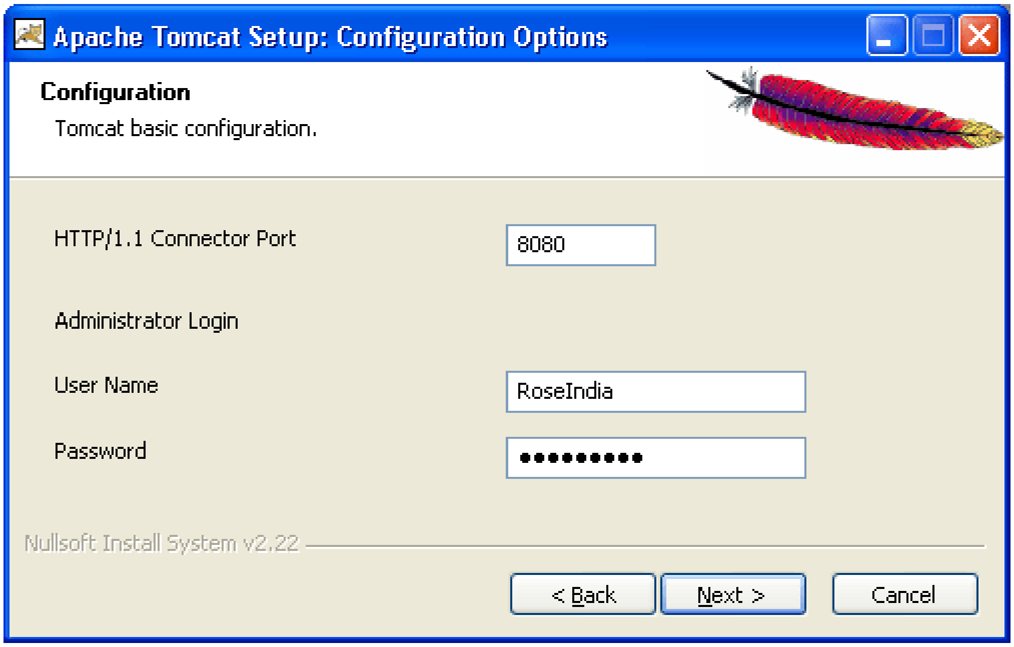
Destination Folder

C:\Program Files\Java\Tomcat 6.0

Space required: 9.0MB

Space available: 5.4GB

Choose the location for the Tomcat files as per your convenience. You can also choose the default location.


Apache Tomcat Setup: Configuration Options

Configuration

Tomcat basic configuration.

HTTP/1.1 Connector Port: 8080

Administrator Login

User Name: RoseIndia

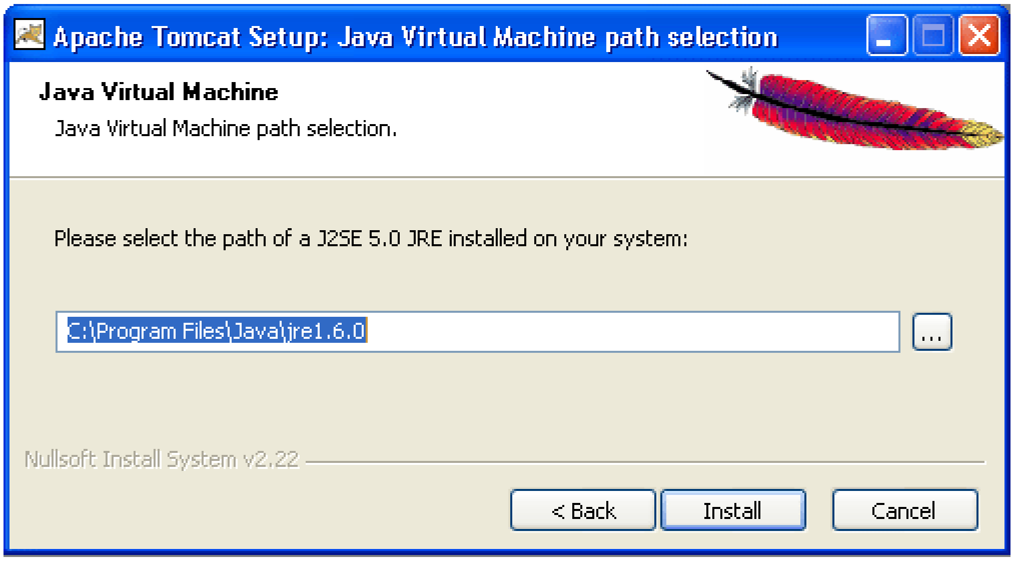
Password: ●●●●●●●●●●

Nullsoft Install System v2.22
< Back
Next >
Cancel

Now choose the port number on which you want to run the tomcat server. Tomcat uses the port number 8080 as its default value. But Most of the people change the port number to 80 because in this case the user is not required to specify the port number at request time. But we are using here the default port number as 8080. Choose the user name and password as per your convenience. We can change the port number even the installation process is over. For that, go to the specified location as " Tomcat 6.0 \conf \server.xml ". Within the server.xml file choose "Connector" tag and change the port number.

e.g While using the port number 8080, give the following request in the address bar as:

Default Port: http//localhost:8080/index.jsp
In case of port number number 80 just type the string illustrated below in the address bar:
New Port: http://localhost/index.jsp
Note that we do no need to specify any port number in the URL.
Now click on the Next button to proceed the installation process.



