ADM100 : Apache Administration

Code : ADM100   **Duration :** 2 days   **Category :** Administration

Audience :

System administrators or developers on Unix, Linux or Windows who should know how to administer and control the Apache Web Server.

Prerequisites :

Knowledge of modern operating systems like Unix, Linux or Windows, in particular knowing how to deal with the file system, is desirable.

Realization :

The theory is covered using presentation slides. The concepts are further explained using demos. The theory is alternated with exercises. The course material is in English. The course can be delivered both on Linux and Windows systems.

Apache Administration

Contents :

In this course you will learn the workings of the Apache Web Server, how to install Web Sites and how to configure these Web Sites on Apache. After a discussion of the Web Server-Web Browser interaction with the HTTP protocol, you will learn the structure of the central configuration file in Apache, httpd.conf and the most important directives in it. Next attention is payed to the architecture of Apache, in particular the way modules, filters and handlers cooperate. You will also learn how Apache handles the different configuration files. Attention is payed to Virtual Hosting and the different varieties of it that exist. Also an issue is logging in Apache in which the handling and structure of log files is discussed. Apache Security is covered with HTTP Basic and Digest Authentication and the configuration of SSL. Attention is further payed to the way filters and handlers hook into the request processing cyclus and how they can be configured. Other subjects are how Apache can be integrated with the Tomcat Web Server for dynamic Java Web Applications and how PHP 5 is installed and configured in Apache. Finally the measurement and improvement of the performance of applications on Apache through techniques like load balancing and caching is part of the course program. In the course attention is payed to both Apache under Linux as under Windows.

Module 1 : Intro Apache

Apache Web Server
What is the ASF?
Apache Name and Marketshare
Installation
Apache Directories
Directory Structure
Starting Apache
Startup Parameters
Uniform Resource Locators (URLs)
Resource Localization with URLs
Domain Name Service (DNS)
Static HTML pages
Styling with CSS
Dynamic Content Generation

Module 2 : Web Server Operation

Web Servers
Web Browsers
Web Server Operation
HTTP Protocol
HTTP Request Messages
HTTP Request Example
HTTP Request Headers
HTTP Responses
HTTP Response Messages
HTTP Response Headers
HTTP 1.1 Status Codes
Low Level Protocol Interaction
HTTP Conversation

Module 3 : Apache Configuration

Apache Configuration Files
Apache Directives
Server Configuration Directives
Core Configuration Directives
Access Control Directives
Three Pass Access Control
Authentication Directives
Logging Directives
Performance Related Directives
Directive Containers
Conditional Containers
Directory Directive
Location Directive
.htaccess Files
AllowOverride directive

Module 4 : Apache Architecture

Apache Architecture Overview
Two phase operation
Apache Portable Runtime
Multi Processing Module (MPM)
Modules
Important Apache Modules
Two Phase Operation
Content Generation
Request Processing Phases
Processing Hooks
Filters
Handlers

Module 5 : Virtual Hosting

Processing of Configuration Files
Configuration Contexts
Virtual Hosting
Virtual Host Directives
Name-based Virtual Hosts
Host File Name-based Virtual Hosting
IP-based Virtual Hosts
Multiple IP Adresses per NIC
Port-based Virtual Hosts

Module 6 : Logging

Why Logging?
Log File Types
Error Logs
Log Levels
Access Logs
Common Log Format
Defining Custom Logs
Other Log Formats
Log File Rotation
Piped logs
Log File Analyzers
Server Log Reporting

Module 7 : Apache Security

Security Issues
HTTP Basic Authentication
HTTP Digest Authentication
Configuring Authentication
Example Configurations
Managing Access Files
Creating Passwords
Access Files
SSL Overview
SSL Characteristics
SSL Encryption
SSL Handshakes
SSL Configuration

Module 8 : Filters and Handlers

What are Filters?
Standard Apache Filters
Simple Filtering
Dynamic Filtering
Setting Filters
Adding Filters
Removing Filters
Smart Filtering
What are Apache Handlers?
Built-in Handlers
Using Handlers
Type Mapping
Server-Info
Server-Status
Installing and configuring PHP 5
Using PHP for Active Content

Module 9 : Tomcat and Apache

What is Tomcat?
Tomcat Binary Distributions
Tomcat Zip Installation
Tomcat directories
Server Configuration Files
Other Configuration Files
Tomcat webapp's directory
Tomcat Apache Communication
Advantages Using a Web Server
Configure mod_jk Connector
Install mod_jk
Create mod_jk.conf File
Create a worker
Configure httpd.con

Module 10 : Performance and Scalability

Performance Considerations
Performance monitoring
Benchmarking
Monitoring Graphs
Web Server Log Files
Apache Server Status
Logging and Performance
Load Testing
Operating System Tuning
Turn Of Unused Services
Caching Dynamic Content
Vertical Scaling
Horizontal Scaling
Load Balancing
Using mod_proxy