Tomcat Overview

- Quick overview of Apache

- Apache Software Foundation

- Jakarta Project

- Tomcat Licensing

- J2EE Technologies

- Java Web Development

- Servlet/JSP Containers

Java Web Applications

- An Overview of Servlets

- The Advantages of Servlets & The Lifecycle

- JavaServer Pages

- JSP, JavaBeans and JSP Tag Libraries

- MVC frameworks

Installing Tomcat

- Downloading and Installing Apache Tomcat

- Download and install a JVM, Download Tomcat, Download and install Ant

- Windows installer

- Java memory management and tweaking the JVM for performance

Tomcat Directories

- Tomcat Installation Directories, Tomcat Directory Structure, The bin Directory, Common and shared Directories

- The conf Directory, logs Directory. server directory, work Directory, temp Directory, webapps Directory

- Stucture of the Web Application Directory Structure

- Deploying HTML and JSP Pages and Web Context

- JSP Page and the Generated Code

- Deploying a Web App

- ConfiguringTomcat

- Configuration of Tomcat and looking at the Techniques

- Tomcat's Component Architecture

  The <Server> Element, <Service> Element, <Connector> Element, <Engine> Element, <Host> Element, <Context> Element, <Realm> Element, <Valve> Element, <Listener> Element, <Loader> Element, <Manager>

  Element

- Server.xml File

- Modifying server.xml

Web Applications

- Web Application Administration & Deploying

- Directory Structure of a Web App

- web.xml configuration file

- Deployment Descriptors

- The <web-app></web-app> Element

- Mapping a Servlet to a URL

- The <resource-ref></resource-ref> Element

- The <env-entry></env-entry> Element

- The <ejb-ref></ejb-ref> Element

- A Sample web.xml file

- Deploying a Web Application

- Tomcat's default conf/web.xml file

- Tuning default JSP and Static-content servlets

Tomcat Manager

- Deploying and Managing Web Application using the Tomcat Manager

- Starting the Tomcat Manager and looking at Tomcat Manager

- Looking at the Manager Section

- Applications, Deploy, Server Information

- Creating a WAR File

- Lab 4: Deploying a WAR File

- Java Management Extensions (JMX) on Tomcat

- Tomcat integration with Ant

Advanced Features

- Using Some of the Advanced Features of Tomcat
- Valves, Access Log Valve, Single Sign-on Valve
- Remote Address Filter and Remote Host Filter
- Request Dumper Valve
- Configuring the JNDI Resources
- JNDI: Java Naming and Directory Interface and Defining a JNDI Resource
- The <environment></environment>Element and The <resource></resource>Element
- Configuring a JavaMail Session
  Global Resources

JDBC Connectivity

- Configuring Tomcat to Connect to a Database
- Overview of JDBC
- JDBC Drivers
- Connecting to a Database and Connection Pools
- Download and Install MySQL
- Configure MySQL for Tomcat
- Create a Database in MySQL
- Download and Deploy a JDBC Driver
- Defining a DataSource in Tomcat and Defining a Data Source Manually
- Modifying the Deployment Descriptor
- Detecting and closing leaked database connections

Tomcat Security

- Looking at Security on Tomcat and the configuration
- Security Considerations
- File System Security and Filesystem Recommendations
- Java Security Manager
- Granting Permissions to Java Apps and looking at Java Permissions
- Creating and Adding Your Own Policies

- Enabling the Java Security Manager

- Security Manager Tips and Security Realms

- Looking at the different Types of Realms and Configuring a Realm

- Users and Roles (authentication and authorization)

- Creating a Data Source Realm

- The protection of passwords

- FORM-based authentication

- Configuring Tomcat for SSL

- Requiring SSL in applications

Connecting

- Connect Tomcat to Apache

- Looking at Connectors

- HTTP Connectors

- Advantages of Using a Web Server

- Connector Protocols

- Configure an AJP Connector

- Download mod_jk

  Create the mod_jk.conf file

- Start Tomcat

- Create a Worker

- Configure httpd.conf

- Test the Setup

- Load balancing applications across multiple Tomcat instances

- Issues with load balancing

- Server affinity via sticky sessions

- Shared session storage

- Replicated sessions via Tomcat clustering

- Shared Hosting

- Tomcat Virtual Hosting

- Configure Tomcat to enable virtual hosting as a stand-alone server ●   Configure Tomcat to enable virtual hosting using jk2 or webapp.

- Configure Tomcat as Stand-alone

- Configure Tomcat with AJP

- Separate JVM for Each Host

Load Testing

- JMeter Application
- Load Testing with JMeter
- Install and run JMeter
- Creating a Test Plan
- Configure the Thread Group and adding a task
- Configure the HTTP Request
- Add a Report Listener
- Run the Test Plan
- Viewing the Results