Apache Tomcat Setup: Java Virtual Machine path selection

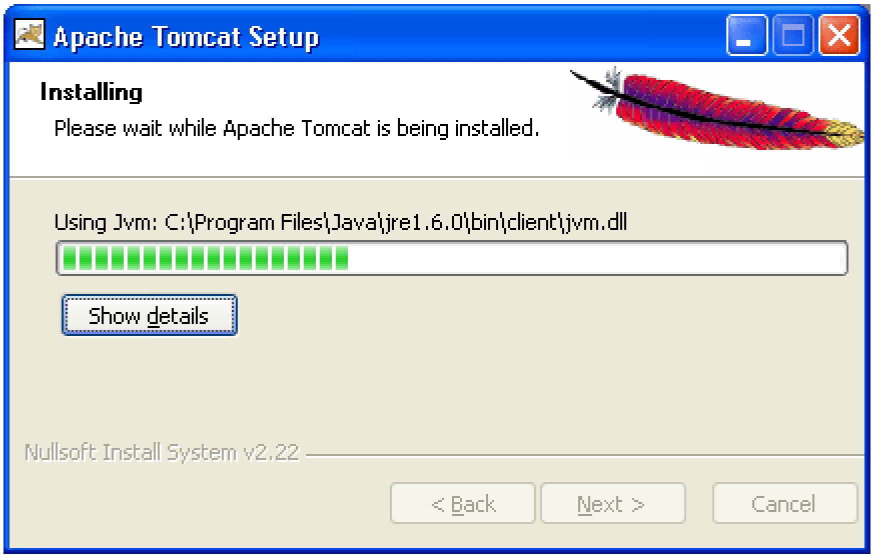
Java Virtual Machine

Java Virtual Machine path selection.

Please select the path of a J2SE 5.0 JRE installed on your system:

C:\Program Files\Java\jre1.6.0

The installation process shows the above screen as the next window. This window asks for the location of the installed Java Virtual Machine. Browse the location of the JRE folder and click on the Install button. This will install the Apache tomcat at the specified location.



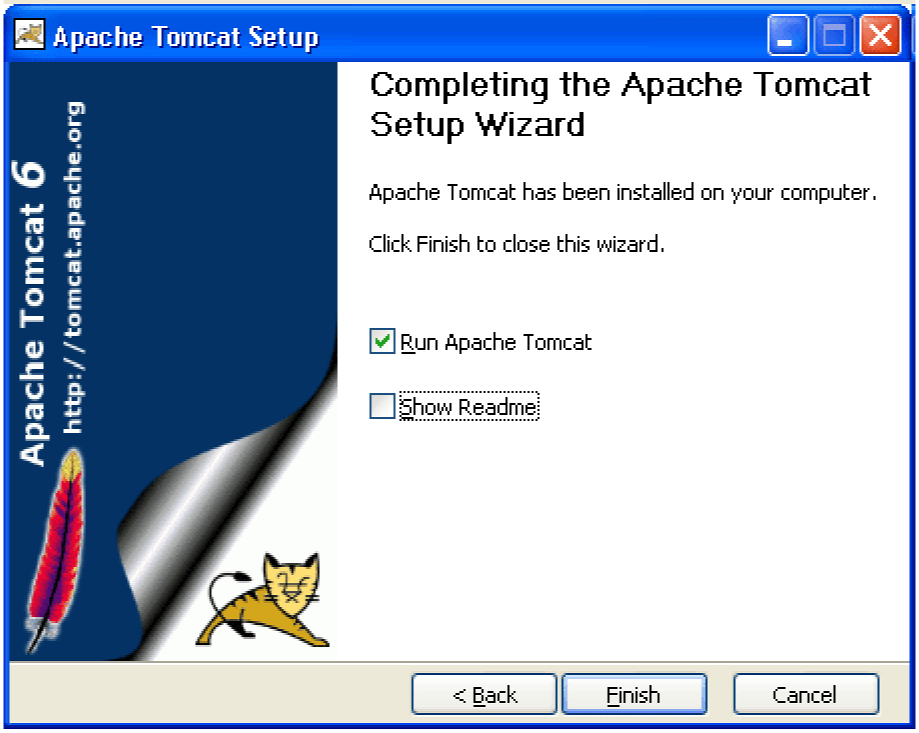
Apache Tomcat Setup

Installing

Please wait while Apache Tomcat is being installed.

Using Jvm: C:\Program Files\Java\jre1.6.0\bin\client\jvm.dll

To get the information about installer click on the "Show details" button.



Apache Tomcat Setup

Completing the Apache Tomcat Setup Wizard

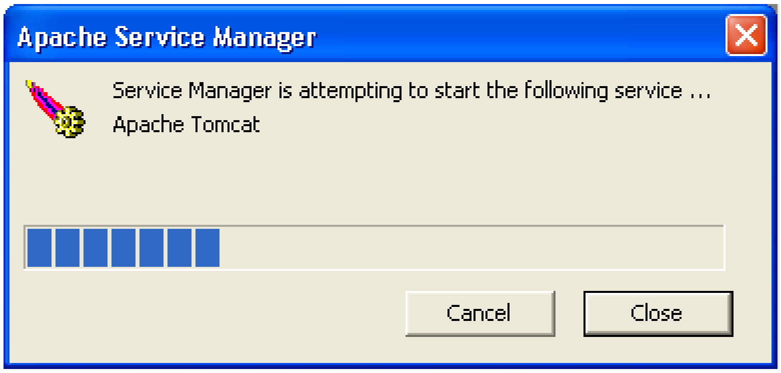
Apache Tomcat has been installed on your computer.

Click Finish to close this wizard.

☑ Run Apache Tomcat

□ Show Readme

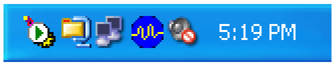
After completion of installation process it will display the window like the above one.



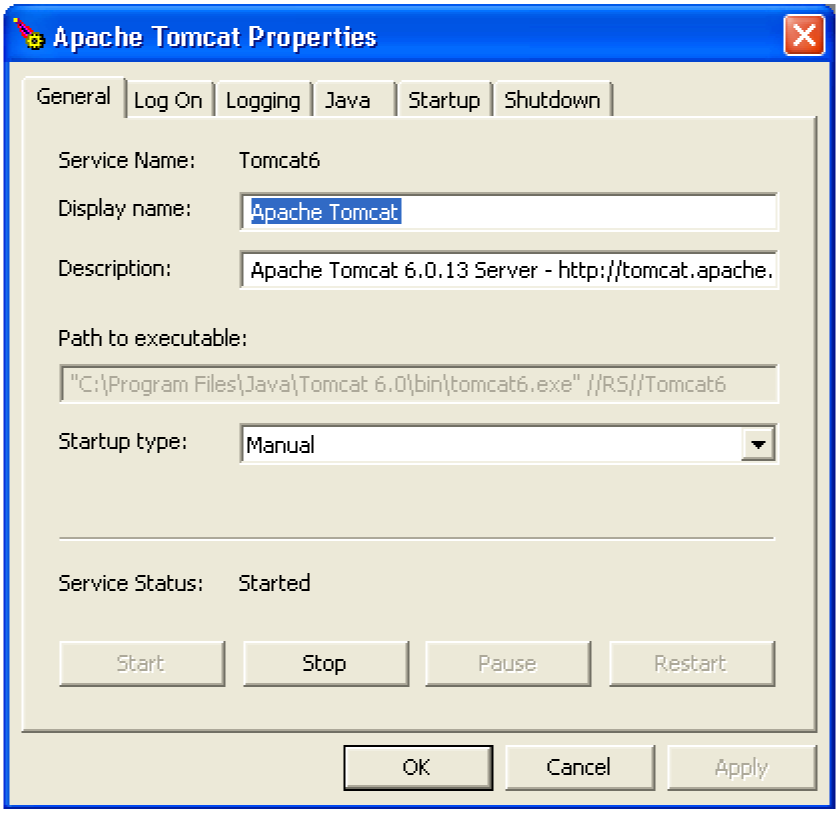
Apache Service Manager

Service Manager is attempting to start the following service ...
Apache Tomcat

On clicking at Finish button, a window like the above one will display a message printed on the window given below.



After successfully installing, a shortcut icon to start the tomcat server appears in the icon tray of the task bar as shown above. Double clicking the icon, displays the window of Apache Manager for Tomcat. It will show the "Startup type" as manual since we have changed the destination folder for tomcat during the installation process. Now we can configure the other options like "Display name" and "Description" .We can also start, stop and restart the service from here.



Service Name: Tomcat6

Display name: Apache Tomcat

Description: Apache Tomcat 6.0.13 Server - http://tomcat.apache.

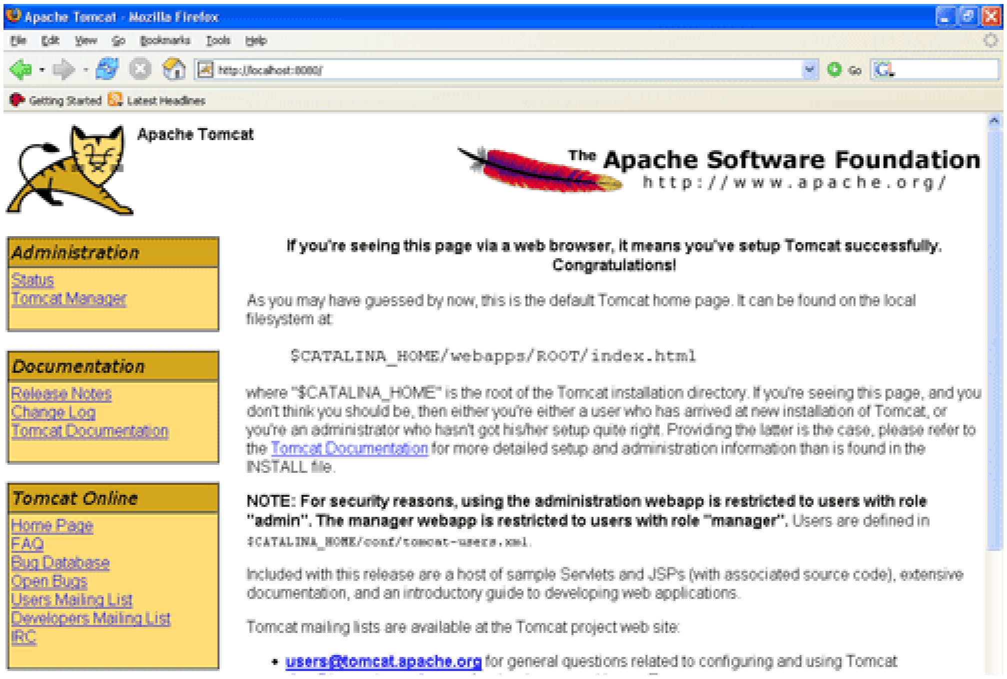
Path to executable:

"C:\Program Files\Java\Tomcat 6.0\bin\tomcat6.exe" //RS//Tomcat6

Startup type: Manual

Service Status: Started

If installation process completes successfully then a window as shown below will appear.



If you're seeing this page via a web browser, it means you've setup Tomcat successfully. Congratulations!

As you may have guessed by now, this is the default Tomcat home page. It can be found on the local filesystem at:

```
$CATALINA_HOME/webapps/ROOT/index.html
```

where "$CATALINA_HOME" is the root of the Tomcat installation directory. If you're seeing this page, and you don't think you should be, then either you're either a user who has arrived at new installation of Tomcat, or you're an administrator who hasn't got his/her setup quite right. Providing the latter is the case, please refer to the Tomcat Documentation for more detailed setup and administration information than is found in the INSTALL file.

NOTE: For security reasons, using the administration webapp is restricted to users with role "admin". The manager webapp is restricted to users with role "manager". Users are defined in `$CATALINA_HOME/conf/tomcat-users.xml`.

Included with this release are a host of sample Servlets and JSPs (with associated source code), extensive documentation, and an introductory guide to developing web applications.

Tomcat mailing lists are available at the Tomcat project web site:

- users@tomcat.apache.org for general questions related to configuring and using Tomcat

Now , set the environment variable for tomcat :

Step 4: Setting the JAVA_HOME Variable: Purpose of setting the environment variable JAVA_HOME is to specify the location of the java run time environment needed to support the Tomcat else Tomcat server does not run. This variable contains the path of JDK installation directory. Note that it should not contain the path up to bin folder.

set JAVA_HOME=C:\Program Files\Java\jdk1.5.0_08
Here, we have taken the URI path according to our installation convention

For Windows XP, Go through the following steps:

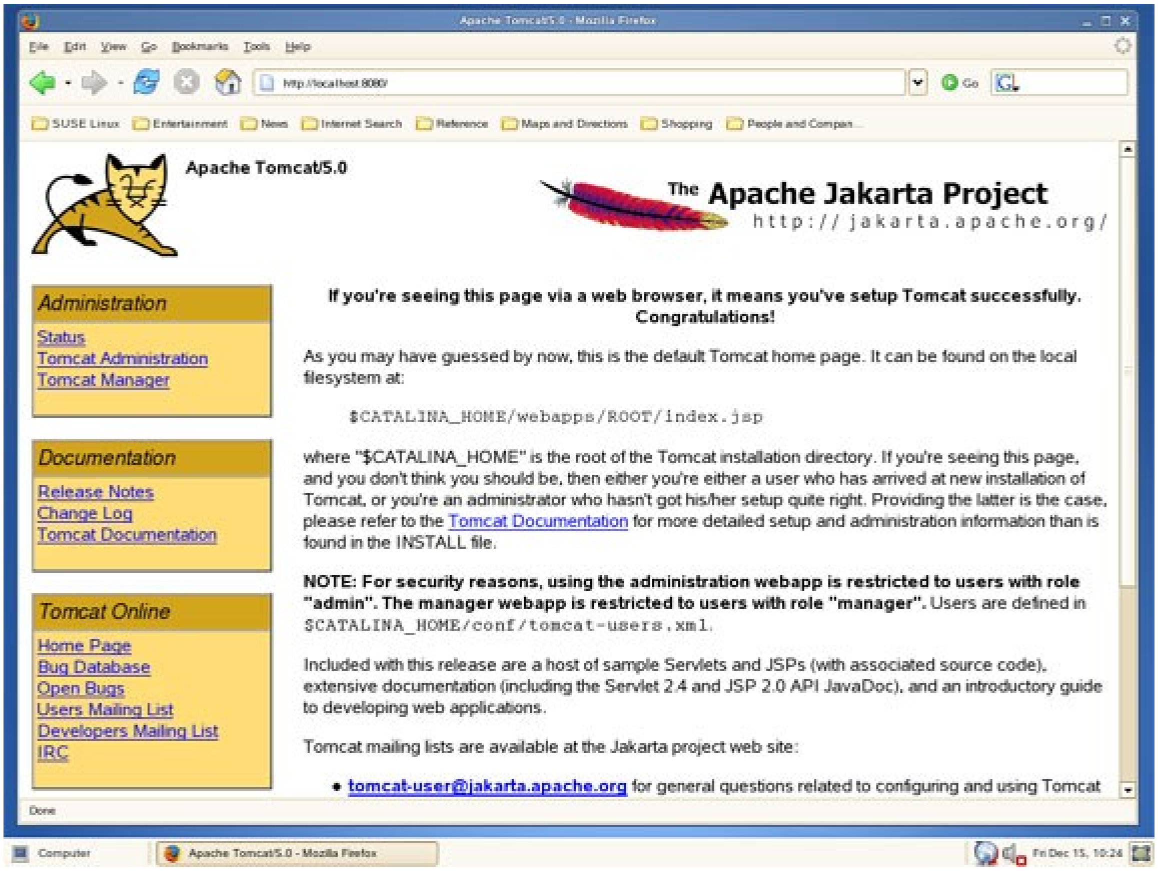
Start menu->Control Panel->System->Advanced tab->Environment Variables->New->set the Variable Name as JAVA_HOME and Variable Value as C:\Program Files\Java\jdk1.6.0 and then click on all the three ok buttons one by one. It will set the JDK path.

For Windows 2000 and NT, follow these steps:
Start->Settings->Control Panel->System->Environment Variable->New->set the Variable Name as JAVA_HOME and Variable Value as C:\Program Files\Java\jdk1.6.0 and then click on all the three ok button one by one. It will set the JDK path

Now , **Start the Tomcat Server :** Start the tomcat server from the bin folder of Tomcat 6.0 directory by double clicking the " tomcat6.exe " file. You can also create a shortcut of this .exe file at your desktop.
Stop the Tomcat Server: Stop the server by pressing the "Ctrl + c" keys.

Deploying Web Applications to Tomcat

If all goes well we can test Tomcat to see if is working. Start up your favorite browser and go to http://localhost:8080 (change the port number if you altered the default port number in server.xml).You should see the Tomcat startup page (see figure below).



If you're seeing this page via a web browser, it means you've setup Tomcat successfully. Congratulations!

As you may have guessed by now, this is the default Tomcat home page. It can be found on the local filesystem at:

```
$CATALINA_HOME/webapps/ROOT/index.jsp
```

where "$CATALINA_HOME" is the root of the Tomcat installation directory. If you're seeing this page, and you don't think you should be, then either you're either a user who has arrived at new installation of Tomcat, or you're an administrator who hasn't got his/her setup quite right. Providing the latter is the case, please refer to the Tomcat Documentation for more detailed setup and administration information than is found in the INSTALL file.

NOTE: For security reasons, using the administration webapp is restricted to users with role "admin". The manager webapp is restricted to users with role "manager". Users are defined in `$CATALINA_HOME/conf/tomcat-users.xml`.

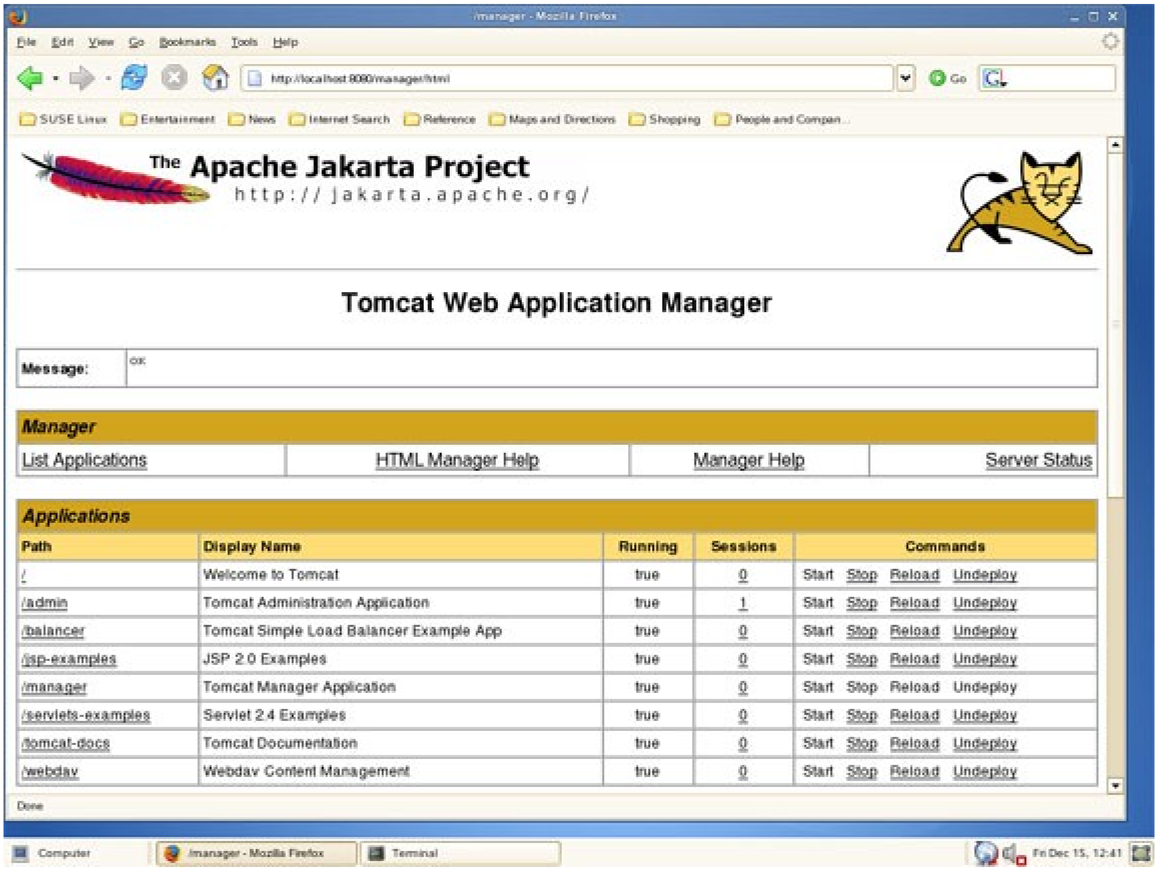
Included with this release are a host of sample Servlets and JSPs (with associated source code), extensive documentation (including the Servlet 2.4 and JSP 2.0 API JavaDoc), and an introductory guide to developing web applications.

Tomcat mailing lists are available at the Jakarta project web site:

- tomcat-user@jakarta.apache.org for general questions related to configuring and using Tomcat

Tomcat startup page

Tomcat Management
Use the "Tomcat Management" link from the Tomcat startup page. The users go to http://localhost:8080/manager/html (see the figure).
Before the management page loads you will asked for a user name and password. These are not the same as the administrator?s user name and password for the server. The opening page gives us a clue to the user name and password required:


/manager - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://localhost:8080/manager/html
Go
SUSE Linux
Entertainment
News
Internet Search
Reference
Maps and Directions
Shopping
People and Compan...
The Apache Jakarta Project
http://jakarta.apache.org/
Done
Computer
/manager - Mozilla Firefox
Terminal
Fri Dec 15, 12:41

Tomcat Web Application Manager

Message: OK

Manager

List Applications	HTML Manager Help	Manager Help	Server Status

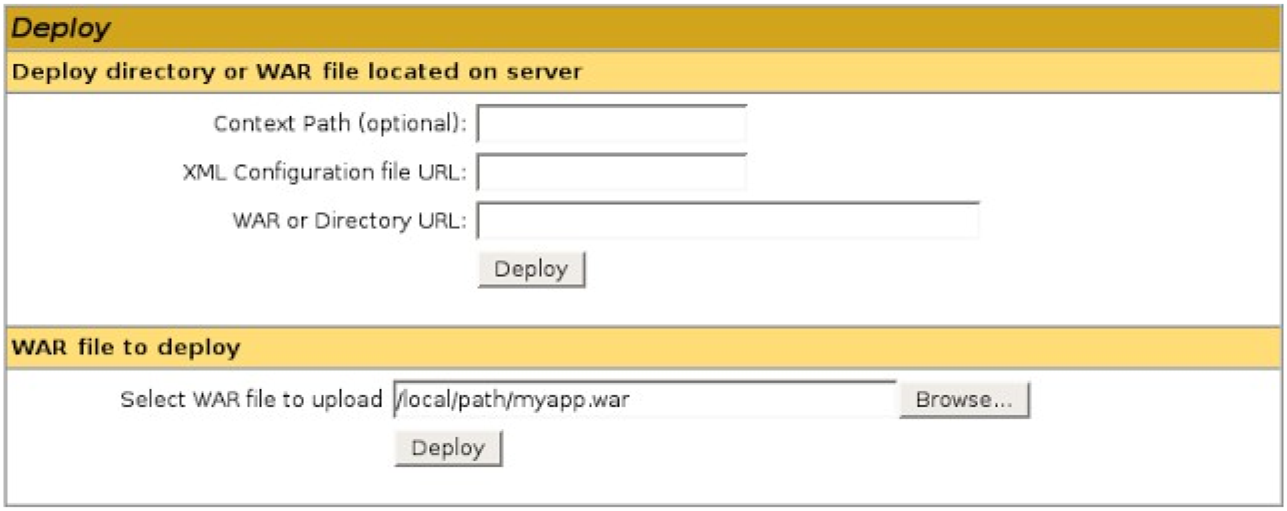
Applications

Path	Display Name	Running	Sessions	Commands
/	Welcome to Tomcat	true	0	Start Stop Reload Undeploy
/admin	Tomcat Administration Application	true	1	Start Stop Reload Undeploy
/balancer	Tomcat Simple Load Balancer Example App	true	0	Start Stop Reload Undeploy
/jsp-examples	JSP 2.0 Examples	true	0	Start Stop Reload Undeploy
/manager	Tomcat Manager Application	true	0	Start Stop Reload Undeploy
/servlets-examples	Servlet 2.4 Examples	true	0	Start Stop Reload Undeploy
/tomcat-docs	Tomcat Documentation	true	0	Start Stop Reload Undeploy
/webdav	Webdav Content Management	true	0	Start Stop Reload Undeploy

Tomcat Web Application Manager

Deploying the Application

At this stage you should be ready to install and run your web application. From the "Tomcat Web Application Manager" page, scroll down to the part labeled "WAR file to deploy". Click on the "Browse" button and navigate to the Web Application WAR file that you want to install. Click on the "Deploy" button the Tomcat Web Application manager will unpack the WAR archive and put your application in the correct location for you.



Deploy

Deploy directory or WAR file located on server

Context Path (optional):

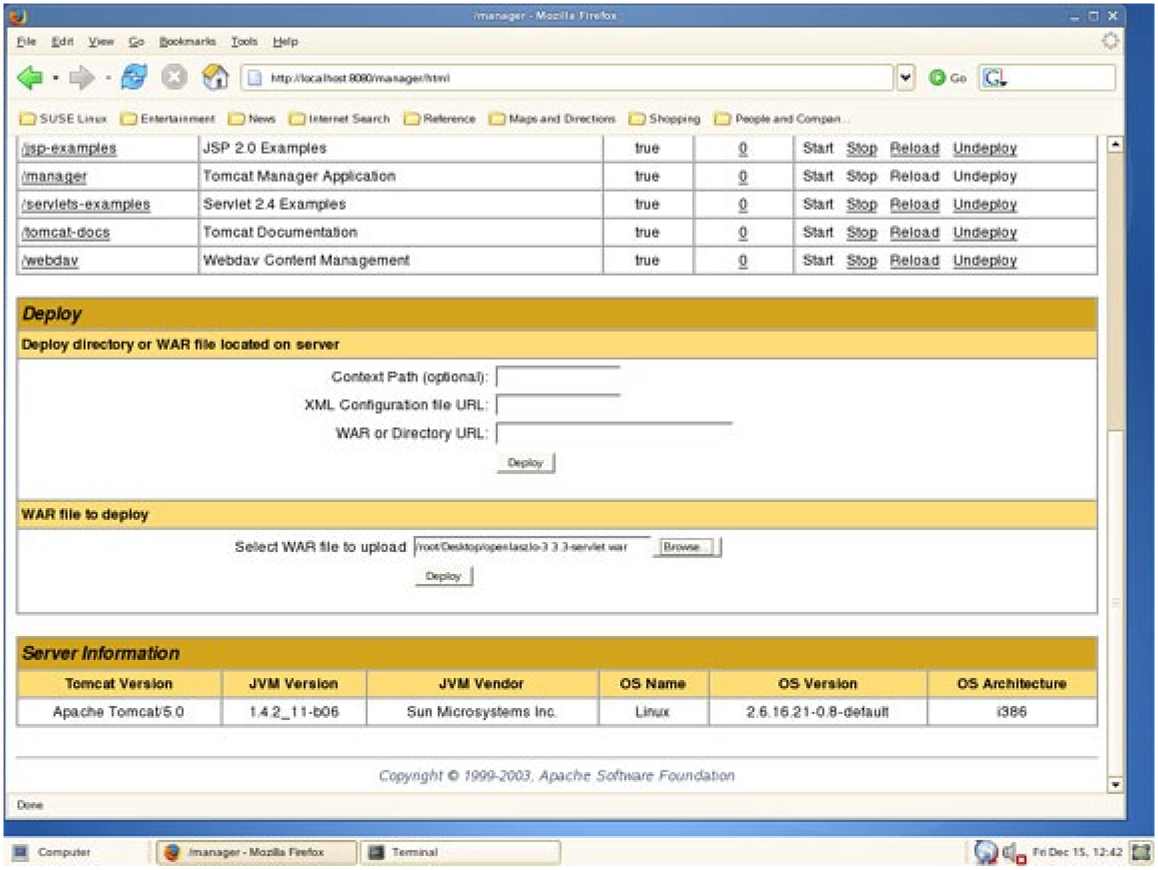
XML Configuration file URL:

WAR or Directory URL:

WAR file to deploy

Select WAR file to upload /local/path/myapp.war

After the Web Application Manager has finished deploying your application it should be ready for testing.



http://localhost:8080/manager/html

/jsp-examples	JSP 2.0 Examples	true	0	Start Stop Reload Undeploy
/manager	Tomcat Manager Application	true	0	Start Stop Reload Undeploy
/servlets-examples	Servlet 2.4 Examples	true	0	Start Stop Reload Undeploy
/tomcat-docs	Tomcat Documentation	true	0	Start Stop Reload Undeploy
/webdav	Webdav Content Management	true	0	Start Stop Reload Undeploy

Deploy

Deploy directory or WAR file located on server

Context Path (optional):

XML Configuration file URL:

WAR or Directory URL:

WAR file to deploy

Select WAR file to upload /root/Desktop/openlaszlo-3.3.3-servlet.war

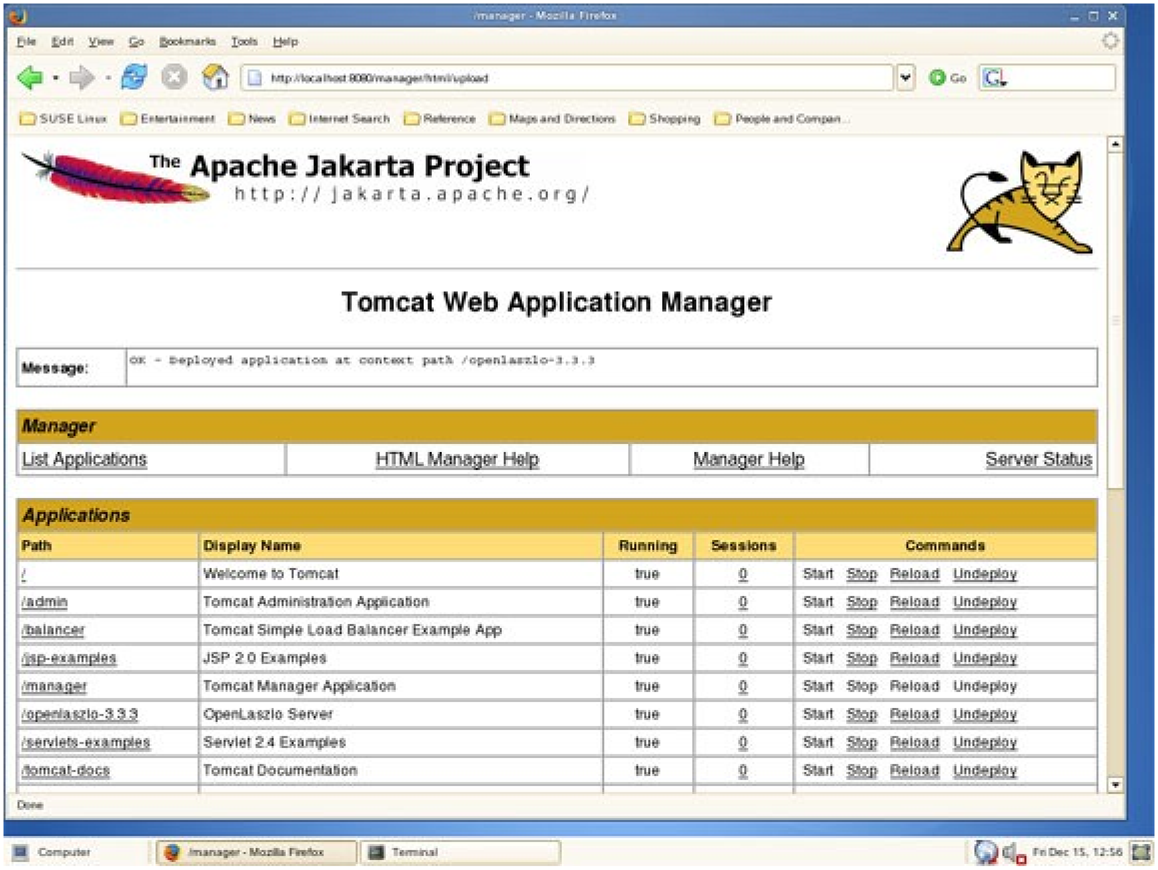
Server Information

Tomcat Version	JVM Version	JVM Vendor	OS Name	OS Version	OS Architecture
Apache Tomcat/5.0	1.4.2_11-b06	Sun Microsystems Inc.	Linux	2.6.16.21-0.8-default	i386

Copyright © 1999-2003, Apache Software Foundation

Figure 8: Deploying your web application

Using the Application Manager means that you do no have to stop and restart Tomcat server to make the application available. You will notice from the screen that your application is now a part of tomcat and from this page you can start, stop, restart and even undeploy your application (see figure).


/manager - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://localhost:8080/manager/html/upload
Go
SUSE Linux
Entertainment
News
Internet Search
Reference
Maps and Directions
Shopping
People and Compan...
The Apache Jakarta Project
http://jakarta.apache.org/
Done
Computer
/manager - Mozilla Firefox
Terminal
Fri Dec 15, 12:56

Tomcat Web Application Manager

Message:	OK - Deployed application at context path /openlaszlo-3.3.3

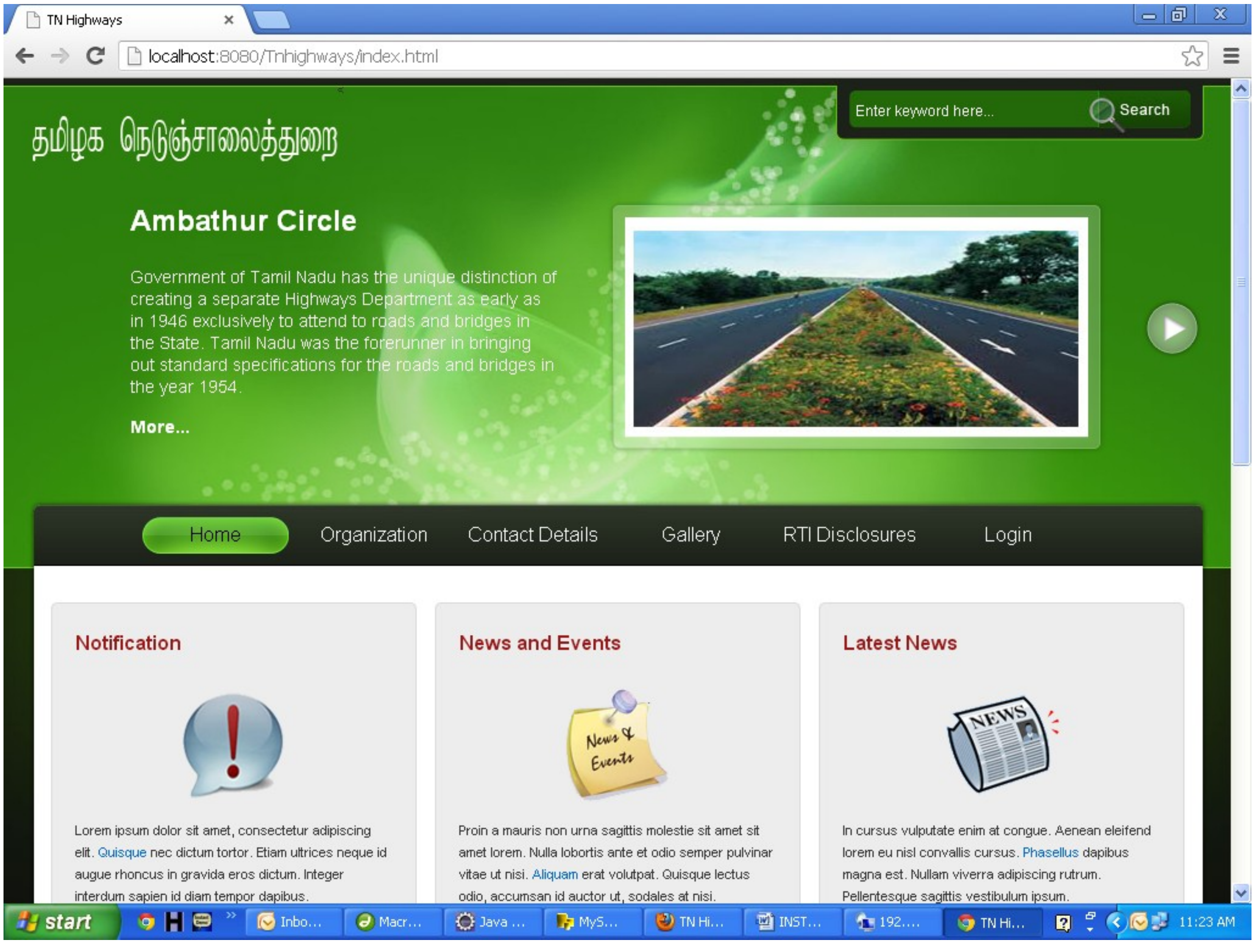
Manager			
List Applications	HTML Manager Help	Manager Help	Server Status

Applications

Path	Display Name	Running	Sessions	Commands
/	Welcome to Tomcat	true	0	Start Stop Reload Undeploy
/admin	Tomcat Administration Application	true	0	Start Stop Reload Undeploy
/balancer	Tomcat Simple Load Balancer Example App	true	0	Start Stop Reload Undeploy
/jsp-examples	JSP 2.0 Examples	true	0	Start Stop Reload Undeploy
/manager	Tomcat Manager Application	true	0	Start Stop Reload Undeploy
/openlaszlo-3.3.3	OpenLaszlo Server	true	0	Start Stop Reload Undeploy
/servlets-examples	Servlet 2.4 Examples	true	0	Start Stop Reload Undeploy
/tomcat-docs	Tomcat Documentation	true	0	Start Stop Reload Undeploy

Figure 9: The installed application

Now that we have the Application [Tnhighways.war] development system installed, it is time to test it. Point the browser are http://localhost:8080/ Tnhighways / or click on the link for the Tnhighways system on the Tomcat Web Application Manager web page.



Ambathur Circle

Government of Tamil Nadu has the unique distinction of creating a separate Highways Department as early as in 1946 exclusively to attend to roads and bridges in the State. Tamil Nadu was the forerunner in bringing out standard specifications for the roads and bridges in the year 1954.

More...

Notification

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Quisque nec dictum tortor. Etiam ultrices neque id augue rhoncus in gravida eros dictum. Integer interdum sapien id diam tempor dapibus.

News and Events

Proin a mauris non urna sagittis molestie sit amet sit amet lorem. Nulla lobortis ante et odio semper pulvinar vitae ut nisi. Aliquam erat volutpat. Quisque lectus odio, accumsan id auctor ut, sodales at nisi.

Latest News

In cursus vulputate enim at congue. Aenean eleifend lorem eu nisl convallis cursus. Phasellus dapibus magna est. Nullam viverra adipiscing rutrum. Pellentesque sagittis vestibulum ipsum.

Figure 10: The running application